

## PDF hosted at the Radboud Repository of the Radboud University Nijmegen

The following full text is a publisher's version.

For additional information about this publication click this link.

<http://hdl.handle.net/2066/93630>

Please be advised that this information was generated on 2017-12-06 and may be subject to change.

# How do vacations affect workers' health and well-being?

Vacation (after-) effects and the role of vacation activities and experiences

Jessica de Bloom

Printed & lay-out by: Proefschriftmaken.nl || Printyourthesis.com  
Published by: Uitgeverij BOXPress, Oisterwijk

Photograph by: I. Wahlen

ISBN 978-90-8891-442-3

# How do vacations affect workers' health and well-being?

Vacation (after-) effects and the role of vacation activities and experiences

Een wetenschappelijke proeve op het gebied van de Sociale Wetenschappen

## Proefschrift

ter verkrijging van de graad van doctor  
aan de Radboud Universiteit Nijmegen  
op gezag van de rector magnificus prof. mr. S.C.J.J. Kortmann,  
volgens besluit van het College van Decanen  
in het openbaar te verdedigen op 27 augustus 2012,  
om 13.30 uur precies  
door

Jessica de Bloom

geboren op 1 maart 1983 te Lingen (Duitsland)

Promotores:

prof. dr. S.A.E. Geurts

prof. dr. M.A.J. Kompier

Manuscriptcommissie:

prof. dr. J.M.A. Riksen-Walraven

dr. J.H.R. Maes

prof. dr. M.J.P.M. van Veldhoven (Universiteit van Tilburg)

To my parents

Life isn't about waiting for the storm to pass;  
it's about learning to dance in the rain.



# Contents

Prologue . . . . .	9
1. General Introduction . . . . .	11
2. Do We Recover from Vacation? Meta-Analysis of Vacation Effects on Health and Well-being . . . . .	31
3. Effects of Vacation from Work on Health and Well-being: Lots of Fun, Quickly Gone . . . . .	57
4. How Does a Vacation from Work Affect Employee' Health and Well-being? . . . . .	85
5. Effects of Short Vacations, Vacation Activities and Experiences on Employee' Health and Well-Being . . . . .	109
6. Vacation (After-) Effects on Employee' Health and Well-being, and the Role of Vacation Activities, Experiences and Sleep . . . . .	137
7. General Discussion . . . . .	165
Epilogue . . . . .	195
Appendix . . . . .	199
1. Qualitative study on vacation . . . . .	199
2. Summary . . . . .	204
3. The Journey So Far: Curriculum Vitae . . . . .	218





## Prologue

*“Ladies and gentlemen, this is your captain speaking. On behalf of myself and the rest of the crew, I like to welcome you onboard.*

*We expect a smooth journey today and our route will take us to several destinations around the world: two stopovers are scheduled in a winter sports area and one in a Dutch holiday park. In addition, we join a group of Dutch vacationers during their long summer vacations. Expected flight time is 4 hours and 21 minutes. For safety instructions, please refer to our in-flight safety lecture.*

*I will get back to you during your flight back home. In the meantime, sit back, relax and enjoy your journey through vacation research.*

*And now, please fasten your seatbelt and raise your chair to the upright position. We are ready for takeoff.”*



Chapter 1

General Introduction



## 1.1. Introduction

In the pyramid of Djoser, archeologists discovered hieroglyphs engraved into the walls of the monument roughly meaning 'Hadnachte and his brother Panachti have been here to make an excursion and enjoy Memphis' (Hachtmann, 2008). This 'graffiti' dating from briefly before the birth of Christ and other similar remains from ancient times are viewed as the first evidence for touristic activities and vacations. Consequently, the etymologic origin of the word vacation also dates back to the time of the Roman Empire and stems from the Latin word 'vacatio', which means 'being free from, being at leisure or having time for'. Apparently, the need to be free from duties and the desire to engage in leisure activities has long been acknowledged.

However, since the effects of free time have often been called into question, time off from work, and especially longer periods of leisure were, and to a certain extent still are, a rare treasure for large parts of society. In particular the working class had to struggle hard in order to be entitled vacation rights. And up till now, in many countries there are still no national regulations which warrant free time and vacations for every employee.

Today, more than 2000 years after Hadnachte en Panachti went on their vacation to Memphis, the world and the nature of work changed tremendously. Nonetheless, the ancient definition of vacation covers our current understanding of vacation very well: a time free from work, a time for leisure and a time for ourselves. Depending on the research field, definitions of vacation tend to focus on slightly different aspects. Whereas in the field of tourism the focus is on travel (World Tourism Organization, 1995), in occupational health the emphasis is on suspension of work. As the focal point of this thesis is on vacation as a respite from work, we define vacation as a prolonged period of absence from work granted to an employee, used for rest, recreation or travel and lasting more than two days (see also Sluiter, Frings-Dresen, Meijman, 2000; Merriam Webster, 2011).

Today, more than 2000 years after the concept of vacation emerged, more and more employees are guaranteed the right on free time and vacation so that they can recover from work and pursue activities of their own choice. However, even 2000 years after the discovery of the pleasures of vacations, the evidence for positive effects of vacations on health and well-being (H&W) remained anecdotal rather than scientifically proven for a long time. Only very recently, vacations became a research topic in science.

Whilst vacations and recovery constitute a very young research field, the detrimental effect of job stressors, which can be seen as the antipode of recovery, has been fairly well established these days. Exposure to job stressors may directly elicit potentially harmful physiological responses (e.g. Belkic, Landbergis, Schnall & Baker, 2004; Geurts & Sonnentag, 2006; Hjortskov et al., 2004) as well as indirectly via unhealthy life styles such as smoking,

alcohol consumption, unhealthy diets, lack of exercise, and disturbed sleep (e.g., Ezoë & Morimoto, 1994; Åkerstedt, 2006). Particularly when physiological responses, such as elevated levels of blood pressure, heart rate, catecholamines and cortisol, prolong after demands and stressors have ended, H&W are seriously at risk (e.g., Brosschot, Van Dijk & Thayer, 2007; Mommersteeg, 2006; Vrijkotte, van Doornen & de Geus, 2000; Schnall, Schwartz, Landsbergis, Warren & Pickering, 1998).

Consequently, recovery as an antagonist of work stress plays a crucial role in protecting employees' H&W (Geurts & Sonnentag, 2006). Sluiter et al. (2000) distinguished four different types of recovery based on duration and time span after work: microrecovery (first minutes after task performance), mesorecovery (ten minutes to one hour after task performance), metarecovery (one hour to two days after work) and macrorecovery (more than two days after work).

Recent diary studies have revealed that workers often recover insufficiently during shorter respites like regular evening hours and weekends, for instance due to working overtime or cognitive processes like having stressful thoughts about past or present stressors (rumination) or future stressors (worrying) (Van Hooff, Geurts, Kompier & Taris, 2007; Geurts & Sonnentag, 2006; Fritz & Sonnentag, 2005). The consequences of this inadequate recovery are stress-related illnesses like burnout and severe sleep disturbances which are also prominent determinants of long term sickness absence (Åkerstedt, Kecklund, Alfredsson & Selen, 2007; Maslach, Schaufeli & Leiter, 2001, Geurts, Kompier & Gründemann, 2000).

Vacation as a relatively long period of rest is presumably a prime opportunity to recover and a powerful weapon against work stress and its negative consequences. Indeed, a longitudinal study by Gump and Matthews (2000) showed that not taking annual vacations was associated with a higher risk of morbidity and mortality during a nine-year period.

In Western industrialized societies and especially in Europe, we may have the idea that several paid vacations a year are a natural matter of fact for most employees (e.g. on average, the Dutch go on vacation three times per year, NBTC NIPO, 2009). The brief history of vacation and the worldwide comparison that we present in the next sections will prove differently. Whilst the idea that free time for body and soul is important is actually very old, the concrete implementation of this concept into everyday life of employees is rather young. Eventually, it was not before the 1920's that the first countries in Europe established the employees' right to go on a paid vacation (Hachtmann, 2007).

These days, there are still considerable differences regarding vacation rights. The following sections of this introduction will therefore also focus on worldwide differences in vacation legislation and its actual utilization.

After putting the concept of vacation in a historical and an international perspective, we turn to scientific theories that may explain why vacations may affect employee' H&W. The presentation of our research questions and an outlook on the following chapters will bring this introduction to a close.

## 1.2. Vacation in the past: a historical perspective

In the following, we will describe the most important developments regarding vacation across history.

*Classical Antiquity:* Due to inscriptions carved into the pyramids of Djoser and the famous writings of ancient historians like Herodotus (484- 425 BCE) and Pausanias (115- 180 CE), we know that parts of the aristocracy and merchants of the Roman Empire traveled far distances and visited famous sights like the Great Sphinx or the pyramids of Giza. Great sport events like the Olympic Games held in Greece also attracted many visitors from near and far and visiting these happenings could therefore also be considered early types of tourism (Hachtmann, 2007). However, these ancient travelers did not necessarily call their journey a vacation, because sightseeing and enjoyment were de facto only by-products of business travels which were either required for salesmen to earn a living or advantageous for aristocrats to maintain important contacts in order to become or remain prominent leaders of society. The excellent infrastructure of the Empire and the road network of more than 90,000 kilometers of solid roads also enabled the temporal relocation of the Roman high society from the crowded, hot capital town to the villa's at the well-tempered seaside between Ostia and the Gulf of Naples (Casson, 1994). Nevertheless, business often continued in the summer months. Therefore, it may be debated whether this phenomenon could be considered vacationing, because the upper class was eventually not freed from all work duties.

*Middle Ages:* After the collapse of the Roman Empire and innumerable accompanying wars, the entire infrastructure, including the road system, was destroyed and traveling was therefore nearly impossible in the Middle Ages. In these times, Europe was fallen apart and diplomatic conflicts between sovereigns, separate monetary systems, tolls and continuing wars made traveling very complicated and dangerous. Moreover, most monarchs did not start to make a cadastral survey of their country before the 17<sup>th</sup> century. Accordingly, orientation during a journey was hardly possible. During rides through dark forests, travelers were often robbed or even murdered by the lawless that lived there. Because traveling normally



comprised walking or, if you were more lucky and wealthy, riding on a horseback, going on a voyage meant being exposed to cold, heat, rain and storm. Furthermore, boarding houses or hotels rarely existed and were therefore hopelessly overcrowded, dirty and a breeding ground for epidemics. Consequently, traveling was an exciting, dangerous affair and our medieval ancestors would surely not hit upon the idea to go on a vacation just for relaxation and fun (Ohler, 1986). Furthermore, the concept of free time and rest were certainly not well-developed in these times and most people worked long hours for at least six days a week.

*Modern Age:* In the 15<sup>th</sup> century, carriages, which were already used by the Romans but which fell into oblivion after the decline of the Roman Empire, were reinvented and evolved. Little by little, these carriages became a popular means of transportation and a network of stagecoaches came into being. Accordingly, traveling became somewhat more convenient, faster and safer. However, traveling was in principle reserved for rich elites which could afford a coach ride with an escort to guarantee safety (Hachtmann, 2007).

Within the times of romanticism, writers like Jean-Jacques Rousseau (1712- 1778) glorified nature as a counterpart of the increasingly overpopulated and industrialized cities. Nature became associated with freedom, beauty and purity and it also got more predictable due to progresses within the exact sciences. As a consequence, short excursions into nature became popular for the adherents of the middle class and the high society alike (Gräf & Pröve, 1997; Griep & Jäger, 1986).

The birthplace of modern tourism and vacation for all classes lies in Great Britain because of two reasons. In the first place, the invention of the steam train which became operative in England in 1840, stimulated travel across greater distances on a large scale. In the second place, Thomas Cook (1808- 1892), a visionary pioneer of tourism, lived in England and precipitated developments in tourism.

In 1841, the former carpenter, salesman and vehement teetotaler Thomas Cook organized a train ride for a group of people who wanted to attend a protest demonstration against alcohol consumption. Astonished by the great success of this ride, the simplicity and the financial gain of such a tour for a big group of people, Cook decided to organize more guided tours and used the train as means of transportation. In 1862, Cook also arranged accommodations at the travel destination and established the first travel agency which offered affordable package tours. Cook was also one of the first farsighted people who claimed that everybody, 'even' the working classes, needed and deserved a vacation. Correspondingly, he organized moonlight excursions starting on Saturday evening for the working class members who worked six days a week and who were only free on Sunday (Hachtmann, 2007).

*Beginning of the 20<sup>th</sup> century:* At rough estimate, in 1900 just 0.1 percent of the working class had the right to go on a short, unpaid vacation (Reulecke, 1976). Before 1900, most workers had to work long hours for six days a week in order to earn a living. Only Sunday and religious holidays were off. For the working class, there was simply no time or money to go on vacation.

For white collar employees (e.g. salesman, civil servants, teachers) a couple of free days off per year became standard sooner than for blue collar workers. However, for most of these white collar workers, vacation was also unpaid in the beginning. Nevertheless, wealthy white collar workers loved to go on a vacation. Yet, a vacation for fun and pleasure was societally inappropriate and there had to be a justified reason to take a time out from work (Hachtmann, 2007). This was especially true for employees in the United States whose work culture was strongly influenced by Calvinistic Christian values. Taking a holiday was seen as idleness and morally untenable. For that reason, vacationing was often called a 'cure' and underpinned by vague 'medical' reasons like the need for fresh air and clean water.

Of course, it did not take long before it became clear that not all vacationers in the flourishing spa resorts at those times were recovering from illness. After all, these vacation resorts offered amusement like stage plays, concerts, dance parties or even gambling casinos. As countermovement, churches offered affordable summer camps without profane temptations like drinking, gambling or indecent contact between men and women. For the first time in history, even blue collar workers had the chance to go on a vacation, although many workers could not yet get the necessary days off from work (Aron, 1999).

In the same period of time, public discussions about the (dis-) advantages of vacation emerged. In a very interesting article in the New York Times Magazine (1919) entitled 'How long should a man's vacation be', famous businessman, widely known scientists and physicians expressed their opinion on this issue. The key message from most of these people was that vacationing is supposed to be beneficial for health, work ethic and work performance and could therefore imply an economic advantage.

This kind of discussions indicated a revolution in thinking about work. Inhuman work was increasingly criticized and workers established labour unions to fight for improved working conditions. This rebellion again started in England to spread very rapidly across Europe and the US. Essential improvements the unions contended for were safer work environments as well as shorter work weeks and paid vacations. These aspirations proved successful. In 1919, Austria was the first country worldwide to introduce a law which guaranteed workers the statutory right on a paid vacation (Hachtmann, 2007). Other countries like Poland, Luxemburg and Denmark followed soon. At present we even have European wide laws on vacation (see also paragraph 1.3 Vacation today: an international perspective).

*Before and after World War II:* From 1925 on, holidays were misused as a means to propagandize fascism in Europe. The Italian dictator Benito Mussolini (1883-1945) was the first politician to set up the 'Opera Nazionale Dopolavoro', meaning 'National club for recreation'. This organization served as an example for Adolf Hitler's (1889-1945) 'Kraft durch Freude' organization and the Dutch 'Gemeenschap Vreugde en Arbeid van het Nederlandsch Arbeidsfront' (both roughly meaning 'Strength through joy'). The vacations and free time activities propagandised by these associations should engender fascist worldviews by raising patriotism, solidarity and a sense of belonging. An example par excellence for Nazi holiday dreams coming true is 'Prora', a 5 km long, massive beach resort on the island of Rügen, providing space for about 20 000 vacationers.

During World War II, vacationing came to a halt, because Europeans were in first instance worried about fundamental human needs for food, shelter and protection. Boarding houses and hotels which withstood the war were often used as temporary refuges for the homeless.

During the reconstruction of the destroyed European cities after World War II and the economic growth in the 1950's, tourism also flared up. Labour unions took up their work again, ascribed vacationing high priorities and set up special associations which organized vacations for the working population. Thanks to organizations like the 'Workers' Travel Association' in Great Britain, 'Tourisme et Travail' in France or 'Folk-Ferie' in Norway, finally more and more members of the working class were able to go on holidays (Hachtmann, 2007).

Gradually, commercial companies took over the touristic work from the labor organizations. According to Keitz (1997), in 1950 about twenty percent of the European population went on a vacation. Within ten years, this percentage rose to about fifty percent. From the beginning, small and relatively wealthy countries like the Netherlands or Switzerland were the countries with the highest percentages of inhabitants who go on vacation, either in the home country or abroad (Hachtmann, 2007).

### 1.3. Vacation today: an international perspective

From the historical overview we learned that touristic activities and vacationing already started in the time of the Roman Empire and the Middle Ages and mostly implied business travels or adventurous expeditions. The modern form of vacation which is predominantly aimed at recovery, rest and recreation originated in Great Britain as a consequence of labour unions actions and spread out throughout Europe and great parts of the world (Hachtmann, 2007).

Not surprisingly though, it was also in Europe where the first countries introduced national regulations which guaranteed their workers paid vacation.

In 1993, the European Union established legal rights to at least four weeks of paid vacation per year (EC of the European Parliament and the Council, 1993). This paid annual leave may not be replaced by an allowance in lieu in order to make sure that employees use vacation as recovery time instead of sending vacation days astray for money. Countries belonging to the European Union have to comply with this directive and most countries also introduced national rights over and above the EU statute for paid annual leave.

On average, Europeans have 25 days paid vacation per year. While employees in some countries (e.g. Estonia, Cyprus) just receive the legal minimum of twenty days per year, employees in most other countries have more paid vacations. Sweden (33 days), Denmark (30 days) and Germany (30 days) are the countries which endow their workers with the most days of paid vacation per year (European Foundation for the Improvement of Living and Working Conditions, 2008).

In line with the European directive, in the Netherlands, employers are required to grant their employees at least four times their average work hours a week as vacation time (Rijksoverheid, 2011). Accordingly, an employee who works fulltime (40 hours a week) should at least get twenty days off ( $40 \times 4 = 160$  hours or 20 days). The national average of paid annual leave in the Netherlands is even higher: 26 days (European Foundation for the Improvement of Living and Working Conditions, 2008).

Besides the minimum number of days off, every European country can determine additional regulations regarding vacations. Ray and Schmitt (2008) studied these regulations in different countries across the world. They found that, in some countries, older workers (e.g. in Norway, Greece), employees under the age of eighteen (e.g. Switzerland, Germany) or shift workers (e.g. in Austria) need to be granted more vacation days. Some countries also define in which period of the year vacation should be approved (e.g. in Finland, Sweden) or how long workers ought to be free consecutively (e.g. Denmark, France).

In the Netherlands, employers must follow the preferences of their employees regarding the scheduling (timing, duration) of their vacation. This rule may only be strayed from by way of exception (e.g. the public government determines the timing of vacations for teachers and construction workers). The Netherlands are also one of the very few countries worldwide which require employers to offer their employees a bonus pay on top of their regular wage for vacation expenses (to the amount of eight percent of the gross annual salary). According to Ray and Schmitt (2008) from all European countries, besides the Netherlands, only Sweden and Austria require employers to pay employees at a premium rate while they are on vacation.

In many countries outside the European Union, paid vacations are not required and regulated by federal laws, let alone the financial compensation for vacation expenses. For example, in the United States, employees do not have the right to take a paid annual leave (Ray & Schmitt, 2007). Each state has its own legislation and, for the greatest part, commercial companies can freely decide on the amount of days paid annual leave they accredit to their workers. Accordingly, many companies use vacation as a stake in salary negotiations or as an incentive for high performance and seniority. As a consequence, Americans have on average only ten days vacation per year at their disposal (United States Department of Labour, 2010). Moreover, the right to go on vacation at all and vacation time are inequitably distributed in the US: low-wage employees are less likely (69%) than high-wage workers (88%) to have paid vacations. In addition, lower-wage employees receive only seven days vacation per year whereas higher-wage workers receive 14 days. The same applies to part-timers who are less likely to have paid vacations (36%) than are full-timers (90%) (Ray & Schmitt, 2007).

Also in other western, industrialized countries, the number of vacation days required by law is usually much smaller than in Europe. For example, in Canada employees have two weeks vacation per year (Ray & Schmitt, 2007). In Asian countries employees are usually entitled less days than in Europe as well. Japan and Hong Kong for example grant their employees ten days vacation (The Japan Institute for Labour Policy and Training, 2002; Census and Statistics Department of the Government of the Hong Kong Special Administrative Region, 2001).

Unfortunately, there is not yet a reliable overview of paid vacations rights across the whole world and due to difficulties in obtaining the necessary data (conceptual differences regarding vacation, language differences, lacking statistical data) this will presumably not change in the near future.

Summing up, vacation rights and their utilization differ extremely across countries (e.g. Europe versus America) and even within countries (e.g., in the United States, there may be employees who have no vacation and high achieving seniors who have 25 days of paid vacation). After looking at vacation from a historical and an international perspective, we will now focus on the questions, why and how a vacation may contribute to H&W, which is central to this thesis.

#### 1.4. Mechanisms through which vacation may contribute to recovery

Until now, many vacation studies remained rather mute about possible underlying mechanisms through which vacations may contribute to recovery. Below, we will therefore present five theories that can explain why vacations may be beneficial for H&W.

Having vacation may contribute to recovery from work through an active and a passive mechanism. The passive mechanism reflects a direct release from daily exposure to job demands. The active mechanism through which vacation may facilitate recovery covers the engagement in valued, pleasant, self-chosen non-work activities and the opportunity to spend quality time with close others.

The two most influential recovery theories, Effort-Recovery Theory (Meijman & Mulder, 1998) and Allostatic Load Theory (McEwen, 1998), merely presuppose the passive recovery mechanism. Both theories share the assumption that removal of demands previously put on the individual's psychobiological systems is a necessary prerequisite for recovery to occur (Sonnentag, 2001).

The active mechanism underlying vacation is best represented by three theories: Conservation of Resources Theory (Hobfoll, 1998), Self-Determination Theory (Ryan & Deci, 2000) and Broaden- and -Build Theory (Fredrickson, 2001). The starting point of these theories is the assumption that humans are 'masters of their own fate' who can actively and freely pursue their own interests and intentionally strive for desirable outcomes. Vacation forms the breeding ground for self-fulfillment and energy replenishment. Therefore, according to these theories, recovery occurs because vacationers are able to engage in self-chosen, pleasant activities and spend time with significant others.

*Effort-Recovery Theory* (Meijman & Mulder, 1998): The basic idea of Effort-Recovery Theory is the necessity of mobilization of capacities and resources to meet the demands of work. This effort expenditure at work has psycho-physiological costs or load reactions. However, acute load reactions (e.g., fatigue), that are unavoidably associated with working, will not have long term negative health consequences as long as workers recover sufficiently after work. During time after work, effort is no longer expended and the psychobiological systems that were activated during work time will return to baseline level. Recovery is correspondingly seen as a period of rest in which employees are relieved from the demands that are otherwise acting upon them. This absence of demands actually enables replenishment of resources. However, recovery may be inadequate due to prolonged exposure to high (work) demands and/or due to cognitive processes (e.g., worrying and rumination) that prolong physiological activity even if employees are not directly exposed to demands during the recovery period (Geurts & Sonnentag, 2006). When recovery is insufficient, employees will have to perform on the job while being in a suboptimal state, which imposes an even higher demand on the recovery process. The resulting accumulated negative load effects may have adverse consequences on H&W.

*Allostatic Load Theory* (McEwen, 1998): As a physiological theory of stress, Allostatic Load Theory constitutes a model for the fluctuation of physiological systems within the body to meet stressful demands. The underlying principle is to achieve stability through change (Aronsson, Svensson, Gustafson, 2003). This regulation process is called allostasis. Repeated or prolonged physiological activation may disturb an organism's precarious homeostatic (sympathetic-parasympathetic) balance. This disturbed balance and cumulative cost to the body, called allostatic load, will manifest itself in chronic overactivity or inactivity of crucial bodily systems (e.g., the immune system). Repeated or chronic stress leads to allostatic load building up. Hence, allostatic load denotes the psychophysiological costs of chronic exposure to stress. Therefore, complete unwinding from load effects built up at work is crucial for preserving H&W (Sonnetag & Geurts, 2009).

*Conservation of Resources Theory* (Hobfoll, 1998): This theory claims that people strive to obtain, protect and build resources that have specific importance to them. Strain develops when these valued resources are threatened, lost, or not gained after having invested in them. 'Resources' refer to a broad category including external objects and conditions such as relationships, as well as personal characteristics and energies. For the aim of conceptual clarity, in relation to vacation, we define 'resources' as time and attention devoted to highly valued activities (e.g. hobbies, quality time with partner and family) that have the potential to produce energy. Based on insights from human physiology, Marks (1977) stated that the consumption of energy is necessary to stabilize the production of energy, and that particularly the engagement in valued activities will produce energy. Along these lines, vacation may constitute a possibility to replenish depleted resources and gain resources, because it is an excellent occasion to engage in freely chosen and energizing activities such as the (re) connection with family and friends.

*Self-Determination Theory* (Ryan and Deci, 2000): Regarding vacation effects, autonomy and relatedness are the crucial elements of this theory. Autonomy and relatedness are considered fundamental human needs, whereby satisfaction of these needs elicits positive emotions, and the neglect of these needs leads to negative affect. Autonomy to initiate behavior of one's own choice refers to volition and the experience of self-determined behavior. Relatedness refers to the feeling of being closely connected to others. Earlier research has demonstrated that workers experienced higher positive and lower negative affect during off-job time (i.e., weekends) than during work periods due to satisfaction of the workers' need for autonomy and relatedness (Ryan, Bernstein & Brown, 2010; Reis, Sheldon, Gable, Roscoe & Ryan, 2000; Sheldon, Ryan & Reis, 1996). Following this reasoning, a vacation as a pre-

eminent opportunity to engage in activities of one's own choice (autonomy) and to connect to close others (relatedness) may fulfill the basic needs of autonomy and relatedness, which should result in positive emotions and higher levels of H&W.

*Broaden- and -Build Theory* (Fredrickson, 2001): In this theory, positive emotions are also considered crucial for H&W. According to Tugade and Fredrickson (2007), positive and negative emotions have complementary adaptive functions and effects. Whereas negative emotions evoke restricted and survival oriented behavior, positive emotions are supposed to broaden people's thought-action repertoires, thereby encouraging varied, novel and exploratory thoughts and actions. The experience of positive emotions, such as pleasure, is associated with the production of certain hormones in the brain's 'pleasure reward' system (e.g., serotonin, dopamine) that may quickly down-regulate psycho-physiological stress responses (Esch & Stefano, 2004). In an experiment on cardiovascular reactivity, Fredrickson, Mancuso, Branigan and Tugade (2000) demonstrated how positive emotions can indeed rapidly undo the unfavorable cardiovascular arousal induced by negative emotions. According to this theory, positive emotions do not only have short term beneficial effects, but also have long term profits by building enduring personal resources like intellectual growth, creativity, new skills, social support, coping capacities and psychological resilience. These personal resources may also function as buffers for future stressors.

Summing up, the positive effect of vacation on workers' H&W will partly be determined by the relief from work demands and job stressors. Moreover, autonomy to engage in behaviors of one's own choice, relatedness to friends and family, and the experience of positive emotions associated with vacation is expected to boost the positive impact of vacation on H&W beyond the sheer liberation from demands.

## 1.5. Central research questions

Despite its assumed great recovery potential, vacation as a prototypical recovery opportunity (i.e. macrorecovery) is a neglected research topic so far. Initially, a vacation was simply seen as a control occasion for the absence of stress (Eden, 2001). This means, the major interest was not in vacation as such but rather in demonstrating that on-and off- job situations differ in levels of psychological stress. Consequently, many studies on vacations applied a pre-post design in examining the effects of vacation, and pre-post changes in well-being were attributed



to the in-between vacation period. However, the sequential occurrence of phenomena does not mean that they are causally related (Eden, 2001).

In order to estimate the true contribution of vacation to well-being, reliable and valid on-vacation measurements are therefore strictly necessary. Accordingly, we defined a vacation effect as the difference in H&W before and during vacation. Research question 1 is:

1. Vacation effect: Do health and well-being improve during vacation?

In case of an increase of H&W during vacation (i.e. a positive vacation effect), the next important question is how long this effect lasts after work resumption. As vacation comes to an end and positive effects are assumed to fade out after returning home and resuming work, the positive effect still persisting after vacation is labeled a vacation after-effect. Research question 2 is:

2. Vacation after-effect: How long do vacation effects last after work resumption?

Besides the mere absence of work, representing the passive recovery mechanism, vacation may positively influence H&W because it enables vacationers to spend time on valued free-time activities. In line with our reasoning regarding the active mechanism of recovery, a vacation may provide vacationers with the opportunity to go through unique and pleasant experiences. For that reason, vacation activities and the associated experiences may be core elements that promote or impede recovery processes during and after vacation. Research question 3 is:

3. Activities & experiences: How do vacation activities and experiences relate to changes in health and well-being during and after a vacation period?

## 1.6. Thesis outline

In this dissertation, we present and discuss our research examining the effects of vacation and the role of activities and experiences as possible determinants of these effects. We started our research project by conducting a meta-analysis (Chapter 2) which also gave us the opportunity to distil up till now unanswered questions regarding vacation (after-) effects and to develop a solid research design to investigate developments in and determinants of H&W during and after a vacation period.

After finishing our meta-analysis, we carried out three longitudinal field studies on three different types of vacations: short vacations in the Netherlands (Chapter 5), 9-day active winter sports vacations (Chapter 3 and Chapter 4) and long summer vacations (Chapter 6). We will present the results of these studies in the chronological order in which we conducted the data collection: 1) meta-analysis, 2) winter sports vacations, 3) short vacations and 4) summer vacations.

Moreover, before conducting our first quantitative study, we carried out an explorative survey with predominantly open questions in order to get a general idea about possible effects of vacation on well-being and the determinants of these effects (for a brief summary of the results, see Appendix 1). Although the convenience sample which completed the digital questionnaire was rather small ( $N = 63$ ) and highly educated, the answers helped us to interpret certain findings of our empirical studies. Therefore, we will also refer to some findings from this survey in the general discussion.

In Chapter 2, we present the findings of our meta-analysis on vacation. The main aim of this study was to examine the results from earlier studies on vacation (after-) effects and the role of vacation activities and experiences. A second aim was to learn about methodological considerations for future research. Based on this information, we were able to set up our first data collection on winter sports vacations.

We started collecting data on winter sports vacations, because this type of vacation is more uniform for vacationers than other types of vacations. This means that vacation activities (mostly skiing during the day, socializing in the evening) and the period of the year were roughly comparable for all vacationers. In addition, the duration of the vacation (9 days on average) and the time before and after departure (i.e. days off before and after vacation) were similar for all holiday takers. In the first examination of the data on winter sports vacations (Chapter 3), we focused on the effect of vacation on seven different H&W indicators during and after an active winter sports vacation ( $N = 96$ ). Later on, we combined these single indicators into one overall indicator of H&W.

In Chapter 4, also based on our rich dataset on winter sports vacations, we tested whether vacation (after-) effects are a universal phenomenon (i.e. whether increases in H&W apply to all employees). But most importantly, we investigated the relation between vacation activities and experiences, on the one hand, and changes in H&W during vacation, on the other. We distinguished between various types of vacation activities: work-related, physical, social and passive activities. Pleasure derived from activities and negative incidents constituted the vacation experiences that we also examined in Chapter 4.

In Chapter 5, we present the results from our second empirical study on a very popular type of vacations: long weekends and midweek vacations in a holiday park in the home country

(4.5 days on average,  $N = 80$ ). Vacation (after-) effects on H&W again formed the basis of this study. Moreover, we studied the impact of vacation activities and experiences on changes in H&W during vacation. We further extended this study by also exploring the relationship of vacation activities and experiences with H&W changes after vacation. In addition, we expanded the vacation experiences by including recovery experiences (i.e. psychological detachment from work, relaxation experiences, mastery experiences and control), time spent on and quality of conversations with the partner.

In our last empirical study, presented in Chapter 6, we investigated long summer vacations which constitute, at least in the Netherlands, the most prototypical and long lasting type of vacation (minimally 14 days, 23 days on average,  $N = 54$ ) with also a lot of variation in vacation type (e.g. backpacking, wellness, family visits) and activities. This study again deals with vacation (after-) effects on H&W. In addition, we applied four on-vacation measurements and zoomed in on the development of H&W levels during vacation. Moreover, we again inquired into the role of vacation activities and experiences in H&W changes during and after vacation. We further extended the study by including sleep time, sleep quality and the capacity to savor positive experiences as possible determinants of the vacation (after-) effects.

We bring this dissertation to an end with a general discussion of our research findings. Combining the findings from our meta-analysis and four studies on three different types of vacations, also varying in length, enables us to shed light on the important question whether vacation length matters for the strength and persistence of the vacation (after-) effects. In addition, we will focus on the question whether vacation activities and experiences have similar effects on changes in H&W during and after different types of vacations. We conclude the discussion with suggestions for future work and practical implications.

## 1.7. References

- Akerstedt, T. (2006). Psychosocial stress and impaired sleep. *Scandinavian Journal of Work, Environment & Health*, 32, 493-501.
- Akerstedt, T., Kecklund, G., Alfredsson, L., & Selen, J. (2007). Predicting long term sickness absence from sleep and fatigue. *European Sleep Research Society*, 16, 341-345.
- Aron, C.S. (1999). *Working at play. A history of vacations in the United States*. New York: Oxford University Press.
- Aronsson, G., Svensson, L., Gustafsson, K. (2003). Unwinding, recuperation, and health among compulsory school and high school teachers in Sweden. *International Journal of Stress Management*, 3, 217-234.

- Belkic, K., Landbergis, P.A, Schnall, P.L., & Baker, D. (2004). Is job strain a major source of cardiovascular disease risk? *Scandinavian Journal of Work, Environment & Health*, 30, 85-128.
- Brosschot, J.F., Van Dijk, E., & Thayer, J.F. (2007). Daily worry is related to low heart rate variability during waking and the subsequent nocturnal sleep period. *International Journal of Psychophysiology*, 63, 39-47.
- Casson, L. (1994). *Travel in the ancient world*. Baltimore/London: The Johns Hopkins University Press.
- Census and Statistics Department of the Government of the Hong Kong Special Administrative Region. (2001). Benefits of employees under the employment ordinance. Retrieved June 21, 2011, from [http://www.statistics.gov.hk/publication/stat\\_report/social\\_data/B11301322002XXXXB0302.pdf](http://www.statistics.gov.hk/publication/stat_report/social_data/B11301322002XXXXB0302.pdf).
- EC of the European Parliament and of the Council. (1993). Directive 93/104/EC of the European Parliament and of the Council of 23 November 1993 concerning certain aspects of the organisation of working time. Retrieved June 21, 2011, from [http://eurlex.europa.eu/smartapi/cgi/sga\\_doc?smartapi!celexapi!prod!CELEXnumdoc&lg=EN&numdoc=31993L0104&model=guichett](http://eurlex.europa.eu/smartapi/cgi/sga_doc?smartapi!celexapi!prod!CELEXnumdoc&lg=EN&numdoc=31993L0104&model=guichett).
- Eden, D. (2001). Vacations and other respites: Studying stress on and off the job. In C. Cooper & I. T. Robertson (Eds.), *Well-being in organizations* (pp. 305-330). West Sussex (UK): John Wiley & Sons, Ltd.
- Esch, T., & Stefano G. B. (2004). The neurobiology of pleasure, reward processes, addiction and their health implications. *Neuroendocrinology Letters*, 35, 235-251.
- European Foundation for the improvement of living and working conditions. (2008). Working time developments 2008. Retrieved June 21, 2011, from <http://www.eurofound.europa.eu/eiro/studies/tn0903039s/tn0903039s.htm#hd5>.
- Ezoe, S., & Morimoto, K. (1994). Behavioral lifestyle and mental health status of Japanese factory workers. *Preventive Medicine*, 28, 98-105.
- Fredrickson, B.L. (2001). The role of positive emotions in positive psychology: The Broaden- and -Build Theory of positive emotions. *American Psychologist*, 56, 218-226.
- Fredrickson, B. L., Mancuso, R. A., Branigan, C., & Tugade, M. M. (2000). The undoing effect of positive emotions. *Motivation and Emotion*, 24, 237 - 258.
- Fritz, C., & Sonnentag, S. (2005). Recovery, health, and job performance: Effects of weekend experiences. *Journal of Occupational Health Psychology*, 10, 187-99.
- Geurts, S.A.E., & Sonnentag, S. (2006). Recovery as an explanatory mechanism in the relation between acute stress reactions and chronic health impairment. *Scandinavian Journal of Work, Environment & Health*, 32, 482-492.
- Geurts, S.A.E., Kompier, M.A.J., & Gründemann, R.G.W. (2000). Curing the Dutch disease? Sickness absence and disability in the Netherlands. *International Social Security Review*, 53, 79-103.
- Gräf, H.T., & Pröve, R. (1997). *Wege ins Ungewisse. Reisen in der frühen Neuzeit 1500-1800*. Frankfurt a. M.: S. Fischer.
- Griep, W., & Jäger, H.W. (1986). *Reisen im 18. Jahrhundert. Neue Untersuchungen*. Heidelberg: C. Winter Universitätsverlag.

- Gump, B.B., & Matthews, K.A. (2000). Are vacations good for your health? The 9-year mortality experience after the multiple risk factor intervention trial. *Psychosomatic Medicine*, 62, 608-612.
- Hachtmann, R. (2007). *Tourismus-Geschichte*. Göttingen: Vandenhoeck & Ruprecht.
- Hjortskov, N., Rissen, D., Blangsted, A.K., Fallentin, N., Lundberg, U., & Sogaard, K. (2004). The effect of mental stress on heart rate variability and blood pressure during computer work. *European Journal of Applied Physiology*, 92, 84-89.
- Hobfoll, S.E. (1989). Conservation of resources: a new attempt at conceptualizing stress. *American Psychologist*, 44, 513-524.
- How long should a man's vacation be? (1910, July 31). *The New York Times Magazine*.
- Keitz, C. (1997). *Reisen als Leitbild. Die Entstehung des modernen Massentourismus in Deutschland*. München: Dtv.
- Marks, S.R. (1977). Multiple roles and role strain: some notes on human energy, time and commitment. *American Sociological Review*, 42, 921-936.
- Maslach, C., Schaufeli, W.B., & Leiter, M.P. (2001) Job burnout. *Annual Research of Psychology*, 52, 397-422.
- McEwen, B.S. (1998). Stress, adaptation, and disease: allostasis and allostatic load. *Annals New York Academy of Science*, 840, 33-44.
- Meijman, T. F., & Mulder, G. (1998). Psychological aspects of workload. In P. J. D. Drenth, H. Thierry & C. J. de Wolff (Eds.), *Handbook of work and organizational psychology (2nd edition)*. *Work psychology* (Vol. 2, pp. 5-33). Hove: Psychology Press.
- Mommersteeg, P.M.C. (2006). *The psychophysiology of burnout*. Enschede: Gildeprint Drukkerijen B.V.
- NBTC NIPO. (2009). Kerncijfers over vakanties van Nederlanders 2009. Retrieved June 2011, from <http://www.nbtncniporesearch.nl/cvo/resultaten/presentaties/>.
- Ohler, N. (1986). *Reisen im Mittelalter*. München: Artemis.
- Ray, R., & Schmitt, R. (2007). No vacation nation. Report from the Center for Economic and Policy Research. Retrieved July 1, 2011, from <http://www.cepr.net/index.php/publications/reports/no-vacation-nation/>.
- Reis, H.T., Sheldon, K.M., Gable, S.L., Roscoe, J., & Ryan, R.M. (2000). Daily well-being: the role of autonomy, competence, and relatedness. *Personality and Social Psychology Bulletin*, 26, 419-435.
- Reulecke, J. (1976). Vom blauen Montag zum Arbeiterurlaub. Vorgeschichte und Entstehung des Erholungsurlaubs für Arbeiter vor dem Ersten Weltkrieg. In: *Archiv für Sozialgeschichte*, Bd.XVI/1976, 205-248.
- Rijksoverheid. (2011). Vakantiedagen en vakantiegeld. Retrieved July 14<sup>th</sup> 2011, from <http://www.rijksoverheid.nl/onderwerpen/werktijden/vakantiedagen-en-vakantiegeld>.
- Ryan, R.M., & Deci, E.L. (2000). Self-Determination Theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist*, 55, 68-78.

- Ryan, R.M., Bernstein, J.H., & Brown, K.W. (2010). Weekends, work, and well-being: psychological need satisfactions and day of the week effects on mood, vitality, and physical symptoms. *Journal of Social and Clinical Psychology, 29*, 95-122.
- Schnall, P.L., Schwartz, J.E., Landsbergis, P.A., Warren, K., Pickering, T.G. (1998). A longitudinal study of job strain and ambulatory blood pressure: results from a three-year follow-up. *Psychosomatic Medicine, 60*, 697-706.
- Sheldon, K.M., Ryan, R., & Reis, H.T. (1996). What makes a good day? Competence and autonomy in the day and in the person. *Personality and Social Psychology Bulletin, 22*, 1270-1279.
- Sluiter, J.K., Frings-Dresen, M.H.W., Meijman, T.F.(2000). Reactivity and recovery from different types of work measured by catecholamines and cortisol. A systematic literature overview. *Occupational Environmental Medicine, 57*, 298-315.
- Sonnentag, S. (2001). Work, recovery activities, and individual well-being: A diary study. *Journal of Occupational Health Psychology, 6*, 196-210.
- Sonnentag, S., & Geurts, S.A.E. (2009). Methodological issues in recovery research. In Sonnentag, S., Perrewe, P.L., & Ganster, D.C. (Eds.). *Current perspectives on job-stress recovery* (pp 1 - 36). Bingley: Esmeralda Group Publishing Limited.
- The Japan Institute for Labour Policy and Training. (2002). Research report No. 152, Research on annual paid holidays. Retrieved June 21, 2011, from <http://www.jil.go.jp/english/reports/documents/jil-research/no152.pdf>.
- Tugade, M.M., & Fredrickson, B.L. (2007). Regulation of positive emotions: emotion regulation strategies that promote resilience. *Journal of Happiness Studies, 8*, 311-333.
- United States Department of Labour. (2010). Employee Benefits Survey 2010. Retrieved June 21, 2011, from <http://www.bls.gov/ncs/ebs/benefits/2010/ownership/civilian/table22a.pdf>.
- Vacation. (2011). Merriam-Webster.com. Britannica Company. Retrieved October 31, 2011, from <http://www.merriam-webster.com/dictionary/vacation>.
- Van Hooff, M.L.M., Geurts, S.A.E., Kompier, M.A.J., & Taris, T.W. (2007). Workdays, in-between workdays, and the weekend: A diary study on effort and recovery. *International Archives of Occupational and Environmental Health, 80*, 599-613.
- Vrijkotte, T.G.M., van Doornen, L.J.P., de Geus, E.J.C. (2000). Effects of work stress on ambulatory blood pressure, heart rate and heart rate variability. *Hypertension, 35*, 880-886.
- World Tourism Organization. (1995). UNWTO technical manual: collection of tourism expenditure statistics. Retrieved October 31, 2011, from <http://pub.unwto.org/WebRoot/Store/Shops/Infoshop/Products/1034/1034-1.pdf>.



## Chapter 2

# Do We Recover from Vacation? Meta-Analysis of Vacation Effects on Health and Well-being

The aim of this meta-analysis is to investigate to what extent vacation has positive effects on H&W, how long such effects endure after work resumption, and how specific vacation activities and experiences affect these relationships.

Based on a systematic literature search (PsycInfo, Medline) and methodological exclusion criteria, in a stepwise approach, 7 studies were selected and reviewed. Effect sizes (Cohen's  $d$ ) were calculated i) for every outcome variable within every study, ii) for every study by averaging the effect sizes per study, and iii) for homogeneous categories of outcome variables (exhaustion, health complaints, life satisfaction).

The results suggest that vacation has positive effects on H&W (small effect,  $d = + 0.30$ ), but that these effects soon fade out after work resumption (small effect,  $d = - 0.27$ ). Our research further demonstrated that vacation activities and experiences have hardly been studied. Therefore, their contribution to vacation effect and fade-out remains unclear.

Progresses in future vacation research will depend on strong research designs that incorporate repeated measurements before, during and after vacation.

This chapter is based on:

De Bloom, J., Kompier, M., Geurts, S., De Weerth, C., Taris, T., & Sonnentag, S. (2009). Do we recover from vacation? Meta-analysis of vacation effects on health and well-being. *Journal of Occupational Health, 51*, 13-25.





## 2.1. Introduction

Time off is crucial for workers to recover from load effects built up at work. A core assumption of Effort-Recovery Theory (Geurts & Sonnentag, 2006; Meijman & Mulder, 1998) and Allostatic Load Theory (Clow, 2001; McEwen, 1998; Sterling & Eyer, 1990) is that initial normal load reactions (e.g. accelerated heart rate and fatigue) can develop into more chronic load reactions (e.g. prolonged fatigue, sleep complaints, high blood pressure) in cases of continued exposure to workload and incomplete recovery during time after work (Geurts & Sonnentag, 2006). The essence of recovery is a process of psycho-physiological unwinding after working, opposite to the activation of the sympathetic-adrenal-medullary system and the hypothalamic-pituitary-adrenal system during effort expenditure (work), particularly under demanding or stressful conditions (Geurts & Sonnentag, 2006). Earlier research addressing rest breaks (Tucker, 2003), long work hours (Beckers et al., 2004; Härmä 2006; Van der Hulst, 2003), and shift work (Totterdell, Spelten, Smith, Barton & Folkard, 1995) has acknowledged the role of recovery from work in preserving individual well-being, health and performance. Furthermore, over the years labour unions have emphasized the importance of sufficient recovery time in their endeavours for a shorter working week, rest breaks and vacation rights, and both national and international working time legislations have been enacted to enable recovery possibilities for employees.

Recent studies have revealed that workers often recover insufficiently during time off work due to, for instance, working overtime. This day-to-day incomplete recovery may have serious adverse health consequences in the long run (Geurts & Sonnentag, 2006, for an overview). Sluiter, Frings-Dresen and Meijman (2000) distinguished 4 different types of recovery based on duration and time span after work: microrecovery (first minutes after task performance), mesorecovery (10 minutes to 1 hour after task performance), metarecovery (1 hour to 2 days after work) and macrorecovery (more than 2 days after work).

Vacation as a form of macrorecovery is a prime candidate for helping workers to recover more completely from work. Vacation is likely to be a more powerful recovery opportunity than regular free evenings and weekends because of two mechanisms underlying the recovery process. The first 'passive' mechanism reflects a direct release from daily job demands: vacation is ideally a relatively long period of rest that is mostly spent in a different and more relaxing environment that may help workers to detach psychologically from work and from other daily demands and routines. The second 'active' mechanism reflects the active engagement in potentially recovering activities: vacation is a pre-eminent opportunity to spend time on valued non-work activities of one's own choice, such as hobbies and family activities.

This article reviews the empirical literature with regard to the recovering impact of this prototypical recovery possibility, i.e. a vacation from work. The term 'vacation' stems from the

Latin word 'vacatio': 'being free from work, being at leisure, having time for'. We hypothesize that vacation, as a relatively long and uninterrupted period of respite from work may be a major contributor to the recovery process, and therefore may be beneficial for H&W. Following a vacation, employees return to work, and we are also interested in how long potential vacation effects last, assuming that due to renewed exposure to work demands vacation effects will be temporary and thus 'fade out'.

From a work psychological point of view it is important not to treat a vacation as a black box, but rather to find out whether vacation activities (e.g. sports or exercise) and vacation experiences (e.g. vacation satisfaction) play a role in the relationship between vacation and well-being.

In sum, this meta-analysis aims to answer 3 related research questions:

- 1) What empirical evidence exists for an improvement of H&W due to a vacation from work (vacation effect)?
- 2) In the case of a positive effect of vacation, how long does it last (fade-out)?
- 3) a. Do vacation activities play a role in these potential relationships?  
b. Do vacation experiences play a role in these potential relationships?

## 2.2. Method

A systematic literature search was carried out in 2 bibliographical databases: PsycInfo and Medline. No publication year limits were set and the final search date was June 15<sup>th</sup>, 2008.

We used the following search terms within the fields 'title' or 'keywords':

- 1) vacation OR holiday (1702 hits), and
- 2) well-being OR health OR quality of life OR satisfaction OR stress OR burnout OR recovery OR sleep OR mood OR affect (829,536 hits)

The combination of these 2 searches resulted in 125 hits (see Figure 2.1). In a first selection round, the following exclusion criteria were used:

Language:	non-English papers (minus 22)
Publication type:	dissertations, short communications, letters, non-empirical and/or non-peer-reviewed papers (minus 38)

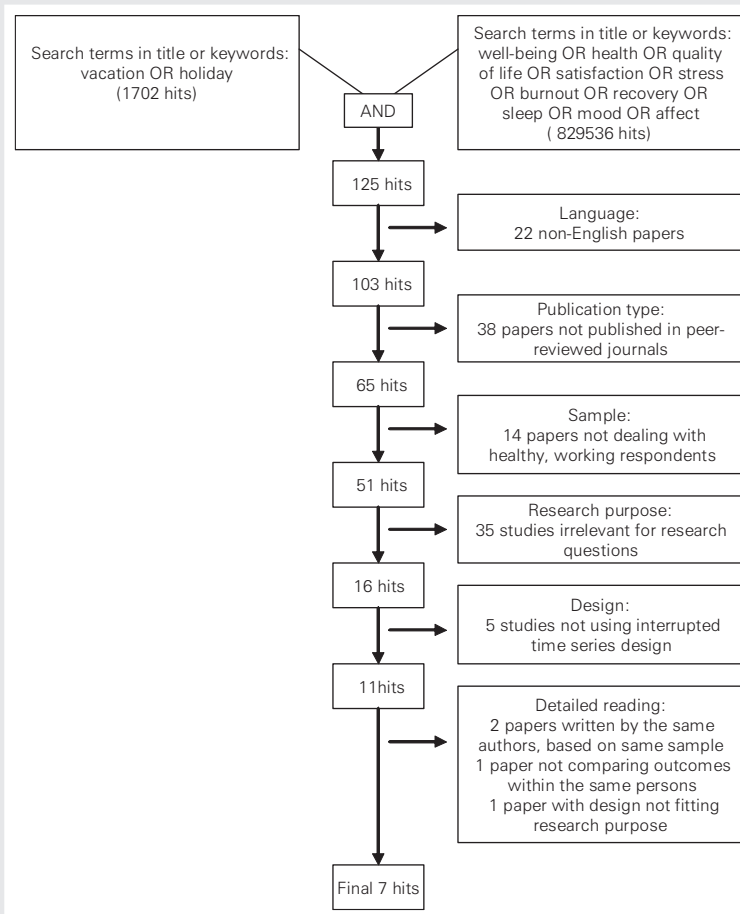
After application of these criteria 65 hits remained. All 65 abstracts were retrieved and read by the first 3 authors. Exclusion criteria in this second round were:

Sample:	papers not dealing with healthy, working sample (e.g. school children, psychiatric patients): minus 14
---------	--

Research purpose: studies irrelevant for the research questions, i.e. studies not investigating vacation effects and/or fade-out on health and/or well-being (e.g. weight gain during vacation, holiday shopping intentions, sleepiness in drivers during summer vacation): minus 35

Design: studies not using an interrupted time series design with at least a pre-test, i.e. before vacation and a post-test, i.e. after vacation per subject as such studies do not permit the evaluation of a vacation (e.g. only post-vacation measure during annual doctor visit): minus 5

**Figure 2.1:** Systematic literature search on vacation and health or well-being from 125 to final 7 studies



Based on these criteria, 54 articles were excluded, and 11 papers remained. Studies that were referred to in the 11 selected papers were also examined but no additional, relevant papers were detected. The first 3 authors of the present article studied the remaining 11 papers and excluded 4 more papers. In 2 cases, papers were written by the same authors (Strauss-Blasche, Ekmekcioglu & Marktl, 2000; Strauss-Blasche, Ekmekcioglu & Marktl, 2002; and Hoopes & Lounsbury, 1989; Lounsbury & Hoopes, 1986), based on the same sample with the second paper not offering extra information for our research purposes. Therefore the second paper was excluded in both cases (Hoopes & Lounsbury, 1989; Strauss-Blasche et al., 2002). A third paper was excluded (Etzion & Westman, 2001) because it investigated cross-over and thus compared outcome variables before and after vacation in spouses instead of vacationers themselves. Finally, a fourth paper had to be excluded (Eden, 1990) as it did not fit our research purposes: the 'vacation' in this study was a compulsory off work period, 'a brief interlude during an acutely stressful computer crisis' (Westman & Eden, 1997, p. 524). This resulted in a final selection of 7 studies (see Table 2.1).

To mathematically quantify the empirical evidence for vacation effects in the 7 different studies we calculated the effect size  $d$  for paired observations as described in Cohen (1988, p. 46). Firstly, we calculated, within every study, effect sizes for all outcome variables in that study. Secondly, we calculated average effect sizes for all studies by averaging all effect sizes within each study.

Thirdly, in order to obtain a more detailed picture for specific homogeneous outcome categories, we computed a mean  $d$  for those outcome variables that were used in 3 or more different studies. This fine-grained analysis was performed for the following outcome categories: exhaustion (4 studies), health complaints (3 studies), and life satisfaction (3 studies).

Following Cohen (1988) we distinguished small (0 to 0.5), medium (0.5 to 0.8) and large effect sizes (> 0.8). Positive effect sizes indicate a beneficial effect of vacation (improvement of H&W), whereas negative effects denote the opposite (decrease in health after vacation compared to pre-vacation levels).

### 2.3. Results

Table 2.1 provides an overview of the 7 studies, by characterizing sample and design characteristics, pre-vacation measurement(s), measurement(s) during vacation, post-vacation measurement 1, and post-vacation measurement 2.

### 2.3.1. Sample and design characteristics

*Number of participants:* Sample sizes of the reviewed studies were mostly small. Attrition from the pre-vacation to the first post-vacation measurement varied between 5% (Etzion, 2003) and 59% (Strauss-Blasche et al., 2000). The loss of participants from the pre-vacation to the post-vacation 2 measure varied between 5% (Etzion, 2003) and 86% (Strauss-Blasche et al., 2000).

*Sex, age and occupation:* The distributions of sex, age and occupation were diverse in the reviewed studies.

*Control group:* 5 studies (Fritz & Sonnentag, 2006; Lounsbury & Hoopes, 1986; Strauss-Blasche et al., 2000; Westman & Eden, 1997; Westman & Etzion, 2001) did not include a control group. Gilbert and Abdullah (2004) incorporated a non-vacationing control group of 249 respondents (opposed to 355 holiday-takers) that reported a lower well-being than the holiday-takers on pre-vacation. Etzion (2003) used a matched-pairs technique to create a comparable control group of 55 respondents (age, marital status and job function). This control group's pre-vacation scores on exhaustion resembled the vacation group's scores.

*Duration:* 3 of the 7 studies (Etzion, 2003; Fritz & Sonnentag, 2006; Gilbert & Abdullah, 2004) did not report the duration of the vacation of their respondents. The average duration of the vacation in the other studies was 9 (Lounsbury & Hoopes, 1986), 10 (Westman & Etzion, 2001), and 14 days (Strauss-Blasche et al., 2000; Westman & Eden, 1997).

*Timing:* In 2 studies, the timing of the vacation was not reported (Fritz & Sonnentag, 2006; Gilbert & Abdullah, 2004). In 1 case, vacation time of the respondents was in spring (Westman & Etzion, 2001). In the remaining 4 studies (Etzion, 2003; Lounsbury & Hoopes, 1986; Strauss-Blasche et al., 2000; Westman & Eden, 1997), participants went on vacation in summertime.

*Location:* In 5 of the 7 studies (Etzion, 2003; Fritz & Sonnentag, 2006; Gilbert & Abdullah, 2004; Lounsbury & Hoopes, 1986; Westman & Etzion, 2001), vacation location of the respondents was not reported. In 2 studies, more than 75 percent of the participants stayed at home during their vacation (76% in Strauss-Blasche et al., 2000 and 87% in Westman & Eden, 1997).

### 2.3.2. Pre-vacation measure

*Timing of measurement:* Two studies (Etzion, 2003; Gilbert & Abdullah, 2004) did not report when the pre-vacation measure took place. Of the remaining 5 studies, Westman and Eden (1997) was the only study that collected measures at 2 pre-vacation time points (6 weeks, and 3 days before vacation; they found no evidence for major differences between these 2 time points). In the study of Lounsbury and Hoopes (1986) data were collected 1 to 14 days (7 days

**Table 2.1:**  
Design characteristics of the 7 reviewed studies

Author(s), year of publication	Sample and design characteristics	Pre-vacation measurement(s)	During vacation measurement	Post-vacation measurement 1	Post-vacation measurement 2
Lounsbury & Hoopes, 1986	N pre-vac: 168 N post-vac 1: 128 N post-vac 2: - Country: USA ♂: 28% Age: 39 years Occ: variety Contr.group: No Vacation features Duration: 9 days on average Timing: summer vacation Location: NR	1-14 days before vacation, median 7 days  <i>Outcome variables</i> Life satisfaction Job involvement/ central life interest Job involvement/valued self Organizational commitment Turnover intention Job satisfaction	-	1st week after vacation, median 3 days  <i>Outcome variables</i> Same as pre-vacation  <i>Activities:</i> Activities during vacation <i>Experiences:</i> Overall vacation satisfaction Satisfaction with aspects of vacation	-
Westman & Eden, 1997	N pre-vac 1: 88 N pre-vac 2: 76 N post-vac 1: 76 N post-vac 2: 76 Country: Israel ♂: 59% Age: NR Occ: Administrative clerks Contr.group: No Vacation features Duration: 14 days Timing: summer vacation Location: 87 % at home, 13 % away from home	6 weeks before vacation 3 days before vacation  <i>Outcome variables</i> Exhaustion (physical, emotional, mental)	2 <sup>nd</sup> week of vacation  <i>Outcome variables</i> Same as pre-vacation  <i>Activities:</i> - <i>Experiences:</i> -	3 days after vacation  <i>Outcome variables</i> Same as pre-vacation  <i>Activities:</i> - <i>Experiences:</i> Vacation satisfaction	3 weeks after vacation (18 days after post-vacation 1)  <i>Outcome variables</i> Same as pre-vacation

Table 2.1 (continued)

Author(s), year of publication	Sample and design characteristics	Pre-vacation measurement(s)	During vacation measurement	Post-vacation measurement 1	Post-vacation measurement 2
Strauss-Blasche, Ekmekecioglu & Marktl, 2000	N pre-vac: 130 N post-vac 1: 53 N post-vac 2: 18 Country: Austria ♂: 70% Age: 34 years Occ: 57% manual workers, 43% white collar workers Contr.group: No Vacation features Duration: 14 days Timing: summer vacation Location: 76 % at home, 24 % at holiday resort	10 days before vacation <i>Outcome variables</i> Life satisfaction Physical complaints Quality of sleep Positive mood Negative mood	-	3 days after vacation <i>Outcome variables</i> Same as pre-vacation  <i>Activities:</i> Activities during vacation  <i>Experiences:</i> Recuperation	5 weeks after vacation (32 days after post-vacation 1)  <i>Outcome variables</i> Same as pre-vacation
Westman & Etzion, 2001	N pre-vac: 126 N post-vac 1: 87 N post-vac 2: 87 Country: Israel ♂: 61 % Age: 41 years Occ: blue collar industrial workers Contr.group: No Vacation features Duration: 10 days Timing: Passover vacation (spring) Location: NR	10 days before vacation <i>Outcome variables</i> Exhaustion (physical, emotional, mental) Absenteeism for health reasons Absenteeism for other reasons Reasons (Company records, on aggregate level, not individually)	-	3 days after vacation <i>Outcome variables</i> Same as pre-vacation  <i>Activities:</i> -  <i>Experiences:</i> -	4 weeks after vacation (25 days after post-vacation 1)  <i>Outcome variables</i> Same as pre-vacation



Table 2.1 (continued)

Author(s), year of publication	Sample and design characteristics	Pre-vacation measurement(s)	During vacation measurement	Post-vacation measurement 1	Post-vacation measurement 2
Etzion, 2003	<p>N pre-vac: 58  N post-vac 1: 55  N post-vac 2: 55  N control: 55  Country: Israel  ♂: 49%  ♂ control: 49%  Age: 45 years  Age control: 43 years  Occ: employees at industrial enterprise  Contr.group: Yes  Vacation features  Duration: NR, at least 1 week  Timing: summer vacation  Location: NR</p>	<p>NR  ("(...) before the individual (...) went on vacation")  <i>Outcome variables</i>  Exhaustion (physical, emotional, mental)</p>	-	<p>NR  ("immediately after he/she returned to work")  <i>Outcome variables</i>  Same as pre-vacation  <i>Activities:</i>  -  <i>Experiences:</i>  Vacation satisfaction  Detachment from workplace</p>	<p>3 weeks after vacation  <i>Outcome variables</i>  Same as pre-vacation</p>
Gilbert & Abdullah, 2004	<p>N pre-vac: NR  N post-vac 1: 355  N post-vac 2: -  N control: 249  Country: United Kingdom  ♂: 50%  ♂ control: 50%  Age: 16-24:14%; 25-34:22%; 35-44:17%; 45-54:21%; 55-64:14%; 65-x:13%  Age control: 16-24:16%; 25-34:18%; 35-44:16%; 45-54:15%; 55-64:11%; 65-x:23%  Occ control: variety  Contr.group: Yes  Vacation features  Duration: NR, at least 4 nights  Timing: whole year round  Location: NR</p>	<p>NR  ("...3541 questionnaires were distributed at 2 points in time, during a 12-month period")  <i>Outcome variables</i>  Life satisfaction  Satisfaction with...  Friends  Family  Home  Relationships  Economic situation  Leisure  Neighborhood  Self  Services  Health  Nation  Positive affect  Negative affect  Current affect  Job satisfaction</p>	-	<p>2-6 months after first questionnaire  ("(...) within a period of 2-6 months after completion of the first questionnaire")  <i>Outcome variables</i>  Same as pre-vacation  <i>Activities:</i>  -  <i>Experiences:</i>  -</p>	-

Table 2.1 (continued)

Author(s), year of publication	Sample and design characteristics	Pre-vacation measurement(s)	During vacation measurement	Post-vacation measurement 1	Post-vacation measurement 2
Fritz & Sonntag, 2006	N pre-vac: 414 N post-vac 1: 221 N post-vac 2: 221 Country: Germany $d^2$ : 15% Age: 46 years Occ: Non-academic University employees Contr.group: No Vacation features Duration: NR, at least 1 week Timing: NR Location: NR	7 days before vacation <i>Outcome variables</i> Exhaustion Disengagement Health complaints Work effort Task performance	NR ("The survey booklet had to be filled in (...) during vacation")  <i>Activities:</i> - <i>Experiences:</i> Relaxation experience Mastery experience Negative work reflection Positive work reflection Non-work hassles (e.g. conflicts, financial problems)	1-2 days after vacation <i>Outcome variables</i> Same as pre-vacation	2 weeks after vacation (12-13 days after post-vacation 1)  <i>Outcome variables</i> Same as pre-vacation

Studies presented in order of publication date, NR = Not reported, - = Not measured, Occ = Occupation of participants, Contr.group = Control group

on average) prior to vacation, and the 3 remaining studies fell into the same time range: 10 (Strauss-Blasche et al., 2000; Westman & Etzion, 2001), and 7 days (Fritz & Sonnentag, 2006).

*Outcome variables:* All studies measured the same H&W parameters before and after vacation but the type of variables used varied: 4 studies measured exhaustion (Etzion, 2003; Fritz & Sonnentag, 2006; Westman & Eden, 1997; Westman & Etzion, 2001), 3 measured health complaints (Fritz & Sonnentag, 2006; Gilbert & Abdullah, 2004; Strauss-Blasche et al., 2000) and 3 measured general life satisfaction (Lounsbury & Hoopes, 1986; Strauss-Blasche et al., 2000; Gilbert & Abdullah, 2004). Job satisfaction was measured in 2 different studies (Lounsbury & Hoopes, 1986; Gilbert & Abdullah, 2004), and several parameters were measured in only one study: e.g. negative mood (Strauss-Blasche et al., 2000), turnover intention (Lounsbury & Hoopes, 1986), and self-reported work effort (Fritz & Sonnentag, 2006).

### 2.3.3. During vacation measure

*Timing of measurement:* Only 2 papers (Fritz & Sonnentag, 2006; Westman & Eden, 1997) incorporated a during vacation measurement. Westman and Eden (1997) scheduled their during vacation measure in the second week of the vacation. Fritz and Sonnentag (2006) did not report when their vacation measurement exactly took place.

*Activities and experiences during vacation:* Only Fritz and Sonnentag (2006) asked their respondents about their vacation experiences when actually on vacation. They investigated experiences during vacation in a detailed way, by gathering information on relaxation and mastery experiences, positive and negative work reflection and non-work hassles.

### 2.3.4. Post-vacation measure 1

*Timing of measurement:* Etzion (2003) did not report when the first post-vacation measure took place. Gilbert and Abdullah (2004) took their only post-vacation measure 2 to 6 months after the pre-vacation measure. The remaining 5 studies (Fritz & Sonnentag, 2006; Lounsbury & Hoopes, 1986; Strauss-Blasche et al., 2000; Westman & Eden, 1997; Westman & Etzion, 2001) scheduled their first post-vacation measure within the first week of returning to work (3 days on average).

*Activities during vacation:* At post-vacation 1, i.e. retrospectively, 2 studies collected information about vacation activities (Lounsbury & Hoopes, 1986; Strauss-Blasche et al., 2000).

*Experiences during vacation:* 3 papers (Fritz & Sonnentag, 2006; Gilbert & Abdullah, 2004; Westman & Etzion, 2001) gathered no information about vacation experiences. Three of the remaining studies (Etzion, 2003; Lounsbury & Hoopes, 1986; Westman & Eden, 1997) asked respondents about their vacation satisfaction in retrospect. Etzion (2003) and Strauss-

Blasche et al. (2000) included questions about recuperation during vacation and detachment from the workplace respectively.

### 2.3.5. Post-vacation measure 2

*Timing of measurement:* Five studies (Etzion, 2003; Fritz & Sonnentag, 2006; Strauss-Blasche et al., 2000; Westman & Eden, 1997; Westman & Etzion, 2001) adopted a second post-vacation measure. Post-vacation 2 measures were collected 2 weeks after vacation (12-13 days after post vac 1) in Fritz and Sonnentag (2006), 3 weeks (18 days after post-vacation 1) in Westman and Eden (1997) and Etzion (2003), and 4 weeks (25 days after post-vacation 1) in Westman & Etzion (2001). Strauss-Blasche et al. (2000) had the longest time interval: 5 weeks after vacation (32 days after post-vacation 1).

### 2.3.6. Research question 1: Vacation effect?

We calculated the pre-vacation – post-vacation 1 difference in health and well-being indicators ('vacation effect') in all 7 studies. The time span between these 2 time points was unknown in 3 studies: there was no data available on vacation duration (Fritz & Sonnentag, 2006) or pre-vacation time point, vacation duration and post-vacation 1 time point (Etzion, 2003; Gilbert & Abdullah, 2004). The time span between the pre- and post-vacation 1 time points in the other 4 studies ranged between 19 (Lounsbury & Hoopes, 1986), 20 (Westman & Eden, 1997), 23 (Westman & Etzion, 2001) and 27 days (Strauss-Blasche et al., 2000).

First we calculated, within every study, effect sizes for every outcome variable in that study. Then, we calculated general effect sizes for every study, i.e. averaged the number of effect sizes within each study (Table 2.2).

The minimum number of outcome variables per study was 1 (Etzion, 2003; Westman & Eden, 1997; Westman & Etzion, 2001) and the maximum number was 17 (Gilbert & Abdullah, 2004). Within the 7 papers 36 outcome variables were studied, hence 36 effect sizes were calculated. Thirty of these were positive (improvement in well-being) and 6 negative (decrease in well-being). The 6 negative effect sizes were small (mean  $d = -0.13$ ) and of the positive effect sizes, 25 were small and 5 were medium. Medium effect sizes were found for health complaints ( $d = +0.71$  in Fritz & Sonnentag, 2006 and  $+0.57$  in Strauss-Blasche et al., 2000), exhaustion ( $d = +0.65$  in Westman & Eden, 1997), work effort ( $d = 0.52$  in Fritz & Sonnentag, 2006) and satisfaction with nation ( $d = 0.52$  in Gilbert & Abdullah, 2004). The average effect sizes per study varied from  $-0.04$  (Lounsbury & Hoopes, 1986) to  $+0.65$  (Westman & Eden, 1997). The overall mean  $d$  across 7 studies was  $+0.30$ , indicating a small positive vacation effect.

In the 2 control group studies, Etzion (2003) found a small "pre-post vacation 1" increase in exhaustion in the control group ( $d = -0.08$ ). The "post-vacation 1" difference in

**Table 2.2:**

Means, standard deviations and effect sizes for vacation effect on all outcome variables for each study

Study	Outcome variable	Mean pre-vac	SD pre-vac	Mean post-vac 1	SD post-vac 1	Cohen <i>d</i>	Mean <i>d</i>
Lounsbury & Hoopes, 1986	Life satisfaction	24.87	5.68	23.83	6.36	+ 0.28	- 0.04
	Job involvement/ interest	21.17	4.88	22.10	4.61	- 0.34	
	Job involvement/ valued self	11.43	3.18	11.68	3.21	+ 0.11	
	Organizational commitment	10.51	2.56	10.65	2.69	+ 0.07	
	Turnover intention	3.80	0.98	3.67	0.99	- 0.19	
	Job satisfaction	22.08	5.71	21.51	5.69	- 0.16	
Westman & Eden, 1997	Exhaustion	3.30	0.60	3.03	0.62	+ 0.65	+ 0.65
Strauss-Blasche, Ekmekcioglu & Marktl, 2000 (12)	Life satisfaction	NR	NR	NR	NR	+ 0.02	+ 0.37
	Physical complaints	NR	NR	NR	NR	+ 0.57	
	Quality of sleep	NR	NR	NR	NR	+ 0.32	
	Positive mood	NR	NR	NR	NR	+ 0.46	
	Negative mood	NR	NR	NR	NR	+ 0.47	
Westman & Etzion, 2001	Exhaustion	2.89	0.65	2.70	0.99	+ 0.25	+ 0.25
Etzion, 2003	Exhaustion	2.59	0.54	2.44	0.59	+ 0.33	+ 0.33
Gilbert & Abdullah, 2004	Life satisfaction (1 item)	6.99	1.23	7.11	1.20	+ 0.16	+ 0.23
	Life satisfaction (scale)	30.78	7.12	31.78	7.59	+ 0.22	
	Positive affect	60.47	12.24	63.58	11.79	+ 0.32	
	Negative affect	31.22	14.28	30.21	14.44	+ 0.09	
	Current affect	29.30	22.77	33.29	23.13	+ 0.21	
	Satisfaction friends	7.25	1.15	7.24	1.07	- 0.00	
	Satisfaction family	7.22	1.50	7.20	1.42	- 0.02	
	Satisfaction home	6.85	1.31	6.94	1.26	+ 0.11	
	Satisfaction relationships	6.80	1.06	7.02	1.02	+ 0.35	
	Satisfaction econ. situation	6.75	1.43	6.97	1.22	+ 0.26	
	Satisfaction leisure	6.34	1.45	6.53	1.22	+ 0.23	
	Satisfaction neighborhood	6.29	1.36	6.49	1.30	+ 0.24	
	Satisfaction self	6.22	1.22	6.55	1.20	+ 0.44	
	Satisfaction services	6.12	1.23	6.39	1.11	+ 0.38	
	Satisfaction health	5.97	1.42	6.22	1.44	+ 0.15	
Satisfaction nation	4.75	1.19	5.15	1.32	+ 0.52		
Job satisfaction	6.42	1.29	6.67	1.19	+ 0.33		

**Table 2.2** (continued)

Study	Outcome variable	Mean pre-vac	SD pre-vac	Mean post-vac 1	SD post-vac 1	Cohen <i>d</i>	Mean <i>d</i>
Fritz & Sonnentag, 2006	Health complaints	1.94	0.47	1.59	0.35	+ 0.71	+ 0.32
	Exhaustion	2.18	0.55	2.05	0.55	+ 0.32	
	Disengagement	2.10	0.53	2.06	0.53	+ 0.10	
	Task performance	4.51	0.49	4.49	0.54	- 0.04	
	Work effort	2.90	1.14	2.26	1.15	+ 0.52	
<b>Total</b>							<b>+ 0.30</b>

Abbreviations: + = positive effect, improvement in health and/or well-being, - = negative effect, decrease in health and/or well-being, Mean pre-vac = mean at pre-vacation, SD pre-vac = standard deviation at pre-vacation, Mean post-vac 1 = mean at post-vacation 1, SD post-vac 1 = standard deviation at post-vacation1, NR = Not reported in study

exhaustion between vacationers and non-vacationers was small ( $d = +0.35$ ), with non-vacationers reporting more exhaustion. Gilbert and Abdullah (2004) found negative changes for the control group on all outcome variables, indicative of deterioration in well-being (mean  $d = -0.19$ ). The difference between non-holiday and holiday takers at “post-vacation 1” was small (mean  $d = +0.50$ ), the former reported a lower well-being.

Next, a fine-grained analysis for the homogenous outcome categories exhaustion, life satisfaction, and health complaints was conducted (Table 2.3). Effect sizes for the category *exhaustion* (4 studies) varied from +0.25 (Westman & Etzion, 2001) to +0.65 (Westman & Eden, 1997). The average  $d$  was +0.39, indicating a small vacation effect.

Concerning *health complaints*, effect sizes were +0.71 (Fritz & Sonnentag, 2006), +0.15 (Gilbert & Abdullah, 2004) and +0.57 (Strauss-Blasche et al., 2000). The average effect size was +0.48, indicating a small effect.

Finally, a small average effect size ( $d = +0.16$ ) was found for the category *life satisfaction*. Cohen’s  $d$  ranged between +0.02 (Strauss-Blasche et al., 2000), +0.19 (Gilbert & Abdullah, 2004) and +0.28 (Lounsbury & Hoopes, 1986).

### 2.3.7. Research question 2: Fade-out?

The concept of ‘fade-out’ supposes the a priori existence of an effect. Vacation effects can only disappear when they were present in the first place, i.e. at post-vacation 1. Our analysis was thus based upon those 4 studies that employed 2 post-vacation measures, and found a positive vacation effect (Etzion, 2003; Fritz & Sonnentag, 2006; Westman & Eden, 1997; Westman & Etzion, 2001). Note that Strauss-Blasche et al. (2000) included a post-vacation 2 measure too, but they neither compared their outcome variables at this time point with those

**Table 2.3:**

Effect sizes for vacation effect in homogeneous outcome variables used in 3 or more different studies

Outcome variables	Study	Cohen <i>d</i>	Mean Cohen <i>d</i> corrected for more than 1 indicator per study	Mean Cohen <i>d</i>
Exhaustion (4 studies)				+ 0.39
Exhaustion	Westman & Eden, 1997	+ 0.65	+ 0.65	
Exhaustion	Westman & Etzion, 2001	+ 0.25	+ 0.25	
Exhaustion	Etzion, 2003	+ 0.33	+ 0.33	
Exhaustion	Fritz & Sonnentag, 2006	+ 0.32	+ 0.32	
Health complaints (3 studies)				+ 0.48
Physical complaints	Strauss-Blasche et al., 2000	+ 0.57	+ 0.57	
Satisfaction with health	Gilbert & Abdullah, 2004	+ 0.15	+ 0.15	
Health complaints	Fritz & Sonnentag, 2006	+ 0.71	+ 0.71	
Life satisfaction (3 studies)				+ 0.16
Life satisfaction	Lounsbury & Hoopes, 1986	+ 0.28	+ 0.28	
Life satisfaction	Strauss-Blasche et al., 2000	+ 0.02	+ 0.02	
Life satisfaction	Gilbert & Abdullah, 2004	+ 0.16	+ 0.16	
Life satisfaction		+ 0.22	+ 0.19	

Abbreviations: + = positive effect, improvement in health and/or well-being, - = negative effect, decrease in health and/or well-being

at post-vacation 1, nor reported means and standard deviations at the different measurement occasions.

In 4 studies that compared post-vacation 1 and 2 (Etzion, 2003; Fritz & Sonnentag, 2006; Westman & Eden, 1997; Westman & Etzion, 2001) effect sizes could be calculated for exhaustion. In addition, in the study of Fritz and Sonnentag (2006) also 3 other effect sizes could be calculated. Single outcome effect sizes per study were -0.02 (Etzion 2003), -0.08 (Fritz & Sonnentag, 2006), -0.20 (Westman & Etzion, 2001) and -0.76 (Westman & Eden, 1997). In the study of Fritz and Sonnentag (2006) effect sizes ranged from +0.06 to -0.34.

From the total of 7 different outcome variables, 1 had a positive sign, 1 was 0, and 5 had a negative sign meaning that in most cases well-being decreased between post-vacation 1 and 2. The only positive effect size was negligibly small ( $d = +0.06$ ). Within the 5 negative effect sizes, 4 were small and 1 medium. This medium effect size was found for exhaustion ( $d = -0.76$  in Westman & Eden, 1997).

The overall mean  $d$  across 4 studies was -0.27, indicating a small fade-out effect. Table 2.4 further shows the time span between the 2 post-vacation measures that varied between approximately 2 to 4 weeks. As there were only 2 post-vacation measures in all 4

**Table 2.4:**

Means, standard deviations and effect sizes for fade-out on all outcome variables for each study

Study	Outcome variable	Time span post 1-post 2	Mean post-vac 1	SD post-vac 1	Mean post-vac 2	SD post-vac 2	Cohen <i>d</i>	Mean <i>d</i>
Westman & Eden, 1997	Exhaustion	18 days	3.03	0.62	3.35	0.62	- 0.76	- 0.76
Westman & Etzion, 2001	Exhaustion	25 days	2.70	0.99	2.92	0.94	- 0.20	- 0.20
Etzion, 2003	Exhaustion	21 days (post-vacation 1 immediately after returning to work)	2.44	0.59	2.45	0.66	- 0.02	- 0.02
Fritz & Sonnentag, 2006	Health complaints	12-13 days	1.59	0.35	1.71	0.42	- 0.34	- 0.08
	Exhaustion		2.05	0.55	2.03	0.56	+0.06	
	Disengagement		2.06	0.53	2.06	0.54	0.00	
	Work effort		2.26	1.15	2.31	1.15	- 0.05	
<b>Total</b>								<b>- 0.27</b>

Abbreviations: time span post 1-post 2 = time span between post-vacation 1 and post-vacation 2, + = positive effect, improvement in health and/or well-being, - = negative effect, decrease in health and/or well-being, Mean post-vac 1 = mean at post-vacation 1, SD post-vac 1 = standard deviation at post-vacation 1, Mean post-vac 2 = mean at post-vacation 2, SD post-vac 2 = standard deviation at post-vacation 2

studies and the minimum fade-out interval was 12-13 days after vacation (Fritz & Sonnentag, 2006), it was impossible to study the specific course of fade-out and to determine when fade-out began and when pre-vacation base levels were reached again.

Only Etzion (2003) compared scores on 2 measures in a non-vacation group taken at the same time as post-vacation 1 and 2 in the vacation group. She found a small positive effect ( $d = +0.16$ ) meaning that exhaustion decreased in the control group in the time between the second and the third measurement occasion. The difference between vacationers and non-vacationers was  $+0.19$  on "post-vacation 2", meaning that non-vacationers were slightly more exhausted than their vacation taking fellows.

Again, we performed a fine-grained analysis of homogeneous outcome variables, measured in 3 or more different studies. Only exhaustion met this criterion (4 studies). The average effect size was small ( $d = (-0.02) + (-0.76) + (-0.20) + 0.06/4 = -0.23$ ).



### **2.3.8. Research question 3a: Activities on vacation?**

Only 2 of 7 studies collected data during vacation. However, neither study (Fritz & Sonnentag, 2006; Westman & Eden, 1997) collected information about what vacationers actually did during their holiday. Two other studies (Lounsbury & Hoopes, 1986; Strauss-Blasche et al., 2000) collected information on vacation activities in retrospect, i.e. at post-vacation 1. These studies reported percentages that were spent on certain activities (e.g. traveling, reading, sightseeing) but the authors did not relate these percentages to the outcome variables. This means that research question 3a could not be addressed.

### **2.3.9. Research question 3b: Experiences on vacation?**

One study (Fritz & Sonnentag, 2006) collected information on vacation experiences during the vacation itself. Four other studies (Etzion 2003; Lounsbury & Hoopes, 1986; Strauss-Blasche et al., 2000; Westman & Eden, 1997) collected information on vacation experiences at post-vacation 1 when respondents had already resumed working.

Vacation satisfaction was measured in 3 studies (Etzion, 2003; Lounsbury & Hoopes, 1986; Westman & Eden, 1997) and appeared to be positively related to job satisfaction and life satisfaction (Lounsbury & Hoopes, 1986) and negatively to exhaustion (Westman & Eden, 1997), whereas Etzion (2003) found no such relationship with exhaustion. Etzion (2003) also retrospectively collected information on detachment from work during the vacation and did not find a relationship with post-vacation exhaustion, whereas Strauss-Blasche et al. (2000) found that well-being at post-vacation was higher among those respondents who reported sufficient recuperation during vacation compared to those who indicated that recuperation during vacation was insufficient.

In the only 'during vacation study' Fritz and Sonnentag (2006) tested the effect of vacation experiences on health indicators after vacation. Positive (e.g. relaxation) as well as negative experiences (e.g. negative work reflection) were related to almost all outcome variables. Within these experiences, negative work reflection seemed to play a major role: respondents engaging in negative work reflection during vacation reported also lower well-being on post-vacation 1.

In sum, only 1 study (Fritz & Sonnentag, 2006) measured vacation experiences when employees actually were on holidays. This study found evidence in support of a temporal relation between vacation experiences and outcome variables: positive experiences were related to improved well-being after vacation whereas negative experiences had the opposite effect. Of the 4 studies that collected information on vacation experiences after returning to work (mostly vacation satisfaction), 2 studies reported positive cross-sectional associations

between vacation satisfaction and outcome variables (Lounsbury & Hoopes, 1986; Westman & Eden, 1997), whereas 1 study (Etzion, 2003) did not.

## 2.4. Discussion

The aim of this meta-analysis was to find out if vacation has a positive impact on H&W, how long such beneficial effects would last, and whether vacation activities and experiences are related to these outcomes. In a stepwise approach 7 studies were identified that could shed light on these questions.

### 2.4.1. Vacation effect

There is evidence for a small effect of vacation on H&W. Average  $d$  was + 0.30, indicating that well-being improved slightly following a vacation. In accordance with Effort-Recovery Theory (Meijman & Mulder, 1998), the vacation effect was more prominent among outcome variables that were closer to the core of the concept 'H&W', than among more distal variables. Thus, health complaints and exhaustion as proximal health indicators improved more than life satisfaction as a more distal indicator.

As only 4 studies reported the duration of the vacation, the relation between the magnitude of effects and vacation length could not be established. Future research should address this relation, eventually pointing to an "optimum point of recovery". Subsequently, such knowledge could be applied to develop guidelines for the scheduling and duration of vacations.

### 2.4.2. Fade-out

There was also evidence for the post-vacation disappearance of vacation effects 2 to 4 weeks post-vacation. The average  $d$  was -0.27. Regrettably the available information was too limited to evaluate the precise course of fade-out and hence the duration of vacation effects. It seems that (entire or partial) fade-out took place within 2 to 4 weeks post-vacation, but since the second post-vacation measure was scheduled at least 2 weeks after vacation in all 4 studies, we were not able to determine when beneficial effects on different variables exactly started to diminish and were erased. Simple and frequent measures from the day of return until 8 weeks after vacation would contribute to a better understanding of the course of fade-out.

Another interesting question is which factors might prolong vacation effects and delay fade-out (Eden, 2001). Methods borrowed from cognitive therapy (e.g. brief daily writing about positive vacation experiences) could be useful for this purpose.

### 2.4.3. Vacation activities and experiences

The impact of vacation activities and experiences on vacation effects remains unclear hitherto. Vacation activities as moderators of vacation effects have not been studied yet, while they may be important behavioural determinants of positive and negative vacation outcomes.

The few results regarding vacation experiences suggest that vacation satisfaction as well as negative work reflection do play a major role in influencing vacation outcomes in a positive or negative way respectively. But until now, most reports on vacation experiences were potentially biased because data were collected after returning home. To overcome this problem, researchers need to include measurement occasions during vacation and ask respondents about vacation expectations, activities (e.g. active versus passive, voluntary versus involuntary activities), uplifts, hassles and (dis)satisfaction.

Surprisingly, there was even very limited information on vacation features like timing and location available. Actually, basic information such as (average) vacation duration was not reported in 3 cases. Most studies dealt with summer vacations. Furthermore, it remains unclear in 5 studies whether participants stayed at home during their vacation or whether they left their house and went away (Etzion, 2003; Fritz & Sonnentag, 2006; Gilbert & Abdullah 2004; Lounsbury & Hoopes, 1986; Westman & Etzion, 2001). As spending time at a holiday resort may well differ from spending time in one's regular surroundings, future vacation research should report vacation timing and location, to interpret findings in this light and to compare different vacation features.

### 2.4.4. Methodological considerations

An intriguing issue in vacation research is the question of causality, i.e. were differences in outcome variables before and after vacation indeed due to vacation? In many cases there were plausible rival hypotheses, e.g., that pre-post vacation changes in work demands may account for pre-post differences in health outcomes. Eden (2001, p. 178) called this tendency of attributing changes in outcomes to vacation the "post hoc ergo propter hoc inference fallacy". Only an intensified repeated measure strategy can overcome this problem of limited internal validity in the future.

Another frequent problem of earlier studies is the small number of respondents and the accompanying attrition, possibly due to difficult recruitment and low compliance. This might be counteracted by close collaborations with travel agencies, attractive rewards for participants and devoted respondent care. The use of different kinds of attractive new media (e.g. palm pilots, online surveys, mobile phones) could also support participant compliance and prevent attrition.

The absence of a control group in most of the studies is also problematic. This deficiency may partly be due to the fact that randomization into experimental and control groups is difficult, if not impossible in vacation research. For instance, holiday and non-holiday takers will differ anyway because non-vacationers may have many reasons for not going on vacation like illness, lack of funds or abundance of work. The use of an internal referencing strategy instead of a control group might be a better way to strengthen internal validity (Haccoun & Hamtiaux, 1994). In this approach, additional variables are included that are similar to the outcome variables but that are theoretically not expected to change because of a treatment (i.e. vacation in our example). If these control variables do not change, whilst 'real' outcome variables do, this is interpreted as empirical support for a true vacation effect. An example for such a variable is teamwork competency.

A final shortcoming is the use of only self-reports in vacation research. With most reviewed authors we agree that the use of other 'objective' measures like performance ratings and physiological measures would be desirable.

#### **2.4.5. Suggestions for future vacation research**

Vacation research will profit from better designs, which boils down to the principle of repeated measurements. Vacation research necessarily requires research on vacation: the assessment of vacation activities and experiences during vacation itself. A suitable framework for structuring diverse measurement occasions around a vacation period was developed by Westman and Eden (1997) and consists of 2 pre-, 1 inter- and 2 post-vacation measurements. Its application may well contribute to the comparability of future vacation research findings.

As discussed above, resolutions for earlier methodological problems, the detailed investigation of the fade-out process by means of brief daily measures, studies on optimal vacation duration, frequency and timing, and the design and evaluation of interventions to prolong positive vacation effects, deserve a place on the vacation research agenda.

In general, neuroendocrine and cardiovascular measures are quite difficult and costly to apply in field settings. Applications in vacation research may even be more difficult as participants are out of sight of the researcher for a relatively long period and daytime activity cannot be controlled for. However, as chronic incomplete recovery may manifest itself in a disturbed balance of sympathetic and parasympathetic activity, also during sleep (e.g. Akerstedt, 2006; Brosschot, Van Dijk & Thayer, 2007; Dahlgren, Kecklund & Akerstedt, 2006; Hall et al., 2004; Rau & Triemer, 2004), a possibility for collecting physiological measures during a vacation period would be, for instance, during night time. During sleep, parasympathetic activation with its main restorative function should be dominant. High blood pressure levels, high heart rate, low heart rate variability and high levels of catecholamine in morning urine

would be strong markers of high sympathetic and low parasympathetic activation, and thus, indicative of disturbed restorative functions and incomplete recovery.

Typically, moderators of vacation effects have hardly been studied. Still, vacation research will benefit from the inclusion of moderators in the work context (e.g. job stressors, job type), the non-work context (e.g. culture, relational problems, economic hardship) and person characteristics (e.g. self-efficacy, workaholism). Moreover, different vacation features (duration, timing and location) should be investigated and reported accurately to compare the effect of different vacation types on outcome variables.

In conclusion, much has been learned from previous vacation studies. The general picture that emerges from these pioneering studies is that vacation positively, though weakly, impacts well-being. However, these positive effects do not last long. Future vacation research may benefit from multiple measurements: before and after vacation, but especially during vacation.

## 2.5. References

- Akerstedt, T. (2006). Psychosocial stress and impaired sleep. *Scandinavian Journal of Environmental Health*, 32, 493-501.
- Beckers, D., van der Linden, D., Smulders, P. G. W., Kompier, M., Van Veldhoven, M. J. P. M., & Van Yperen, N. W. (2004). Working overtime hours: Relations with fatigue, work motivation, and the quality of work. *Journal of Occupational and Environmental Medicine*, 46, 1282-1289.
- Brosschot, J. F., Van Dijk, E., & Thayer, J. F. (2007). Daily worry is related to low heart rate variability during waking and the subsequent nocturnal sleep period. *International Journal of Psychophysiology*, 63, 39-47.
- Clow, A. (2001). The physiology of stress. In F. Jonses, & F. Bright (Eds.), *Stress, myth, theory and research* (pp.47-61). Harlow: Prentice Hall.
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences*. Hillsdale, NJ: Erlbaum.
- Dahlgren, A., Kecklund, G., & Akerstedt, T. (2006). Overtime work and its effects on sleep, sleepiness, cortisol and blood pressure in an experimental field study. *Scandinavian Journal of Work and Environmental Health*, 32, 318-327.
- Eden, D. (1990). Acute and chronic job stress, strain, and vacation relief. *Organizational Behaviour and Human Decision Processes*, 45, 175-193.
- Eden, D. (2001). Vacations and other respites: studying stress on and off the job. In C. Cooper, & I. T. Robertson (Eds.), *Well-being in organizations* (pp. 305-330). West Sussex: John Wiley & Sons, Ltd.
- Etzion, D. (2003). Annual vacation: duration of relief from job stressors and burnout. *Anxiety, Stress, and Coping*, 16, 213-226.
- Etzion, D., & Westman, M. (2001). Job stress, vacation, and the crossover of strain between spouses-stopping the vicious cycle. *Man and Work*, 11, 106-118.
- Fritz, C., & Sonnentag, S. (2006). Recovery, well-being, and performance-related outcomes: the role of workload and vacation experiences. *Journal of Applied Psychology*, 91, 936-945.
- Geurts, S.A.E., & Sonnentag, S. (2006). Recovery as an explanatory mechanism in the relation between acute stress reactions and chronic health impairment. *Scandinavian Journal of Work, Environment & Health*, 32, 482-492.
- Gilbert, D., & Abdullah, J. (2004). Holidaytaking and the sense of well-being. *Annals of Tourism Research*, 31, 103-121.
- Haccoun, R.R., & Hamtiaux, T. (1994). Optimizing knowledge tests for inferring learning acquisition levels in single group training evaluation designs: the internal referencing strategy. *Personnel Psychology*, 47, 593-604.
- Hall, M., Vasko, R., Buysse, D., Ombao, H., Chen, Q, Cashmere, J. D., Kupfer, D., & Thayer, J. F. (2004). Acute stress affects heart rate variability during sleep. *Psychosomatic Medicine*, 66, 56-62.
- Härma, M. (2006). Workhours in relation to work stress, recovery and health. *Scandinavian Journal of Environmental Health*, 32, 502-514.

- Hoopes, L. L., & Lounsbury, J. W. (1989). An investigation of life satisfaction following a vacation: a domain-specific approach. *Journal of Community Psychology, 17*, 129-140.
- Lounsbury, J. W., & Hoopes, L. L. (1986). A vacation from work: changes in work and nonwork outcomes. *Journal of Applied Psychology, 71*, 392-401.
- McEwen, B. S. (1998). Stress, adaptation, and disease: allostasis and allostatic load. *Annals of the New York Academy of Sciences, 840*, 33-44.
- Meijman, T. F., & Mulder, G. (1998). Psychological aspects of workload. In P. J. D. Drenth, H. Thierry, & C. J. de Wolff (Eds.), *Handbook of Work and Organizational Psychology* (2nd ed., pp. 5-33). Hove: Psychology Press.
- Rau, R., & Triemer, A. (2004). Overtime in relation to blood pressure and mood during work, leisure, and night time. *Social Indicators Research, 67*, 51-73.
- Sluiter, J. K., Frings-Dresen, M. H. W., & Meijman, T. F. (2000). Reactivity and recovery from different types of work measured by catecholamines and cortisol. A systematic literature overview. *Occupational Environmental Medicine, 57*, 298-315.
- Sterling, P., & Eyer, J. (1990). Allostasis: a new paradigm to explain arousal pathology. In S. Fisher & J. Reason (Eds.), *Handbook of Life Stress, Cognition, and Health* (pp. 629-649). Chichester: Wiley.
- Strauss-Blasche, G., Ekmekcioglu, C., & Marktl, W. (2000). Does vacation enable recuperation? Changes in well-being associated with time away from work. *Occupational Medicine, 50*, 167-172.
- Strauss-Blasche, G., Ekmekcioglu, C., & Marktl, W. (2002). Moderating effects of vacation on reactions to work and domestic stress. *Leisure Sciences, 24*, 237-249.
- Totterdell, P., Spelten, E., Smith, L., Barton, J., & Folkard, S. (1995). Recovery from work shifts: how long does it take? *Journal of Applied Psychology, 80*, 43-57.
- Tucker, P. (2003). The impact of rest breaks upon accident risk, fatigue and performance: a review. *Work & Stress, 17*, 123-137.
- Van der Hulst, M. (2003). Long work hours and health. *Scandinavian Journal of Work, Environment and Health, 29*, 171-188.
- Westman, M., & Eden, D. (1997). Effects of a respite from work on burnout: vacation relief and fade-out. *Journal of Applied Psychology, 82*, 516-527.
- Westman, M., & Etzion, D. (2001). The impact of vacation and job stress on burnout and absenteeism. *Psychology and Health, 16*, 595-606.







## Chapter 3

# Effects of Vacation from Work on Health and Well-being: Lots of Fun, Quickly Gone

Although vacation from work provides a valuable opportunity for recovery, few studies have met the requirements for assessing its effects. These requirements include taking measurements well ahead of the vacation, during vacation, and at several points in time afterwards. Our study on vacation (after-) effects focused on two related questions: 1) Do H&W of working individuals improve during a vacation?, and 2) How long does a vacation effect last after resumption of work?

In a longitudinal study covering 7 weeks, 96 Dutch workers reported their H&W levels 2 weeks before a winter sports vacation, during vacation, and 1 week, 2 weeks and 4 weeks after vacation on 7 indicators.

Participants' H&W improved during vacation on 5 indicators: health status, mood, tension, energy level and satisfaction. However, during the first week of work resumption, H&W had generally returned to pre-vacation levels.

In conclusion, a winter sports vacation is associated with improvements in self-reported H&W among working individuals. However, these effects fade out rapidly after work resumption. We propose a framework for future vacation research and suggest investigating the role of vacation type, duration, and possibilities to prolong vacation relief.

This chapter is based on:

De Bloom, J, Geurts, S.A.E., Taris, T.W., Sonnentag, S, De Weerth, C., & Kompier, M.A.J (2010). Effects of vacation from work on health and well-being: Lots of fun, quickly gone. *Work & Stress*, 24, 196-216.



### 3.1. Introduction

Research in the field of occupational health has consistently demonstrated the adverse impact of stress in the workplace on individuals' H&W (e.g. Belkic, Landbergis, Schnall & Baker, 2004; Ferrie, Westerland, Virtanen, Vahtera & Kivimaki, 2008). This harmful effect is, in part, brought about by physiological stress responses that continue or recur during nonwork time when job stressors are no longer present (e.g. Brosschot, van Dijk & Thayer, 2007; Hjortskov, Rissen, Blangsted, Fallentin, Lundberg & Sogaard, 2004). These prolonged physiological stress responses can be amplified by ruminating thoughts about past and potential future stressors (Geurts & Sonnentag, 2006) and may disturb the person's homeostatic balance ('allostasis', McEwen, 1998), that is, the balance between the sympathetic nervous system being dominant during effort expenditure (e.g. in response to stressors) and the parasympathetic nervous system being in control during rest and relaxation (e.g. recovery).

Accordingly, recovery during nonwork time plays a crucial role in protecting employees against the adverse effects of exposure to job stressors. According to Geurts and Sonnentag (2006), the essence of recovery is that "[...] the psychophysiological systems that were activated during work will return to and stabilize at a baseline level, that is, a level that appears in a situation in which no special demands are made on the individual" (p. 483). The most influential theories on recovery, Effort-Recovery Theory (Meijman & Mulder, 1998) and Allostatic Load Theory (McEwen, 1998), share the idea that removal of demands previously put on the individual's psychobiological systems is a prerequisite for recovery to occur.

Recovery after work may occur regularly between workdays (e.g. during evening hours and during weekends) and during longer periods of off-job time such as vacations, constituting meta- and macro-recovery, respectively (Sluiter, Frings-Dresen, Meijman & Van der Beek, 2000). Recent diary studies have revealed that workers often recover insufficiently during regular evening hours and weekends, for instance due to working overtime (Fritz & Sonnentag, 2005; Van Hooff, Geurts, Kompier & Taris, 2007). This day-to-day incomplete recovery constitutes a high risk for serious health impairment in the long term (Van Hooff, Geurts, Kompier, Taris, Houtman & van den Heuvel, 2005).

Vacation as a longer and relatively uninterrupted period of absence from work is a prime candidate for helping workers to recover more completely from work. Vacation may contribute to recovery from work through a rather passive mechanism of liberation from demands, as well as through the active engagement in valued and positively experienced free-time activities of one's own choice (e.g. family activities and hobbies).

According to Fredrickson's Broaden- and -Build Theory (2001), positive emotions produce flourishing by widening people's thought-action repertoires and by building enduring

resources (e.g. intellectual, physical, social and psychological). Positive emotions (e.g. joy, contentment and love) experienced during vacation may not only strengthen the social bond with partners, family members and/or friends, they may also break habitual thought patterns and lead to unusual, creative, fresh ideas to solve long-lasting (job-related) problems. Therefore, a vacation may help to build up enduring personal resources that may function as a buffer for future threats.

In the current study, we therefore aim to answer two central research questions:

- Question 1: Do H&W of working individuals improve during a winter sports vacation (i.e., vacation effect)?*
- Question 2: Once a vacation effect has occurred, how long does it last after resumption of work (i.e., vacation after-effect)?*

Although vacation is probably the most powerful prototypical respite occasion for working individuals, as yet surprisingly few researchers have addressed its impact on recovery from work. A recent meta-analysis of vacation research (De Bloom, Kompier, Geurts, De Weerth, Taris & Sonnentag, 2009) identified only seven studies that met a set of minimum methodological requirements for studying the effects of vacation on H&W. The results of these seven studies suggest that vacation has positive, although weak effects on H&W, and that these effects fade out quickly after returning home. However, the evidence is still inconclusive, not only because of the small number of vacation studies, but also due to suboptimal research designs often applied (De Bloom et al., 2009). We believe that an adequate study design to investigate the impact of vacation on employees' H&W comes down to five major criteria. In the following sections we will discuss each of them in more detail.

### **3.1.1. A proper pre-vacation baseline**

A number of studies included in the meta-analysis scheduled their pre-vacation measurements shortly before participants went on vacation (De Bloom et al., 2009). However, research showed that the time before a trip can be stressful (DeFrank, Konopaske & Ivancevich, 2000). In a similar vein, Westman (2004, 2005) stated that pre-vacation activities like planning the vacation, travelling to the vacation destination and coordinating work tasks for the period of absence may also cause pre-vacation stress. Accordingly, it is plausible that measurement occasions immediately before vacation are confounded by either "vacation preparation stress" or working to deadlines before leaving ("working ahead-stress"). But it may also be that vacationers look forward to the vacation, inducing enhanced H&W. In both cases, it is unreasonable to expect that levels of H&W in the week before vacation represent baseline levels of a regular working week. Therefore, in the current study, all comparisons to investigate vacation effects were anchored by a baseline during a regular working week, two weeks before vacation.

### 3.1.2. An on-vacation measurement occasion

A concern in some earlier vacation studies regards the absence of H&W measurements during the vacation period itself (for notable exceptions see Eden, 1990; Fritz & Sonnentag, 2006; Westman & Eden, 1997). In most of the earlier vacation studies, pre- and post-vacation measurements were compared, and changed levels of H&W were attributed to the unmeasured intervention, that is, the vacation (De Bloom et al., 2009). However, attributing a change in H&W to the vacation is a fallacy of the “post hoc ergo propter hoc”-type (“after this, therefore because of this”), because the sequential occurrence of phenomena does not mean that there is a causal relation between these phenomena (Eden, 2001).

The reason for the dominantly chosen pre-post comparisons to determine a vacation effect is presumably that obtaining data while people are on holiday is difficult (Eden, 2001). Some researchers have even described the logistics of locating people during vacation as “nightmarish” (Eden, 1990, p.182). Furthermore, respondents might possibly not appreciate being examined during their highly valued holidays (i.e. “holy days”), and traditional research materials like paper-pencil questionnaires are hard to use in a vacation setting.

However, investigating a vacation effect by only comparing pre-vacation and post-vacation measurements is inadequate because post-vacation measurements are biased by work resumption and fade-out may already have set in. Every measurement occasion after vacation will therefore reflect an after-effect of vacation and probably underestimate the genuine vacation effect. Accordingly, the use of a pre-post vacation design does not allow us to disentangle vacation- and vacation after-effects and can lead to erroneous conclusions about the effect of vacation on H&W. As a consequence, it is essential to obtain information about H&W during vacation in order to draw such conclusions. In the current study, we included two on-vacation measurement occasions and defined a “genuine” vacation effect as a significant change in H&W levels during vacation compared to pre-vacation baseline levels.

### 3.1.3. Multiple post-vacation measurement occasions

Insufficient attention has been paid to the fade-out process of vacation effects, once they have occurred. As a consequence, it remains largely unknown when fade-out sets in, what its exact course is and when positive after-effects of vacation have completely vanished (De Bloom et al., 2009). Vacation effects are by definition temporary, as any positive effect of vacation will fade out sooner or later, for instance, due to the renewed exposure to work demands. Because previous research suggests that vacation effects fade out rapidly (De Bloom et al., 2009), it is necessary to measure levels of H&W immediately after vacation.

In addition, only a few vacation studies have employed more than one post-vacation measurement occasion and, if they have done so, the time lag between the two post-vacation

occasions has varied widely. In most cases, the first post-vacation occasion has been scheduled in the first week after work resumption and the second post-vacation occasion at least two weeks later (Etzion, 2003; Westman & Eden, 1997; Westman & Etzion, 2001). As a result, there was no information available on H&W during the second week after vacation. To close this time gap, we collected data not only in the first week but also in the second work week after vacation.

Occasionally, previous studies have found longer lasting vacation effects (e.g. Westman & Eden, 1997). Moreover, De Lange and colleagues suggest that longitudinal studies should apply many follow-up measures that are both evenly and unevenly spaced (De Lange, Taris, Kompier, Houtman & Bongers, 2003). Therefore, we also included a third post-vacation occasion four weeks after work resumption.

#### **3.1.4. Minimalism and simple comparisons**

Vacation research is complex, because it necessarily involves a repeated-measures design. Comparisons between measurement occasions to investigate vacation effects and their duration should be as straightforward, logical and simple as possible. In our view, the essence of vacation research can be reduced to the vacation effect and its potential after-effects.

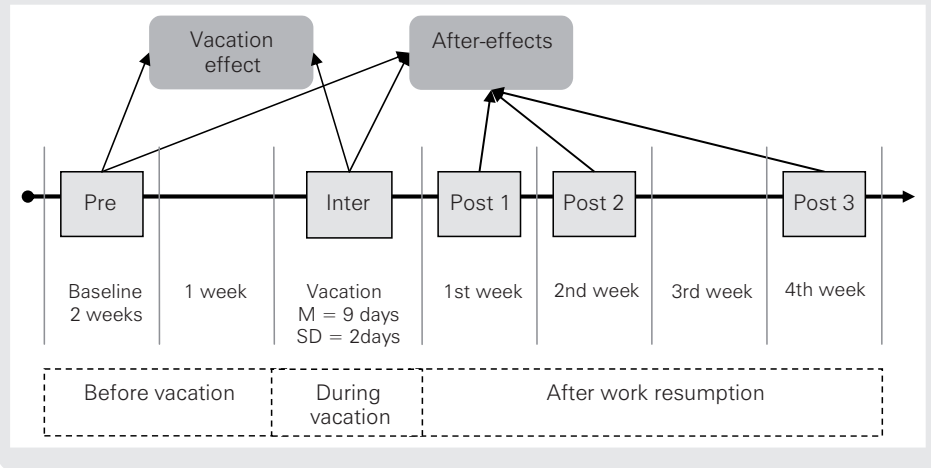
A vacation effect reflects the difference in H&W levels between the pre-vacation measurement occasion (baseline) and the on-vacation measurement occasion(s). A comparison of the post-vacation measurement occasions with the on-vacation measurement occasion reveals whether there may be short term, mid-term and long term after-effects of a vacation period. To determine when vacation effects have diminished completely (i.e. baseline levels are attained again) it makes sense to also compare post-vacation measurements with pre-vacation baseline levels. Therefore, in our study, after-effects were investigated by comparing H&W levels after vacation with both on-vacation levels and pre-vacation baseline levels.

#### **3.1.5. Equal and exact timing of measurement occasions for every participant**

Whilst earlier vacation studies had "... no precedent for ideal timing ..." of measurements (Westman & Eden, 1997, p.519) and were often rather vague in reporting when exactly measurements took place, we could base the timing of our measurement occasions on earlier findings (see reasoning above) and link every occasion to an identical point in time before, during and after vacation for every single participant. Even the time of the day was kept as constant as possible.

In our study, pre-vacation baseline levels (*Pre*) were measured two weeks before vacation. The on-vacation levels (*Inter*) were measured during vacation itself, on the second

**Figure 3.1:**  
Research design for the current study



day after arrival and on the second-last day before departure. The post-vacation levels were measured during the first (*Post 1*), the second (*Post 2*) and the fourth week (*Post 3*) after returning home and resuming work. Figure 3.1 presents the research design employed in this study.

A *vacation effect* is present when H&W levels during vacation are higher than pre-vacation levels (*Pre* versus *Inter*). The existence of a *short term after-effect* can be detected by comparing the on-vacation measurement occasion with the first post-vacation measurement occasion (*Inter* versus *Post 1*). In case of an improvement in H&W from *Pre* to *Inter* and no significant differences between *Inter* and *Post 1*, vacation effects apparently persist which is supportive of a short term after-effect.

If post-vacation levels are lower than on-vacation levels, these post-vacation levels will be compared with pre-vacation levels to determine when baseline levels are reached again. In the case of significant differences between the pre-vacation and the first post-vacation measures (*Pre* versus *Post 1*), vacation effects apparently endure (supportive of a short term after-effect).

The existence of a *mid-term after-effect* will become evident by comparing the second post-vacation occasion with the on-vacation measurement occasion (*Inter* versus *Post 2*) as well as with the pre-vacation levels (*Pre* versus *Post 2*). A significant difference between the pre-vacation and the second post-vacation levels would be supportive of a mid-term after-effect.

If participants' H&W levels on the second post-vacation occasion are still higher than baseline levels (indicating that the vacation effect still persists), we proceed with a final set of



comparisons (*Inter* versus *Post 3* and *Pre* versus *Post 3*) to decide if vacation has *long term after-effects*.

## 3.2. Method

### 3.2.1. Data collection procedure

We carried out a longitudinal field study on winter sports vacations because this type of holiday normally covers one week and vacationers usually have no more than one or two days off before departure and after return. As a result, vacation duration and the time before and after vacation were roughly comparable for all participants. The same is true for the vacation activities that people typically engage in: winter sports activities during the day (Nordic skiing, alpine skiing, snowboarding, sledding, skating) and socializing (*après-ski*) in the evening. Consequently, winter sports holidays represent a type of vacation that is more uniform with respect to activities and duration than, for instance, summer vacations and therefore well suited for our research purposes.

Our study covered a time span of seven weeks around the vacation period, including the vacation itself and took place between February 15<sup>th</sup> and April 15<sup>th</sup> 2008. On all measurement occasions during working periods i.e., two weeks before vacation (*Pre*), and the first (*Post 1*), second (*Post 2*) and fourth week (*Post 3*) after returning home, the participants received an e-mail with a link to a digital diary twice a week. Participants were asked to complete the diary just before bedtime on a fulltime working day. To make sure that participants would not forget to complete the digital diary in the evening, they additionally received a reminder text message (SMS) on their cell phone earlier that day.

In order to take on-vacation measures of H&W, the participants were provided with cell phones with international pre-paid SIM cards to take with them on holiday. They were asked to return the cell phones after returning home in a pre-stamped envelope. While on holiday, every participant was called on this cell phone and interviewed by one of the researchers on the second day after arrival and on the second-last day before departure between five and seven pm (*Inter* measurement occasion).

Before the cycle of data collection started, participants received a card with an overview of their personal measurement occasions during the seven-week period. After the whole cycle of data collection, respondents were thanked for their participation, were given the opportunity to comment on the research procedure and received information about the time when the results were expected to be published in the academic literature and on our website.

To encourage participation and to reduce missing data, we announced a lottery prize among all participants: a one-week winter sports holiday for the next winter sports season. Chances of winning were higher for participants who returned all questionnaires than for participants who missed measurement occasions. In May, the winner was drawn by lot and made public. Moreover, every participant received 10 Euro as pre-paid talk credit on his or her vacation-phone.

### 3.2.2. Missing data: prevention and treatment

Missing data constitute a major problem in longitudinal designs (Taris, 2000) and effective strategies to prevent and deal with missing data were applied. First of all, because we assumed that especially well-informed participants would comply with our intensive data collection procedure, we devoted much attention to instructing them on the research procedure.

Second, we scheduled two measurement occasions within each week. In order to obtain a reliable indicator of the week-level of H&W, the two within-week measures of a particular H&W indicator were averaged. This approach also served to prevent missing data in case of a single non-answered prompt during a workweek. In that case the other measurement in that week (if available) was treated as the week average.

Third, for data collection, we used electronic mail and SMS to remind the participants to fill in the questionnaires at the correct moment in time. Because we used digital diaries, we could recognize un-answered prompts immediately, and a detailed non-completion script was applied for the digital diaries as well as the telephone surveys. These strategies reduced the amount of missing data.

Finally, in anticipation of possible technical problems with the mobile vacation phones, a sealed envelope containing a paper-and-pencil questionnaire with the interview questions was sent to the participants before departure as backup. When all attempts to reach a participant by phone failed, we sent a SMS that allowed participants to open the envelope and to fill in the questionnaire. Nine measurements during vacation were in fact paper-and-pencil questionnaires returned in a pre-stamped envelope.

In order to guarantee the reliability and comparability of the measurements, we excluded data from the digital diary (a) if participants filled in the questionnaire on non-work days instead of on fulltime working days, and (b) if participants completed the questionnaire between 6 am and 6 pm instead of just before bedtime.

Considering the ten measurements per individual, 83 respondents replied to at least eight single measurements (digital diaries and telephone interviews during vacation). Based on a maximum of 960 possible single measurements in this study (10 measurements in 96 persons), the overall completion rate was 87% (834 measurements). The combination of the ten

measurements (two measurements a week) into five occasions resulted in even more reliable week-indicators and high completion rates: 100% ( $N = 96$ ) on *Pre*, 98% ( $N = 94$ ) on *Inter*, 90% ( $N = 86$ ) on *Post 1* and 96% ( $N = 92$ ) on *Post 2* and *Post 3*. For 83 of the 96 participants data sets were complete (no missing data on any of the five occasions).

### 3.2.3. Participants

To recruit participants in the Netherlands, we distributed information via travel agencies, winter sports websites, shops for skiing-equipment, winter sports journals and newspaper ads. Additionally, we visited a winter sports fair and contacted ski-clubs (i.e. sporting clubs for skiers who jointly exercise for their upcoming winter sports holiday).

As a result of the recruitment procedure, 176 persons indicated that they were interested in taking part in this study. After administering detailed information about the research procedure and promising confidentiality, these 176 persons received a phone call from one of the researchers. During this call, possible questions about the research scheme were answered and the participants were screened for participation prerequisites: participants (i) had to work at least 24 hours per week (18 exclusions), (ii) go on winter sports vacation for at least 1 week between February 15th and April 15th, 2008 (22 exclusions), and (iii) enrol in the study on time (17 exclusions). Persons working extremely irregular schedules were also excluded (4 exclusions). Moreover, a small number of interested persons did not want to be called during vacation (4 exclusions), did not use electronic mail (5 exclusions) or found the research procedure too burdensome (3 exclusions). Another seven persons were excluded because they did not go on vacation after all due to sickness. All in all, of the 176 people who were initially interested, 108 met the inclusion criteria. Of those 108, 96 actually took part in the study, resulting in a 89% response rate.

The majority of this Dutch sample was male (65%), mean age was 44 years ( $SD = 10$  years) and as regards education 5% of the sample was lower (no secondary education, lower secondary or junior secondary education), 40% medium (senior general secondary and university preparation education) and 55% highly educated (higher professional and higher education). The majority of the respondents were employed (82%) whilst 18% were self-employed. The participants worked in a variety of sectors: 23% worked in the commercial sector, 20% were higher educated specialists (e.g. engineers, ICT-workers), 14% worked in the service sector, 12% in health care, 11% were administrative employees, 7% were craftsmen or worked in the production industry, 4% were teachers, and the remaining 9% worked in other sectors.

The participants worked at least 24 contractual hours per week and weekly work hours (including overtime) varied from 24 to 60 hours. Average working time was 38 hours

per week ( $SD = 8$  hours). Forty-seven percent of the participants supervised other persons, whereas 53% had no supervisory tasks. In terms of their personal living situation, the majority of the respondents (57%) was married and lived with at least one child, 29% were married and lived without children, 9% were unmarried and lived alone, 2% were single parents and 2% lived in their parents' house.

The mean vacation duration was 9 days ( $SD = 2$  days, range: 7-19 days). Vacation destinations were typical winter sports areas, with the top-three destinations being Austria (70%), France (15%) and Switzerland (6%). Most of the respondents were experienced skiers: every participant had been on a skiing vacation at least one time before, and the average number of previous skiing vacations was 22 ( $SD = 15$  times).

#### 3.2.4. Measures

In order to be able to give a detailed account of H&W, we incorporated a range of different H&W indicators. To prevent non-response we minimized the effort required from the participants and maximized user-friendliness by reducing the number of digital diary questions as much as possible. Therefore, we employed seven single-item measures to tap the seven main indicators of H&W: sleep quality, health status, mood, fatigue, tension, energy level and satisfaction.

Single-item measures often have a high face validity, and participants value their directness and lack of redundant and repeated comparable items. Accordingly, multiple item measures may be validly replaced by single-item measures and still be psychometrically acceptable if the underlying constructs are sufficiently one-dimensional and unambiguous to the participants (e.g. Elo, Leppänen & Jahkola, 2003; Van Hooff, Geurts, Taris & Kompier, 2007).

For simplicity, we adapted response scales based on the well-known basic Dutch grade notation system ranging from 1 (extremely low/negative) to 10 (extremely high/positive) and anchored the first and the last grade. The exact wording of each single-item measure and the anchors can be found in Table 3.1.

#### 3.2.5. Statistical approach

The data were analyzed in a 5 (Occasion: five occasions)  $\times$  7 (health and wellbeing: seven H&W indicators) multivariate analysis of variance (MANOVA) with repeated measures on both Occasion (the independent variable or factor) and H&W (our criterion variables). Subsequently follow-up univariate ANOVAs were performed for each of the seven H&W indicators separately (cf. DeShon & Morris, 2003).

The *vacation effect* (Question 1) was examined by computing Fisher's Least Significant Difference (LSD) test for *Pre* versus *Inter*, presenting Cohen's *d* for paired observations (Cohen,

**Table 3.1:**

Description of the seven single-item measures used in this study

H&W indicators	Single item measure	Score of 1 means...	Score of 10 means...
Sleep quality	How did you sleep last night?	Very badly	Very good
Health status	How healthy did you feel today?	Very unhealthy	Very healthy
Mood	How was your mood today?	Very bad	Very good
Fatigue	How fatigued did you feel today?	Not fatigued at all	Very fatigued
Tension	How tense did you feel today?	Very calm	Very tense
Energy level	How energetic do you currently feel?	Absolutely not energetic	Very energetic
Satisfaction	How satisfied do you feel about this day?	Very dissatisfied	Very satisfied

1988, p.46) as an effect size. Following Cohen (1988) we distinguished among small (0 to 0.5), medium (0.5 to 0.8) and large (> 0.8) effect sizes.

In order to test if there was a *short term after-effect* of the vacation (Question 2), we compared the on-vacation measure (*Inter*) with the first post-vacation occasion (*Post 1*). In a next step, the comparison of *Pre* versus *Post 1* told us if H&W indicators had returned to baseline levels.

For H&W indicators that did not attain baseline at *Post 1*, we examined post-hoc Fisher's LSD differences between *Inter* and *Post 2* to test if vacation effects still persisted and a *mid-term after-effect* applied. The post-hoc Fisher's LSD test between *Pre* and *Post 2* informed us about the strength and duration of this potential mid-term after-effect.

Only in case of a mid-term after-effect, we examined the post-hoc differences between *Inter* versus *Post 3* and *Pre* versus *Post 3* to determine if there was a *long term after-effect*.

### 3.3. Results

#### 3.3.1. Preliminary analysis: descriptive statistics

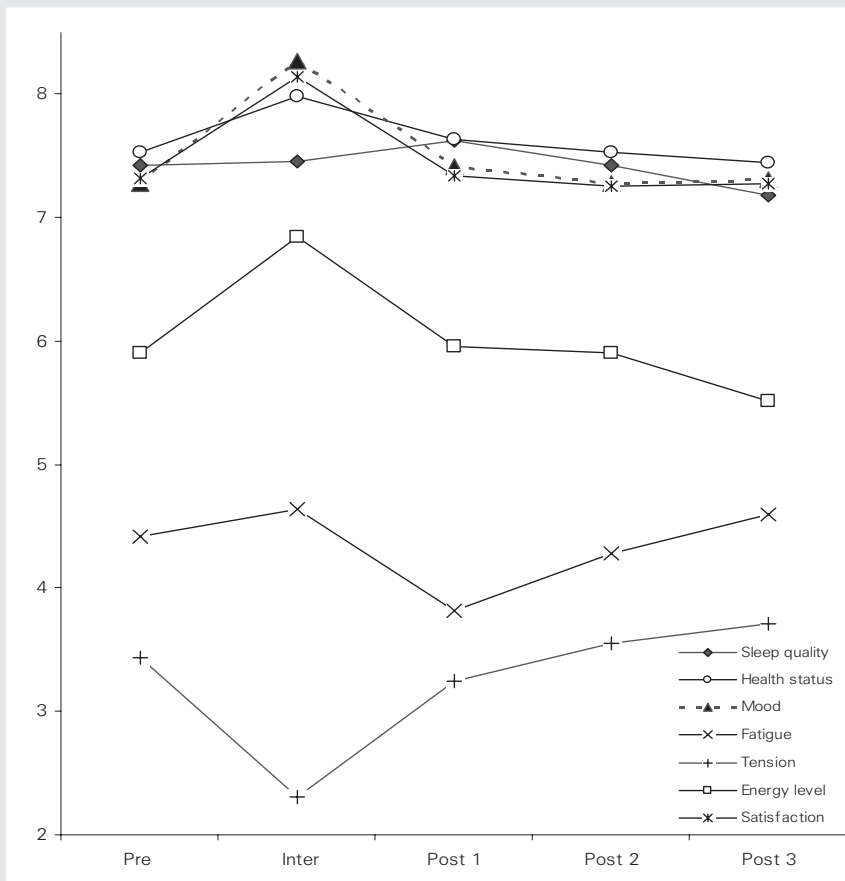
Pearson product moment correlations were examined to establish the relationship between the seven different H&W indicators on the five measurement occasions. The full 35 by 35 table (five occasions multiplied by seven H&W indicators) is available on request from the first author.

Autocorrelations that can be interpreted as test-retest reliability coefficients ranged from .06, *ns*, for the *Pre* and *Inter* measures of sleep, to .67,  $p < .001$ , for the *Post 2* and *Post*

3 measures of energy level. The correlations among the seven H&W indicators on the same measurement occasions ranged, for *Pre*, between  $-.28$  ( $p < .01$ , fatigue and sleep quality) and  $.78$  ( $p < .001$ , mood and satisfaction), for *Inter* between  $.08$  (*ns*, satisfaction and energy level) and  $.68$  ( $p < .001$ , mood and health status), for *Post 1* between  $.04$  (*ns*, energy level and sleep quality) and  $.76$  ( $p < .001$ , satisfaction and mood), for *Post 2* between  $.09$  (*ns*, energy level and health status) and  $.82$  ( $p < .001$ , satisfaction and mood), and for *Post 3* between  $-.16$  (*ns*, tension and sleep quality) and  $.71$  ( $p < .001$ , satisfaction and mood). So, the H&W indicators were interrelated, but not identical. Mean scores for the seven H&W indicators across the five measurement occasions are presented in Table 3.2 and Figure 3.2.

**Figure 3.2:**

Line diagram of means for H&W indicators across the five measurement occasions.



**Table 3.2:**

Means and standard deviations on all five occasions and occasion effects, vacation effects (research question 1) and vacation after-effects (research question 2) for all H&W indicators

H&W indicators	Means and (standard deviations) for 5 occasions					Occasion effect		Vacation effect		Effect sizes (Cohen's d) for various comparisons			
	Pre	Inter	Post 1	Post 2	Post 3	F	partial eta	Pre vs. Inter	Short term after-effect		Mid-term after-effect		
									Inter vs. Post 1	Pre vs. Post 1	Inter vs. Post 2	Pre vs. Post 2	
<i>Sleep quality</i>	7.42 (1.05)	7.46 (1.31)	7.62 (1.00)	7.42 (1.24)	7.18 (1.26)	1.93 0.09		-	-	-	-	-	
<i>Health status</i>	7.53 (1.24)	7.98 (1.26)	7.63 (1.44)	7.53 (1.12)	7.45 (1.04)	3.88** 0.16		0.28**	- 0.23*	0.06	Back to baseline at Post 1		
<i>Mood</i>	7.28 (1.17)	8.27 (0.99)	7.41 (1.10)	7.28 (1.13)	7.31 (1.12)	15.91** 0.45		0.71**	- 0.66**	0.11	Back to baseline at Post 1		
<i>Fatigue</i>	4.42 (1.99)	4.64 (1.99)	3.81 (1.72)	4.28 (1.62)	4.60 (1.71)	3.78** 0.16		- 0.09	0.40**	0.29**	0.16	0.07	
<i>Tension</i>	3.43 (1.80)	2.31 (1.16)	3.25 (1.53)	3.55 (1.78)	3.71 (1.71)	21.68** 0.52		0.71**	- 0.64**	0.11	Back to baseline at Post 1		
<i>Energy level</i>	5.90 (1.90)	6.84 (1.37)	5.96 (1.89)	5.90 (1.74)	5.51 (1.74)	9.13** 0.32		0.46**	- 0.46**	0.03	Back to baseline at Post 1		
<i>Satisfaction</i>	7.32 (1.05)	8.14 (1.10)	7.34 (1.15)	7.25 (1.09)	7.28 (0.95)	11.43** 0.37		0.59**	- 0.59**	0.02	Back to baseline at Post 1		

Note: \*  $p < .05$ , \*\*  $p < .01$ . Pre = 2 weeks before vacation, Inter = during vacation, Post 1 = 1<sup>st</sup> week of work resumption, Post 2 = 2<sup>nd</sup> week of work resumption, Post 3 = 4<sup>th</sup> week of work resumption. Baseline = levels of H&W indicators 2 weeks before vacation (Pre).

With regard to the on-vacation measurements of H&W, there were no systematic differences between reports collected by telephone interviews and the nine reports collected by paper-and-pencil questionnaires ( $t(85) < 1.30, p > .05$ ).

### 3.3.2. Multivariate analysis

Multivariate analysis of variance revealed main effects of Occasion,  $F(4,79) = 7.29, p < .001$ , and of H&W,  $F(6,77) = 140.35, p < .001$ , as well as a significant Occasion  $\times$  H&W interaction effect,  $F(24,59) = 7.20, p < .001$ . Hence, H&W varied significantly across the five occasions, and this across-time change was different for the various H&W indicators.

### 3.3.3. Univariate analysis

Follow-up univariate ANOVAs for the H&W indicators across the five measurement occasions revealed that the levels of six indicators varied significantly across the five occasions (Table 3.2). Sleep quality was the only indicator that did not show an overall occasion effect,  $F(4, 79) = 1.93, ns$ , meaning that sleep quality did not differ significantly before, during and after the vacation period.

### 3.3.4. Research question 1: Do H&W of working individuals improve during a winter sports vacation (i.e., vacation effect)?

To answer the first research question, we compared the pre-vacation measures of the six H&W indicators with the measures taken during vacation (*Inter*). Five out of seven indicators showed an overall occasion effect with *Pre* levels of H&W being significantly different from *Inter* levels ( $p < .01$ ). During the vacation participants felt healthier, were in a better mood, felt more energized, were more satisfied and reported lower tension than during the regular working week before they went on vacation. Effect sizes were medium for satisfaction ( $d = 0.59$ ), mood ( $d = 0.71$ ) and tension ( $d = 0.71$ ), and small for energy level ( $d = 0.46$ ) and health status ( $d = 0.28$ ). The level of fatigue was not significantly different during the vacation period compared to the pre-vacation baseline ( $p = .74$ ).

Overall, self-reported H&W significantly improved during vacation. The mean absolute effect size  $d$  for the difference between *Pre* and *Inter* in all seven H&W indicators was 0.38, indicating a small positive vacation effect ( $d$ s were 0.02 for sleep, 0.28 for health status, 0.71 for mood, -0.09 for fatigue, 0.71 for tension, 0.46 for energy level, and 0.59 for satisfaction).



### 3.3.5. Research question 2: Once a vacation effect has occurred, how long does it last after work resumption (i.e., vacation after-effects)?

To test if there was a short term after-effect, we conducted post-hoc Fisher's Least Significant Difference (LSD) tests for the difference between the on-vacation measure (*Inter*) and the first post-vacation occasion (*Post 1*). For all six H&W indicators, there was a significant difference between *Inter* and *Post 1*. For five of the six indicators, self-reported H&W had declined significantly immediately after participants had returned home and resumed work. Effect sizes were small for health status ( $d = -0.23$ ) and energy level ( $d = -0.46$ ), and medium for satisfaction ( $d = -0.59$ ), tension ( $d = -0.64$ ) and mood ( $d = -0.66$ ). For fatigue, findings were different: levels of fatigue had decreased rather than increased directly after vacation ( $d = 0.40$ ), indicating a positive short term after-effect.

An inspection of the means of the H&W indicators (Table 3.2) already provided interesting insights: an increase from *Pre* to *Inter* was followed by an immediate decrease in H&W of nearly the same amount from *Inter* to *Post 1*, resulting in almost baseline levels again. The mean score for health status increased by 0.45 points during vacation and decreased by 0.35 points from *Inter* to *Post 1*. The same pattern could be observed for mood (0.99 increase during vacation, 0.86 decrease at *Post 1*), energy level (0.94 increase, 0.88 decrease), and satisfaction (0.82 increase, 0.80 decrease). Tension showed a similar pattern in the reversed direction (1.12 decrease during vacation, 0.94 increase at *Post 1*). Standardized effect sizes  $d$ , which enabled us to compare the rise and fall within the seven H&W indicators relative to each other, mirrored this development across time.

Post-hoc tests of the difference between *Pre* versus *Post 1* were non-significant in five of the six H&W indicators, indicating that during the first week after vacation, there was a return to baseline levels for health status, mood, tension, energy level and satisfaction. The lowest levels of fatigue were found at *Post 1* and accordingly there was a significant decrease in fatigue from *Pre* to *Post 1*, resulting in a positive effect size  $d$  of 0.29.

Because every single H&W indicator except fatigue had reached baseline levels again at *Post 1*, we only conducted post-hoc tests for a mid-term after-effect in fatigue. As fatigue was lowest on *Post 1* and had similar levels at *Pre*, *Post 2* and *Post 3*, the differences between *Inter* versus *Post 2* and *Pre* versus *Post 2* were indeed non-significant ( $ps$  were .30 and .44, respectively). So, fatigue had returned to baseline levels at *Post 2*.

In conclusion, self-reported H&W had declined rapidly after resumption of work: five of the six H&W indicators (health status, mood, tension, energy level, satisfaction) had returned to baseline levels within the first week of work resumption (*Post 1*), meaning that vacation had no short term, mid-term or long term after-effect. Fatigue showed a different pattern of rise and

fall, with the lowest level at *Post 1* and levels comparable to baseline at *Post 2*, suggesting a short term after-effect.

### 3.3.6. Process evaluation

In an evaluation of the research procedure, 63% of the respondents reported to have enjoyed participating in our study and only 17% found the research procedure a little boring or time consuming. The great majority appreciated the digital diaries (94%) and 66% found the reminder SMS very useful. Only a small percentage (9%) indicated that the phone call interfered somewhat with their vacation. The great majority (65%) indicated that being called during vacation was “no problem”. The majority (93%) even judged the vacation phones as a very good and creative idea.

3

## 3.4. Discussion

### 3.4.1. Vacation effect

Our study provided evidence for improvements in self-reported H&W during a winter sports vacation. The average effect size for the vacation effect computed across the seven health and wellbeing indicators was  $d = 0.38$  (small). This effect was present for five of the seven H&W indicators employed in this study. In particular, workers felt more satisfied and experienced more positive mood and less tension during vacation compared to a regular pre-vacation working week. In addition, although to a lesser extent, workers felt more energized and healthier during vacation than before vacation.

These findings strongly support the idea of a vacation as a powerful opportunity to recover from work demands and to benefit from positive free-time experiences. Regarding fatigue and sleep quality, participants' reports did not differ between the on-vacation and the pre-vacation occasions. The finding that mood, tension and satisfaction were more strongly affected by vacation than, for instance, health status may reflect the fact that the former aspects of H&W are more sensitive to changes in stressors and work demands and fluctuate more easily from day to day, than the latter.

We believe that current study has several strengths, specifically, a research design with multiple repeated measures before, during and after vacation. We succeeded in carrying out 10 repeated measurements per individual (two measurements for each of the five occasions) during a seven-week period in a substantial group of 96 vacationers. Hereby, we applied a proper pre-vacation baseline measurement during a regular working week two weeks prior to vacation and we were able to assess the after-effects of vacation by monitoring H&W on

three measurement occasions after vacation. Additionally, our study is one of the few studies that measured H&W during vacation itself. The importance of the inclusion of on-vacation measurements to determine the “genuine” vacation effect can easily be illustrated: if we had left out the on-vacation occasion, we would falsely have concluded that vacation generally had no positive effect on H&W.

The combination of traditional and new media gave us the opportunity to generate rich datasets in a reliable, user-friendly way and to reduce missing data and attrition drastically by acting upon the principle ‘the more you measure, the less the pleasure’. This means, we measured frequently but in a comfortable manner by restricting the number of questions to a minimum and by designing easy to use instruments and resources like digital diaries, telephone surveys and SMS reminders. The process evaluation of the participants confirms that our approach was generally experienced positively.

Our findings showed that sleep quality and fatigue had not improved on vacation compared to the pre-vacation baseline. Previous research has suggested, however, that sleep quality and stress are closely related (e.g. Akerstedt, 2006) and that sleep quality improves in times of low stress (Dahlgren, Kecklund & Akerstedt, 2005). It is possible that the potential beneficial effects of low stress and rest on sleep quality may have been outweighed by specific vacation circumstances, such as a reduced number of hours sleep, an unfamiliar sleeping environment (e.g. a different bed, different sounds, and light and temperature conditions) and changes in sleep-relevant behaviour. Regarding the latter, it is not uncommon during a winter sports vacation to drink substantial amounts of alcohol during the *après ski* (Meyers, Perrine & Caetano, 1997), which might in turn lead to sleep disruption (Roehrs & Roth, 2001). It is conceivable that the beneficial effect of low stress and rest on sleep quality only occurs for those who sleep enough or consumed low amounts of alcohol before going to bed.

Hence, we tested in a number of post-hoc analyses whether the relationship between pre-vacation and during-vacation sleep quality varied as a function of the number of hours sleep and of alcohol consumption before going to sleep during vacation (i.e. the number of glasses of alcoholic beverages). These analyses revealed no main or moderator effects of sleep hours ( $F$ 's (1, 92) < 1.26, *ns*) on sleep quality. The same was true for alcohol consumption ( $F$ s (1, 92) < 1.20, *ns*). So we concluded that neither the number of hours participants slept, nor alcohol consumption during vacation explained why sleep quality did not improve during vacation. We cannot rule out that physical sleeping circumstances may have accounted for the absence of a vacation effect on sleep quality.

Contrary to our expectations, we found the lowest levels of fatigue immediately after vacation instead of during vacation. Strictly speaking, this effect cannot be labelled an after-effect of vacation, since levels of fatigue on vacation did not differ significantly from pre-

vacation levels, indicating the absence of a vacation effect. Still, we assume that decreased levels of fatigue on post-vacation may represent a vacation after-effect: during winter sports vacation, people engage in physically demanding, uncommon activities which are presumably accompanied by feeling physically fatigued, while after work, people may feel primarily mentally fatigued.

#### **3.4.2. Vacation after-effects**

The results regarding vacation after-effects were less favourable for H&W: the five positive vacation effects had vanished within the first week of work-resumption. Fatigue constituted the only exception to this rule and was lowest immediately after vacation. Despite the absence of a vacation effect in fatigue, this finding is in line with the slower fade-out process in burnout that Westman and Eden (1997) reported and may point to positive mid-term effects regarding fatigue.

Due to the absence of on-vacation measurement occasions, most previous vacation studies defined a vacation effect as the difference between the pre-vacation and post-vacation levels in H&W that 'sandwiched' the vacation period. Whereas the meta-analysis of De Bloom et al. (2009) revealed a small short term after-effect, we found none in the current study. There are several possible explanations for the immediate fade-out of vacation effects that need to be discussed.

Firstly, could it be that the type of vacation is important for the duration of the vacation effects? One might argue that a winter sports vacation as a very active type of vacation may have less enduring beneficial health effects than for example a predominantly relaxing vacation. However, research has demonstrated that active leisure activities, in particular physical activities, improve well-being and may be even more recovering than low-effort activities like watching television (Sonnentag, 2001; Sonnentag & Natter, 2004; Rook & Zijlstra, 2006). Accordingly, it is not very likely that the active character of a winter sports vacation explains the lack of after-effects.

Secondly, an explanation may be that a winter sports vacation normally forms an interruption of a busy period of the year. Vacationers return home and are immediately trapped in demanding daily routines and hassles like unpacking and washing clothes, work, and non-work-obligations. Research on spa therapy suggests that returning home in the second half of a workweek with the weekend in prospect is more favourable for the conservation of positive effects than returning on Sunday with a full working week ahead (Strauss-Blasche, Muhry, Lehofer, Moser & Marktl, 2004). Therefore, it would be interesting to examine in future studies whether short vacations (active or passive) scheduled at a more relaxed time of the year (e.g.

during a long summer vacation) or in a different manner (e.g. one or two more days off after returning home to prevent “post-vacation stress”) may have more enduring after-effects.

Thirdly, the duration of the vacation period may constitute a major component of its effectiveness in improving H&W during and after vacation. Just as a lower dose of medicine may be less effective in curing a disease, a short vacation may have fewer and less profound effects on H&W than a long vacation period. A winter sports vacation is typically a short vacation: most of our participants spent only nine days away from home (including two travel days) and one week away from work. As a consequence of the brief ‘treatment’, the effects may have been weaker and more short-lived.

Fourthly, it may also be that in previous studies the after-effects of vacation have been overestimated. If the pre-vacation occasion is programmed immediately before vacation, it may be confounded by preparation stress for the vacation which is likely to be associated with decreased levels of H&W. When this pre-vacation occasion is subsequently treated as baseline, vacation after-effects would artificially increase.

Regarding the rapid fade-out process of positive vacation effects, an intriguing question may be: Why should we go on vacation at all when effects wash out so fast? However, like any other freely chosen and pleasant activity, a vacation is a period that people enjoy for its own sake; vacation makes people happy and healthy as our study unmistakably showed. A vacation is, therefore, an effective, strong and natural way to boost the well-being of employees.

Furthermore, H&W could deteriorate over time if people would not go on vacation, as vacation is important for long term health and vitality, and for building up enduring personal resources and coping capacities. A study of Gump and Matthews (2000), for example, showed that not taking annual vacations was associated with a higher risk of morbidity and mortality during a nine-year period. Correspondingly, a more appropriate question regarding the temporal nature of vacation effects would probably be: Is it possible to conserve positive vacation effects, and if so, which strategies can be used to slow down fade-out processes and prolong vacation relief (see also Eden, 2001)?

### **3.4.3. Limitations**

The limited variation in vacation type and duration was a deliberate choice in the current study. The uniformity with respect to activities, duration and time off the job before and after vacation (maximally 1 or 2 days) enabled us to generate reliable results for short winter sports vacations. However, the question remains whether we would have found the same pattern of results for other vacation types, for other vacations durations, and for other periods (seasons) of the year.

In addition, our sample of skiing enthusiasts may limit the external validity of our study. Although our sample was heterogeneous in many regards (gender, age, type of work,

family background), winter sports vacationers may be above-average healthy, active and sporty. Even though we do not have theoretical reasons to assume that vacations will have less positive effects among less healthy and sporty individuals, we should be careful in generalizing our findings.

Another limitation is the use of self-reports only. However, H&W are by definition subjective constructs and self-reports are probably the best way to measure them (Kompier, 2005). But one may also argue that retrospective evening scores may be biased by cognitive distortions like the “rosy view bias”. Mitchell, Thompson, Peterson and Cronk (1997) found that people’s post-event recollections are more positive than their evaluations of the actual experiences. Yet, we reduced such potential biases by measuring several times a week and by asking respondents to indicate their level of H&W on the same day.

We measured fatigue with a single-item measure because it reduced the burden put on the participants, prevented non-response and attrition and because it is a valid substitute for multiple item measures of fatigue (Van Hooff et al., 2007). In spite of that, the use of two additional single-item measures on mental and physical fatigue could have provided more in-depth information and understanding of the vacation (after-) effects regarding fatigue.

Finally, there may be an effect of the time of the day at which the pre- and post-vacation measures (just before going to bed) and the on-vacation measures (between 5 and 7 pm) were taken. It may be that people feel better in the early evening than just before going to bed because of feeling more tired at bedtime. Nevertheless, fatigue was highest during vacation, in the early evening, which does not point into the direction of a “before bedtime effect”.

#### **3.4.4. Suggestions for future vacation research**

First and foremost, future vacation research could be optimized by applying research designs like the one we used with repeated measures before, during and after vacation. Furthermore, the combination of different technically innovative instruments for data collection (digital diaries, telephone surveys) and an extensive protocol to guarantee compliance (careful recruitment, SMS reminders) may help future researchers to start measuring on vacation and to prevent attrition.

Data triangulation, for example the combination of self-reports, ratings from the partner or fellow vacationers and performance ratings, would be a means to further improve vacation research and to generate valid and reliable results.

Some other suggestions for future vacation research regarding sleep quality (i.e. take physical sleep circumstances into account) and fatigue (i.e. distinguish mental and physical fatigue) are important and were already briefly mentioned above.

Because different types of vacation (active and passive) may have different effects on H&W, the impact of various vacation types on the strengths and duration of vacation effects should be investigated (see also Eden, 2001). For instance, would a relatively short relaxing vacation during the winter period have the same vacation effects and (lack of) after-effects as an active winter sports vacation? The impact of similar types of vacation (e.g. physically active vacations) scheduled in different seasons of the year could be examined as well. Would, for instance, an active vacation in the summer (e.g. sailing or biking) have the same vacation and after-effects as an active vacation in the winter?

The role of vacation duration is difficult to study, because if duration varies, a lot of other variables such as vacation type and activities co-vary. As a consequence, it will be impossible to attribute vacation effects and after-effects mainly to its duration. It does for example not make sense to compare vacation effects of a 4-week backpacker-trip through Scandinavia with a 2-week all-inclusive resort stay at Costa del Sol. Also experimentally assigning participants to different vacation durations is practically impossible (for creative ideas like give-away paid vacations see Eden, 1990). So, the best way to study the effects of vacation duration is probably to vary vacation duration while holding vacation type as constant as possible.

Another interesting research topic is the investigation of the role of work accumulation as moderator of vacation (after-) effects. For some employees, work may pile up before vacation (see also Westman, 2004, 2005; DeFrank, Konopaske & Ivancevich, 2000); they have to work harder in order to go on vacation and experience “working-ahead stress”. On vacation, their work may accumulate even further and they may be confronted with high workload after returning home (Fritz & Sonnentag, 2006). We may call this “catch-up stress”. For other employees, work may be structured in a different way and may not pile up because a colleague takes over. Accordingly, it would be interesting to include measures of “working ahead-stress” before and “catch-up stress” after vacation and to study their impact on H&W.

A target for vacation researchers could also be the investigation of the role of vacation activities and experiences in changing H&W. Up till now, vacation remains an intervention with more or less unknown content and we do not know if vacation activities like physical activities, relaxing, household or work-related tasks have a different impact on the strength of the vacation effect or the fade-out rate (for an exception see Fritz & Sonnentag, 2006). Vacation expectations and their fulfilment, uplifts and hassles and relations with travel companions and the life partner during vacation are additional examples for possible moderators of the vacation effect which should be studied (see also Eden, 2001).

Last but not least, strategies to slow down fade-out processes and to prolong vacation relief are an important avenue for future research. Positive, frequent vacation reflection may

be a prime candidate for fade-out deceleration because reflecting repeatedly and favourably on pleasant vacation experiences may reactivate positive vacation cognitions and feelings, and enhance H&W. In an experiment on cardiovascular reactivity (Fredrickson, Mancuso, Branigan & Tugade, 2000), positive emotions speeded up cardiovascular recovery from stress, indicating that positive emotions regulate or even undo negative emotional arousal. These findings support the assumption from Broaden- and -Build Theory (Fredrickson, 2001) that positive emotions may improve individual's coping capacity to deal with stressors. So, positive emotions experienced during vacation and positive vacation reflection may protect and build resources that improve H&W by buffering future threats.

In conclusion, it seems that a winter sports vacation certainly improves H&W, but positive effects are short-lived. Future vacation studies should therefore focus on means to decelerate the fade-out process in order to prolong vacation relief. Moreover, we propose a longitudinal framework for vacation research with proper baseline-, on-vacation- and multiple post-vacation measurements (such as in the framework that we employed) to investigate the effects of different vacation types, durations, activities and experiences on H&W in future vacation studies.



### 3.5. References

- Akerstedt, T. (2006). Psychosocial stress and impaired sleep. *Scandinavian Journal of Work, Environment & Health*, 32, 493-501.
- Belkic, K., Landbergis, P.A., Schnall, P.L., & Baker, D. (2004). Is job strain a major source of cardiovascular disease risk? *Scandinavian Journal of Work, Environment & Health*, 30, 85-128.
- Brosschot, J.F., Van Dijk, E., & Thayer, J.F. (2007). Daily worry is related to low heart rate variability during waking and the subsequent nocturnal sleep period. *International Journal of Psychophysiology*, 63, 39-47.
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences*. Hillsdale (NJ): Lawrence Erlbaum Associates.
- Dahlgren, A., Kecklund, G., & Akerstedt, T. (2005). Different levels of work-related stress and the effects on sleep, fatigue and cortisol. *Scandinavian Journal of Work, Environment & Health*, 31, 277-85.
- De Bloom, J., Kompier, M., Geurts, S., De Weerth, C., Taris, T., & Sonnentag, S. (2009). Do we recover from vacation? Meta-analysis of vacation effects on health and well-being. *Journal of Occupational Health*, 51, 13-25.
- DeFrank, R.S., Konopaske, R., & Ivancevich, J.M. (2000). Executive travel stress: Perils of the road warrior. *The Academy of Management Executive*, 14, 58-71.
- De Lange, A.H., Taris, T.W., Kompier, M.A.J., Houtman, I.L.D., & Bongers, P.M. (2003). The very best of the millennium: Longitudinal research and the Demand-Control-(Support) model. *Journal of Occupational Health Psychology*, 8, 282-305.
- DeShon, R.P., & Morris, S.B. (2003). Modeling complex data structures: The General Linear Model and beyond. In S.G. Rogelberg (Ed.), *Handbook of Research Methods in Industrial and Organizational Psychology* (pp. 390-411). Malden: Blackwell Publishers.
- Eden, D. (1990). Acute and chronic job stress, strain, and vacation relief. *Organizational Behavior and Human Decision Processes*, 45, 175-199.
- Eden, D. (2001). Vacations and other respites: studying stress on and off the job. In C. Cooper and I.T. Robertson (Eds), *Well-being in organizations* (pp.305-330). West Sussex (UK): John Wiley & Sons.
- Elo, A., Leppänen, A., & Jahkola, A. (2003). Validity of a single-item measure of stress symptoms. *Scandinavian Journal of Work, Environment & Health*, 29, 444-451.
- Etzion, D. (2003). Annual vacation: duration of relief from job stressors and burnout. *Anxiety, Stress and Coping*, 16, 213-226.
- Ferrie, J.E., Westerlund, H., Virtanen, M., Vahtera, J., & Kivimaki, M. (2008). Flexible labour markets and employee' health. *Scandinavian Journal of Work, Environment & Health*, 6, 98-110.
- Fredrickson, B.L. (2001). The role of positive emotions in positive psychology: The Broaden- and -Build Theory of positive emotions. *American Psychologist*, 56, 218-226.

- Fredrickson, B. L., Mancuso, R. A., Branigan, C., & Tugade, M. M. (2000). The undoing effect of positive emotions. *Motivation and Emotion, 24*, 237 - 258.
- Fritz C, & Sonnentag, S. (2005). Recovery, health, and job performance: Effects of weekend experiences. *Journal of Occupational Health Psychology, 10*, 187-99.
- Fritz C, & Sonnentag S. (2006). Recovery, well-being, and performance-related outcomes: the role of workload and vacation experiences. *Journal of Applied Psychology, 91*, 936-945.
- Geurts, S.A.E., & Sonnentag, S. (2006). Recovery as an explanatory mechanism in the relation between acute stress reactions and chronic health impairment. *Scandinavian Journal of Work, Environment & Health, 32*, 482-492.
- Gump, B., B., & Matthews, K.A. (2000). Are vacations good for your health? The 9-year mortality experience after the multiple risk factor intervention trial. *Psychosomatic Medicine, 62*, 608-612.
- Hjortskov, N., Rissen, D., Blangsted, A.K., Fallentin, N., Lundberg, U., & Sogaard, K. (2004). The effect of mental stress on heart rate variability and blood pressure during computer work. *European Journal of Applied Physiology, 92*, 84-89.
- Kompier, M. (2005). Assessing the psychosocial work environment- 'subjective' versus 'objective' measurement. *Scandinavian Journal of Work, Environment & Health, 31*, 405-408.
- McEwen, B.S. (1998). Stress, adaptation, and disease: allostatis and allostatic load. *Annals of the New York Academy of Science, 840*, 33-44.
- Meijman, T.F., & Mulder, G. (1998). Psychological aspects of workload. In P.J.D. Drenth, H. Thierry and C.J. de Wolff (Eds), *Handbook of work and organizational psychology* (2nd edition). *Work psychology* (Vol. 2, pp. 5-33). Hove: Psychology Press.
- Meyers, A.R., Perrine, M.W., & Caetano, R. (1997). Alcohol use and downhill ski injuries: A pilot study. In R.J. Johnson, C.D. Mote, Jr. and A. Ekeland (Eds), *Skiing trauma and safety* (Vol.11, pp. 14-22). West Conshohocken (PA): American Society for Testing and Materials.
- Mitchell, T. R., Thompson, L., Peterson, E., & Cronk, R. (1997). Temporal adjustment in the evaluation of events: The "Rosy View". *Journal of Experimental Social Psychology, 33*, 421-448.
- Roehrs, T., & Roth, T. (2001). Sleep, sleepiness, sleep disorders and alcohol use and abuse. *Sleep Medicine Reviews, 5*, 287-297.
- Rook, J. W., & Zijlstra, F. R. H. (2006). The contribution of various types of activities to recovery. *European Journal of Work and Organizational Psychology, 15*, 218 - 240.
- Sluiter, J.K., Frings-Dresen, M.H., Meijman, T.F., & Van der Beek, A.J. (2000). Reactivity and recovery from different types of work measured by catecholamines and cortisol: a systematic literature review. *Occupational Environmental Medicine, 57*, 289-315.
- Sonnentag, S. (2001). Work, recovery activities, and individual well-being: A diary study. *Journal of Occupational Health Psychology, 6*, 196-210.
- Sonnentag, S., & Natter, E. (2004). Flight attendants' daily recovery from work: Is there no place like home? *International Journal of Stress Management, 11*, 366-391.

- Strauss-Blasche, G., Muhry, F., Lehofer, M., Moser, M., & Marktl, W. (2004). Time course of well-being after a three-week resort-based respite from occupational and domestic demands: Carry-over, contrast and situation effects. *Journal of Leisure Research, 36*, 293-309.
- Taris, T.W. (2000). *A primer in longitudinal data analysis*. London: Sage.
- Van Hooff, M.L.M., Geurts, S.A.E., Kompier, M.A.J., & Taris, T.W. (2007). Workdays, in-between workdays, and the weekend: A diary study on effort and recovery. *International Archives of Occupational and Environmental Health, 80*, 599-613.
- Van Hooff, M.L.M., Geurts, S.A.E., Kompier, M.A.J., Taris, T.W., Houtman, I.L.D., & Van den Heuvel, F. (2005). Disentangling the causal relationships between work-home interference and employee health. *Scandinavian Journal of Work, Environment & Health, 31*, 15-29.
- Van Hooff, M.L.M., Geurts, S.A.E., Taris, T.W., & Kompier, M.A.J. (2007). "How fatigued do you currently feel?" Convergent and discriminant validity of a single-item fatigue measure. *Journal of Occupational Health, 49*, 224-34.
- Westman, M. (2004). Strategies for coping with business trips: A qualitative exploratory study. *International Journal of Stress Management, 11*, 167-176.
- Westman, M. (2005). The impact of short business travels on the individual, the family and the organization. In A. Antonio, & C. Cooper (Eds.), *Research companion to organizational health psychology* (pp. 478-491). Cheltenham, England: Edward Elgar Publishing.
- Westman, M., & Eden, D. (1997). Effects of a respite from work on burnout: vacation relief and fade-out. *Journal of Applied Psychology, 82*, 516-527.
- Westman, M., & Etzion, D. (2001) The impact of vacation and job stress on burnout and absenteeism. *Psychology & Health, 16*, 595-606.





## Chapter 4

# How Does a Vacation from Work Affect Employee' Health and Well-being?

H&W improve during vacation. However, it is unclear whether this general development applies to all employees, while also little is known about the underlying processes causing such an improvement. Our research questions were: 1) Does every worker experience a positive effect of vacation on H&W?; and 2) Can vacation activities and experiences explain changes in H&W during vacation?

In a 7-week longitudinal field study, 96 workers reported their H&W 2 weeks before, during, 1 week, 2 and 4 weeks after a winter sports vacation on 6 indicators (health status, mood, fatigue, tension, energy level, satisfaction).

Sixty percent of the sample experienced substantial improvement of H&W during and after vacation. Yet, a small group experienced no (23%) or a negative effect of vacation (17%). Spending limited time on passive activities, pleasure derived from vacation activities, and the absence of negative incidents during vacation explained 38% of the variance in the vacation effect.

Although vacation has a positive, longer lasting effect for many, it is not invariably positive for all employees. Choosing especially pleasant vacation activities and avoiding negative incidents as well as passive activities during active vacations apparently contribute to the positive effect of vacation on H&W.

This chapter is based on:

De Bloom, J., Geurts, S.A.E., Sonnentag, S., Taris, T., De Weerth, C. & Kompier, M.A.J. (2011). How does a vacation from work affect employee' health and well-being? *Psychology & Health*, 26, 1606-1622.



## 4.1. Introduction

Research in occupational health psychology has consistently demonstrated the adverse impact of stress in the workplace on individuals' H&W (e.g. Belkic, Landsbergis, Schnall & Baker, 2004; Hjortskov et al., 2004). Meanwhile, the great importance of recovery during nonwork time to protect workers against the negative effects of job stressors is increasingly acknowledged (Geurts & Sonnentag, 2006; Sonnentag, Perrewe & Ganster, 2009; Van Hooff, Geurts, Taris, Kompier, Houtman & Van den Heuvel, 2005).

Vacation as a long and relatively uninterrupted period of absence from work is a prime candidate for helping employees to recover more completely from work than during shorter respite intervals like evening hours or weekends (e.g. Eden, 2001; Etzion, 2003). Earlier vacation studies demonstrated a positive effect of a vacation from work, i.e., workers' H&W substantially improved during a vacation compared to work periods before vacation (e.g. De Bloom, Kompier, Geurts, De Weerth, Taris & Sonnentag, 2009; Kühnel & Sonnentag, 2011; Westman & Etzion, 2001). Indeed, a longitudinal study by Gump and Matthews (2000) even showed that not taking annual vacations was associated with a higher risk of mortality during a nine-year period.

### 4.1.1. Differential vacation effects

In spite of the general belief that vacation is beneficial for recovery from work in general (e.g. De Bloom et al., 2009; Hoopes & Lounsbury, 1989), as yet it is unclear whether favorable effects of vacation apply to all vacationers. It may well be that relatively large differences between vacationers in terms of the direction and strength of the vacation effect underlie an on average positive effect of vacation on H&W. Accordingly, it makes sense to investigate whether or not subgroups exist that differ in the direction of the vacation effect (positive, neutral, or even negative) and in the strength of the vacation (after-) effect. Therefore, our first research question is:

RQ1: Does every worker experience a positive effect of vacation on H&W?

We defined the vacation effect as the difference between baseline and the on-vacation level of H&W, because this comparison represents the most direct and "pure" effect of a vacation. This effect is comparable to what Westman and Eden (1997) labeled "Immediate Respite". Measuring H&W 'only' before and after vacation and attributing post-vacation changes in H&W to the vacation period would be insufficient, because sequential occurrence does not necessarily mean that there is also a causal relationship between variables (Eden, 2001). Moreover, post-vacation measurements may be biased by work resumption. However, it is also



very important to investigate the after-effects of vacation in order to study the duration of the vacation effect. Therefore, we also compared post-vacation to baseline levels of H&W.

#### 4.1.2. Processes underlying the vacation effect

De Bloom et al.'s (2009) meta-analysis revealed that- due to the difficulty of obtaining data while respondents are on vacation- vacation activities and experiences as possible determinants of the vacation effect received little attention in earlier research. Regarding vacation experiences, only five studies ever collected information on issues like vacation satisfaction (Etzion, 2003; Lounsbury & Hoopes, 1986; Westman & Eden, 1997), work reflection (Etzion, 2003; Fritz & Sonnentag, 2006), vacation hassles and recovery experiences (Fritz & Sonnentag, 2006). However, the findings were inconclusive (see also De Bloom et al., 2009), many experiences have not been studied yet (e.g. pleasure derived from activities) and, even more importantly, the information on vacation experiences from most earlier studies was potentially biased, because data were collected after returning home (i.e., after work resumption).

Information on vacation activities is even scarcer: only in two studies (Lounsbury & Hoopes, 1986; Strauss-Blasche, Ekmekcioglu & Marktl, 2000) vacationers were asked, again retrospectively, what they did during vacation. This information was not linked to H&W outcomes. Accordingly, the role of vacation activities and experiences as possible determinants of vacation effects remains unclear (De Bloom et al., 2009). Therefore, our second research question is:

RQ2: Can vacation activities and experiences explain changes in H&W during vacation?

#### 4.1.3. Vacation activities

Research on leisure activities suggests that the activities people engage in during non-working time influence their level of H&W (e.g. Rook & Zijlstra, 2006; Sonnentag, 2001). Therefore, we will discuss different types of vacation activities as potential determinants of the effects of a vacation.

It is often assumed that the temporary absence from work demands in itself already leads to an improvement of H&W during a vacation period. Consequently, we hypothesize:

H1: Workers' H&W will be higher during vacation than during working periods.

This reasoning also implies that work-related activities during free-time should have a negative effect on H&W. Indeed, there is ample evidence that prolonged exposure to work demands has adverse effects on H&W (Demerouti, Bakker, Geurts & Taris, 2009; Van Hooff, Geurts, Kompier & Taris, 2007). Working during vacation does not only limit directly one's potential recovery time, but also puts a demand on the same psychophysiological systems that were activated during

work periods, potentially obstructing the crucial process of 'psychophysiological unwinding' (Geurts & Sonnentag, 2006). Therefore, we hypothesize:

H2: The increase in H&W during vacation will be smaller for employees who spend more time on work-related activities during vacation.

Furthermore, it is well-established that physical exercise has beneficial effects on physical health, mood, and psychological recovery indicators (Demerouti et al., 2009; Reed & Ones, 2006; Rook & Zijlstra, 2006). This effect may be explained both by psychological and physiological mechanisms (Mead et al., 2009; Nabkasorn et al., 2005). Exercise may distract from unpleasant stimuli, daily hassles and job-related duties, may encourage positive feelings about oneself, and enhance the secretion of neurotransmitters with an antidepressant effect (Hansen, Stevens & Coast, 2001; Moran, 2004; Sonnentag & Jelden, 2009). Accordingly, we hypothesize:

H3: The increase in H&W during vacation will be larger for employees who spend more time on physical activities during vacation.

The need to be with others and the desire to engage in social activities is considered to be an inborn, evolutionary adaptive, fundamental human need (e.g. Baumeister & Leary, 1995). Research showed that social activities and social support improve H&W in humans ranging from childhood to older adults (e.g. Dormann & Zapf, 1999; Hale, Hannum & Espelage, 2005). Social support may function as a stress buffer, for instance, by lowering cardiovascular reactivity to psychosocial stress (e.g. Gerin, Pieper, Levy & Pickering, 1992). We hypothesize:

H4: The increase in H&W during vacation will be larger for employees who spend more time on social activities during vacation.

Sonnentag (2001) argued that low-effort (or passive) activities put no demands on the individual. Therefore, she attributed recovery-potential to these activities and her results supported this assumption. However, Rook and Zijlstra (2006) found in their study on recovery during a normal work week that low-effort activities were non-beneficial for recovery after work. So, the findings regarding low-effort activities are inconclusive. Therefore, we will not generate a hypothesis regarding the role of passive activities in our study.

#### 4.1.4. Vacation experiences

A vacation period may well add pleasure to peoples' lives and may help to build up enduring personal resources, because people are free to engage in self-chosen activities which will lead to positive emotions like joy and freedom. Correspondingly, the engagement in activities experienced as pleasant may boost the vacation effect on H&W and we hypothesize:

H5: The increase in H&W during vacation will be larger for employees who report higher levels of pleasure derived from their vacation activities.

Another important type of vacation experiences are negative incidents. During vacation sad, bothersome or irritating things may happen (e.g. illnesses, accidents, conflicts), like at any moment in time. However, when expectations for pleasure and fun are high, such as during vacation, these incidents will presumably have a particularly strong negative effect on H&W. Negative incidents can be considered stressors that undermine the recovery process and that may lead to lower levels of H&W (Fritz & Sonnentag, 2006). According to Ryan and Deci's (2000) Self-Determination Theory, negative incidents like getting ill or injured can be considered a threat to self-determination and may limit the vacationer's ability to engage in an activity of his/her own choice. Therefore, we hypothesize:

H6: The increase in H&W during vacation will be smaller for employees who experience negative incidents during vacation.

## 4

### 4.2. Method

#### 4.2.1. Data collection procedure and design

Our two research questions and our six hypotheses (question 1: hypothesis 1; question 2: hypotheses 2-6) were addressed in a longitudinal field study on winter sports vacations. This study covered a time span of seven weeks, including the winter sports vacation itself that took place between February 15<sup>th</sup> and April 15<sup>th</sup> 2008. Two weeks before vacation, a paper-and-pencil questionnaire assessing demographic information and basic job information was sent to the participants, to be returned in a postage-paid pre-addressed envelope that was attached to the questionnaire. Participants also received a card with an overview of their personal measurement occasions during the seven-week period. In order to encourage participation and adherence to the research protocol, we announced a lottery prize among all participants (a winter sports holiday for the next winter sports season). Chances of winning were higher for participants who returned all questionnaires than for participants who missed measurement occasions.

Subsequently, the participants received an e-mail with a link to a digital diary twice a week on all measurement occasions during working periods i.e., two weeks before vacation (*Pre*), and the first (*Post 1*), second (*Post 2*) and fourth week (*Post 3*) after returning home. These digital diaries had to be completed just before bedtime on a fulltime working day. To ensure that participants completed the digital diaries in the evening, they additionally received a reminder-SMS on their cell phone earlier that day.

The participants were also provided with cell phones from the university with international pre-paid SIM cards to take with them on holiday in order to collect on-vacation

measures of H&W. Every participant received 10 Euro as pre-paid talk credit for their vacation-phone. Each participant was called on this phone and interviewed by one of the researchers on the second day after arrival and on the second-last day before departure between five and seven pm (*Inter*).

When the full cycle of data collection (i.e., 10 measurements per participant) had been completed, respondents were thanked for their participation, received information about when the results would be available and about when the winner for the lottery prize was drawn. The cell phones were returned to the researchers after the data collection phase had been completed.

#### 4.2.2. Participants

To recruit participants, we distributed information via travel agencies, winter sports websites, shops for skiing-equipment, winter sports journals and newspaper ads. Additionally, we visited a winter sports fair and contacted ski-clubs.

Initially, 176 Dutch persons voiced that they were interested in taking part in this study. After administering detailed information about the research procedure and promising confidentiality, these 176 persons received a phone call from one of the researchers. During this call, the participants were screened on their eligibility for the study: participants (i) had to work at least 24 hours per week (18 exclusions), (ii) go on winter sports vacation for at least one week between February 15th and April 15th, 2008 (22 exclusions), and (iii) should enrol on time (17 exclusions). Persons working extremely irregular schedules were also excluded (4 exclusions). Occasionally, persons did not appreciate to be called during vacation (4 exclusions), did not use electronic mail (5 exclusions) or found the research procedure too burdensome (3 exclusions). Another seven persons were excluded because they did not go on vacation after all due to illness. Of the 176 interested persons, 108 met the inclusion criteria. Of this group of 108 potential participants, 96 persons actually took part in the study.

The majority of this sample was male (65%), the mean age was 44 years ( $SD = 10$  years) and 55% of the sample held a college or university degree, 40% were medium (senior general secondary and university preparation education) and 5% lower educated (no, lower secondary or junior secondary education only).

The largest part of the respondents was employed (82%) whilst 18% were self-employed. The participants worked in a variety of vocations: 23% worked in the commercial sector, 20% were high-educated specialists (e.g. engineers, ICT-workers), 14% worked in the service sector, 12% in health care, 11% were administrative employees, and the remaining 20% worked in other sectors.

The participants worked 38 hours per week on average ( $SD = 8$  hours) with the total number of weekly work hours (including overtime) varying from 24 to 60 hours. Forty-seven percent of the participants supervised other persons; the remaining 53% had no supervisory tasks.

The average vacation duration was 9 days ( $SD = 2$  days, range: 7-19 days) and vacation destinations were typical winter sports areas, with the top-three destinations being Austria (70%), France (15%) and Switzerland (6%).

### 4.2.3. Measures

*Health and well-being.* In order to present a comprehensive account of H&W, we incorporated six main indicators of H&W: health status, mood, fatigue, tension, energy level and satisfaction. Single-item measures were used to tap these concepts. In this way we attempted to minimize the effort required from the participants and to maximize user-friendliness, which was supposed to have beneficial effects on response rates. Single-item measures often have a high face-validity and participants value their directness and lack of redundant and repeated comparable items (e.g. Elo, Leppänen & Jahkola, 2003). Accordingly, multiple item measures may be validly replaced by single-item measures and still be psychometrically acceptable if the underlying constructs are sufficiently one-dimensional and unambiguous to the participants (e.g. Van Hooff, Geurts, Taris & Kompier, 2007). For simplicity, we adapted response-scales based on the well-known basic Dutch grade notation system ranging from 1 (extremely low/negative) to 10 (extremely high/positive) and anchored the first and the last grade.

We measured *health status* on each measurement occasion by the single-item measure: "How healthy did you feel today?" (1 = "very unhealthy", 10 = "very healthy"). *Mood* was measured with the item: "How was your mood today?" (1 = "very bad", 10 = "very good"). Levels of *fatigue* were assessed with the measure: "How fatigued did you feel today?" (1 = "not fatigued at all", 10 = "very fatigued"). We measured *tension* with a single-item worded: "How tense did you feel today?" (1 = "very calm", 10 = "very tense"). In addition, we asked respondents to indicate how *energetic* they felt ("How energetic do you currently feel?" (1 = "absolutely not energetic", 10 = "very energetic"). Finally, respondents were asked to indicate *day satisfaction* on a single-item measure: "How satisfied do you feel about this day?" by means of a report mark ranging from 1 ("very dissatisfied") to 10 ("very satisfied").

We included the six H&W indicators in an exploratory factor analysis to find out whether one underlying construct existed. This factor analysis indeed resulted in a one-factor solution with an Eigenvalue greater than 1 and factor loadings  $\geq .50$ . Therefore, we combined the six H&W indicators into one overall H&W construct. Cronbach's  $\alpha$  of H&W was .84 (*Pre*), .78 (*Inter*), .81 (*Post 1*), .82 (*Post 2*) and .78 (*Post 3*).

*Vacation activities.* For each of the four vacation activities (work-related, physical, social, passive), participants indicated the amount of time they had devoted to it during the day they were interviewed. We also gave at least two examples for each activity to help vacationers categorize their activities: checking work mail or having a phone call with the office (work-related), skiing or walking (physical), après ski or playing games (social), and reading a novel or watching television (passive).

*Pleasure derived from vacation activities.* We also measured the quality of the engagement in each activity by asking participants to rate the pleasure they experienced while executing it. An example item is: "Please indicate how pleasant you experienced the physical activities you carried out today" (1 = "very unpleasant", 10 = "very pleasant"). Not every vacationer carried out every single activity. Therefore, in order to get an overall score of the pleasure derived from vacation activities for each participant, we averaged the pleasure scores across the activities the vacationers did participate in

*Negative incidents during vacation.* Negative incidents were measured with two questions: 1) Did you experience something very unpleasant today?; and 2) Did you experience something very unpleasant within the previous vacation days? Participants responded dichotomously with Yes or No. We divided the vacationers into two groups: one group that experienced at least one negative incident during vacation and one group that experienced no negative incidents during vacation. Using an open question, we also assessed the nature of the negative incident ("Could you give a short indication of the nature of the negative incident you experienced?").

#### **4.2.4. Missing data: prevention and treatment**

In order to prevent and deal with missing data, we scheduled two measurement occasions within each week. As a series of 5 Student's *t*-tests demonstrated no significant differences between the first and second measurement of each week, the two within-week measures of a particular H&W indicator were averaged to obtain a reliable week-level indicator. In case of a non-answered prompt during a workweek, the other measurement in that week was treated as the week-average.

With the exception of the general questionnaire, we used electronic mail and SMS to remind the participants to fill in the questionnaires at the correct moment in time. We could detect protocol deviations very rapidly (i.e., the next morning) due to these digital diaries. A detailed non-completion script was applied for the digital diaries as well as the telephone surveys. This script included a reminder e-mail, a second SMS and finally a phone call on the participants' own cell phone to solve possible problems with the protocol, to elucidate

ambiguities and to explain the importance of duty reactions and compliance to the research procedure.

The general questionnaire was returned by the full sample. Based on a maximum of 960 possible single diary measurements in this study (10 measurements in 96 persons), the overall completion rate was 87% (834 measurements). The combination of the ten measurements (two measurements a week) into five occasions resulted in even more reliable week-indicators and high completion rates: 100% ( $N = 96$ ) on *Pre*, 98% ( $N = 94$ ) on *Inter*, 90% ( $N = 86$ ) on *Post 1* and 96% ( $N = 92$ ) on *Post 2* and *Post 3*. For 83 of the 96 persons, data sets were complete (no missing data on any of the five occasions).

#### 4.2.5. Statistical analyses

To answer research question 1, and to test Hypothesis 1, we analyzed the data in an analysis of variance (ANOVA) with repeated measures on the five occasions before, during and after vacation. Post-hoc Fisher's Least Significant Difference (LSD) tests were used to detect variations in H&W across this seven week period: the vacation effect was tested by comparing the pre-vacation measures of the H&W indicator with the measures taken during vacation (*Pre* versus *Inter*). Vacation after-effects were examined by conducting LSD's for the difference between H&W on *Pre* versus *Post 1*, *Post 2* and *Post 3* respectively.

For all significant differences between measurement occasions (*Pre* versus *Inter*, *Post 1*, *Post 2*, and *Post 3*, representing the vacation effect and its after-effects respectively), we present Cohen's  $d$  for paired observations (Cohen, 1988, p.46). A negative effect size indicates decreases in H&W compared to the pre-vacation level. Following Cohen (1988) we distinguished small (0 to 0.5), medium (0.5 to 0.8) and large ( $> 0.8$ ) effects.

To test our five hypotheses related to research question 2, we conducted a hierarchical regression analysis with H&W during vacation (*Inter*) as the dependent variable. Because we defined a vacation effect as a change in H&W during vacation compared to before vacation (*Pre*), we entered baseline levels of H&W (i.e., H&W two weeks before vacation) as the first variable in the regression equation. In the second step, we entered age and gender as control variables.

Because we assumed that the passive mechanism of relief from work is the most basic process underlying the vacation effect, and working would lead to smaller increases in H&W during vacation, we entered time spent on work-related activities during vacation as a predictor in the third step. In the fourth step, we entered time spent on physical, social, and passive activities into the regression analysis. In Step 5 we added pleasure derived from vacation activities. In the sixth and final step, we added negative incidents as possible determinants of H&W during vacation.

To ensure that the effects were relatively independent from the order of entry of the independent variables, we repeated the analysis in several different orders. The results were very similar (and can be obtained upon request from the first author). Therefore, we only report the results from the analysis described above for which we also had the most solid theoretical basis.

## 4.3. Results

### 4.3.1. Question 1: Does every worker experience a positive effect of vacation on H&W? (Hypothesis 1)

Repeated measures ANOVA revealed a main effect across time  $F(4,79) = 14.06, p < .01$ , meaning that H&W levels significantly varied across the seven week time period (pre-inter-post). Post-hoc LSD tests further showed that H&W levels on *Inter* differed significantly from baseline ( $p < .01$ ). The average change in H&W from *Pre* ( $M = 7.0$ ) to *Inter* ( $M = 7.7$ ) was moderate and represented a medium-sized positive effect ( $d = 0.55$ ). Accordingly, employees felt better during vacation than two weeks before vacation (Hypothesis 1 supported).

However, the difference scores for *Pre* and *Inter* (*Inter* minus *Pre*) for individual participants ranged from  $-3.58$  to  $+4.58$  ( $M = 0.7, SD = 1.3$ , 95% confidence interval ranged from  $0.44$  to  $0.97$ , reliability of difference score =  $0.74$  as calculated using Schulte & Borich's, 1984, approach, which exceeds the  $.70$  threshold proposed by Nunally, 1978) indicating that for at least some vacationers H&W decreased during vacation. Accordingly, the answer to research question 1 is: No, not every worker experienced a positive effect of vacation on H&W.

In order to analyze the development of H&W in vacationers with different vacation effects in more detail, we divided the vacationers into three groups. We defined the 'neutral vacation effect' group as vacationers with a difference score (*Inter* minus *Pre*) around zero (with a quarter standard deviation, range from  $-0.32$  to  $+0.32$ ). The 'positive vacation effect' group was composed of vacationers with a difference score in H&W larger than zero (difference *Inter-Pre*  $\geq 0.33$ ). The 'negative vacation effect' group consisted of vacationers with a difference score in H&W smaller than zero (difference *Inter-Pre*  $\leq -0.33$ ).

This subgroup analysis showed that 60% of the respondents experienced a positive vacation effect (the 'positive vacation effect' group,  $M$  *Pre* =  $6.5, M$  *Inter* =  $8.0, d = 2.02$ ). It also showed that 23% experienced no difference in H&W during vacation compared to before vacation (the 'neutral vacation effect' group,  $M$  *Pre* =  $7.4, M$  *Inter* =  $7.5$ ), and that 17% of the sample reported lower H&W during vacation compared to before vacation (the 'negative vacation effect' group,  $M$  *Pre* =  $8.2, M$  *Inter* =  $7.0, d = -1.55$ ).



We also studied the vacation after-effects, first for the full sample and then also for the three different subgroups. We just reported that for the full sample, H&W increased. However, directly after returning home and resuming work (on *Post 1*), H&W had returned to baseline levels ( $M = 7.2$ ), meaning that in general positive effects had immediately faded out and there was no vacation after-effect. H&W remained on this level on *Post 2* and *Post 3* (Post-hoc LSD tests for the differences between *Pre* and *Post 1*, *Pre* and *Post 2* and between *Pre* and *Post 3* were non-significant).

Inspection of the development of H&W across time for the three specific vacation effect groups showed significant differences. For the group with a negative vacation effect, the level of H&W was also significantly lower on *Post 1* ( $M = 7.7$ ,  $d = -0.86$ ), *Post 2* ( $M = 7.3$ ,  $d = -1.10$ ) and *Post 3* ( $M = 7.3$ ,  $d = -1.31$ ) compared to the pre-vacation level ( $M = 8.2$ ).

Conversely, the group with a positive vacation effect experienced also a positive after-effect: On *Post 1*, the level of H&W of this group ( $M = 7.2$ ) was still significantly different from baseline ( $M = 6.5$ ,  $d = 0.59$ ) and even on *Post 2*, 2 weeks after vacation, H&W surpassed baseline scores significantly ( $M = 6.9$ ,  $d = 0.44$ ). Only 4 weeks after vacation, H&W had returned to the pre-vacation level ( $M = 6.7$ ).

The baseline of the neutral group was in between the negative and the positive group ( $M = 7.4$ ). After vacation, on *Post 1* ( $M = 7.0$ ) and *Post 3* ( $M = 7.0$ ), H&W of this group was even significantly lower than upon baseline ( $d$ 's were  $-0.57$  and  $-0.48$ , respectively).

In sum, 60% of the vacationers did benefit from a vacation in terms of increased levels of H&W during vacation. In this group, there was also a positive vacation after-effect that lasted at least 2 weeks after vacation. However, there was also a minority of vacationers (40%) that experienced no or a negative vacation effect on H&W.

#### 4.3.2. Question 2: Can vacation activities and experiences explain the changes in H&W during vacation? (Hypotheses 2-6)

The answer to our second research question was based on hierarchical regression analysis. Zero-order correlations can be found in Table 4.1. The six steps of the hierarchical regression are summarized in Table 4.2.

In the first step of the regression analysis, we regressed H&W on *Pre*. H&W on *Pre* was positively related to H&W during vacation, meaning that employees who felt well before vacation also felt well during vacation. In the second step we entered age and gender as control variables, but these variables did not contribute to the prediction of H&W during vacation.

Work-related vacation activities were entered in the third step, but did not explain variance beyond H&W on *Pre*. Accordingly, work-related activities during vacation did not account for changes in H&W during vacation (Hypothesis 2 not supported).

**Table 4.1:**  
Means, Standard Deviations, and Zero-Order Correlations Between Study Variables

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Descriptives															
M	7.0	7.7	7.2	7.0	6.9	0.1	4.9	2.0	0.6	6.3	8.5	8.3	7.3	8.1	0.4
SD	1.2	0.9	1.1	1.1	1.0	0.2	1.4	1.5	1.3	1.6	1.0	1.0	1.5	1.0	0.5
N	96	94	86	92	92	94	94	94	94	19	94	86	51	91	94
Possible range	1-10	1-10	1-10	1-10	1-10	0-24	0-24	0-24	0-24	0-10	0-10	0-10	0-10	0-10	0-1
1. H&W Pre															
2. H&W Inter	.28*														
3. H&W Post 1	.45*	.51*													
4. H&W Post 2	.58*	.40*	.55*												
5. H&W Post 3	.59*	.31*	.44*	.68*											
Vacation activities & experiences															
6. Time work-related activities	.09	.10	.14	.03	.01										
7. Time physical activities	.05	.32*	.03	.07	.06	.03									
8. Time social activities	.02	.19	.02	-.10	-.14	-.00	-.20*								
9. Time passive activities	.14	-.36*	-.08	.08	.06	-.04	-.35*	.04							
10. Pleasure work-related activities	.09	.17	.00	.07	-.25	.14	.18*	-.24	-.31						
11. Pleasure physical activities	.10	.44*	.24*	.17	.16	-.14	.35*	.03	-.11	.11					
12. Pleasure social activities	.19	.45*	.20	.26*	.15	-.04	.37*	.13	-.26*	-.01	.60*				
13. Pleasure passive activities	.14	.36*	.18	.03	.08	-.06	.15	.38*	-.28*	.23	.25	.38*			
14. Pleasure from activities	.11	.49*	.21	.18	.14	-.21*	.35*	.17	-.23*	.61*	.76*	.74*	.79*		
15. Negative incidents	.10	-.32*	-.20	-.06	-.08	-.05	-.32*	.01	.23*	-.23	-.18	-.08	-.19	-.20	

Note. \*  $p < .05$ . Time = number of hours spent on activity. Negative incidents: 0 = no, 1 = yes.

To test whether the time devoted to other vacation activities explained variance in the vacation effect, we entered time devoted to physical, social and passive activities in the fourth step. Table 4.2 indicates that engagement in physical, social and passive activities all contributed to changes in H&W during vacation. The strong effect of time devoted to physical activities on H&W during vacation fitted the high zero-order correlation between these two variables, indicating that H&W during vacation improved more strongly when vacationers spent more time on physical activities (Hypothesis 3 supported). However, the non-significant zero-order correlation between time devoted to social activities and H&W during vacation suggested that the significant regression weight should be considered an artifact (Hypothesis 4 not supported).

In step 5, pleasure derived from vacation activities significantly contributed to improvements in H&W during vacation (Hypothesis 5 supported). The significant relationship of time devoted to physical activities supporting Hypothesis 3 was no longer significant after pleasure had been added to the analysis. This finding suggests that pleasure derived from activities plays a crucial role in the relationship between time devoted to physical activities and H&W during vacation.

**Table 4.2:**Hierarchical Regression of H&W during vacation (*Inter*) on Vacation Activities and Experiences

Variable	H&W <i>Inter</i>					
	Step 1	Step 2	Step 3	Step 4	Step 5	Step 6
	$\beta$	$\beta$	$\beta$	$\beta$	$\beta$	$\beta$
Step 1: H&W <i>Pre</i>	.28*	.27*	.27*	.28*	.23*	.25*
Step 2: Control variables						
Age		-.02	-.01	.01	-.01	.01
Gender		-.04	-.03	-.09	-.09	-.05
Step 3: Time work-related activities			.07	.05	.13	.12
Step 4: Time spent on activity ( <i>Inter</i> )						
Time physical activities				.25*	.13	.08
Time social activities				.25*	.15	.14
Time passive activities				-.33*	-.28*	-.26*
Step 5: Pleasure from activities ( <i>Inter</i> )					.36*	.34*
Step 6: Negative incidents						-.18*
$\Delta R^2$	.08*	.00	.01	.26*	.10*	.03*
Total $R^2$	.08*	.08	.08	.34*	.43*	.46*

Note. \*  $p < .05$ . Time = number of hours spent on activity. Gender: 1 = male, 2 = female. Negative incidents: 0 = no, 1 = yes.

In the final step, negative incidents during vacation contributed three percent of explained variance in the changes in H&W during vacation, indicating that vacationers who experienced at least one negative incident during vacation showed smaller increases in H&W during vacation compared to vacationers without negative incidents (Hypothesis 6 supported).

We analyzed the answers regarding the nature of the negative incident(s) as well. A substantial part of the respondents (44%) reported at least one incident on the day that we called or within the previous vacation days (in total 65 negative incidents were reported). For those who experienced negative incidents, 17% was confronted with a close other getting injured, 15% with travel stress, 15% with being ill, 11% with getting injured themselves, 11% with a close other being ill, and 11% suffered from bad weather and skiing conditions. The remaining negative incidents reported were quarrels (3 incidents), children being upset (2 incidents), bad news from families or friends at home (3 incidents) or were not further specified (5 incidents).

Summing up, work-related and social activities during vacation were not related to H&W changes during vacation whereas physical activities and pleasure derived from vacation activities were related to positive changes in H&W during vacation. Moreover, passive activities and negative incidents were related to negative changes in H&W during vacation. The final model accounted for 46% of the variance in H&W during vacation, or expressed differently, for 38% of the variance in the vacation effect (i.e., computed as the percentage of explained variance in H&W *Inter* (46%) minus the percentage explained variance of H&W *Pre* (8%).

## 4.4. Discussion

The present study sought to examine vacation (after-) effects on H&W and the relation between vacation activities and experiences, and changes in worker H&W during vacation. The three most interesting sets of findings are the following.

### 4.4.1. A positive vacation effect does not apply to every employee

Our results showed that the examination of average scores of H&W during vacation compared to work periods has a major drawback because it collapses individual well-being scores into a somewhat insensitive average score that mistakenly suggests that vacation *always* (or at least *usually*) results in a short-lived improvement in H&W. By instead inspecting the individual difference scores of H&W between (pre-vacation) baseline and the vacation period, we discovered an interesting trend: 60% of the vacationers experienced a strong positive change in H&W during vacation which was maintained at least 2 weeks after work resumption. Put differently, there are clear indications that a good vacation (i.e., with a strong positive vacation

effect) charges the batteries of working people during vacation and for about two weeks after work resumption before they return to baseline levels of H&W. However, a minority also experienced none (23%) or even a negative (17%) effect of vacation. By averaging the H&W scores, this pattern would not have been detected.

#### **4.4.2. The jury is still out on the role of work activities while on vacation**

Our results showed that H&W improved during vacation compared to working periods, which supports our assumption that the temporary absence of work leads to increases in employee' well-being. But how can we explain this study's finding that time spent on work-related activities during vacation was *unrelated* to the vacation effect? The prevalence of being engaged in work-related activities during vacation was extremely low: all vacationers worked on average less than 10 minutes a day, less than 20% ( $N = 19$ ) of the vacationers spent time on work-related activities during vacation at all, and the average working time for this 'working while on vacation' group was less than half an hour per day (24 minutes). So, due to the low prevalence of working during vacation, we cannot draw firm conclusions about the impact of working during vacation on changes in H&W during vacation.

#### **4.4.3. Activities and experiences during vacation are important**

Time devoted to physical activities emerged as an influential vacation activity contributing to positive changes in H&W during vacation. Pleasure derived from vacation activities appeared to play a role in this relationship: the more time vacationers had spent on physical activities and the more pleasure they experienced, the higher their H&W improvement during vacation.

Our study also showed that negative incidents happened frequently during a winter sports vacation (in 44% of the sample) and that these incidents were related to decreases in H&W during vacation. Accordingly, it would be interesting to examine whether vacations with less risks of negative incidents (e.g. a relaxing summer vacation) would render even more positive results for H&W during vacation.

Passive activities also emerged as influential because decreases in H&W during vacation were associated with a higher engagement in passive activities. The strong positive correlation between passive activities and negative incidents (see Table 4.1) suggests that vacationers are probably 'convicted to' passive activities during their winter sports vacation due to the occurrence of negative incidents. It would be interesting to find out how passive vacation activities are related to H&W during vacations that are supposed to be passive and relaxing. It may well be that the negative relationship between passive activities and H&W during vacation will disappear or will turn into a positive effect when the vacation type becomes less active, for instance during a relaxing vacation on the beach.

#### 4.4.4. Strengths and limitations

To our knowledge, the present study is the first that systematically investigated the role of vacation activities and experiences during vacation itself. Vacation researchers correctly stated that the logistics of locating people during vacation can be “nightmarish” (Eden, 1990, p.182). However, we found a way to overcome many of the technical and practical problems and collected information on vacation activities and experiences in a reliable, user-friendly way during vacation. We also reduced attrition and missing data drastically by applying a combination of innovative instruments for data collection (digital diaries, telephone surveys) and an extensive protocol to guarantee compliance (careful recruitment, SMS-reminders, non-completion script).

Yet, this study also has some limitations. Firstly, one might argue that the strength of the vacation effect highly depends on the timing and the validity of the baseline measurement. Nevertheless, this measurement occasion, i.e. two weeks before vacation, is presumably the best estimate of baseline H&W because it is not biased by high pre-vacation workload and/or pre-vacation pleasure which may colour measurement occasions scheduled immediately before vacation (e.g. De Bloom, Geurts, Taris, Sonnentag, De Weerth & Kompier, 2010). Moreover, we also measured H&W twice in that week to get a more reliable estimate of the baseline.

A related problem is the use of difference scores for our subgroup analyses of the difference between *Pre* and *Inter*. Some researchers (e.g. Cronbach & Furby, 1970) point out that difference scores have a lower reliability than the single scores they were based upon and should therefore not be used. Other scholars do not share this opinion (at least for the application for research purposes), but recommend the careful use of these scores implying reporting of standard errors as well as confidence intervals (e.g. Schulte & Borich, 1984; Allison, 1990). This is what we did in this paper. The reliability of the difference score was high in our study. Analysis of the difference scores added valuable information beyond our ANOVA's and regression analyses: reporting only average scores of H&W would obscure the fact that there are different, even opposing trends across time in meaningful subgroups of employees.

Secondly, the limited variation in vacation type and duration leaves the question unanswered if we would have found the same pattern of results for other vacation types, for other vacations durations, and for other periods (seasons) of the year. Thirdly, winter sports vacationers may be above-average healthy, active and sporty, which might limit the external validity of our study.

Fourthly, we need to examine our study sample in relation to the external validity of this study. This study's sample includes both full-time and part-time employees, and one might argue that the effects of vacation may differ for both categories. We have repeated our

analyses for subsamples composed of full-time and part-time workers, but the results were highly similar for both groups of workers and are therefore not presented in this paper.

Last but not least, one might argue that vacation activities were measured on only two instead of all vacation days. However, because it is such a difficult task to study vacationers in the field, we had to find a compromise between investigating the role of vacation activities and experiences and interfering too much during people's vacations with the risk of negatively influencing our key study variables (we did not want our phone call to be a daily hassle and negative incident in itself). The high response rates and positive process evaluations by the participants suggest that our approach was bearable for the participants and scientifically valuable.

#### 4.4.5. Suggestions for future research

Future vacation research should, apart from an analysis of general trends across time and means, include subgroup analyses to discover trends in H&W in different groups across a vacation period. Moreover, our findings suggest that vacationers chose to engage in vacation activities they preferred, i.e. experienced as pleasant. Regarding the positive impact of pleasure from vacation activities on H&W during vacation, future research could focus on the role of the active choice for pleasant activities by asking vacationers to indicate to what degree they were able to choose for the activities they engaged in. Self-Determination Theory suggests that autonomy to initiate behavior of one's own choice fulfills a fundamental human need and therefore leads to positive emotions (Ryan & Deci, 2000). However, it may well be possible that not every vacationer is able to engage in the vacation activity of his/her own choice. Therefore, vacation researchers should incorporate questions about the extent to which vacationers are able to determine their own vacation activities, their day schedule during vacation, their vacation destination, and the type of vacation.

Apart from choice of vacation activities and experiences of pleasure derived from these activities, negative incidents during vacation appeared to be an important determinant for the strengths of the vacation effect as well and should therefore be included in upcoming studies. Regarding vacation activities, it would be interesting to examine the effect of passive activities during more passive vacations (e.g. a relaxing vacation on the beach). Furthermore, a study with a greater number of work-related activities during vacation would be useful to test if not-working is indeed one of the keys to the vacation effect.

One of the most important findings of our study is that people did benefit mostly from their winter sports vacation (i) by doing what they were supposed to do during this type of vacation, i.e., being physically active, (ii) and by experiencing pleasure from their vacation activities. Therefore, research on vacation should focus on vacation activities and the pleasure

people derive from these vacation activities. Savoring positive vacation experiences, or “the capacity to attend to, appreciate, and enhance the positive experiences of one’s life” (Bryant & Veroff, 2007, p. 2) may be the key to maximize the positive vacation effect and prolong vacation pleasure and relief after work resumption.



## 4.5. References

- Allison, P. D. (1990). Change scores as dependent variables in regression analysis. In C.C. Clogg (Ed.), *Sociological Methodology* (pp. 93-114). Oxford: Blackwell.
- Baumeister, R.F., & Leary, M.R. (1995). The need to belong: desire for interpersonal attachment as a fundamental human motivation. *Psychological Bulletin*, *117*, 497-529.
- Belkic, K., Landsbergis, P.A., Schnall, P.L., & Baker, D. (2004). Is job strain a major source of cardiovascular disease risk? *Scandinavian Journal of Work, Environment, & Health*, *30*, 85-128.
- Bryant, F.B., & Veroff, J. (2007). *Savoring. A new model of positive experience*. Mahwah (NJ): Lawrence Erlbaum Associates.
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences*. Hillsdale (NJ): Lawrence Erlbaum Associates.
- Cronbach, L. J & Furby, L. (1970). How should we measure change- or should we? *Psychological Bulletin*, *74*, 68-80.
- De Bloom, J, Geurts, S.A.E., Taris, T.W., Sonnentag, S, De Weerth, C., & Kompier, M.A.J. (2010). Effects of vacation from work on health and well-being: Lots of fun, quickly gone. *Work & Stress*, *24*, 196-216.
- De Bloom, J., Kompier, M., Geurts, S., De Weerth, C., Taris, T., & Sonnentag, S. (2009). Do we recover from vacation? Meta-analysis of vacation effects on health and well-being. *Journal of Occupational Health*, *51*, 13-25.
- Demerouti, E., Bakker, A.B., Geurts, S.A.E. & Taris, T.W. (2009). Daily recovery from work-related effort during non-work time. In S. Sonnentag, P. Perrewe, & D. Ganster (Eds), *Research in occupational stress and well being: Current perspectives on job-stress recovery* (Volume 7, pp. 85-123). Bingley (UK): JAI Press.
- Dormann, C., & Zapf, D. (1999). Social support, social stressors at work, and depressive symptoms: Testing for main and moderating effects with structural equations in a three-wave longitudinal study. *Journal of Applied Psychology*, *84*, 874-884.
- Eden, D. (1990). Acute and chronic job stress, strain, and vacation relief. *Organizational Behavior and Human Decision Processes*, *45*, 175-199.
- Eden, D. (2001). Vacations and other respites: studying stress on and off the job. In C. Cooper and I.T. Robertson (Eds), *Well-being in organizations* (pp.305-330). West Sussex (UK): John Wiley & Sons.
- Elo, A., Leppänen, A., & Jahkola, A. (2003). Validity of a single-item measure of stress symptoms. *Scandinavian Journal of Work, Environment, & Health*, *29*, 444-451.
- Etzion, D. (2003). Annual vacation: duration of relief from job stressors and burnout. *Anxiety, Stress, and Coping*, *16*, 213-226.
- Fritz, C., & Sonnentag, S. (2006). Recovery, well-being, and performance-related outcomes: the role of workload and vacation experiences. *Journal of Applied Psychology*, *91*, 936-945.

- Gerin, W., Pieper, C., Levy, R., & Pickering, T.G. (1992). Social support in social interaction: a moderator of cardiovascular reactivity. *Psychosomatic Medicine*, *54*, 324-336.
- Geurts, S.A.E., & Sonnentag, S. (2006). Recovery as an explanatory mechanism in the relation between acute stress reactions and chronic health impairment. *Scandinavian Journal of Work, Environment, & Health*, *32*, 482-492.
- Gump, B., B., & Matthews, K.A. (2000). Are vacations good for your health? The 9-year mortality experience after the multiple risk factor intervention trial. *Psychosomatic Medicine*, *62*, 608-612.
- Hale, C. J., Hannum, J. W., & Espelage, D. L. (2005). Social support and physical health: The importance of belonging. *Journal of American College Health*, *53*, 276-284.
- Hansen, C.J., Stevens, L.C. & Coast, R.J. (2001). Exercise duration and mood state: How much is enough to feel better. *Health Psychology*, *20*, 267-275.
- Hjortskov, N., Rissen, D., Blangsted, A.K., Fallentin, N., Lundberg, U., & Sogaard, K. (2004). The effect of mental stress on heart rate variability and blood pressure during computer work. *European Journal of Applied Physiology*, *92*, 84-89.
- Hoopes, L.L. & Lounsbury, J.W. (1989). An investigation of life satisfaction following a vacation: a domain-specific approach. *Journal of Community Psychology*, *17*, 129-140.
- Kühnel, J., & Sonnentag, S. (2011). How long do you benefit from vacation? A closer look at the fade-out of vacation effects. *Journal of Organizational Behavior*, *32*, 125-143.
- Lounsbury, J. W., & Hoopes, L.L. (1986). A vacation from work: changes in work and nonwork outcomes. *Journal of Applied Psychology*, *71*, 392-401.
- Moran, A.P. (2004). Does a healthy body always lead to a healthy mind? Exploring exercise psychology. In A.P. Moran (Ed.), *Sport and exercise Psychology: A critical introduction* (pp. 225-251). New York: Routledge Taylor & Francis Group.
- Mead, G.E., Morley, W., Campbell, P., Greig, C.A., McMurdo, M., & Lawlor, D.A. (2009). Exercise for depression. *Cochrane Database of Systematic Reviews*, Issue 3. Art.No.: CD004366. DOI: 10.1002/14651858.CD.004366.pub4.
- Nabkasorn, C., Miyai, N., Sootmongkol, A., Junprasert, S., Yamamoto, H., Arita, M., & Miyashita, K. (2005). Effects of physical exercise on depression, neuroendocrine stress hormones and physiological fitness in adolescent females with depressive symptoms. *European Journal of Public Health*, *16*, 179-184.
- Nunnally, J. C. (1978). *Psychometric theory* (2nd ed.). New York: McGraw-Hill.
- Reed, J., & Ones, D. S. (2006). The effect of acute aerobic exercise on positive activated affect: A meta-analysis. *Psychology of Sport and Exercise*, *7*, 477-514.
- Rook, J. W., & Zijlstra, F. R. H. (2006). The contribution of various types of activities to recovery. *European Journal of Work and Organizational Psychology*, *15*, 218-240.
- Ryan, R.M., & Deci, E.L. (2000). Self-Determination Theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist*, *55*, 68-78.

- Schulte, A., & Borich, G.D. (1984). Considerations in the use of difference scores to identify learning-disabled children. *Journal of School Psychology, 22*, 381-390
- Sonnentag, S. (2001). Work, recovery activities, and individual well-being: A diary study. *Journal of Occupational Health Psychology, 6*, 196-210.
- Sonnentag, S. & Jelden, S. (2009). Job stressors and the pursuit of sport activities: A day-level perspective. *Journal of Occupational Health Psychology, 14*, 165-181.
- Sonnentag, S., Perrewe, P.L., & Ganster, D.C. (Eds, 2009). *Current perspectives on job-stress recovery*. Bingley: Esmeralda Group Publishing Limited.
- Strauss-Blasche, G., Ekmekcioglu, C. & Marktl, W. (2000). Does vacation enable recuperation? Changes in well-being associated with time away from work. *Occupational Medicine, 50*, 167-172.
- Van Hooff, M., Geurts, S., Taris, T., Kompier, M., Houtman, I. & Van den Heuvel, F. (2005). Disentangling the causal relationships between work-home interference and employee' health. *Scandinavian Journal of Work, Environment, & Health, 31*, 15-29.
- Van Hooff, M.L.M., Geurts, S.A.E., Taris, T.W., & Kompier, M.A.J. (2007). "How fatigued do you currently feel?" Convergent and discriminant validity of a single-item fatigue measure. *Journal of Occupational Health, 49*, 224-234.
- Westman, M., & Eden, D. (1997). Effects of a respite from work on burnout: vacation relief and fade-out. *Journal of Applied Psychology, 82*, 516-527.
- Westman, M., & Etzion, D. (2001) The impact of vacation and job stress on burnout and absenteeism. *Psychology & Health, 16*, 595-606.





## Chapter 5

# Effects of Short Vacations, Vacation Activities and Experiences on Employee' Health and Well-Being

It was investigated 1) whether employee' H&W improve during short vacations (4-5 days), (2) how long this improvement lasts after returning home and resuming work, and (3) to what extent vacation activities and experiences explain health improvements during and after short vacations.

Eighty workers reported their H&W two weeks before vacation (*Pre*), during vacation (*Inter*), on the day of return (*Post 1*), and on the 3<sup>rd</sup> and 10<sup>th</sup> day after returning home (*Post 2* and *Post 3*, respectively).

The results showed improvements in H&W during short vacations ( $d = 0.62$ ), although this effect faded out rather quickly. Partial correlations and regression analyses showed that employees reported higher H&W during vacation, the more relaxed and psychologically detached they felt, the more time they spent on conversations with the partner, the more pleasure they derived from their vacation activities, and the lower the number of negative incidents during vacation. Experiences of relaxation and detachment from work positively influenced H&W even after returning home. Working during vacation negatively influenced H&W after vacation.

In conclusion, short vacations are an effective, though not very long lasting, 'cure' to improve employees' H&W.

This chapter is based on:

De Bloom, J., Geurts, S.A.E. Kompier, M.A.J. (in press). Effects of short vacations, vacation activities and experiences on employee' health and well-being. *Stress & Health*



## 5.1. Introduction

Exposure to job stressors has negative effects on H&W (e.g. Akerstedt, 2006; Vrijkkotte, Van Doornen & De Geus, 2000). Consequently, recovery from work stress is essential to preserve employee' well-being. Recovery, defined as a period of absence from work and "[...] a situation in which no special demands are made on the individual" (Geurts & Sonnentag, 2006), enables the psychophysiological systems that were activated while expending effort at work to return to and stabilize at baseline levels. In other words, recovery implies a reduction in stress.

According to Effort-Recovery Theory (Meijman & Mulder, 1998) and Allostatic Load Theory (McEwen, 1998), initial normal load reactions associated with effort expenditure during work (e.g. fatigue), can develop into more chronic load reactions if recovery is incomplete during off-job time. Recovery occurs regularly in-between work periods, e.g. during evening hours and during weekends. However, diary studies demonstrated that employees often recover insufficiently during these short periods of respite (Fritz & Sonnentag, 2005; Van Hooff, Geurts, Kompier & Taris, 2007). Vacation as a relatively long and less interrupted period of off-job time could, therefore, be a more effective opportunity to recover from work.

Indeed, a meta-analysis on vacation effects showed that vacation has a small positive effect on H&W when baseline levels before and the first measurement occasion after vacation are compared (De Bloom, Kompier, Geurts, De Weerth, Taris & Sonnentag, 2009). These positive effects fade out fast. However, most earlier studies lacked during-vacation measurements of H&W and some reviewed studies did not report the duration of the vacation period (Etzion, 2003; Fritz & Sonnentag, 2006; Gilbert & Abdullah, 2004). In other studies, the length of the vacation period was rather long, varying between nine and fourteen days (Lounsbury & Hoopes, 1986; Strauss-Blasche, Ekmekcioglu & Marktl, 2000; Westman & Eden, 1997; Westman & Etzion, 2001). Accordingly, the effects found up till now were mainly applicable to relatively long vacations and confounded with work resumption (De Bloom et al., 2009). One of the first vacation studies with on-vacation measures (De Bloom, Geurts, Sonnentag, Taris, De Weerth & Kompier, in press) concerned a rather specific type of vacation (winter sports vacations) and was again relatively long (9 days). Consequently, the relation between vacation duration and the strength and endurance of vacation effects is still unclear. Further disentangling this relationship could bring about practical guidance in vacation planning in order to conserve H&W in the long term.

In the present study, we tried to replicate the findings from De Bloom et al. (in press) in a different type and duration of vacation. Whereas de Bloom et al. (in press) investigated the effect of moderately long (9 days), active winter sports vacations abroad, we focused on short vacations of four or five days in the home country. Yet, we applied a comparable research



design. Like de Bloom et al. (in press), we scheduled several measurement occasions before and after vacation in order to assess similar outcome variables by single-item questionnaires (i.e. De Bloom et al. measured health status, mood, fatigue, tension, energy level and satisfaction). Moreover, we also measured H&W, vacation activities and experiences during vacation itself which is regrettably still very uncommon in vacation studies.

We investigated whether employee' H&W improved during short vacations (research question 1), and how long this effect lasted after returning home and resuming work (research question 2). In line with previous findings, we hypothesized:

H1: H&W will increase during vacation.

H2: H&W will rapidly decrease after work resumption.

Whereas de Bloom et al. (in press) only focused on the influence of vacation activities and experiences on changes in H&W during vacation, we will also shed light on the influence after vacation.

### 5.1.1. The role of vacation activities and experiences

Until now, the impact of vacation activities and experiences on the vacation (after-) effects is a relatively neglected research topic (De Bloom, Geurts, Taris, Sonnentag, De Weerth & Kompier, 2010). The findings from the very few studies that, as yet, investigated the role of vacation activities and experiences were somewhat contradictory. For example, Westman and Eden (1997) found that vacation satisfaction was negatively related to levels of exhaustion after vacation, whereas Etzion (2003) found no such relationship. Moreover, the data on vacation activities and experiences were in most cases collected retrospectively after resuming work and, as a consequence, potentially biased and imprecise.

To our knowledge, there were only three studies which ever collected data on several activities and a few experiences during vacation itself and which linked this information to the vacation (after-) effects (De Bloom et al., in press; Fritz & Sonnentag, 2006; Nawijn, 2011). Therefore, more research into the role of vacation activities and a greater diversity of experiences in different types and durations of vacations is highly needed. Furthermore, the few studies that examined vacation activities and experiences during vacation itself tended to focus on rather short-lived associations with H&W during vacation (for a notable exception see Fritz & Sonnentag, 2006). Therefore, we investigated to what extent vacation activities and experiences explained changes in H&W during, as well as after vacation (research question 3).

### 5.1.2. Vacation activities

To our knowledge, only five studies worldwide ever collected data on vacation activities (De Bloom et al., in press; Lounsbury & Hoopes, 1986; Nawijn, 2010, 2011, Strauss-Blasche et al.,

2000). Nawijn (2010) reported that vacation effects on mood were similar for three different types of vacation activities (i.e., sightseeing, shopping and relaxing) and in his recent study (Nawijn, 2011) he also found no relationship between the type of activity and affect during vacation. However, these studies were cross-sectional and compared different types of vacations and differences in activities between persons. Lounsbury and Hoopes (1986) and Strauss-Blasche et al. (2000) only described the percentages of vacationers who engaged in certain activities during vacation but did not link this information to the vacation effects.

In De Bloom et al. (in press), a high number of passive activities (like reading a book or watching television) was related to decreases in well-being during winter sports vacations. Yet, in this study, the amount of time spent on passive activities also correlated highly with the occurrence of negative incidents, indicating that vacationers were probably forced to spend time on passive activities, due to accidents or illness. In the same study, engaging in physical activities was, though weakly, associated with positive changes in H&W, whereas social activities were unrelated to the vacation effect. Because our knowledge of vacation activities is restricted to these few findings, we now examined the effect of time spent on different activities (physical, social, passive) on H&W during a completely different type of vacation. Based on earlier findings on the influence of vacation activities in winter sports vacations, we expected that:

- H3: Increases in H&W across a vacation period will be smaller for employees who spend more time on passive activities during vacation.
- H4: Increases in H&W across a vacation period will be larger for employees who spend more time on physical activities during vacation.
- H5: Increases in H&W across a vacation period will be unrelated to the time spent on social activities during vacation.

Up till now, also insufficient attention has been paid to the impact of work-related activities during vacation. According to Effort-Recovery Theory (Meijman & Mulder, 1998) and Allostatic Load Theory (McEwen, 1998), recovery from work can only occur in a situation in which no work demands are put on the employees' psychophysiological systems. A study by Tucker, Dahlgren, Akerstedt and Waterhouse (2008) demonstrated that additional work in the evening hours has negative effects on feeling rested and levels of satisfaction. Consequently, working during vacation is expected to hamper the recovery process and to reduce well-being. Earlier research conducted during winter sports revealed that people hardly spent time on work during this type of vacation (De Bloom et al., in press). Therefore, we again examined the role of work-related activities during vacation in the current study and hypothesized:

- H6: Increases in H&W across a vacation period will be smaller for employees who spend more time on work-related activities during vacation.

### 5.1.3. Vacation experiences

It is possible that it is not so much the specific activity itself that helps people to recover from work stress, but the underlying psychological experience associated with the activity. Sonnentag and Fritz (2007) distinguished four different recovery experiences: psychological detachment from work, relaxation, mastery and control. Detachment refers to being free from work-related duties and to disengaging mentally from work (Etzion, Eden & Lapidot, 1998). Relaxation implies low levels of activation, little physical or intellectual effort, few demands and high levels of positive affect. Mastery experiences refer to challenging experiences that build up resources like skills, competency and proficiency in other domains than the job. Control characterizes the degree to which a person can decide which activity to pursue, when, how and with whom. This final recovery experience ('being in control') also relates to Ryan and Deci's Self-Determination Theory (2000). According to this theory, being in control and autonomous constitutes a fundamental human need and its fulfillment should lead to increased well-being. Particularly during vacation, people should be able to fulfill this fundamental need. We hypothesized:

- H7: Increases in H&W across a vacation period will be larger for employees who psychologically detach from their work during vacation.
- H8: Increases in H&W across a vacation period will be larger for employees who relax during vacation.
- H9: Increases in H&W across a vacation period will be larger for employees who report high levels of mastery during vacation.
- H10: Increases in H&W across a vacation period will be larger for employees who report high levels of control during vacation.

A second fundamental human need also deriving from Ryan and Deci's (2000) Self-Determination Theory is 'relatedness': feeling closely connected to others. A vacation may be an outstanding opportunity to spend time with close others and to connect to them by means of high quality conversations. In a recent study, Ryan, Bernstein and Brown (2010) found that increases in relatedness during weekends were associated with higher levels of positive affect during off-job time. Nawijn (2011) also found that negative attitudes towards the travel party were associated with lower levels of positive affect during vacation. Therefore, we tested the following four hypotheses:

- H11: The time for conversations with the partner increases during vacation.
- H12: Increases in H&W across a vacation period will be larger for employees who spend more time on conversations with the partner during vacation.
- H13: The quality of conversations with the partner increases during vacation.

H14: Increases in H&W across a vacation period will be larger for employees who report higher quality conversations with the partner during vacation.

We also incorporated negative incidents during vacation to investigate their effect on H&W during and after vacation. Earlier research on non-work hassles showed that a high amount of hassles harms individual health (Bolger, DeLongis, Kessler & Schilling, 1989). During vacation, a period during which expectations for pleasure and fun are especially high, the occurrence of negative incidents has indeed been associated with deteriorated employee' well-being (e.g. De Bloom et al., in press; or "holiday stress" such as travel stress in Nawijn, 2011). We expected that:

H15: Increases in H&W across a vacation period will be smaller for employees who experience negative incidents during vacation.

In a recent study (De Bloom et al., in press), pleasure derived from vacation activities was associated with improvements in employee' well-being during vacation. However, it still remains unclear if pleasure during vacation also has longer lasting effects on employee' well-being after returning home and resuming work. We hypothesized:

H16: Increases in H&W across a vacation period will be larger for employees who report higher levels of pleasure derived from their vacation activities.

Put together, in this study we tried to replicate recent findings regarding vacation (after-) effects (research question 1 and 2) and the role of vacation activities and experiences (research question 3). Our study contributes to health psychology, stress research in general and vacation research in particular, because it 1. investigates effects on H&W in a very popular, common, and even though neglected type of vacations (short trips to a holiday park in the home country), 2. enquires into the role of vacation duration in focusing on short vacations instead of on relatively long vacations as in earlier studies, 3. examines vacation experiences that are different from those studied in previous research (namely recovery experiences, time and quality of conversations and negative incidents) and 4. investigates not only short term effects of vacation activities and experiences on H&W changes during vacation, but also longer term effects after returning home. To achieve these aims and to arrive at valid conclusions, we applied a unique, elaborate research design with several measurements before, during and after vacation.

## 5.2. Method

### 5.2.1. Procedure

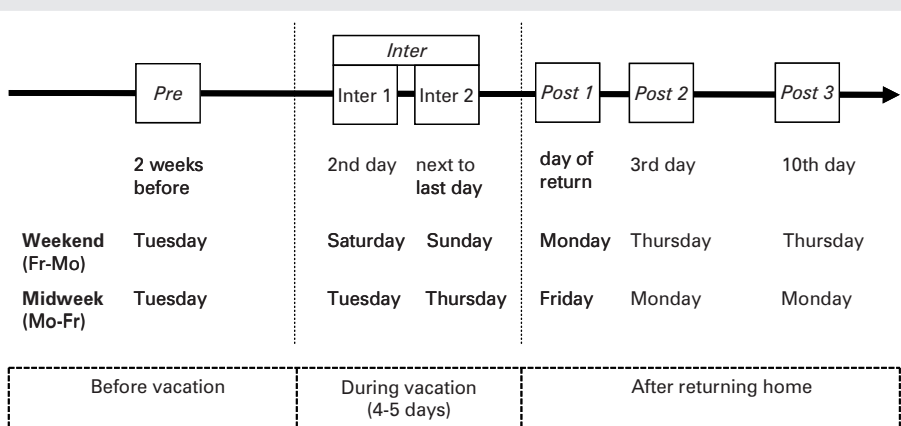
We set up a five-week longitudinal field study and measured H&W repeatedly among vacationers who spent a long weekend (four days, Friday to Monday) or a midweek (five days, Monday to Friday) on a Dutch holiday park. Levels of H&W were measured once two weeks before vacation (*Pre*), twice during vacation (*Inter 1* and *Inter 2*, combined into *Inter*), once on the day of return (*Post 1*), on the 3<sup>rd</sup> (*Post 2*) and on the 10<sup>th</sup> day (*Post 3*) after returning home (see Figure 5.1).

Data collection took place between September 29 and November 9 in 2009. Before the cycle of data collection, every participant received an overview of his/her personal measurement occasions. To stimulate adherence to the research protocol and to reduce missing data, we announced a lottery prize among all participants (a long weekend vacation in a Dutch holiday park) with the chances of winning being higher, the more questionnaires were completed.

Four to two weeks before vacation, employees received a link to a digital general questionnaire in order to assess demographic and basic job information. Participants then received an e-mail with a link to a digital diary on every measurement occasion before and after vacation, also accompanied by an SMS reminder on their personal cell phone. The digital diaries had to be completed just before going to sleep.

**Figure 5.1:**

Research design for the current study



During vacation, two paper-pencil questionnaires were used for the on-vacation measures. One day before vacation, we used an SMS to remind the participants to bring the questionnaires with them to their vacation destination. During vacation, we again sent two SMS to remind participants to complete the questionnaires on the day after arrival (second vacation day) and on the next to last day.

After collecting the data, we thanked the respondents for their participation, provided them with information about when the results would be published and announced the winner of the lottery price.

### 5.2.2. Participants

To recruit participants for the study, we were rendered assistance by a Dutch tourism company, which rents bungalows on holiday parks in the Netherlands. This organization provided us with 1668 e-mail addresses of vacationers who went on a vacation within the research period. After sending a request to take part in the study and distributing information about the project by e-mail to these vacationers, 93 employees finally took part in the study (6% response rate).

Because we were also interested in the influence of a vacation on the quantity and quality of conversations with the partner, we excluded persons who did not go on vacation with their partner (13 exclusions). Note that every person included in our study went on vacation with a partner who did not participate in our study. Therefore, the data were independent.

Completion rates were high: 100% on *Pre* (N = 80), 96% on *Inter* (N = 77), 94% on *Post 1* (N = 75) and 99% on *Post 2* and *Post 3* (N = 79). For 67 of the 80 participants, data sets were complete (no missing data on any occasion).

The majority of the sample went on vacation for a long weekend (56%), whereas 44% went on vacation for a midweek. The mean age was 42.5 years ( $SD = 10.0$  years) and about half of the participants was male (57%). The largest part of the sample (56%) was medium educated (senior general secondary and university preparation education), while 27% held a college or university degree and 17% were lower educated (no, lower secondary or junior secondary education).

In terms of personal living situation, the majority of the respondents (72%) was married and lived together with at least one child, and 23% was married but lived without children. The largest part of the respondents (79%) went on vacation with children. Age of the youngest child on vacation was 6.5 years.

About one third (31%) worked in the service sector, 28% were white collar workers and 14% worked in health care. Another 12% were blue collar workers and 15% worked in other sectors. A minority of the sample (30%) supervised at least three other persons and 11% were

self-employed. The respondents worked regular working days (no shift workers) and 36 hours per week on average ( $SD = 8.0$  hours, range 24 to 65 hours).

### 5.2.3. Measures

*Health and well-being.* We incorporated eight main indicators of H&W to present a comprehensive account of H&W: health status, mood, mental fatigue, physical fatigue, tension, energy level, satisfaction and happiness. Single-item measures were used to assess these concepts. In this way, we minimized the effort required from the participants and maximized user-friendliness, which should increase response rates. Previous studies revealed that participants generally value the directness of single-item measures and the lack of repeated comparable items (Elo, Leppänen & Jahkola, 2003; De Bloom et al., 2010). If the underlying constructs are sufficiently one-dimensional and unambiguous, multiple item measures may be replaced by single-item measures (e.g. Van Hooff, Geurts, Taris & Kompier, 2007). We adapted response-scales based on the basic Dutch grade notation system ranging from 1 (extremely low/negative) to 10 (extremely high/positive) and anchored the first and the last grade. *Health status* was measured by the item: “How healthy did you feel today?” (1 = “very unhealthy”, 10 = “very healthy”). We measured *mood* with the item: “How was your mood today?” (1 = “very bad”, 10 = “very good”). *Mental fatigue* was assessed with the question: “How mentally fatigued did you feel today?” (1 = “not fatigued at all”, 10 = “very fatigued”). We measured *physical fatigue* with the item: “How physically fatigued did you feel today?” (1 = “not fatigued at all”, 10 = “very fatigued”). *Tension* was assessed with the item: “How tense did you feel today?” (1 = “very calm”, 10 = “very tense”). Moreover, the respondents rated the extent to which they felt *energetic* (“How energetic do you currently feel?” (1 = “absolutely not energetic”, 10 = “very energetic”). In addition, respondents were asked to indicate their level of *satisfaction* by means of a report mark ranging from 1 (“very dissatisfied”) to 10 (“very satisfied”) on the measure: “How satisfied do you feel about this day?”. Finally, *happiness* was measured by the question: “How happy did you feel today?” (1 = “absolutely not happy”, 10 = “very happy”). Regarding the construct validity of H&W, Warr (1994) distinguished different forms of well-being: pleased versus displeased (represented as satisfaction and happiness in our study), depressed versus enthusiastic (represented as mood in our study) and anxious versus comfortable (represented as tension in our study). He further states that arousal should be assessed, which we measured in the form of energy level and fatigue. Moreover, we included a measure of physical well-being, namely health status.

To test whether the assumed underlying construct existed, we included the eight H&W indicators in an exploratory factor analysis. This factor analysis resulted in a one-factor solution with an Eigenvalue greater than 1 and satisfying factor loadings ranging from .55 to .88. Cronbach's  $\alpha$

of H&W was high on every single measurement occasion: .86 (*Pre*), .90 (*Inter 1*), .90 (*Inter 2*), .92 (*Post 1*), .90 (*Post 2*) and .88 (*Post 3*). Accordingly, we combined the eight H&W indicators into one overall H&W measure.

*Vacation activities.* For each of the four vacation activities (work-related, physical, social, passive), participants indicated the amount of time they had devoted to it during the two days they filled in the questionnaires. We also gave at least two examples for each activity to help vacationers categorize their activities: checking work mail or a phone call with the office (work-related), swimming or going for a walk (physical), having a drink/party or playing games (social), and reading a novel or watching television (passive). We averaged the amount of time spent on the activities on both days to get an indication of the daily time spent on each activity during the whole vacation.

*Pleasure derived from activities.* We also measured levels of pleasure by asking participants to rate the pleasure they experienced while executing different activities. An example item is: "Please indicate how pleasant you experienced the physical activities you carried out today" (1 = "very unpleasant", 10 = "very pleasant"). In order to get an overall score of the pleasure derived from vacation activities for each participant, we averaged the pleasure scores across the activities that the vacationer engaged in.

*Negative incidents.* Negative incidents were measured with the question: "Did you experience something very unpleasant today?". Participants responded dichotomously (yes or no). We divided the vacationers into two groups: one group that experienced at least one negative incident during vacation and one group that experienced no negative incident during vacation. By means of an open question, we also investigated the nature of the negative incident ("Would you give a short indication of the nature of the negative incident you experienced?").

*Recovery experiences.* We used the 16 items of the well-validated Recovery Experience Questionnaire from Sonnentag and Fritz (2007) to measure detachment, relaxation, mastery and control with four items each. We adapted this scale to a vacation context by starting each item with "During this vacation..." instead of "During time after work..." as written in the original questionnaire. An exploratory factor analysis with varimax rotation resulted in the assumed four-factor solution with Eigenvalues greater than 1 and factor loadings  $\geq .47$ . We averaged the scores of the four subscales for the two during-vacation measurements to get a day-indicator. Vacationers could respond to the items on a 5-point Likert scale with answers ranging from "1 = strongly disagree" to "5 = strongly agree". An example item for *Psychological detachment from work* was: "During this vacation, I forget about work". Cronbach's  $\alpha$  for this subscale was .88 on the first and .93 on the second measurement occasion during vacation. *Relaxation experiences* were assessed by items like: "During this vacation, I kick back and relax" ( $\alpha$ 's for *Inter 1* and *Inter 2* were, respectively, .81 and .91). An example-item for *Mastery* was: "During



this vacation, I seek out intellectual challenges" ( $\alpha$ 's for *Inter 1* and *Inter 2* were, respectively, .71 and .90). A sample item of *Control* was: "During this vacation, I decide my own schedule" ( $\alpha$  was .90 on both measurement occasions during vacation).

*Time spent on conversations with partner.* We asked the participants to indicate how much time they had spent talking with their partner on the day they completed the questionnaire ("How much time did you talk with your partner today?"). The answers could range from 1 = "less than 15 minutes", 2 = "15-30 minutes", 3 = "30-60 minutes", 4 = "60-90 minutes" to 5 = "more than 90 minutes".

*Quality of conversations with partner.* The respondents were also asked to rate the quality of the conversations with their partner by a question mark ranging from 1 = "very bad" to 10 = "excellent" ("How would you rate the quality of the conversations with your partner today?"). Again we computed the average score across both measurement occasions.

#### 5.2.4. Statistical analyses

In order to obtain a more reliable indicator of H&W during vacation, to reduce missing data and to simplify the analyses, we combined the two occasions during vacation (*Inter 1* and *Inter 2*) into one (*Inter*). A t-test showed that the mean levels of H&W were indeed comparable during the two measurement occasions during vacation (7.8 and 7.7,  $t(75) = .06$ ,  $p > .05$ ,  $r(76) = 0.72$ ,  $p < .05$ ).

In order to test hypothesis 1 and 2, we analyzed the data in an analysis of variance (ANOVA) with repeated measures on the five occasions (one before, one during and three after vacation) with duration of vacation (long weekend or midweek) as between-subjects factor. To detect variations in H&W across the vacation period, Post-hoc Fisher's Least Significant Difference (LSD) tests were applied. The vacation effect (H1) was tested by examining the difference between H&W-levels reported before vacation and during vacation (*Pre* versus *Inter*). Vacation after-effects (H2) were tested by conducting LSD's for the comparison of H&W on *Pre* versus *Post 1*, versus *Post 2* and versus *Post 3*, respectively.

We present Cohen's  $d$  for paired observations (Cohen, 1988, p.46) for all significant differences between measurement occasions. Following Cohen (1988) we distinguished small (0 to 0.5), medium (0.5 to 0.8) and large ( $> 0.8$ ) effects.

Research question 3 and the associated hypotheses (H3 to H16) were investigated using partial correlation and regression analyses. First of all, we investigated the associations of each vacation activity and experience with H&W during and after vacation, controlling for H&W-levels reported before vacation (as well as for sex and age). The strength of the partial correlation coefficients gives us an idea about the impact of a single vacation activity or experience on the vacation (after-) effects.

However, as all vacation activities and experiences act upon H&W simultaneously, it would be somewhat arbitrary to only study the “pure” effect of a single vacation activity or experience, independent from all other activities and experiences. Therefore, we conducted four multiple regression analyses (H&W *Inter*, H&W *Post 1*, H&W *Post 2* and H&W *Post 3* constituted the dependent variable, respectively) in which pre-vacation levels of H&W and sex and age were controlled for. All vacation activities and experiences were then entered, following a stepwise procedure with forward inclusion that aims to select those variables that explain the highest percentage of variance in the dependent variable. These variables can be considered main factors in statistically explaining the vacation (after-) effect.

### 5.3. Results

#### 5.3.1. Vacation (after-) effects (research question 1 and 2, H1 and H2)

Multivariate analysis of variance revealed a main effect across time ( $F(4, 65) = 11.42, p < .05$ ), meaning that H&W levels significantly varied across the five measurement occasions. There was no significant interaction effect between duration of vacation (long weekend or midweek) and time ( $F(4, 65) = 0.11, p > .05$ ), meaning that H&W changes across time did not depend on the duration of vacation.

Post-hoc LSD tests further showed that H&W levels on *Inter* and on *Post 1* differed significantly from pre-vacation levels ( $p < .05$ ). The average change in H&W from *Pre* ( $M = 6.9$ ) to *Inter* ( $M = 7.7$ ) represented a medium-sized positive effect ( $d = 0.62$ ). On the day of return (*Post 1*), H&W levels also surpassed pre-vacation levels significantly ( $M = 7.2$ ). This difference from *Pre* to *Post 1* represented a small effect ( $d = 0.22$ ). Post-hoc LSD tests further showed no significant differences between pre-vacation and H&W-levels on *Post 2* and *Post 3* (on the 3<sup>rd</sup> and the 10<sup>th</sup> day after vacation). Accordingly, the answer to research question 1 was: Yes, H&W of working individuals increased substantially during short vacations (H1 supported). Regarding research question 2, the effects of short vacations decreased rapidly upon returning home (H2 supported). On the day of return, there was a small positive effect left and this effect had faded out completely within three days after vacation and work resumption.

#### 5.3.2. Vacation activities and experiences (research question 3, hypotheses 3 to 16):

We will first report the descriptives of the vacation activities and experiences (Table 5.1). Then, we will describe the results of the partial correlation analyses (Table 5.2) and finally the results of the stepwise regression analyses (Table 5.3).

**Table 5.1:** Means, Standard Deviations, and Zero-Order Correlations Between Study Variables

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
<i>M</i>	1.4	42.5	6.9	7.7	7.2	7.0	7.0	0.1	3.0	3.0	2.2	7.8	0.1	4.0	4.4	2.5	3.7	4.3	8.1
<i>SD</i>	0.5	10.0	1.3	1.2	1.5	1.5	1.4	0.6	1.4	1.6	1.0	1.1	0.3	1.0	0.5	0.8	0.8	0.9	1.2
<i>Min</i>	1	20.0	3.3	3.5	3.3	3.0	3.1	0.0	0.3	0.0	0.0	3.5	0.0	1.0	3.0	1.0	1.9	2.0	4.5
<i>Max</i>	2	64.0	9.4	9.9	10.0	9.9	10.0	4.5	7.0	9.0	4.5	10.0	1.0	5.0	5.0	4.6	5.0	5.0	10.0
Possible range	1-2	18-65	1-10	1-10	1-10	1-10	1-10	0-24	0-24	0-24	0-24	0-10	0-1	1-5	1-5	1-5	1-5	1-5	1-10
<i>N</i>	80	80	80	77	75	79	79	77	77	77	77	77	77	77	77	77	77	77	77
1. Sex																			
2. Age																			
3. H&W Pre																			
4. H&W Inter																			
5. H&W Post 1																			
6. H&W Post 2																			
7. H&W Post 3																			
8. Nr of hrs work-related activities																			
9. Nr of hrs physical activities																			
10. Nr of hrs social activities																			
11. Nr of hrs passive activities																			
12. Pleasure from activities																			
13. Negative incidents																			
14. Detachment																			
15. Relaxation																			
16. Mastery																			
17. Control																			
18. Time conv																			
19. Quality conv																			

Note. \*  $p < .05$ , two-tailed. Nr of hrs = number of hours spent on activity. Conv = conversations with partner. Negative incidents: 0 = no, 1 = yes. Sex: 1 = male, 2 = female

### 5.3.3. Vacation activities

*Passive activities.* On average, vacationers spent 2.2 hours per day ( $SD = 1.0$  hours) on passive activities and almost every employee (97%) devoted at least some time to this type of activities (Table 5.1). The time devoted to passive activities during vacation was unrelated to the vacation (after-) effect (Table 5.2). Hypothesis 3 was not supported.

*Physical activities.* Every vacationer performed physical activities during holidays. On average, the vacationers spent 3.0 hours ( $SD = 1.4$  hours) on physical activities per day (Table 5.1). The time spent on physical activities was unrelated to the vacation effect and to the vacation after-effect (Table 5.2). Hypothesis 4 was not supported.

*Social activities.* Table 5.1 shows that time spent on social activities during vacation varied widely between zero and nine hours a day. Nearly all vacationers (97%) performed social activities, on average 3.0 hours per day ( $SD = 1.6$  hours). Vacationers who spent more time on social activities, also reported higher levels of pleasure during vacation. Table 5.2 indicates that the number of hours spent on social activities was not directly associated with H&W during and after vacation. Hypothesis 5 was supported.

**Table 5.2:**

Partial Correlations of H&W During Vacation (*Inter*) and After Vacation (*Post 1, Post 2, Post 3*) With Various Vacation Activities and Experiences, Controlled for H&W Before Vacation (*Pre*), Sex and Age

Variable	H&W <i>Inter</i> During vacation	H&W <i>Post 1</i> day of return	H&W <i>Post 2</i> 3 <sup>rd</sup> day after vacation	H&W <i>Post 3</i> 10 <sup>th</sup> day after vacation
<b>Activities</b>				
Nr of hrs work-related activities	-.16	-.34*	-.32*	-.25*
Nr of hrs physical activities	.19	.13	.06	.03
Nr of hrs social activities	.16	.05	.02	-.04
Nr of hrs passive activities	.16	.09	.12	-.08
<b>Experiences</b>				
Pleasure from activities	.41*	.31*	.25*	.17
Negative incidents	-.33*	-.17	-.15	.02
Detachment	.38*	.28*	.33*	.47*
Relaxation	.42*	.27*	.24*	.19
Mastery	.12	-.01	-.13	.02
Control	.20	.20	.03	.06
Time conversations	.29*	.05	.03	-.13
Quality of conversations	.49*	.31*	.23*	.28*

Note. \*  $p < .05$ , one-tailed. Nr of hrs = number of hours spent on activity. Negative incidents: 0 = no, 1 = yes.

*Work-related activities.* During vacation, only a minority of 14% of the respondents ( $N = 11$ ) performed work activities, and the average number of daily hours spent on work-related activities was therefore very low ( $M = 0.1$ ,  $SD = 0.6$ ). For the eleven respondents who performed work-related activities, the maximum daily time spent on this type of activities was 4.5 hours per day. Work-related activities correlated negatively with detachment, indicating that vacationers who spent more time on work were less able to detach psychologically from their work (Table 5.1). Table 5.2 shows that the number of hours spent on work-related activities was negatively related to H&W after vacation. The more time employees worked during vacation, the less they benefitted from their vacation in terms of increased H&W after vacation. In the stepwise regression analyses (Table 5.3), time spent on work-related activities turned out to be an important determinant of the vacation after-effect. A higher number of hours spent on work-related activities during vacation was significantly associated with lower levels of H&W on the day of return and the third day after returning home. Accordingly, hypothesis 6 was supported.

#### 5.3.4. Vacation experiences

*Psychological detachment from work.* Table 5.1 shows that the degree of psychological detachment from work during vacation was high. On average, respondents scored 4.0 points on a 5-point-scale ( $SD = 1.0$ ). Partial correlations demonstrated that detachment was positively and strongly related to changes in H&W during and after vacation (Table 5.2): employees who were better able to detach from work during vacation, experienced greater health benefits from a vacation during the vacation period itself and after returning home. In the stepwise regression analyses, detachment did not add variance in explaining the vacation effect or the vacation after-effects on *Post 1* and *Post 2*. However, on *Post 3*, detachment was shown to be the only predictor of H&W (Table 5.3). Hypothesis 7 was supported.

*Relaxation.* The mean level of relaxation during vacation was high: 4.4 points on a 5-point-scale ( $SD = 0.5$ ) and all vacationers scored at least 3.0 points on this scale. Higher levels of relaxation during vacation were also related to higher levels of pleasure and higher quality conversations with the partner during vacation (Table 5.1). Table 5.2 shows that relaxation during vacation was associated with positive changes in H&W on *Inter*, *Post 1* and *Post 2*. Respondents, who were able to relax during vacation, profited more from their vacation in terms of H&W. The stepwise regression analyses demonstrated that relaxation was mainly important during vacation itself. After vacation, it did not explain variance of H&W beyond other vacation activities and experiences (Table 5.3). Hypothesis 8 was partly supported.

*Mastery.* Mastery experiences did hardly occur as employees scored rather low on mastery: 2.5 points on a 5-point scale ( $SD = 0.8$ , Table 5.1). Mastery experiences during vacation were unrelated to the vacation (after-) effect (Table 5.2). Hypothesis 9 was not supported.

*Control.* Levels of control during vacation were generally high: 3.7 points on a 5-point scale ( $SD = 0.8$ , Table 5.1). Experienced levels of control were unrelated to H&W changes during and after vacation (Table 5.2). Hypothesis 10 was not supported.

*Time spent on conversations with partner.* On average, the participants spent more than 60 minutes a day talking with their partner ( $M = 4.3$ , with 4 meaning "talked 60-90 minutes" and 5 meaning "talked more than 90 minutes"). About half of the respondents talked more than 90 minutes with their partner. Table 5.1 also demonstrates that the more vacationers talked

**Table 5.3:**

Stepwise Regressions with Forward Inclusion of H&W During Vacation (*Inter*) and After Vacation (*Post 1*, *Post 2*, *Post 3*) on Various Vacation Activities and Experiences, Controlled for H&W Before Vacation (*Pre*), Sex and Age

Variable	H&W <i>Inter</i> During vacation	H&W <i>Post 1</i> day of return	H&W <i>Post 2</i> 3 <sup>rd</sup> day after vacation	H&W <i>Post 3</i> 10 <sup>th</sup> day after vacation
	$\Delta R^2$ , $\beta$	$\Delta R^2$ , $\beta$	$\Delta R^2$ , $\beta$	$\Delta R^2$ , $\beta$
Step 1 (entered)				
H&W <i>Pre</i>	.22, .25*	.25, .37*	.24, .38*	.22, .44*
Step 2 (entered)				
Sex	.02, -.07	.06, -.21*	.00, -.05	.02, -.14
Step 3 (entered)				
Age	.02, -.07	.00, .02	.03, -.16	.00, .00
Step 4 (stepwise, forward inclusion)				
Activities				
Nr of hrs work-related activities		.08, -.27*	.05, -.23*	
Nr of hrs physical activities				
Nr of hrs social activities				
Nr of hrs passive activities				
Experiences				
Pleasure from activities	.04, .23*			
Negative incidents	.05, -.27*			
Detachment				.19, .43*
Relaxation	.06, .25*			
Mastery				
Control				
Time conversations	.04, .23*			
Quality of conversations	.18, .21*	.07, .28*	.05, .25*	
F	14.26*	10.62*	8.31*	12.95*
R <sup>2</sup>	.63	.45	.38	.43

Note. \*  $p < .05$ . Sex: 1 = male, 2 = female. Nr of hrs = number of hours spent on activity. Negative incidents: 0 = no, 1 = yes.

with their partner, the better they judged the quality of their conversations. A t-test for paired samples further showed that the time partners talked to each other increased significantly during vacation compared to before vacation ( $M Pre = 3.2$ ,  $SD = 1.2$ ,  $t(73) = 7.89$ ,  $p < .05$ ). Therefore, hypothesis 11 was supported. Partial correlation analyses in Table 5.2 indicated that the time spent talking with the partner correlated positively with the vacation effect, meaning that vacationers who talked more with their partners during vacation, experienced higher increases of H&W during vacation. After returning home, the time devoted to conversations during vacation was unrelated to H&W. Stepwise regressions also demonstrated that time devoted to conversations with the partner only mattered during vacation (Table 5.3). Hypothesis 12 was partly supported.

*Quality of conversations with partner.* Table 5.1 shows that the self-reported quality of conversations with the partner was generally high: 8.1 points on a 10-point scale ( $SD = 1.2$ ). A higher conversation quality was also related to higher levels of pleasure and psychological detachment during vacation. A t-test for paired samples demonstrated that the self-reported quality of conversations increased significantly during vacation ( $M Pre = 7.5$ ,  $SD = 1.2$ ,  $t(73) = 4.43$ ,  $p < .05$ ). Accordingly, hypothesis 13 was supported. Table 5.2 demonstrates that the quality of conversations was positively linked to H&W levels during and after vacation: the more vacationers were satisfied with the conversations with their partner during vacation, the more they were able to benefit from their vacation in terms of increased H&W. Of all vacation activities and experiences, the quality of conversations with the partner had the strongest association with H&W improvement during and after vacation. In the stepwise regressions, the quality of conversations explained the largest part of the variance in the vacation effect and reasonable parts of the vacation after-effect on *Post 1* and *Post 2* (Table 5.3). Hypothesis 14 was supported.

*Negative incidents.* The vacationers reported 14 negative incidents on the two measurement occasions during vacation. Of these incidents, most incidents were related to illness, the other incidents included, for example, working during vacation, travel stress, arguments, crowded swimming pools or lost baggage. Table 5.2 indicates that participants who reported negative incidents during vacation experienced a decrease in H&W during vacation. After vacation, negative incidents turned out to be unrelated to levels of H&W. The stepwise regressions echoed these results: while negative incidents during vacation were strongly interrelated with H&W during vacation, this relationship vanished after returning home (Table 5.3). Hypothesis 15 was partly supported.

*Pleasure from activities.* In general, the pleasure associated with vacation activities was high: 7.8 points on a 10-point-scale ( $SD = 1.1$ ), meaning that nearly every vacationer experienced his/her activities as pleasant (Table 5.1). Despite the restricted range of scores, Table 5.2 shows that pleasure from vacation activities was strongly associated with increases

in H&W during and after vacation, meaning that vacationers with higher levels of pleasure benefitted more from their vacation in terms of H&W than vacationers with lower levels of pleasure. The association between pleasure and H&W was most pronounced during vacation, slowly diminished after vacation and had vanished on *Post 3*. Stepwise regression analyses showed that pleasure derived from activities was mainly important during vacation itself (Table 5.3). Hypothesis 16 was supported.

Accordingly, the answer to our third research question was: yes, vacation activities and experiences can explain changes in H&W during and after vacation. Our final regression models explained a large part of variance in the vacation (after-) effects: 63% of H&W *Inter*, 45% of H&W *Post 1*, 38% of H&W *Post 2* and 43% of H&W *Post 3* (whereby the control variables accounted for about 27% of variance). Work-related activities during vacation were negatively associated with H&W after vacation, while other vacation activities seemed to be rather irrelevant. Regarding vacation experiences, the quality of conversations with the partner turned out to be important for levels of H&W during and after vacation. Relaxation, psychological detachment, pleasure derived from activities, the absence of negative incidents during vacation and time spent on conversations with the partner were important determinants of the vacation (after-) effect as well, whilst mastery and control were unrelated to vacation (after-) effects.

## 5.4. Discussion

The present study examined the effects of short vacations on H&W of workers and the effect of vacation activities and experiences on H&W changes across a vacation period.

### 5.4.1. Vacation (after-) effect (research question 1 and 2, H1 and H2)

The results of our study indicate that H&W increase during short vacations. This development in H&W across time was comparable for long weekend and midweek vacationers. In consequence, we could replicate the results from a similar study on 9-day-winter sports vacations (De Bloom et al., in press) and the strength of the vacation effect was comparable as well. These findings suggest that vacation duration may hardly matter for the strength of the vacation (after-) effect. Future studies on longer (> 14 days) and shorter respites (normal weekends, single days off) are needed to find out to what extent the strength and the duration of the vacation (after-) effects depend on vacation length.

The rapid fade-out process of positive vacation effects corroborates earlier findings as well (e.g. De Bloom et al., 2010; Etzion, 2003; Westman & Eden, 1997). We found that only on the day of return (when 92% of the respondents did not yet resume work), there was a small



positive effect. On the third day after returning home, all participants had resumed work and positive vacation effects had faded out entirely. These findings suggest that work resumption and the associated increased strain due to job stressors may initiate the disappearance of positive vacation effects.

Despite the fact that positive effects wash out rapidly after work resumption, regular vacations seem to be of vital importance: a longitudinal study by Gump and Matthews (2000) who followed 12 338 men at risk for coronary heart disease demonstrated that not taking annual vacations is associated with an increased risk of morbidity and even mortality nine years later. Similar studies on the long term effects of deficiencies in vacations on H&W in healthy populations of both sexes are therefore needed in order to further determine the importance of regular respites.

#### **5.4.2. Vacation activities and experiences (research question 3, H3 to H16)**

Our study revealed that passive, physical and social activities were unrelated to the improvement of H&W during and after vacation. Thus, it may well be that the particular type of activity people engage in is less important than the personal preference for an activity and the satisfaction with this activity (see also Tucker, Dahlgren, Akerstedt & Waterhouse, 2008, who found similar results for different activities during evening hours after work).

Employees who performed working tasks during vacation benefitted less from their vacation after returning home than non-working vacationers. Moreover, work-related activities were related to lower levels of psychological detachment from work, which were in turn associated with lower H&W after vacation. Consequently, work-related activities during vacation seem to hamper recovery.

One main issue that emerges from our findings is the importance of high quality contact with the partner during vacation. In general, vacationers talked more with their partner and reported higher quality conversations during vacation than before vacation. Vacationers, who talked extensively and positively with their partner, benefitted more from their vacation, felt better detached from work, more relaxed and experienced more pleasure from their activities. These findings are consistent with those of Etzion and Westman (2001) who found that crossover of strain between spouses decreased after vacation. A vacation may act as a relationship booster by increasing the number of interactions with the partner and by enhancing spouse support. Longitudinal studies which can also establish causal relationships are recommended.

Psychological detachment from work and relaxation were generally high during vacation. The more employees detached from their work and relaxed during vacation, the more they benefitted from vacation in terms of H&W. These findings illustrate the importance of recovery experiences (Fritz & Sonnentag, 2005). Detachment was also negatively related to

work-related activities during vacation and positively to the quality of conversations with the partner. Relaxed vacationers experienced higher levels of pleasure from vacation experiences and higher quality conversations.

Our data showed that people who derived pleasure from vacation activities experienced larger increases in H&W during and, to a smaller degree, after vacation. We assume that these are reciprocal influences with pleasure influencing H&W and vice versa. As described earlier, vacation activities were hardly impactful. Therefore, these results suggest that it is the underlying experience of an activity (i.e. pleasure) rather than the activity itself which is associated with H&W. Negative incidents appeared to be harmful during vacation, but lost their negative impact after vacation.

Feelings of mastery and control were unrelated to the vacation (after-) effects. The mean level of mastery was quite low and it may therefore be that a short vacation in a holiday park offered limited possibilities for mastery experiences. On the contrary, the average level of control was quite high for all participants and the standard deviation was small. As a consequence, the absence of an association between control and vacation (after-) effects could be due to a restriction of range or limited statistical power due to the small number of respondents in the current study. Accordingly, the relationship between these variables should further be investigated in future vacation studies.

#### **5.4.3. Strengths and limitations**

The repeated measurements before, during and after vacation and the user-friendly data-collection with uniform measurement occasions across participants contributed to the methodological quality of our study. Moreover, the assessment of H&W and vacation activities and experiences during vacation itself is unique in vacation research and resulted in valid vacation data.

Nevertheless, several limitations deserve to be considered. Firstly, the restricted response (response rate was 6%) may possibly have colored our results and may therefore have limited the external validity of this study. It could for example be argued that especially people who are interested in vacation (research) and who believe in the importance of vacations took part in the study. However, the rapid fade-out process of positive effects which is in line with earlier findings, does not point into this direction. Furthermore, we compared the characteristics of our current sample with the characteristics of the general Dutch working population (Centraal Bureau voor de Statistiek, 2011; Schulte Nordholt, 2005) and found no notable differences in the distribution of sex (56% male in general versus 57% in our sample), age (mean age men 41.8 and women 40.0 years in general versus 44.8 and 40.8 years in our sample), level of education (22% lower, 43% medium and 35% higher educated in general

versus 17% lower, 56% medium and 27% higher educated in our sample) or weekly work hours (33 hours per week in general versus 36 hours a week in our sample). Accordingly, we are confident that the findings in our small sample apply to the broader working population as well.

Secondly, some of our predictor variables were correlated, leading to problems of multicollinearity. This issue was partly solved by using stepwise regressions and partial correlations concurrently: a relationship between a certain predictor variable and the outcome variable that is suppressed by another variable in the regression analysis should become apparent in the correlation analysis.

Thirdly, we labeled the measure on the day of return *Post 1*. This may be debatable, because vacationers returned home but did (largely) not resume work, making this occasion possibly an on-vacation measurement. But this measurement is simultaneously not representative for a real on-vacation day, because it is confounded by travel stress and household chores (doing the laundry, shopping). Hence, future research should substantiate whether there may be a qualitative difference between off-job time spent at home or abroad (either in a different country or not).

Fourthly, given our study design, it is hard to establish the direction of the relationship between activities and experiences and H&W. Simple causal inferences should be avoided as this relationship may be a two-way street, i.e. with reciprocal influences (e.g. higher H&W leading to detachment and better conversations or conversations leading to detachment and improved H&W).

Fifthly, it could be argued that the duration of a midweek vacation from Monday to Friday is actually nine days (including the preceding and the subsequent weekend) instead of five days. However, we tested whether this difference (long weekend versus midweek vacation) affected H&W levels and we found that this was not the case (i.e., there was no interaction effect between duration and vacation (after-) effects).

Last but not least, we created two groups of vacationers based on the presence or absence of negative incidents during vacation. Still, the borders between a somewhat unpleasant experience and a negative incident may sometimes be less clear-cut than our dichotomous variable might suggest. In future studies, it would therefore be useful to obtain more information about unpleasant experiences (and not just very unpleasant incidents) and treat these experiences more like a continuous variable by assessing the intensity and the impact of the incident as well.

#### **5.4.4. Practical implications**

Regarding the positive but also short-lived nature of vacation effects, planning several short vacation periods across a work-year may well be an efficient remedy to preserve H&W (see

also Etzion, 2003). Psychological detachment from work and relaxation should be stimulated to boost and prolong positive vacation effects. Because both recovery experiences are also associated with the quality of conversations and pleasure from activities, stimulating good interactions and engaging in self-chosen pleasant activities should increase subjective recovery and in turn positively impact H&W. Work-related activities and worrying about work should be prevented during vacation in order to achieve high levels of detachment (for an effective strategy to decrease rumination see Brosschot and Van der Doef, 2006). Relaxation could be promoted by techniques such as progressive muscle relaxation (McCallie, Blum & Hood, 2006) or engagement in pleasant activities with a high relax-potential like reading a magazine, going for a walk or taking a sauna bath.

#### **5.4.5. Suggestions for future research**

Although our results showed that employees benefit from short vacations, it remains unclear whether they would benefit more from longer vacations. Therefore, there is a research need for studies on longer vacations (>14 days) with a similar research design and similar H&W indicators to compare vacation (after-) effects.

In addition, more research on 'control' over vacation activities should be undertaken as the association between self-determination and the vacation (after-) effects is still not very well understood.

Another suggestion is to assess whether a vacation spent at home has comparable effects on H&W as a vacation spent abroad. The lower levels of H&W on the first day of returning home (and still not working) compared to the H&W levels during vacation abroad cautiously suggest that a day at home might be less beneficial than a day abroad. Research on sabbatical leaves points into the same direction (Davidson et al., 2010). It would be interesting to examine whether employees feel equally well in terms of H&W while spending off-job time at home instead of abroad, and how vacation activities (e.g. work-related activities) and experiences (e.g. detachment, relaxation, conversations with the partner) may differ for these type of vacations. Following this reasoning, research on the effect of a non-working day or a regular free weekend at home also needs to be undertaken to bring to light viable discrepancies between vacation periods and shorter free time intervals.

More research on the effect of vacations on couples and family interactions should be conducted as well. Within these studies, a multisource approach could be applied to validate self-reports by ratings of family members and to analyze the effects of activities and experiences of fellow vacationers on the target individual (e.g. negative incidents of the spouse may also affect the target individual).

Finally, in studies with larger sample sizes, differences in the vacation (after-) effects for different types of jobs (e.g. function, supervisory tasks, weekly work hours), compositions of the family (e.g. singles, married couples, children), personality types and individual preferences for activities could be investigated.

In conclusion, this study has shown that short vacations have a positive effect on H&W that fades out within three days after returning home. Regarding vacation activities, work-related activities during vacation turned out to be related to lower levels of psychological detachment during vacation and to decreases in H&W after returning home. Concerning vacation experiences, the pleasure derived from vacation activities, the quality of conversations with the partner as well as relaxation and psychological detachment from work seemed to play an important role for vacation (after-) effects on H&W.

## 5.5. References

- Akerstedt, T. (2006). Psychosocial stress and impaired sleep. *Scandinavian Journal of Work, Environment & Health*, 32, 493-501.
- Bolger, N., DeLongis, A., Kessler, R.C., & Schilling, E.A. (1989). Effects of daily stress on negative mood. *Journal of Personality and Social Psychology*, 57, 808-818.
- Brosschot, J.F., & Van der Doef, M. (2006). Daily worrying and somatic health complaints: Testing the effectiveness of a simple worry reduction intervention. *Psychology & Health*, 21, 19-31.
- Centraal Bureau voor de Statistiek. (2011, April 1). Werkzame beroepsbevolking; vergrijzing per bedrijfstak, SBI 2008. Retrieved May 15, 2011, from <http://statline.cbs.nl/StatWeb/publication/?VW=T&DM=SLNL&PA=80832NED&D1=0-1&D2=1-2&D3=0&D4=0&D5=0&D6=a&D7=a&D8=l&HD=110509-1736&HDR=T,G7&STB=G1,G2,G3,G4,G5,G6>.
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences*. Hillsdale (NJ): Lawrence Erlbaum Associates.
- Davidson, O.B., Eden, D., Westman, M., Cohen-Charash, Y., Hammer, L.B., Kluger, A.N. et al. (2010). Sabbatical leave: who gains and how much? *Journal of Applied Psychology*, 95, 953-964.
- De Bloom, J., Geurts, S.A.E., Sonnentag, S., Taris, T., De Weerth, C., Kompier, M.A.J. (in press). How does a vacation from work affect employee' health and well-being? *Psychology and Health*.
- De Bloom, J., Kompier, M., Geurts, S., De Weerth, C., Taris, T., & Sonnentag, S. (2009). Do we recover from vacation? Meta-analysis of vacation effects on health and well-being. *Journal of Occupational Health*, 51, 13-25.
- De Bloom, J., Geurts, S.A.E., Taris, T.W., Sonnentag, S., De Weerth, C., & Kompier, M.A.J. (2010). Effects of vacation from work on health and well-being: Lots of fun, quickly gone. *Work & Stress*, 24, 196-216.
- Elo, A., Leppänen, A., & Jahkola, A. (2003). Validity of a single-item measure of stress symptoms. *Scandinavian Journal of Work, Environment & Health*, 29, 444-451.
- Etzion, D. (2003). Annual vacation: duration of relief from job stressors and burnout. *Anxiety, Stress, and Coping*, 16, 213-226.
- Etzion, D., Eden, D., & Lapidot, Y. (1998). Relief from job stressors and burnout: reserve service as a respite. *Journal of Applied Psychology*, 83, 577-585.
- Etzion, D., & Westman, M. (2001). Job stress, vacation and the crossover of strain between spouses-stopping the vicious cycle. *Men & Work*, 11, 106-118.
- Fritz, C., & Sonnentag, S. (2005). Recovery, health, and job performance: effects of weekend experiences. *Journal of Occupational Health Psychology*, 10, 187-199.
- Fritz, C., & Sonnentag, S. (2006). Recovery, well-being, and performance-related outcomes: the role of workload and vacation experiences. *Journal of Applied Psychology*, 91, 936-945.

- Geurts, S.A.E., & Sonnentag, S. (2006). Recovery as an explanatory mechanism in the relation between acute stress reactions and chronic health impairment. *Scandinavian Journal of Work, Environment & Health, 32*, 482-492.
- Gilbert, D., & Abdullah, J. (2004). Holidaytaking and the sense of well-being. *Annals of Tourism Research, 31*, 103-121.
- Gump, B., B., & Matthews, K.A. (2000). Are vacations good for your health? The 9-year mortality experience after the multiple risk factor intervention trial. *Psychosomatic Medicine, 62*, 608-612.
- Lounsbury, J. W., & Hoopes, L. L. (1986). A vacation from work: changes in work and nonwork outcomes. *Journal of Applied Psychology, 71*, 392-401.
- McCallie, M.S., Blum, C.M., & Hood, C.J. (2006). Progressive muscle relaxation. *Journal of Human Behavior in the Social Environment, 13*, 51-66.
- McEwen, B.S. (1998). Stress, adaptation, and disease: allostasis and allostatic load. *Annals of the New York Academy of Science, 840*, 33-44.
- Meijman, T.F., & Mulder, G. (1998). Psychological aspects of workload. In P.J.D. Drenth, H. Thierry and C.J. de Wolff (Eds), *Handbook of work and organizational psychology* (2nd edition). *Work psychology* (Vol. 2, pp. 5-33). Hove: Psychology Press.
- Nawijn, J. (2010). The holiday happiness curve: A preliminary investigation into mood during a holiday abroad. *International Journal of Tourism Research, 12*, 281-290.
- Nawijn, J. (2011). Determinants of daily happiness on vacation. *Journal of Travel Research, 50*, 559-566.
- Ryan, R.M., Bernstein, J.H., & Brown, K.W. (2010). Weekends, work, and well-being: psychological need satisfactions and day of the week effects on mood, vitality, and physical symptoms. *Journal of Social and Clinical Psychology, 29*, 95-122.
- Ryan, R.M., & Deci, E.L. (2000). Self-Determination Theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist, 55*, 68-78.
- Schulte Nordholt, E. (2005). Hoeveel uren werken wij in Nederland? *Economisch Statistische Berichten, 4457*, 148.
- Sonnentag, S., & Fritz, C. (2007). The recovery experience questionnaire: development and validation of a measure for assessing recuperation and unwinding from work. *Journal of Occupational Health Psychology, 12*, 204-221.
- Strauss-Blasche, G., Ekmekcioglu, C. & Marktl, W. (2000). Does vacation enable recuperation? Changes in well-being associated with time away from work. *Occupational Medicine, 50*, 167-172.
- Tucker, P., Dahlgren, A., Akerstedt, T., & Waterhouse, J. (2008). The impact of free-time activities on sleep, recovery and well-being. *Applied Ergonomics, 39*, 653-662.
- Van Hooff, M.L.M., Geurts, S.A.E., Kompier, M.A.J., & Taris, T.W. (2007). Workdays, in-between workdays, and the weekend: A diary study on effort and recovery. *International Archives of Occupational and Environmental Health, 80*, 599-613.
- Vrijkotte, T.G.M., Van Doornen, L.J.P., De Geus, E.J.C. (2000). Effects of work stress on ambulatory blood pressure, heart rate and heart rate variability. *Hypertension, 35*, 880-886.

- Warr, P. (1994). A conceptual framework for the study of work and mental health. *Work & Stress*, 8, 84-97.
- Westman, M., & Eden, D. (1997). Effects of a respite from work on burnout: vacation relief and fade-out. *Journal of Applied Psychology*, 82, 516-527.
- Westman, M. , & Etzion, D. (2001). The impact of vacation and job stress on burnout and absenteeism. *Psychology and Health*, 16, 595-606.





## Chapter 6

# Vacation (After-) Effects on Employee' Health and Well-being, and the Role of Vacation Activities, Experiences and Sleep

Most vacations seem to have strong, but rather short-lived effects on health and well-being (H&W). However, the recovery-potential of relatively long vacations and the underlying processes have been disregarded. Therefore, our study focused on vacations longer than 14 days and on the psychological processes associated with such a long respite from work. In the present study, we investigated 1) how health and well-being (H&W) develop during and after a long summer vacation, 2) whether changes in H&W during and after vacation relate to vacation activities and experiences and 3) whether changes in H&W during and after vacation relate to sleep.

Fifty-four employees reported their H&W before, three or four times during and five times after vacation. Vacations lasted 23 days on average. Information on vacation experiences, work-related activities and sleep was collected during vacation. Vacation activities were assessed immediately after vacation.

H&W increased quickly during vacation, peaked on the eighth vacation day and had rapidly returned to baseline level within the first week of work resumption. Vacation duration and most vacation activities were only weakly associated with H&W changes during and after vacation. Engagement in passive activities, savoring, pleasure derived from activities, relaxation, control and sleep showed strong relations with improved H&W during and to a lesser degree after vacation.

In conclusion, H&W improved during long summer vacations, but this positive effect was short-lived. Vacation experiences, especially pleasure, relaxation, savoring and control, seem to be especially important for the strength and persistence of vacation (after-) effects.

This chapter is based on:

De Bloom, J., Geurts, S.A.E., & Kompier, M.A.J. (in press). Vacation (after-) effects on employee' health and well-being, and the role of vacation activities, experiences and sleep. *Journal of Happiness Studies*.



## 6.1. Introduction

Do we need vacations? And how long should a vacation be? In an article of the New York Times in 1910, William Taft, 27<sup>th</sup> president of the US stated “[...] two or three months’ vacation [...] are necessary in order to continue work the next year with that energy and effectiveness which it ought to have.” (“How long should a man’s vacation be? ,” 1910, July 31). Today, the discussion about the benefits of vacations is still ongoing, evident in the fact that many countries worldwide (including the US) have not established national vacation rights. Is the answer to these questions still missing? And besides the ideal length, which factors determine the extent of “energy and effectiveness” we bring along to our work after vacation?

According to Effort-Recovery Theory (Meijman & Mulder, 1998), effort expenditure associated with working has certain psycho-physiological costs or load effects (e.g., fatigue). When these load-effects are intensive, for instance when workers are regularly exposed to demanding and stressful situations at work, and recovery in-between work periods is incomplete, health and well-being are jeopardized (e.g. Belkic, Landsbergis, Schnall & Baker, 2004; Häрма, 2006). Consequently, recurrent and complete recovery from work is crucial to prevent adverse effects on health and well-being (H&W).

Employees are often unable to recover sufficiently during short respites from work due to increasingly permeable boundaries between work and home domains, long working hours, working overtime and prolonged physiological activation as a result of pre-occupation with work, (e.g. Fritz & Sonnentag, 2005; Van Hooff, Geurts, Kompier & Taris, 2007; Akerstedt, 2006). Therefore, a longer period away from work may be needed to fully recover from work (Dahlgren, Kecklund & Akerstedt, 2005). Vacations represent the longest period of temporary absence from work and may, therefore, constitute a more powerful respite opportunity than shorter rest intervals.

Earlier studies found that vacationing was associated with higher life satisfaction (e.g. Lounsbury & Hoopes, 1986), better mood (e.g. Nawijn, Marchand, Veenhoven & Vingerhoets, 2010; Strauss-Blasche, Ekmekcioglu & Marktl, 2000), lower levels of health complaints (e.g. Fritz & Sonnentag, 2006) and lower levels of exhaustion after vacation (e.g. Kühnel & Sonnentag, 2011; Westman & Eden, 1997). However, these positive vacation effects seemed to be short-lived and disappeared rapidly after work resumption (De Bloom et al., 2009).

Following Taft’s argumentation, it may actually be possible that the length of earlier vacations under investigation was too short to resume work with increased energy levels. If this was true, longer vacations should have stronger and longer lasting effects.

Regarding the relationship between vacation duration and the strength and persistence of vacation effects, Lounsbury and Hoopes (1986) found no effect of vacation

length on job satisfaction, job involvement, organizational commitment, turnover intention and life satisfaction. The median length of the vacations they investigated was 7 days and only 6 percent of the sample went on vacation for more than 14 days. Etzion (2003) found similar levels of job stress and burnout in vacationers who went on short (7-10 days) or long vacations (more than 10 days, mean duration and range not reported). Kemp, Burt and Furneaux (2008) also reported no relationship between holiday duration and happiness in vacations ranging from 4 to 14 days (mean 7.5 days). In a similar vein, Nawijn (2010) found no duration effects on mood in vacations ranging from 2 to 17 days (mean not reported). Recently, De Bloom, Geurts and Kompier (2010) detected no differences in H&W changes during and after vacation in vacationers who went on holidays for 4.5 or 9 days respectively. Until now, Strauss-Blasche, Ekmekcioglu and Marktl (2000) were the only researchers who found moderate and positive associations between 'days away from home' and feeling recuperated after a 14-day respite from work. Hence, whilst it seems theoretically plausible to expect a positive relationship between vacation length and H&W changes, the small number of earlier studies generally did not reveal convincing associations.

However, the vacations examined in the aforementioned studies were mostly shorter than 14 days. So, it could be that most of the vacations studied thus far were simply not long enough for vacation length to make a difference. In order to examine the value of an extended recovery period, our study will therefore focus on changes in H&W during and after vacations longer than 14 days. Our first research question is:

6

1. How do H&W develop during and after a long summer vacation (> 14 days)?

An important clue in determining the effects of vacation is to study the development of H&W within a vacation period. Until now, few vacation studies incorporated measurements during vacation. In a cross-sectional study (Nawijn, 2010), tourists in the Netherlands filled in a self-report questionnaire on well-being. Individual scores at different time stages during vacation were then compared. Vacationers' mood was generally high during vacation, but lower in the beginning of the holiday period. Mood levels of vacationers in the "core phase" of vacation (defined as the medial 70 percent of the vacation) were highest. Towards the end of the vacation period, mood was lower than during the core phase. In our study, we will test whether these trends also apply longitudinally.

So far, a vacation has merely been conceived as the possibility to prevent a deficient state: during stressful working periods employee' H&W decrease and adverse effects need to be compensated for by taking a vacation. This argumentation fits into the passive mechanism underlying recovery: the mere absence from work strain is expected to lead to recovery (Geurts

& Sonnentag, 2006). However, it can be hypothesized that vacation not only 'repairs' H&W but also adds something positive to it (i.e. builds resources), representing the active mechanism underlying vacation (De Bloom et al., 2010; Geurts & Sonnentag, 2006).

Suppositions of Broaden- and Build Theory (Fredrickson, 2001) and Self-Determination Theory (Ryan & Deci, 2000) may account for this active mechanism (De Bloom et al., 2010). Positive experiences associated with vacationing (e.g. pleasure derived from activities, relaxation) may broaden people's thought and action repertoires and build personal resources like creativity, skills and social support. The fulfillment of the fundamental human needs for autonomy and relatedness during a holiday with family and friends may also increase well-being and lead to persisting effects (De Bloom et al., 2010; De Bloom, Geurts & Kompier, in press; Ryan, Bernstein & Brown, 2010).

Following this argumentation, in vacation research, a vacation should no longer be considered merely a control occasion for the absence of work stress (Eden, 2001). From a work psychological perspective, it is essential to open up the black box of vacationing and to study what vacationers actually do and experience during vacation. Engagement in pleasant activities and positive experiences like psychological detachment, relaxation and control may well determine the benefits of vacations. Psychological detachment refers to mentally distancing oneself from recent work demands, relaxation stands for a state of low activation and low tension, often resulting from low-effort activities and control refers to autonomy over time and activities (Etzion, Eden & Lapidot, 1998; Fritz, Sonnentag, Spector & McInroe, 2010; Sonnentag & Fritz, 2007).

Studies on the effect of specific leisure time and vacation activities are scarce and the results are yet inconclusive (e.g. Fritz & Sonnentag, 2005; Rook & Zijlstra, 2006). This raises the question whether the specific nature of activities people engage in is important or whether it is may be more important that leisure activities are experienced as enjoyable and match individual preferences (Pressman et al., 2009; Tucker, Dahlgren, Akerstedt & Waterhouse, 2008). Therefore, our second research question is:

2. How do vacation activities and experiences relate to changes in H&W during and after vacation?

The current study will focus on four common types of vacation activities, that is work-related, physical, social and passive activities. Regarding vacation experiences, we concentrate on experiences that appeared to be related to H&W in earlier recovery research (De Bloom et al., 2009; Fritz et al., 2010; Van Hooff, Geurts, Beckers & Kompier, 2011): pleasure derived from leisure activities, psychological detachment from work, relaxation and control over leisure time.

Additionally, we will investigate a factor that has not yet been investigated in relation to H&W changes across vacations: savoring. Savoring refers to “[...] processes through which people actively derive pleasure and fulfillment in relation to positive experiences” (Bryant & Veroff, 2007). For most people, vacationing is a positive life experience and holidays may therefore constitute an opportunity par excellence to savor. This in turn is expected to increase H&W during and after vacation.

Besides an opportunity to engage in recovering activities and go through positive experiences, a vacation may also contribute to recovery because it provides an opportunity for a good night’s sleep. Sleep fulfills a major restorative function (Akerstedt, Nilsson & Kecklund, 2009) and sleep deprivation negatively affects physical and mental well-being (Nilsson, Nilsson, Hedblad & Berglund, 2001; Wheaton, Liu, Perry & Croft, 2011). Optimal sleepers report lower levels of depression and anxiety, face lower accident risks, and experience higher levels of self-esteem, personal growth, positive relations with others, purpose in life, and work satisfaction (Hamilton, Nelson, Stevens & Kitzman, 2007; Leger, Massuel & Metlaine, 2006). Groeger, Zijlstra and Dijk (2004) found that employees generally sleep less on workdays than on non-workdays which may, at least partly, be due to prolonged physiological activation resulting from work stress (Akerstedt et al., 2009). Vacation as a period of absence from work and work stressors may thus be an occasion for workers to sleep well. Moreover, workers do not have to get up early for work and can sleep in if they went to bed late. Consequently, our third research question is:

6

3. How do sleep duration and sleep quality during vacation relate to changes in H&W during and after vacation?

The objective of the present study is two-fold. First, we aim to replicate previous research regarding vacation (after-) effects on H&W and the role of vacation activities and experiences in a special type of vacation: a long summer vacation (> 14 days). Second, we seek to extend current knowledge by focusing on 1) detailed developments in H&W *during* long vacations and 2) the role of three variables that have hardly received attention in vacation research yet and that may affect the strength and persistence of vacation effects: vacation duration, savoring and sleep.

## 6.2. Method

### 6.2.1. Procedure

Table 6.1 presents our longitudinal research design. Data were collected on ten occasions: one before vacation, three or four during vacation and five after vacation. In addition, three weeks before vacation, the participants filled in a general questionnaire with questions regarding demographics (e.g. age, marital status, education), basic job information (e.g. weekly work hours) and vacation characteristics (e.g. planned vacation duration and destination).

We took several steps to reduce non-response as suggested by Newman (2009). For example, each participant got a tailor-made time schedule of his/her individual measurement occasions and each measurement was preceded by a reminder (an email and a cell phone text message). Before and after vacation, participants were asked to fill in online diaries directly before going to bed, for which they received an individual log-in code.

The baseline measure of H&W (*Pre*) was scheduled two weeks prior to vacation, because measurements immediately before vacation may be biased by, either looking forward to vacation (Gilbert & Abdullah, 2002; Nawijn et al., 2010) and/or pre-vacation work stress (DeFrank, Konopaske & Ivancevich, 2000; Westman, 2005).

Before the participants went on vacation, they received a cell phone with a prepaid SIM-card. During vacation, the participants were contacted for an interview on the provided cell phone between five and eight p.m. at least three times: on the 4<sup>th</sup> (*Inter 1*), 8<sup>th</sup> (*Inter 2*), and 12<sup>th</sup> day (*Inter 3*) after the start of vacation. Participants whose vacation lasted more than sixteen days were also contacted on the 16<sup>th</sup> day (*Inter 4*). If participants could not be phoned, a text message was sent wherein they were asked to open their 'emergency envelop', containing paper versions of the telephone interviews and to fill in one of these questionnaires. On each measurement occasion, four or five participants made use of this possibility. Analyses demonstrated that there were no systematic differences in H&W during vacation between participants who filled in questionnaires and those who were interviewed by telephone.

Most of the participants went on a vacation for two to three weeks. The mean duration of vacation was 23 days (range 15 to 34 days). Most participants went on vacation to France (24%), 13% went on holidays in the Netherlands, 9% went to Austria, 7% to Germany and the same percentage went to Italy. The remaining participants spent their vacation in other countries.

After vacation, the participants were asked to fill in online diaries on five different occasions: on their first work day (*Post 1.1*), on the next to last day of their first week of work resumption (*Post 1.2*), and on Tuesdays during the 2<sup>nd</sup> (*Post 2*), 3<sup>rd</sup>, (*Post 3*) and 4<sup>th</sup> (*Post 4*) week of work resumption.



**Table 6.1:**  
Research design

Before vacation		During vacation				After vacation				
GQ	Pre	Inter 1	Inter 2	Inter 3	Inter 4	Post 1.1	Post 1.2	Post 2	Post 3	Post 4
Three weeks before	Two weeks before	4th day	8th day	12th day	16th day	1st work week	1st work week	2nd work week	3rd work week	4th work week
Demo-graphics	H&W	H&W	H&W	H&W	H&W	H&W	H&W	H&W	H&W	H&W
Vacation duration		Work-related activities	Work-related activities	Work-related activities	Work-related activities	Vac. Act.				
		Pleasure from activities	Pleasure from activities	Pleasure from activities	Pleasure from activities					
		Recovery experiences	Recovery experiences	Recovery experiences	Recovery experiences					
		Savoring	Savoring	Savoring	Savoring					
		Sleep	Sleep	Sleep	Sleep					

Note. GQ = General questionnaire. Vac. Act. = vacation activities.

After completion of the data collection, participants were thanked for their participation and informed about when preliminary results were expected.

### 6.2.2. Participants

To recruit participants, flyers were handed out and ads were printed in two local newspapers. To encourage participation, three lottery prizes were announced as an incentive: a week vacation in Austria, a long weekend in the Netherlands and a €100 cheque. Participants were told that the more questionnaires they completed, the higher would be their chance of winning.

Employees who were interested to take part could fill in an online questionnaire in which inclusion criteria were checked: active command of Dutch, at least 24 hours paid work a week (as work should constitute a substantial part of participants' lives), internet and e-mail access at home, no objections to being called during vacation, and a vacation period of at least two weeks between June 15th and August 22<sup>nd</sup> 2010.

Of initially 65 participants who met these inclusion criteria, 58 decided to take part in the study. During the study, four participants no longer wanted to take part, because of personal reasons. This resulted in a general response rate of 83% ( $N = 54$ ). Time point completion rates were high and varied between 83% (*Inter 4*) and 100% (general questionnaire).

Mean age of the participants was 42.5 years ( $SD = 10.6$ ) and half of them were women ( $N = 27$ ). Of the sample, 53% had a college or university degree, 33% were medium educated (senior general secondary and university preparation education), and 13% were lower educated (lower secondary or junior secondary education). About a third (28%) were technicians and associate professionals (e.g., nurse, webmaster), 22% were managers or senior officers, 22% were professionals (e.g., doctor or consultant), 11% worked as clerical support workers, 11% as service and sales workers, and the remaining 6% had other occupations. A minority (11%) worked freelance or was self-employed. On average, the participants worked 35.2 hours per week ( $SD = 7.2$ ) with a minimum of 24 hours and a maximum of 55 hours a week.

### 6.2.3. Measures

*Health and well-being.* The comprehensive construct of H&W was composed of six indicators: health status, fatigue, satisfaction, mood, tension and energy level. All indicators were assessed with single-item measures. The basic Dutch grade notation system ranging from 1 (extremely low/negative) to 10 (extremely high/positive) was adopted and the first and the last grade were anchored. *Health status* was measured by the item: "How was your health today?" (1 = "very unhealthy", 10 = "very healthy"). *Fatigue* was assessed with the item: "How tired did you feel today?" (1 = "not tired at all", 10 = "very tired"). We measured *satisfaction* with the item: "How satisfied do you feel about this day?" (1 = "very dissatisfied", 10 = "very satisfied").

*Mood* was assessed with the question: “How was your mood today?” (1 = “very bad”, 10 = “very good”). *Tension* was measured with the question: “How tense did you feel today?” (1 = “very calm”, 10 = “very tense”). Finally, *energy level* was assessed with the question: “How energetic did you feel today?” (1 = “not energetic at all”, 10 = “very energetic”). To find out if there was one underlying construct for the six H&W indicators, an exploratory factor analysis was performed on every single measurement occasion. These factor analyses resulted in one-factor solutions with Eigenvalues greater than 1 and factor loadings ranging from .46 to .91.

*Vacation activities.* Participants were asked to estimate the time they had engaged in different types of vacation activities on the first workday after vacation in order to keep telephone surveys during vacation as brief as possible. They were asked retrospectively which percentage of their vacation time they had spent on 1) physical, 2) social and 3) passive activities during their vacation. For all types of activities, four examples were given to help participants categorize their vacation activities.

*Work-related activities.* Previous research suggests that work-related activities during vacation are not very prevalent, which makes it difficult to report the time spent on working in percentages (De Bloom, Geurts & Kompier, in press). Therefore, we tried to get a more detailed picture of time engaged in working by asking participants at *Inter 1*, *2*, *3*, and *Inter 4* to indicate the number of hours they had devoted to work-related activities during the preceding four days. Moreover, we asked participants what they actually did by means of an open question.

*Pleasure from activities.* Participants were asked to rate the pleasure they derived from their vacation activities during the previous four days (1 = “very unpleasant”, 10 = “very pleasant”).

*Recovery experiences.* To measure relaxation, psychological detachment and control over leisure time during vacation, we applied scales of the Recovery Experience Questionnaire (Sonnentag & Fritz, 2007). Each construct was measured with three items that were adapted to the vacation context. Participants could respond on a 5-point Likert scale, ranging from “1 = strongly disagree” to “5 = strongly agree”. An example item for psychological detachment from work is: “During this vacation, I don’t think about work at all”. Relaxation was assessed with items like: “During this vacation, I use the time to relax”, and an example item for control is: “During this vacation, I determine for myself how I will spend my time”.

*Savoring.* The four questions regarding savoring during vacation were adapted from the “Savoring Beliefs Inventory” (Bryant, 2003) and also adjusted to the vacation context. Example-items are: “I don’t enjoy things as much as I should during this vacation” and “I feel fully able to appreciate good things during this vacation” (1 = “completely disagree”, 7 = “completely agree”). An exploratory factor analysis resulted in a one-factor solution with an Eigenvalue greater than 1 and factor loadings ranging from .83 to .92.

*Sleep.* Regarding sleep, we measured sleep duration (quantity) as well as sleep quality, because they are related but not identical constructs (Pilcher, Ginter & Sadowsky, 1997). In order to assess *sleep quantity* during vacation, we asked the participants to indicate how many hours they slept on average during the previous four nights. To assess *sleep quality* we asked the participants: “How did you generally sleep during the previous four nights?” (1 = “very poorly”, 10 = “very well”).

#### 6.2.4. Statistical analyses

First of all, we calculated means, standard deviations and zero-order correlations for all study variables (see Table 6.2).

*Research question 1.* The development in H&W during and after long vacations was tested in a repeated measures analysis. To retain as many cases as possible in this general analysis (as every participant with a single missing value on any occasion would be discarded from analysis), the four occasions during vacation (i.e. *Inter 1*, *Inter 2*, *Inter 3*, *Inter 4* = *Inter*) were averaged as well as the two occasions in the first week after vacation (*Post 1.1*, *Post 1.2* = *Post 1*). We applied an analysis of variance (ANOVA) with repeated measures on the six occasions before, during and after vacation (*Pre*, *Inter*, *Post 1*, *Post 2*, *Post 3*, *Post 4*) and Least Significant Difference (LSD) post hoc tests to compare meaningful measurement occasions following previous definitions of vacation effects and vacation after-effects (De Bloom et al., 2009). Vacation effects on H&W are present if H&W before vacation differ significantly from H&W during vacation (*Pre* versus *Inter*). Vacation after-effects represent a significant difference between H&W before compared to H&W in the weeks after vacation (*Pre* versus *Post 1*, *Post 2*, *Post 3*, and *Post 4* respectively). We also calculated Cohen *d*'s for paired observations as an effect size for significant differences between these occasions (Cohen, 1988) and we distinguish small (0 to 0.5), medium (0.5 to 0.8) and large (> 0.8) effects.

To study the development in H&W in greater detail and to test whether H&W levels differed on the occasions during vacation, we conducted a second repeated measures ANOVA on all 10 measurement occasions across vacation (H&W means of this analysis are displayed in Figure 6.1). Please bear in mind that the missing cases on each of our 10 occasions (response rate > 82% on all occasions) reduce the total number of cases in this ANOVA, resulting in 31% reduced sample size ( $N = 54 - 17 = 37$ ).

In order to verify whether results from this second analysis also hold for the full sample, we additionally analysed the data with paired samples t-tests in which we merely compared two occasions at a time (and therefore retained a greater sample). Moreover, we conducted Little's MCAR test (Little, 1988) to examine whether missing values were distributed randomly. Results of the t-tests strongly resembled the results of the ANOVA's and Little's MCAR test was

**Table 6.2:** Means, Standard Deviations, and Zero-Order Correlations Between Study Variables

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
<i>M</i>	1.5	42.5	7.0	7.9	7.3	7.2	7.2	7.2	23.0	0.6	26.9	18.7	25.2	8.1	4.2	4.4	3.8	5.7	7.4	7.2
<i>SD</i>	0.5	10.6	1.4	1.0	1.2	1.3	1.3	1.3	4.4	1.6	16.2	9.8	13.6	1.1	0.7	0.6	0.7	0.9	0.9	1.0
<i>Min</i>	1.0	24.0	3.0	5.3	4.1	3.0	3.5	4.0	15	0	5	0	5	4.5	2.2	2.2	1.3	3.1	5.0	4.3
<i>Max</i>	2.0	64.0	9.8	9.7	9.3	9.2	9.5	9.3	34	8.0	70	50	60	9.5	5.0	5.0	5.0	7.0	9.0	9.0
Possible range	1- 18-	1- 18-	1- 1-	1- 1-	1- 1-	1- 1-	1- 1-	1- 1-	14-35	0- 10	0-100	0-100	0-100	1- 1-	1- 1-	1- 1-	1- 1-	1- 1-	1- 1-	1- 1-
<i>N</i>	54	54	50	53	53	53	49	50	54	53	51	51	51	53	53	53	53	53	53	53
1. Sex	-																			
2. Age	-.11	-																		
3. H&W Pre	-.17	.18	(.89)																	
4. H&W Inter	-.23	.28*	.47*	(.90)																
5. H&W Post 1	-.21	.16	.59*	.71*	(.88)															
6. H&W Post 2	-.16	.09	.51*	.56*	.61*	(.84)														
7. H&W Post 3	-.22	.07	.67*	.50*	.45*	.61*	(.84)													
8. H&W Post 4	-.04	.13	.50*	.62*	.69*	.55*	.79)													
9. Vacation duration	.09	-.05	-.24	-.07	-.13	-.08	-.04	.15	-											
10. Nr of hrs work-related activities	-.26	-.02	-.06	.11	.04	-.09	-.08	-.05	-.08	-										
11. % time physical activities	-.07	.40*	-.07	.03	.01	.17	-.07	.00	-.23	-.29*	-									
12. % time social activities	.01	-.20	.07	.23	.14	-.01	.06	.19	.10	.01	-.22	-								
13. % time passive activities	.06	-.16	-.08	.29*	.27	.27	.12	.28	.08	.37*	-.39*	-.06	-							
14. Pleasure from activities	-.08	.29*	.34*	.72*	.51*	.40*	.38*	.55*	.07	-.11	.18	.11	.06	-						
15. Detachment	-.11	.05	.14	.20	.28*	.20	.15	.23	.10	-.32*	.11	.35*	-.08	.08	(.91)					
16. Relaxation	-.03	.24	.22	.67*	.51*	.41*	.41*	.41*	-.02	-.13	.14	.11	.08	.75*	.18	(.85)				
17. Control	-.09	-.04	.26	.46*	.42*	.38*	.45*	.03	-.01	.04	.26	.19	.47*	.47*	.24	.60*	(.86)			
18. Savoring	-.06	.14	.35*	.68*	.51*	.40*	.41*	.55*	-.06	-.12	.22	.02	.78*	.78*	.34*	.78*	.45*	(.86)		
19. Nr of hrs sleep	-.18	.09	.07	.38*	.25	.30*	.19	.14	.13	.04	.05	-.09	.17	.23	-.10	.24	.05	.12	-	
20. Sleep quality	-.15	.16	.33*	.48*	.38*	.39*	.30*	.29*	.10	.19	.01	.11	.04	.39*	-.15	.41*	.31*	.27*	.53*	-

Note. \*  $p < .05$  two-tailed. H&W Inter = Mean H&W Inter 1, 2, 3 & 4. H&W Post 1 = Mean H&W Post 1.1 & Post 1.2. Nr of hrs = number of hours. % time = percentage of time spent on activity. Sex: 1 = male, 2 = female. Cronbach's alphas are displayed in parentheses on the diagonal.

non-significant ( $c^2(103, N = 54) = 113.61, p = .22$ ). Therefore, we are confident that results in this smaller subsample also hold for the entire sample.

To examine the relation between vacation duration and H&W changes during and after vacation, we calculated partial correlations between vacation length (in days) and H&W *Inter*, *Post 1*, *Post 2*, *Post 3* and *Post 4*, controlling for H&W *Pre* (as we were interested in the change from *Pre* to *Inter* and to *Post*), sex and age (see Table 6.3).

*Research question 2 and 3.* To investigate the relationship between vacation activities, experiences and sleep on the one hand and H&W changes during and after vacation on the other hand, we calculated partial correlations (Table 6.3). We again controlled for sex, age and pre-vacation H&W (as we were interested in the change in H&W). To obtain a more robust measure of activities and experiences for the whole vacation period, we averaged the four vacation scores of engagement in work-related activities, vacation experiences (i.e. pleasure, detachment, relaxation, control and savoring, respectively) and sleep (i.e. quantity and quality).

## 6.3. Results

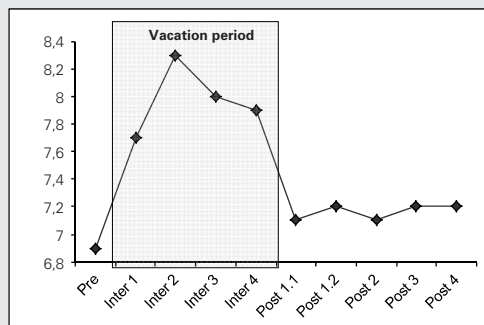
### 6.3.1. Development of H&W during and after long vacations (research question 1)

The development of H&W in relation to baseline H&W before vacation (*Pre*) is displayed in Table 6.2 and Figure 6.1.

Multivariate analysis of variance on the six occasions before, during and after vacation (*Pre*, *Inter*, *Post 1*, *Post 2*, *Post 3*, *Post 4*) revealed a main effect across time ( $F(5, 39) = 7.34, p < .001$ ), meaning that H&W levels varied across the six measurement occasions. Post hoc LSD tests further demonstrated that H&W during vacation was significantly higher than H&W

**Figure 6.1:**

Mean levels of H&W before, during and after vacation



Note: N = 37

before and after vacation. In terms of effect sizes, the average change in H&W from *Pre* to *Inter* represented a medium effect size ( $d = 0.73$ ). Regarding vacation after-effects, none of the differences between *Pre* (before vacation) and *Post* (after vacation) was significant (all  $p$ 's  $> .20$ ). So, within the first week of work resumption, H&W levels were comparable to those before vacation.

Regarding the detailed development across all 10 occasions, a second repeated measures ANOVA once more showed a main effect across time ( $F(9,28) = 4.53, p < .001$ ). Post hoc LSD tests confirmed the results above: H&W on each single measurement occasion during vacation was significantly higher than H&W on each occasion before and after vacation. Moreover, baseline H&W (*Pre*) did not differ from any occasion after vacation, meaning that positive vacation effects have faded out on the first work day within the first week of work resumption.

Regarding the development of H&W during vacation, LSD tests showed that H&W on *Inter 1* already differed from baseline, which means that H&W increased during the first four vacation days ( $d = 0.39$ ). Between the 4<sup>th</sup> (*Inter 1*) and the 8<sup>th</sup> (*Inter 2*) vacation day, H&W further increased significantly ( $d$  *Inter 1* versus *Inter 2* = 0.48, *Pre* vs. *Inter 2* = 0.79). All other pairwise comparisons during vacation (*Inter 1* vs. *Inter 3*; 1 vs. 4; 2 vs. 3; *Inter 2* vs. 4; *Inter 3* vs. 4) were non-significant.

In sum, H&W levels rapidly improved during vacation and appeared to peak on the 8<sup>th</sup> day of vacation. In the first week of work resumption, H&W has decreased and resembled baseline levels of H&W before vacation.

## 6

### 6.3.2. Vacation duration (related to research question 1)

Vacation duration ranged from 15 to 34 days ( $SD=4.4$ ), with an average of 23 days. A quarter of the sample (26%) was on vacation for less than 22 days, 44% for 22 to 24 days and 30% were on holiday for more than 24 days. Table 6.3 demonstrates that vacation duration was not associated with changes in H&W during and after vacation, with the exception of the fourth week after work resumption: changes in H&W four weeks after vacation were positively related to vacation duration ( $r = .32$ , Table 6.3). In short, the development in H&W during and shortly after vacation was independent of vacation duration.

### 6.3.3. Vacation activities (research question 2)

For each activity and experience, we will first report the descriptives (Table 6.2). In order to answer research question 2, we will then focus on the partial correlations between vacation activities and experiences on the one hand, and changes in H&W from *Pre* to *Inter* and to *Post* on the other hand (Table 6.3).

**Table 6.3**

Partial Correlations of H&W During Vacation (*Inter*) and After Vacation (*Post 1, Post 2, Post 3, Post 4*) With Vacation Duration, Activities, Experiences and Sleep Controlled for H&W Before Vacation (*Pre*), Sex and Age

Variable	H&W <i>Inter</i> During vacation	H&W <i>Post 1</i> 1st week after vacation	H&W <i>Post 2</i> 2nd week after vacation	H&W <i>Post 3</i> 3rd week after vacation	H&W <i>Post 4</i> 4th week after vacation
Vacation duration	.07	.02	.06	.17	.32*
Activities					
Nr of hrs work-related activities	.12	.06	-.10	-.10	-.00
% time physical activities	-.03	.04	.27*	-.02	.04
% time social activities	.29*	.15	-.05	.01	.19
% time passive activities	.43*	.41*	.38*	.23	.38*
Experiences					
Pleasure from activities	.67*	.41*	.29*	.25	.47*
Detachment	.14	.24	.15	.07	.19
Relaxation	.65*	.49*	.37*	.40*	.35*
Control	.43*	.34*	.35*	.28*	.40*
Savoring	.63*	.40*	.28*	.27*	.46*
Sleep					
Sleep duration	.38*	.24	.30*	.18	.14
Sleep quality	.38*	.23	.27*	.11	.16

Note. \*  $p < .05$  one-tailed. Nr of hrs = number of hours. % time = percentage of time spent on activity.

*Work-related activities.* Spending time on work-related activities was reported by 15 vacationers (28%). Mean working time over the course of four days was 0.6 hours for all vacationers and 2.2 hours for working vacationers (that is about 33 minutes per day). Maximum working time was 8 hours within four days. Of those who engaged in work-related activities during vacation, 47% emailed, 53% made phone calls and 53% reported other activities (such as updating calendars, fixing a malfunction or organizing a dinner for a colleague). Time spent on work-related activities during vacation was not linked to changes in H&W during and after vacation (see Table 6.3).

*Physical activities.* On average, vacationers spent 27% of their vacation on physical activities. Time spent on physical activities during vacation was generally not associated with changes in H&W during and after vacation, with the exception of H&W on *Post 2* ( $r = .27$ ; Table 6.3).

*Social activities.* Vacationers spent 19% of their vacation time on social activities. Partial correlations revealed that more time spent on social activities was related to improvements in



H&W during vacation ( $r = .29$ ; Table 6.3). After vacation, time spent on social activities was unrelated to H&W changes.

*Passive activities.* On average, vacationers spent a quarter of their vacation time on passive activities. Time spent on passive activities was substantially related to increases in H&W during ( $r = .43$ ) and after vacation ( $r = .41, .38, .23$  &  $.38$ ; Table 6.3) with the exception of H&W Post 3.

#### 6.3.4. Vacation experiences (research question 2)

*Pleasure from activities.* Most participants derived pleasure from their vacation activities, reporting 8.1 points on a 10-point scale. Pleasure from activities was substantially related to improvements in H&W during ( $r = .67$ ) and after vacation ( $r = .41, .29, .25$  &  $.47$ ; Table 6.3) with the exception of H&W Post 3.

*Detachment.* Vacationers were generally well able to detach psychologically from work, as evidenced by a mean score of 4.2 points on a 5-point scale. Detachment was not related to changes in H&W during vacation and after work resumption (see Table 6.3).

*Relaxation.* The mean level of relaxation during vacation was high: 4.4 on a 5-point scale. Partial correlations showed that relaxation was clearly linked to increases in H&W during ( $r = .65$ ) and after vacation ( $r = .49, .37, .40$  &  $.35$ ; Table 6.3).

*Control.* On average, participants scored 3.8 on a 5-point scale. Control over how to spend vacation time was positively related to improvements in H&W on all measurement occasions, that is during ( $r = .43$ ) and after vacation ( $r = .34, .35, .28$  &  $.40$ ; Table 6.3).

*Savoring.* Participants reported high levels of savoring: 5.7 on a 7-point scale. The more people savored during vacation, the more their H&W increased during ( $r = .63$ ) and after vacation ( $r = .40, .28, .27$  &  $.46$ ; Table 6.3).

#### 6.3.5. Sleep (research question 3)

*Sleep duration.* On average, participants reported to sleep 7.4 hours per night during vacation (before vacation, mean sleep time was 6.7 hours, which is significantly less than during vacation,  $t(48) = -4.6$ ). Sleep duration was related to increases in H&W during ( $r = .38$ ) and to a lesser degree after vacation ( $r = .24, .30, .18$  &  $.14$ ; Table 6.3).

*Sleep quality.* Vacationers reported high levels of sleep quality: 7.2 points on a 10-point scale. Sleep quality was also associated with positive changes in H&W during ( $r = .38$ ) and to a lesser degree after vacation ( $r = .23, .27, .11$  &  $.16$ ; Table 6.3).

## 6.4. Discussion

### 6.4.1. Development of H&W during and after long vacations (research question 1)

The first aim of this longitudinal field study on long summer vacations was to investigate vacation (after-) effects on employee H&W. We found that H&W increase during long vacations (effect size Cohen  $d$  for the vacation effect was 0.73). The vacation effect in this study is comparable to the vacation effect reported in studies which measured H&W during winter sports (De Bloom et al., in press) and during short vacations (De Bloom, Geurts & Kompier, in press) and indicates that a holiday serves as a respite which enables employees to recover from work.

Concerning the development of H&W during vacation, our results showed that H&W rapidly increase after the start of the holiday and seemed to peak on the eighth vacation day. This finding corroborates earlier research which suggests that it takes some time to wind down after a stressful work period and acclimatize to vacation (Nawijn, 2010; Van Heck & Vingerhoets, 2007). More research in larger samples is necessary to further unravel the development in H&W and its determinants during vacation.

On the first day of work resumption, positive vacation effects on H&W have already entirely faded out. This finding is consistent with earlier studies in which mostly no or only small increases in well-being after vacation were found (e.g. Gilbert & Abdullah, 2004; Lounsbury & Hoopes, 1986; Westman & Etzion, 2001). However, inspections of the means after vacation suggest that we might have found positive after-effects if we had used a larger sample size and consequently would have had more power. More research on this issue is therefore needed.

The present study makes a contribution to understanding long term recovery: frequent respites might be more important to preserve well-being than the duration of one single recovery episode. Our results regarding the rapid fade-out of a positive vacation effect also accentuate the methodological importance of on-vacation measures in vacation research.

### 6.4.2. The role of vacation activities and experiences (research question 2)

The second aim of this study was to examine the role of different vacation activities and experiences in the strength and persistence of vacation effects. Concerning vacation activities, merely engagement in passive and social activities was linked to positive changes in H&W during vacation, whereby only the positive effects of passive activities persisted after vacation. In combination with the fact that 1) most subjective experiences under study were quite strongly associated with improvements in H&W during and after vacation and 2) previous research on the recovery potential of leisure activities showed mixed results, our results support the idea that vacation experiences may be especially important for vacation (after) effects. However, we need to keep in mind that engagement in certain vacation activities often constitutes the

basis for experiences (e.g. pleasure), meaning that experiences and activities are by definition closely related.

A notable finding is the positive relation between engagement in passive activities and improvements in H&W, as earlier studies on recovery revealed no or even negative relations between passive activities and well-being (De Bloom et al., in press; Rook & Zijlstra, 2006). However, summer vacations are mostly intended to be relaxing vacations. For many summer vacationers, relaxing and simply “doing nothing” is therefore indicative of a successful vacation: vacationers could do what they came for. Consequently, our findings seem to underscore the importance of autonomy. If vacationers are able to decide how to spend their leisure time, their H&W increase.

Regarding vacation experiences, relaxation, pleasure derived from activities and savoring were most strongly and consistently associated with improvements in H&W during and after vacation. However, relaxing is generally associated with few social demands, low physical and intellectual activation and high positive affect (Stone, Kennedy-Moore & Neale, 1995; Tinsley & Eldredge, 1995). Therefore, relaxation may also be seen as an outcome of vacation rather than a determinant of positive H&W changes during vacation. So, the causal direction of the relation between H&W and relaxation is not entirely clear. Pleasure derived from leisure activities was shown to be important in other studies on recovery as well, which emphasizes the benefit of self-determined behavior (De Bloom, Geurts & Kompier, in press; Ryan, et al., 2010; Van Hooff et al., 2011). It may not be most crucial which specific activity vacationers pursue during vacation, as long as they perceive engaging in this activity as pleasant. This reasoning is also in line with our finding that control or the freedom to decide which activity to engage in is strongly associated with improvements in well-being across a vacation period.

The degree to which vacationers were able to savor positive vacation experiences was also strongly linked to improvements in H&W during and after vacation. Despite the fact that people may differ in the extent to which they tend or are able to savor positive experiences, research suggests that strategies to savor can be learned (Bryant, Smart & King, 2005; Bryant & Veroff, 2007), which may probably increase the benefits of vacation as well.

Whilst psychological detachment from work was associated with well-being in earlier vacation studies (De Bloom, Geurts & Kompier, in press; Fritz & Sonnentag, 2006), we found no significant associations with improvements in H&W during and after vacation. A possible explanation could be the high mean level of detachment, which possibly led to a restriction of range.

### 6.4.3. The role of sleep (research question 3)

Another aim of this study was to examine the relationship between sleep and changes in H&W across a vacation period. Both sleep quantity and quality were related to positive H&W changes. The longer and the better vacationers slept, the more their H&W increased during vacation and two weeks thereafter. Yet, the causal direction in these relationships remains unclear. It could be that a holiday enables vacationers to get a “good nights’ sleep” which in turn improves well-being. But it may also be that vacationing improves well-being which in turn leads to higher sleep quality and quantity.

### 6.4.4. Limitations and strengths

First and foremost, the small sample size, the accompanying limited statistical power and the relatively high level of education of the participants may limit the external validity of our study. In a similar vein, we should keep in mind that long vacations are mostly reserved for Europeans. Nevertheless, research on the effects of long vacations enables us to better understand underlying long term recovery processes and we have no reason to believe that these processes would proceed in a different way in different samples or countries.

Secondly, the diversity in vacation length gave us the opportunity to study the role of vacation duration. However, this variation makes comparisons of H&W towards the end of the holiday complicated. For example, for somebody who returned home after 18 days of vacation, H&W on the 16<sup>th</sup> vacation day might have been different (due to leaving already a couple of days later) than for somebody who stayed 25 days (and for whom a long respite still lies ahead). For the few vacationers who went on very long vacations (e.g. seven vacationers went on a holiday for more than 30 days), information on H&W during the second half of their vacation is not available. Still, our analyses do not propose any structural differences between vacationers with varying vacation lengths during and after vacation. It is therefore unlikely that H&W would suddenly peak in the second half of a very long vacation.

Thirdly, the retrospective assessment of vacation activities (social, physical and passive) may be biased, because vacationers may not be able to estimate the exact percentages of time they devoted to certain activities. In this respect, on-vacation measures would have been more precise. However, we preferred a one-shot measurement, because it restricted the effort and time demanded from the vacationers during their holiday and prevented nonresponse (see Newman, 2009). Moreover, an estimation of the percentage spent on certain activities during the whole vacation may render a better, more general picture than the recordings of activities of three or four specific days in a long vacation period of 23 days.

Fourthly, not all measures included in this study were extensively validated measures (although ‘recovery experiences’ as well as ‘savoring’ were adapted from validated instruments;

Bryant, 2003; Sonnentag & Fritz, 2007). Because of the study design ('diary design', repeated measures) and setting (e.g. across vacation), we employed single-item measures (i.e. report marks) to measure H&W as well as pleasure and sleep quality. There are good arguments in favor of this choice. First, participants generally value the directness of single-item measures and the lack of repeated comparable items (Elo, Leppänen & Jahkola 2003; Van Hooff, Geurts, Taris & Kompier, 2007). Minimizing effort and maximizing user-friendliness for the participants in a time-consuming research as ours are vital ingredients to reduce non-response. Second, single-item measures are often good equivalents of well-validated multiple item measures. For instance, Van Hooff et al (2007) provided convergent and discriminant validity evidence of a single item measure of fatigue that was by no means inferior to a well-validated six-item fatigue scale.

Concerning strengths, especially our telephone interviews which enable participant-friendly and reliable measurements during vacation deserve to be mentioned. In addition, our repeated measures after vacation made it possible to study fade-out processes in detail. Moreover, our baseline measurement of H&W may be more representative for general H&W and therefore more valid than baseline measurements immediately before vacation. Last but not least, we succeeded in keeping non-response rates very low by taking actions as suggested in Newman's theoretical model of survey response (Newman, 2009), including for example tailor-made, polite invitations, follow-up reminders, valuable lottery prizes, the use of attractive new media (SMS, personalized emails) and short questionnaires.

## 6

#### 6.4.5. Practical implications

This research has, like several studies before, shown that employee' well-being improves during but not after vacation. Regarding vacation duration, findings of individual studies may have their weaknesses, but the general preponderance of studies, including our own, indicates that vacation duration is hardly important for the strength and persistence of vacation effects. So, if vacationing 'recharges the batteries' and replenishes lost resources, why does this 'reload' not persist after work resumption? Or stated differently: why should we spend time and money on a vacation which seems to have fleeting effects?

First and foremost, research suggests that not taking annual vacations is associated with illness or even premature death (Gump & Matthews, 2000). Secondly, it is possible that vacation research so far has not embraced all crucial aspects of H&W that may be influenced by a holiday. Think for instance of psycho-physiological health (e.g., cardiovascular parameters), performance and long term workability, the ability to get another perspective on life, creativity and relationship quality. Vacations may also prevent demoralization in the workforce and create psychological resilience to buffer future stress.

Thirdly, it could also be that general H&W return to baseline levels rapidly after vacation, but that vacation memories have the power to increase well-being again, but only temporarily. Asking why we should keep going on vacations is therefore comparable to asking why we should go to sleep considering the fact that we get tired again. A period of effort investment at work should necessarily be alternated with periods of recovery in order to remain healthy in the long run. Therefore, instead of skipping vacations or taking only one long vacation in years, it seems much more reasonable to schedule several shorter vacations across a work year in order to maintain high levels of H&W (see also Etzion, 2003).

Our results also indicate that vacation experiences (often derived from the activities vacationers engage in) may be more important for H&W improvements than vacation activities per se. It is important for workers to derive pleasure from their activities. This can probably be achieved by freely deciding which activity to pursue during vacation and this form of control also seem to be directly linked to increases in H&W during vacation. Recent research suggests that it may be possible to teach individuals how to recover successfully by promoting recovery experiences like control and relaxation (Hahn, Binnewies, Sonnentag & Mojza, 2011).

Concerning our results about sleep, it would be useful to pay special attention to favorable sleeping conditions during vacation. About eight hours sleep per night and sleeping in a comfortable environment during vacation (e.g. in a dark, quiet, well-tempered room) seem to enhance well-being during and even after vacation.

#### **6.4.6. Future research**

First, studies on the effect of not taking holidays for a longer time are highly needed. A study by Gump and Matthews (2000) demonstrated in a longitudinal study covering a nine year period that not taking annual vacations was associated with a higher risk of mortality, in particular attributed to cardiovascular diseases. Similar longitudinal studies on healthy men and women could help to develop vacation schemes for optimal recovery across a work year.

Second, other determinants of vacation (after-) effects deserve a place on the agenda for future research as well. Worrying about work during vacation, person characteristics (e.g. workaholism, personality traits), type of job or vacation location (especially at home versus abroad) may be possible candidates.

Third, methodologically, vacation studies would benefit from data triangulation in the form of additional physiological measures (e.g. blood pressure, heart rate, cortisol), and supervisor and partner ratings. Fourth, it is possible that vacations promote health over the life span and have longer lasting effects on aspects, which we have not yet assessed. Future studies could for example focus on vacation effects on long term workability and performance, the ability to put life into perspective, creativity, relationship quality or psychological resilience.

Fifth, it would be interesting to study pre-vacation time. Some researchers argue that the time before vacation may be characterized by stress due to for instance high pre-vacation workload or travelling stress (DeFrank et al., 2000; Nawijn, De Bloom & Geurts, 2011). This pre-vacation stress may even be higher in case of long vacations as these often need more cautious preparations. Last but not least, it would be desirable to develop, implement and evaluate interventions aimed at increasing and prolonging the positive effects of vacation.

## 6.5. References

- Akerstedt, T. (2006). Psychosocial stress and impaired sleep. *Scandinavian Journal of Work, Environment & Health*, 32, 493-501.
- Akerstedt, T., Nilsson, P. M., & Kecklund, G. (2009). Sleep and recovery. In S. Sonnentag, P. L. Perrewe & D. C. Ganster (Eds.), *Current perspectives on job-stress recovery research in occupational stress and well-being* (Vol. 7, pp. 205-247). Bingley, UK: Emerald Group Publishing Unlimited.
- Belkic, K. L., Landsbergis, P. A., Schnall, P. L., & Baker, D. (2004). Is job strain a major source of cardiovascular disease? *Scandinavian Journal of Work and Environmental Health*, 30, 85-128.
- Bryant, F. B. (2003). Savoring beliefs inventory (SBI): a scale for measuring beliefs about savouring. *Journal of Mental Health*, 12, 175-196.
- Bryant, F. B., Smart, C. M., & King, S. P. (2005). Using the past to enhance the present: boosting happiness through positive reminiscence. *Journal of Happiness Studies*, 6, 227-260.
- Bryant, F. B., & Veroff, J. (2007). *Savoring: a new model of positive experience*. Mahwah (NJ): Lawrence Erlbaum Associates.
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences*. Hillsdale (NJ): Lawrence Erlbaum Associates.
- Dahlgren, A., Kecklund, G., & Akerstedt, T. (2005). Different levels of work-related stress and the effects on sleep, fatigue and cortisol. *Scandinavian Journal of Work and Environmental Health*, 31, 277-285.
- De Bloom, J., Geurts, S., & Kompier, M. (2010). Vacation from work as prototypical recovery opportunity. *Gedrag & Organisatie*, 23, 333-349.
- De Bloom, J., Geurts, S. A. E., & Kompier, M. A. J. (in press). Effects of short vacations, vacation activities and experiences on employee health and well-being. *Stress and Health*.
- De Bloom, J., Geurts, S. A. E., Sonnentag, S., Taris, T., De Weerth, C., & Kompier, M. A. J. (in press). How does a vacation from work affect employee health and well-being? *Psychology & Health*.
- De Bloom, J., Kompier, M., Geurts, S., De Weerth, C., Taris, T., & Sonnentag, S. (2009). Do we recover from vacation? Meta-analysis of vacation effects on health and well-being. *Journal of Occupational Health*, 51, 13-25.
- DeFrank, R. S., Konopaske, R., & Ivancevich, J. M. (2000). Executive travel stress: Perils of the road warrior. *The Academy of Management Executive*, 14, 58-71.
- Eden, D. (2001). Vacations and other respites: Studying stress on and off the job. In C. Cooper & I. T. Robertson (Eds.), *Well-being in organizations* (pp. 305-330). West Sussex (UK): John Wiley & Sons, Ltd.
- Elo, A., Leppänen, A., & Jahkola, A. (2003). Validity of a single-item measure of stress symptoms. *Scandinavian Journal of Work, Environment & Health*, 29, 444-451.
- Etzion, D. (2003). Annual vacation: duration of relief from job stressors and burnout. *Anxiety, Stress, and Coping*, 16, 213-226.



- Etzion, D., Eden, D., & Lapidot, Y. (1998). Relief from job stressors and burnout: reserve service as a respite. *Journal of Applied Psychology, 8*, 577-585.
- Fredrickson, B. L. (2001). The role of positive emotions in positive psychology. The Broaden-and-Build Theory of positive emotions. *American Psychologist, 56*, 218-226.
- Fritz, C., & Sonnentag, S. (2005). Recovery, health, and job performance: effects of weekend experiences. *Journal of Occupational Health Psychology, 10*, 187-199.
- Fritz, C., & Sonnentag, S. (2006). Recovery, well-being, and performance-related outcomes: the role of workload and vacation experiences. *Journal of Applied Psychology, 91*, 936-945.
- Fritz, C., Sonnentag, S., Spector, P., & McInroe, J. A. (2010). The weekend matters: relationships between stress recovery and affective experiences. *Journal of Organizational Behavior, 31*, 1137-1162.
- Geurts, S. A. E., & Sonnentag, S. (2006). Recovery as an explanatory mechanism in the relation between acute stress reactions and chronic health impairment. *Scandinavian Journal of Work, Environment & Health, 32*, 482-492.
- Gilbert, D., & Abdullah, J. (2002). A study of the impact of the expectation of a holiday on an individual's sense of well-being. *Journal of Vacation Marketing, 8*, 352-361.
- Gilbert, D., & Abdullah, J. (2004). Holidaytaking and the sense of well-being. *Annals of Tourism Research, 31*, 103-121.
- Groeger, J. A., Zijlstra, F. R. H., & Dijk, D. J. (2004). Sleep quantity, sleep difficulties and their perceived consequences in a representative sample of some 2000 British adults. *Journal of Sleep Research, 13*, 359-371.
- Gump, B. B., & Matthews, K. A. (2000). Are vacations good for your health? The 9-year mortality experience after the multiple risk factor intervention trial. *Psychosomatic Medicine, 62*, 608-612.
- Härma, M. (2006). Workhours in relation to work stress, recovery and health. *Scandinavian Journal of Environmental Health, 32*, 502-514.
- Hahn, V. C., Binnewies, C., Sonnentag, S., & Mojza, E. J. (2011). Learning how to recover from job stress: effects of a recovery training program on recovery, recovery-related self-efficacy, and well-being. *Journal of Occupational Health Psychology, 16*, 202-216.
- Hamilton, N. A., Nelson, C. A., Stevens, N., & Kitzman, H. (2007). Sleep and physiological well-being. *Social Indicators Research, 82*, 147-163.
- How long should a man's vacation be? (1910, July 31). *The New York Times*.
- Kemp, S., Burt, C. D. B., & Furneaux, L. (2008). A test of the peak-end rule with extended autobiographical events. *Memory and Cognition, 36*, 132-138.
- Kühnel, J., & Sonnentag, S. (2011). How long do you benefit from vacation? A closer look at the fade-out of vacation effects. *Journal of Organizational Behavior, 32*, 125-143.
- Leger, D., Massuel, M. A., & Metlaine, A. (2006). Professional correlates of insomnia. *Sleep, 29*, 171-178.
- Little, R.J.A. (1988). A test of missing completely at random for multivariate data with missing values. *Journal of the American Statistical Association, 83*, 1198-1202.

- Lounsbury, J. W., & Hoopes, L. L. (1986). A vacation from work: changes in work and nonwork outcomes. *Journal of Applied Psychology, 71*, 392-401.
- Meijman, T. F., & Mulder, G. (1998). Psychological aspects of workload. In P. J. D. Drenth, H. Thierry & C. J. de Wolff (Eds.), *Handbook of work and organizational psychology (2nd edition)*. *Work psychology* (Vol. 2, pp. 5-33). Hove: Psychology Press.
- Nawijn, J. (2010). The holiday happiness curve: A preliminary investigation into mood during a holiday abroad. *International Journal of Tourism Research, 12*, 281-290.
- Nawijn, J., De Bloom, J., & Geurts, S. (2011). *Pre-vacation time: blessing or burden?* Manuscript submitted for publication.
- Nawijn, J., Marchand, M., Veenhoven, R., & Vingerhoets, A. (2010). Vacationers happier, but most not happier after a holiday. *Applied Research in Quality of Life, 5*, 35-47.
- Newman, D. A. (2009). Missing data techniques and low response rates. The role of systematic nonresponse parameters. In C. E. Lance & R. J. Vandenberg (Eds.), *Statistical and methodological myths and urban legends. Doctrine, verity and fable in the organizational and social sciences*. Hove, East Sussex: Routledge.
- Nilsson, P. M., Nilsson, J. A., Hedblad, B., & Berglund, G. (2001). Sleep disturbances in association with elevated pulse rate for the prediction of mortality: consequences of mental strain? *Journal of Internal Medicine, 250*, 521-529.
- Pilcher, J. J., Ginter, D. R., & Sadowsky, B. (1997). Sleep quality versus sleep quantity: relationships between sleep and measures of health, well-being and sleepiness in college students. *Journal of Psychosomatic Research, 42*, 583-596.
- Pressman, S. D., Matthews, K. A., Cohen, S., Martire, L. M., Scheier, A., Baum, A., et al. (2009). Association of enjoyable leisure activities with psychological and physical well-being. *Psychosomatic Medicine, 71*, 725-732.
- Rook, J. W., & Zijlstra, F. R. H. (2006). The contribution of various types of activities to recovery. *European Journal of Work and Organizational Psychology, 15*, 218-240.
- Ryan, R. M., Bernstein, J. H., & Brown, K. W. (2010). Weekends, work, and well-being: psychological need satisfactions and day of the week effects on mood, vitality, and physical symptoms. *Journal of Social and Clinical Psychology, 29*, 95-122.
- Ryan, R. M., & Deci, E. L. (2000). Self-Determination Theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist, 55*, 68-78.
- Sonnentag, S., & Fritz, C. (2007). The recovery experience questionnaire: development and validation of a measure for assessing recuperation and unwinding from work. *Journal of Occupational Health Psychology, 12*, 204-221.
- Stone, A. A., Kennedy-Moore, E., & Neale, J. M. (1995). Association between daily coping and end-of-day mood. *Health Psychology, 14*, 341-349.
- Strauss-Blasche, G., Ekmekcioglu, C., & Marktl, W. (2000). Does vacation enable recuperation? Changes in well-being associated with time away from work. *Occupational Medicine, 50*, 167-172.

- Tinsley, H. E. A., & Eldredge, B. D. (1995). Psychological benefits of leisure participation: a taxonomy of leisure activities based on their need-gratifying properties. *Journal of Counseling Psychology, 42*, 123-132.
- Tucker, P., Dahlgren, A., Akerstedt, T., & Waterhouse, J. (2008). The impact of free-time activities on sleep, recovery and well-being. *Applied Ergonomics, 39*, 653-662.
- Van Heck, G. L., & Vingerhoets, A. J. J. M. (2007). Leisure sickness: a biopsychological perspective. *Psychological Topics, 2*, 187-200.
- Van Hooff, M. L. M., Geurts, S. A. E., Beckers, D. G. J., & Kompier, M. A. J. (2011). Daily recovery during work and off-job time: the role of activities, effort and pleasure. *Work & Stress, 25*, 55-74.
- Van Hooff, M. L. M., Geurts, S. A. E., Kompier, M. A. J., & Taris, T. W. (2007). Workdays, in-between workdays and the weekend: a diary study on effort and recovery. *International Archives of Occupational and Environmental Health, 80*, 599-613.
- Van Hooff, M. L. M., Geurts, S. A. E., Taris, T. W., & Kompier, M. A. J. (2007). "How fatigued do you currently feel?" Convergent and discriminant validity of a single-item fatigue measure. *Journal of Occupational Health, 49*, 224-234.
- Westman, M. (2005). Strategies for coping with business trips: A qualitative exploratory study. *International Journal of Stress Management, 11*, 167-176.
- Westman, M., & Eden, D. (1997). Effects of a Respite From Work on Burnout: Vacation Relief and Fade-Out. *Journal of Applied Psychology, 82*, 516-527.
- Westman, M., & Etzion, D. (2001). The impact of vacation and job stress on burnout and absenteeism. *Psychology and Health, 16*, 95-106.
- Wheaton, A. G., Liu, Y., Perry, G. S., & Croft, J. B. (2011). Effects of short sleep duration on daily activities, United States, 2005-2008. *Journal of the American Medical Association, 305*, 1956-1957.





## Chapter 7

# General Discussion

This chapter is based on:

De Bloom, J., Geurts, S., & Kompier, M. (2012). How does a vacation from work affect tourists' health and well-being? To appear in: In S. Filep & P. Pearce (Eds), *Tourist experience and fulfilment: insights from positive psychology*. Oxford: Routledge.



## 7.1. Introduction

The purpose of this research project was to determine the contribution of vacation, a prototypical respite opportunity, to employee' H&W during vacation (Research question 1: Vacation effect) and after vacation (Research question 2: Vacation after-effect). Furthermore, this dissertation also investigated the role of vacation activities and experiences in promoting or impeding recovery during and after a vacation period (Research question 3: Activities & experiences).

We started our research project by conducting a meta-analysis in order to examine the present evidence for vacation (after-) effects on H&W and to study the effects of vacation activities and experiences on H&W changes (Chapter 2). Aside from shedding light on our three main research questions, our first study also gave us the opportunity to lay bare so far unanswered questions in vacation research. In addition, based on the strengths and weaknesses of prior vacation studies, our meta-analysis helped us in developing a solid research design to investigate developments in and determinants of H&W during and after a vacation period in three longitudinal field studies.

We applied this newly developed research design to investigate 1) long weekends and midweek vacations (Chapter 5) 2) winter sports vacations (Chapter 3 and 4) and 3) summer vacations (Chapter 6). Returning to the three main research questions at the beginning of this research project, I will first focus on findings from earlier vacation studies (as reported in our meta-analysis in Chapter 2). Then, I move on to the results of our field studies in three different types of vacations. A summary of all results can also be found in Table 7.1 and in Baggage 1 to Baggage 10.

After answering our three main research questions and discussing the implications of these results (paragraph 7.2 and 7.3), I will turn to the weaknesses and strengths of our studies (paragraph 7.4). In paragraph 7.5, I will provide suggestions for future research on vacation. The final part of this discussion will be a description of the practical implications of our findings (paragraph 7.6).



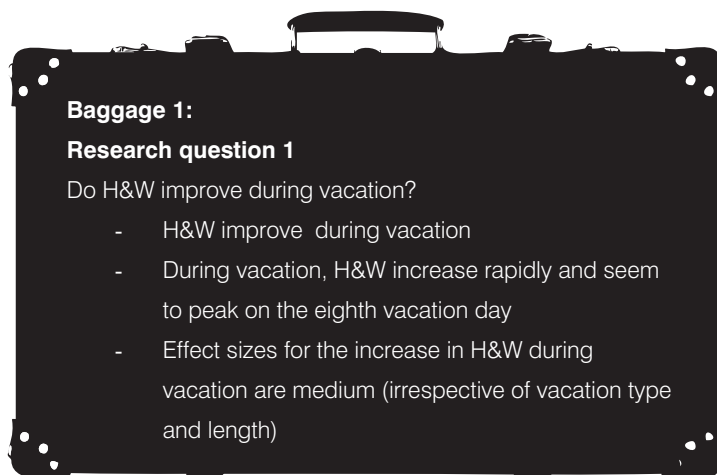
## 7.2. Research question 1 & Research question 2: Vacation (after-) effects on health and well-being

### 7.2.1. Vacation effect (Research question 1, Baggage 1)

We defined a vacation effect as the difference in H&W before vacation compared to H&W during vacation (*Pre* versus *Inter*). Besides some notable exceptions (Fritz & Sonnentag, 2006; Westman & Eden, 1997), on-vacation measures were generally lacking in earlier vacation research. Accordingly, we could not calculate the vacation effect as we defined it in our meta-analysis.

In the three types of vacations we investigated subsequently, the most obvious finding to emerge from this project is that H&W increase during vacation. Effect size Cohen *d* for the improvement in H&W during long summer vacations (23 days on average) was slightly higher than during shorter vacations (i.e. during short vacations and winter sports vacations). In terms of effect sizes, the increase in H&W during winter sports vacations was slightly smaller than during short and summer vacations. All in all, effect size Cohen *d* for the difference of *Pre* versus *Inter* was medium in all vacations (see Table 7.1).

Moreover, our studies have shown that a positive vacation effect does not apply to every employee. In our studies on winter sports vacation (Chapter 4), we found that H&W increase for the majority of participants, but that there are also employees whose H&W remain



the same or even deteriorate during vacation. This fact underlines the relevance of investigating possible determinants of vacation effects.

In addition, it emphasizes the importance of a valid baseline measure of

H&W. The finding that H&W of some employees decrease during vacation may be partly due to very high baseline H&W and the accompanying regression to the mean during vacation. The same is true for increasers: if baseline H&W level is very low, it can only improve during vacation. This also casts doubt on the results from earlier studies on vacation which applied

**Table 7.1:** Vacation (after-) effects (RQ 1 & RQ2) and the influence of vacation activities and experiences on changes in H&W during and after vacation (RQ 3)

	<b>Studies meta-analyzed</b> (M = ?, range ?)	<b>Short vacations</b> (M = 4.5 days, range 4-5)	<b>Winter sports vacations</b> (M = 9 days, range 7-19)	<b>Summer vacations</b> (M = 23 days, range 15-34)
Reported in Chapter	2	5	3 & 4	6
Cohen <i>d</i>	Vacation effect ?	Vacation after-effect 0.43 (small)	Vacation after-effect non-significant	Vacation after-effect 0.73 (medium) non-significant
Vacation activities				
Work-related activities	?	0	0	0
Physical activities	?	0	+	0
Social activities	?	0	0	0
Passive activities	?	0	-	+
Vacation experiences	?			?
Pleasure from activities	?	+	+	+
Negative incidents	-	-	-	?
Detachment	0, +	+	?	0
Relaxation	+	+	?	+
Control	?	0	?	+

Note: + = positively related to each other, 0 = unrelated to each other, - = negatively related to each other, ? = not examined, RQ = Research question

baseline measurements immediately before vacation: pre-vacation time is often stressful and may lower well-being (DeFrank, Konopaske & Ivancevich, 2000; Nawijn, 2010; Nawijn, De Bloom & Geurts, 2011; Westman, 2005). Earlier vacation studies with baseline measures shortly before vacation may therefore have accrued vacation (after-) effects.

In short, this research has shown that H&W improve during all types of vacations for most people. Therefore, it can be concluded that a holiday from work constitutes a powerful opportunity to recover from work demands.

### 7.2.2. Development of H&W during vacation

To our knowledge, as yet well-being at different stages during vacation was investigated only once in a cross-sectional study (Nawijn, 2010) that was published after our meta-analysis. In this study, different vacationers filled in a questionnaire at different stages during their vacation. Scores on different holiday stages were then compared. Results revealed that vacationers' mood was generally high during vacation, but a bit lower for vacationers in the beginning and towards the end of their vacation period compared to the overall level of vacationers' mood during vacation.

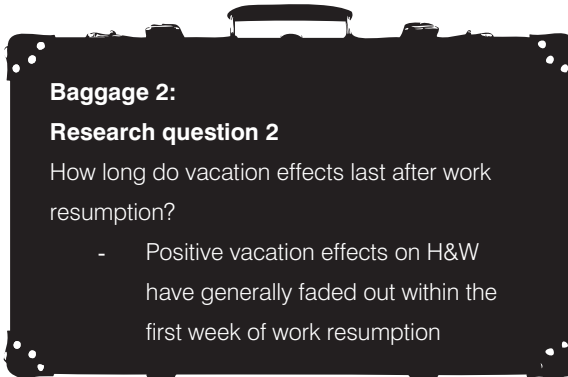
In our studies on short and winter sports vacations, we measured H&W twice during vacation in the same people. Yet, analyses showed that H&W did not differ between these two measurement occasions (which allowed us to combine the occasions in further analyses).

In long summer vacations, we measured H&W four times during vacation within the same group of vacationers (on the 4<sup>th</sup>, 8<sup>th</sup>, 12<sup>th</sup> and 16<sup>th</sup> day of vacation, see Chapter 6). We found that H&W rapidly increase in the beginning of the vacation. Peak levels of H&W seemed to be attained on the 8<sup>th</sup> day of vacation which corroborates the findings from our qualitative study (Appendix 1): most vacationers state that it takes them one week to fully recover from work. Note that our information on H&W of long term vacationers (i.e. vacations considerably longer than 16 days) was still limited, because our last on-vacation measurement was scheduled on the 16<sup>th</sup> vacation day and some vacationers still had many vacation days left at that time. However, also note that vacation length is unrelated to changes in well-being during and after vacation (see Chapter 6). Therefore, we can conclude that this longitudinal study's development in H&W seems to resemble the cross-sectional "development" reported by Nawijn (2010) quite well. Nevertheless, we need more studies with greater sample sizes in order to detect small differences in H&W across a vacation period.

Summing up, our studies indicate that H&W rapidly increase during vacations. However, it apparently takes vacationers a few days (+ - 8 days) to fully unwind from work and reach highest H&W levels.

### 7.2.3. Vacation after-effect (research question 2, Baggage 2)

We defined a vacation after-effect as the contrast between H&W before and after vacation (*Pre* versus *Post*). Combining the evidence from the seven studies included in our meta-analysis, we found a small effect size of 0.43 for the difference in H&W *Pre* versus *Post* (see Table 7.1).



Moreover, in our meta-analysis we found that outcome variables closer to the core of the concept H&W (e.g. health complaints, exhaustion) improved more strongly during vacation than more distal indicators (e.g. life satisfaction). Although the information on the pace of the disappearance of positive effects

was very limited in earlier studies (due to the absence of multiple measures after vacation), it seems that effects have faded out entirely within 2 to 4 weeks after vacation.

In our field studies on short, winter sports and summer vacations, we discovered that H&W rapidly decrease after returning home, independent from the type of vacation. In all vacations types that we investigated, H&W had returned to baseline within the first week of work resumption. To sum up, the evidence from all studies suggests that positive vacation effects on H&W are generally short-lived: they fade out within the first week after resuming work.

### 7.2.4. The role of vacation duration

In our meta-analysis, we largely missed the necessary information on vacation duration to analyze the relationship between changes in H&W and vacation duration in detail. A small number of studies however did not find a relationship between vacation length and H&W outcomes (Etzion, 2003; Kemp, Burt & Furneaux, 2008; Lounsbury & Hoopes, 1986; Nawijn, 2010).

Our field studies seem to corroborate these findings. Although it is difficult to directly compare H&W changes for the three types of vacations, because other variables than vacation length varied as well (e.g. composition of the sample, vacation activities, climate, destination, time of the year etc.), we can cautiously conclude that the development in H&W across time is surprisingly similar in all vacations. In all three vacation types, H&W improved during vacation and returned to baseline in the first week of work resumption. Effect sizes for the vacation effect were medium in all vacations. In addition, mean levels of H&W during vacation (7.8 plus or minus 0.1, uncontrolled for baseline H&W) did also hardly differ among vacations.

The results from our study on long summer vacations also point into the same direction. In vacations varying from 15 to 34 days, we found no relation between vacation duration and improvements in H&W during vacation or after work resumption.

Accordingly, it seems plausible that the quality of a vacation is more important than the sheer number of days away from work. This assumption is also in line with findings from experimental research demonstrating that the intensity of an experience rather than its duration determines its evaluation (Fredrickson, 2000; Fredrickson & Kahnemann, 1993; Redelmeier & Kahnemann, 1996).

Taken together, our research suggests that vacation length is not crucial for the strength and persistence of the vacation effects.

### **7.2.5. Implications regarding vacation (after-)effects**

This research has shown that vacationing improves employee' well-being clearly but for a short time. In line with Effort-Recovery Theory (Meijman & Mulder, 1998), Allostatic Load Theory (McEwen, 1998) and Conservation of Resources Theory (Hobfoll, 1989), the increase in H&W during vacation supports the idea that vacationing enables psychobiological systems to return to baseline and to replenish depleted resources. It seems that the absence of work demands during vacation indeed decreases load effects, which in turn enhances levels of H&W. This reasoning also fits into the Limited Resource Model of Behavior Regulation (Muraven & Baumeister, 2000). This model assumes that humans live on one central psychological resource to initiate, suppress or regulate behavior. Our results suggest that this psychological resource is replenished during vacation as evident in an increase in H&W.

However, based on the theories mentioned above, the immediate fade-out of positive vacation effects is not easy to explain. If vacationing 'charges the batteries' and replenishes lost resources, why does this reload not persist after work resumption? We could speculate that, next to easily accessible resources (e.g. cognitive, affective and physical resources) that we daily use to meet various types of demands and that are relatively easily rechargeable, there may be a more basic resource (i.e. a reserve) that we in principle not draw upon. It could be that only if the every-day resources are seriously depleted, this basic resource is called upon, which is associated with psychological and/or physical health damage. This argumentation is also in line with the fact that a lack of vacationing for a very long time (i.e. nine years) is associated with illness and even mortality (Gump & Matthews, 2000). Regular vacations may therefore prevent using up our basic resource that we urgently need to conserve. Our subgroup analyses in Chapter 3 also indicate that vacations may have the potential to increase H&W more permanently in employees who feel very bad before vacation (e.g. employees at risk of depleting their basic resource). More research is needed to empirically test these surmises.

A related intriguing question is: Should we keep going on vacation if the effects wash out so fast? Yes, we should. As described earlier, people who do not go on vacation become ill more often and even have a higher chance to die earlier than people who go on holidays on a regular basis (Gump & Matthews, 2000). Moreover, in our qualitative study on vacation effects (see Appendix 1), most vacationers stated that, in general, their “vacation feeling” (which is probably represented well by the six H&W indicators we measured in all field studies) lasted only briefly. However, some vacationers claimed that they were able to recollect their vacation memories in difficult times which gave them their “vacation feeling” back and temporarily let them feel better again. So, although the direct effects fade out fast, positive vacation memories probably remain for the rest of one’s life. Research on memory suggests that people may recollect these positive memories in order to enhance their mood and current well-being (Parrott & Sabini, 1990). Accordingly, vacation memories may serve as a resource especially in times of need.

Moreover, a holiday may be a time in which emotions are magnified. In our study on short vacations (Chapter 5), we demonstrated that vacationing increases the time couples talk to each other and even the quality of their conversations. This increase in quantity and conversation quality was in turn related to stronger improvements in well-being during and after vacation. Consequently, vacationing may act as a bonding activity which creates a sense of relatedness, a fundamental human need (Ryan & Deci, 2000).

Vacations may also help to put life in perspective, enhance meaning and coherence and make people realize that there is more to life than work. Although these factors may not raise H&W directly, they may assist in creating psychological resilience and in buffering future stress in line with the Broaden-and-Build Theory (Fredrickson, 2001). Vacation is an effective, natural way to boost well-being and is probably important for long term health and vitality, and constitutes a resource that can be drawn on for years to come.

Asking why we should keep going on vacations is therefore comparable to asking why we should go to sleep in light of the fact that we get tired again. A period of effort investment (working times) should necessarily be alternated with periods of recovery in order to remain healthy in the long run.

Methodologically, our studies demonstrated that on-vacation measures are very important. If we had no on-vacation measures, we would have compared pre- to post-vacation scores and would falsely have concluded that holidays have no effect on H&W.

## 7.3. Research question 3: Vacation activities and experiences

Table 7.1 presents an overview of the relations between vacation activities and experiences on the one hand, and changes in H&W during and after vacation on the other. Below, I describe the results regarding each activity and experience separately. Whenever possible, I also refer to earlier studies, reviewed in our meta-analysis, which also investigated the influence of certain types of activities or experiences. A summary of the main findings can also be found in Baggage 3. This section closes with implications regarding vacation activities and experiences.

### 7.3.1. Work-related activities

In the studies we reviewed in our meta-analysis, work-related activities and their relation to vacation (after-) effects were not investigated. From the employees we tracked during their vacation in our field studies, only a minority worked during vacation (14% worked during short vacations, 20% during winter sports and 28% during summer vacations). Work-related activities during vacation mostly boiled down to emailing and phone calls with the office but also to other activities such as updating calendars, fixing a malfunction or organizing social events (see Chapter 6). The time spent on work-related activities remained extremely limited in our studies. On average, vacationers spent less than ten minutes per day on work-related activities and even the working vacationers worked less than one hour per day. While working during vacation does not seem to affect changes in H&W during winter sports and summer vacations, work-related activities did appear to be associated with decreases in employee' H&W after work resumption following short vacations. An explanation for this difference may be that working during short vacations may be worse than working during longer vacations. Vacationers who are not even able to refrain from work during short vacations of four or five days may have extraordinarily demanding jobs or feel obliged to work, which in turn negatively affects their well-being. In sum, due to the low prevalence of working and the restricted amount of time devoted to working during vacation in our samples, definite statements regarding the relationship with changes in H&W are difficult. Nevertheless, our research suggests that working during vacation may rather harm than promote H&W.

### 7.3.2. Physical activities

To our knowledge, physical activities have not been studied before in relation to changes in well-being across holidays. In our research, vacationers in all types of vacations spent at least some time on physical activities. The time vacationers engaged in physical activities was logically highest during active winter sports vacations. Although some earlier studies suggested that physical activities during leisure time increase H&W (Reed & Ones, 2006; Sonnentag & Jelden,

2009), we found only weak associations. Only during active winter sports vacations, more time spent on physical activities during vacation was related to higher increases in H&W during vacation. Above all, this suggests that people feel better if they are able to engage in the activity they like and they came for (i.e. skiing during winter sports vacations).

### **7.3.3. Social activities**

The studies included in our meta-analysis did not assess social activities during vacation. In our field studies, all employees devoted time to social activities during vacation. These social activities were only weakly associated with changes in well-being during and after a vacation period. Only in summer vacations, more time devoted to social activities was strongly related to increases in H&W during vacation.

### **7.3.4. Passive activities**

The role of passive activities in H&W changes across vacations has not been investigated before. In our field studies, we measured the time vacationers engaged in passive activities and we found that in short vacations, engagement in passive activities was unrelated to changes in H&W. Interestingly, though, passive activities were linked to H&W decreases during winter sports vacations and to increases during and after summer vacations. How come? Passive activities during an active winter sports vacation possibly imply that vacationers are not able to engage in the activity they came for: skiing. In many cases, vacationers in our study were forced to spend time on passive activities which became apparent in the positive relation between passive activities and negative incidents (e.g. injuries, sickness, bad weather, see Chapter 4). Summer vacations are traditionally more 'relax vacations' and vacationers like to engage in passive, relaxing activities like reading or sunbathing. So, the combination of our findings in different vacations primarily suggests that the freedom of choice and the opportunity to engage in an activity one likes is crucial.

### **7.3.5. Pleasure from activities**

Pleasure from vacation activities and its associations with possible improvements in H&W has not been investigated before. In our longitudinal studies, we found that pleasure from activities was strongly and consistently (i.e. in all types of vacations) associated with increases in H&W during and after vacation. The more pleasure employees derive from their vacation activities, the more their well-being improves during vacation and the higher their H&W after vacation. Whilst the type of activity rarely affects changes in H&W, the subjective experience of pleasure derived from activities is strongly related to improvements in H&W. Nevertheless, note that



pleasure from activities may show some construct overlap with general well-being which might in turn also explain part of the strong relationship we found.

### **7.3.6. Negative incidents**

In the studies incorporated in our meta-analysis, Fritz and Sonnentag (2006) reported that non-work hassles during vacation are unrelated to health complaints, but to higher levels of exhaustion and effort expenditure after vacation. The frequency of incidents that vacationers reported in our field studies was roughly comparable in short and winter sports vacations (thereby also taking into account minor differences in the frequency with which we measured incidents and the time period our questions referred to). However, the type of negative incidents differed slightly across vacations. During winter sports vacations, injuries or sickness of close others or oneself were the most frequently reported incidents. Bad weather conditions which hamper skiing and travel stress were also repeatedly complained about (Chapter 4). During short vacations, injuries were not reported (Chapter 5). The incidents reported were mostly related to illness or illness of a close other during holidays. Other incidents were for example related to lost baggage or crowded swimming pools. Consequently, especially the quality of negative incidents (i.e. the impact) may explain why we found only weak associations between the occurrence of negative incidents and H&W changes during short vacations but strong links during winter sports vacations. A broken leg due to a skiing accident during winter sports may bother vacationers much more than a crowded swimming pool or a minor cat fight with fellow vacationers during a short vacation.

### **7.3.7. Recovery experience: Psychological detachment from work**

In earlier research on vacations, detachment and positive work reflection during vacation were not linked to stress and burnout after vacation (Etzion, 2003; Fritz & Sonnentag, 2006), whereas negative work reflection was strongly associated with health complaints and burnout after vacation (Fritz & Sonnentag, 2006). In our vacation-studies, psychological detachment was related to increases in H&W during and after short vacations, whilst it was hardly related to the development of H&W in summer vacations (in winter sports vacations, level of detachment was not assessed). Therefore, the results of earlier studies and our recent studies suggest that the quality of thinking about work (rumination, negative work reflection) might be more important than actually thinking about work or not.

### **7.3.8. Recovery experience: Relaxation**

In a study by Fritz and Sonnentag (2006), relaxation during vacation was weakly associated with health complaints, burnout and performance related outcomes after work resumption

(see Chapter 2). We found that relaxation was linked to improvements in H&W during and after short vacations and summer vacations (during winter sports vacations, relaxation was not assessed). Relaxation during vacation as a state of decreased activation and tension (Fritz, Sonnentag, Spector & McInroe, 2010) is apparently strongly related to increased levels of H&W during and after vacation. However, the direction of the relationship is not completely clear as high levels of H&W may also cause high levels of relaxation rather than the other way around.

### 7.3.9. Recovery experience: Control

Of the studies included in our meta-analysis, none studied the relationship between control and changes in H&W during and after vacation. The employees in our studies generally reported high levels of control about their vacation activities (3.7 and 3.8 on a 5-point scale in short and summer vacations respectively). In short vacations, control was only weakly associated with increases in H&W during and after vacation. In long summer vacations, conversely, control was strongly related to improvements in H&W during and after vacation. In sum, the role of the recovery experience control in relation to the development of H&W across a holiday period is not yet well understood, although it seems that self-determined behaviour constitutes a very important ingredient for a recovering vacation.

#### **Baggage 3:**

##### **Research question 3**

How do vacation activities and experiences relate to changes in H&W during and after a vacation period?

- Vacation activities (physical, social and work-related activities) are only weakly associated with changes in H&W in all types of vacation
- Vacation experiences are strongly and consistently linked to changes in H&W
- Pleasure derived from vacation activities and relaxation seem to be strongly and consistently related to H&W improvements
- Negative incidents and psychological detachment are associated with changes in H&W in some but not all vacations

### 7.3.10. Additional variables investigated

In our three field studies, we investigated a number of additional variables in relation to vacation (after-) effects in H&W. In short vacations, mastery experiences (i.e. challenging experiences that build up resources like skills, competency and proficiency in other domains than the job) were shown to be unrelated to changes in H&W during and after a vacation period. Furthermore, we found that couples report longer and higher quality conversations with their partner during vacation compared to before vacation. Conversation quantity during vacation relates to H&W improvements during vacation. Quality of conversations is associated with increases in H&W during and after vacation (Chapter 5). In summer vacations, sleep duration, sleep quality and savoring (i.e. the capacity to derive pleasure through anticipating upcoming positive events, enjoying positive moments, and remembering past positive experiences, Bryant, 2003) are linked to increases in H&W during and (in case of sleep to a lesser degree) after vacation (Chapter 6).

In sum, information on the role of vacation activities and experiences was very limited in earlier studies on vacations, reviewed in our meta-analysis (Chapter 2). In our longitudinal studies, the time employees engage in certain activities is only weakly associated with changes in H&W during and after a vacation period. Passive activities relate to decreases in H&W during active winter sports vacation and to increases in H&W during relaxing summer vacations. This suggests that self-determined choices and engagement in the activity vacationers came for is more important for improvements in H&W than the bare type of activity.

Vacation experiences are strongly linked to vacation (after-) effects on H&W. Of the experiences we investigated, pleasure derived from vacation activities and relaxation seem to be most consistently and strongly related to improvements in H&W during and after vacation. Negative incidents and psychological detachment from work were related to H&W in some, though not all vacations.

### 7.3.11. Implications regarding vacation activities and experiences

The evidence from this research suggests that a vacation period affects employee' H&W not only by removing work strain. Vacation activities and especially the associated experiences of pleasure and relaxation were consistently related to improvements in H&W during and after all types of vacations. Therefore, the results of this research indicate that a holiday is more than the sheer liberation from work demands. During vacation, partners report that they talk more and better with each other. This improvement in conversations is, like self-determined behavior, linked to increases in H&W (Chapter 5). A vacation therefore seems to constitute an excellent

opportunity to fulfill the fundamental human needs of relatedness and autonomy, rendering support for Self-Determination Theory (Ryan & Deci, 2000).

Moreover, the results of our studies suggest that it is not so much the type of activity per se employees engage in during vacation which is important for changes in well-being. It is rather the subjective experience associated with these activities and the degree to which an activity matches one's preferences that makes the difference. This finding corroborates earlier research (Pressman et al., 2009; Tucker, Dahlgren, Akerstedt & Waterhouse, 2008). Pleasure from vacation activities and relaxation turned out to be most clearly related to vacation (after-) effects across all types of vacations, followed by control, psychological detachment and negative incidents.

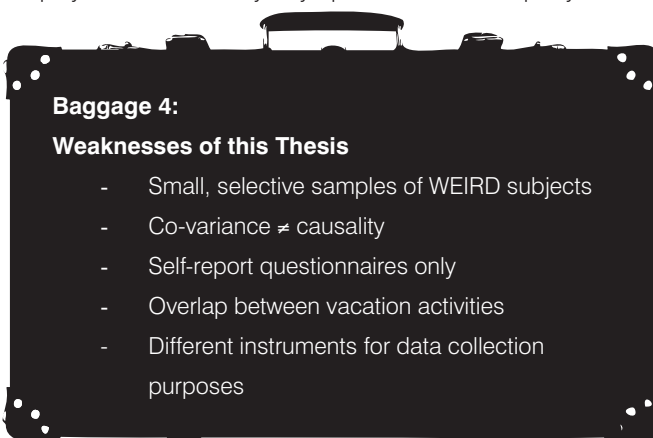
## 7.4. Weaknesses and strengths of this thesis

The studies presented in this thesis are subject to a number of limitations. These limitations will be described below (see also Baggage 4). I will also focus on the way we tried to overcome these limitations and list what we consider to be assets of our empirical studies.

### 7.4.1. Weaknesses

The most important limitation of our field studies lies in the fact that our samples are not very large and perhaps also selective. This may limit the external validity of our findings. Our research incorporated only Dutch employees who belong to a western, industrialized, rich and democratic minority of the world population, blessed with the right on vacation (for an interesting discussion on WEIRD subjects who may be least representative for human species, see Henrich, Heine & Norenzaya, 2010). Even in comparison with other Europeans, Dutch employees receive many days paid annual leave per year as well as the luxury of a bonus

holiday pay on top of their regular wage. In addition, all employees of our studies volunteered for participation, which may have influenced our results. For example, in winter sports and summer vacations, white collar and higher educated



workers were somewhat overrepresented. Therefore, caution must be applied, as our findings might not be transferable to workers in other, especially non-European countries with less generous vacation rights.

A second source of weakness in our field studies was the difficulty to establish causality. As regards vacation activities and experiences, co-varying levels of H&W do not necessarily mean that the variables are causally related. Although we chose to include on-vacation measures to overcome the “post hoc ergo propter hoc inference fallacy” (Eden, 2001), especially the relationship of H&W with vacation activities and experiences may also be in the opposite direction or factors may mutually influence each other (Kompier & Taris, 2011). For example, increases in H&W may be a precursor of relaxation, pleasure or detachment rather than an outcome.

Thirdly, the current thesis has only applied self-report questionnaires in investigating vacation (after-) effects. Although well-being is a subjective construct and self-reports may be the best way to measure it, it would be desirable to include other types of instruments like physiological measures, and supervisor or partner ratings in future research as well. However, in designing a vacation study, we need to realize that each measurement, especially during vacation, can negatively affect the idea to be free from duties.

Fourthly, in measuring engagement in certain vacation activities, there was considerable overlap between the categories we used. For example, is skiing with a group of friends a physical or a social activity? And does watching a romantic DVD with your partner constitute a passive or a social activity, or both? The distinction between the activities we used may not be so clear cut as it may seem in first instance. In addition, in summer vacations, engagement in activities was assessed after vacation, which is necessarily less precise and reliable than measuring during vacation. Consequently, results regarding the engagement in certain activities should be interpreted with some caution.

Fifthly, in winter sports and summer vacations (Chapter 3, 4 and 6), we measured H&W in telephone interviews whilst we applied paper- and pencil questionnaires in short vacations (Chapter 5). As the answers of participants may be differently affected by the measurement instruments, using different instruments may cast some doubts on the comparability of the results. However, in both studies in which we used telephone surveys, a few participants filled in paper- and pencil questionnaires, due to technical problems. Analyses showed that their answers did not differ from the answers of the other participants in the same study who were interviewed by telephone (see Chapter 3 and 6). Therefore, we are confident that the results of our field studies are reasonably well comparable.

### 7.4.2. Strengths

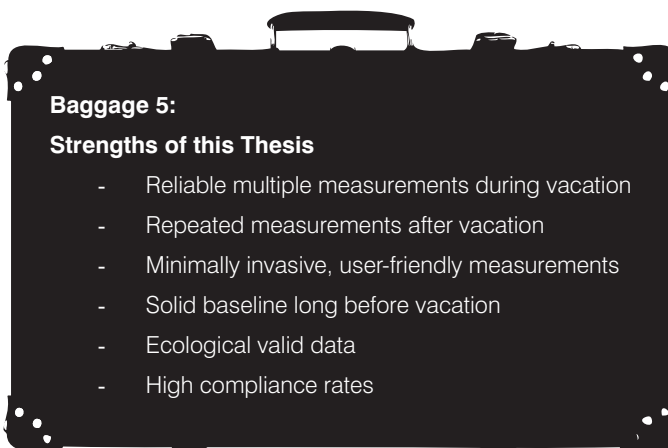
This thesis makes several noteworthy contributions to a methodology for examining recovery in general and vacations in particular (see also Baggage 5). First and foremost, we belong to the first researchers who applied multiple on-vacation measurements to assess well-being, activities and experiences repeatedly while people are actually on vacation. In doing this, we drastically reduced retrospective biases like the “post hoc, ergo propter hoc-fallacy” (Eden, 2001, p. 178) or the rosy view bias (Mitchell, Thompson, Peterson & Cronk, 1997) and increased the validity of our findings. The use of these measures also enabled us to define the vacation effect as the difference between H&W before vacation and H&W during vacation, which constitutes the most direct effect of vacationing: every measurement after vacation is affected by work resumption.

Secondly, after vacation we applied multiple measurements as well. This made a detailed analysis of the fade-out process possible.

Thirdly, despite conducting multiple measurements across a vacation period, we succeeded in keeping the measurements minimally invasive for the vacationers. In two studies (winter sports and summer vacations, Chapter 3, 4 and 6), we called the participants on a mobile phone and in one study (short vacations, Chapter 5) we gave the participants paper-pencil questionnaires and sent SMS reminders. We further reduced the effort participants had to invest by applying one-item measures which turned out to be reliable measures of the concept H&W. Positive evaluations of the research procedure by the participants confirmed that our approach was very user-friendly.

Fourthly, we applied solid baseline measures of H&W. Vacation (after-) effects in our field studies were defined as the difference in the level of H&W before vacation versus H&W during and after vacation. Consequently, baseline H&W may subtly influence the strength of the vacation (after-) effect and valid baseline measurements of H&W are vitally important. The

dependence of the results on initial baseline values implies the possibility for the regression fallacy or the danger of erroneously attributing change to an intervention rather than statistical regression (see Gilovich, 1991; Thorndike, 1924; Wilder,



1962). In applying baseline measures two weeks before vacation, we are confident that these problems are notably smaller than if we had applied baseline measures shortly before vacation: these measures may be biased by pre-vacation stress or looking forward to the vacation, leading to under- or overestimations of normal H&W levels during working time (DeFrank et al., 2000; Gilbert & Abdullah, 2002; Westman, 2005).

Fifthly, we used the same research design and measured the same outcome variables in different types of vacations. This approach resulted in ecologically valid findings and the possibility of interesting comparisons.

Sixthly, we achieved high compliance rates and prevented selective non-response by personalizing the research procedure for each participant and by dedicated respondent care. For example, we sent personalized schemes with measurement occasions to every single participant and personalized each email by including the name of the respondent. Moreover, we sent SMS reminders and called the participants in case of several non-answered prompts which we could detect immediately, due to the digital diaries. Further, attractive rewards with higher chances for winning if employees filled in more questionnaires probably also motivated participants to remain involved in the study.

## 7.5. Suggestions for future research

This thesis adds substantially to our understanding of vacation as a relatively long term recovery process. Nevertheless, our research also raised new questions and research issues. Below, I provide suggestions for future research on vacation. I distinguish between general suggestions (Baggage 6), suggestions for examining different vacation outcomes (Baggage 7) and suggestions for assessing different determinants of changes in H&W across a vacation period (Baggage 8).

7

### 7.5.1. General suggestions

Firstly, we would recommend replicating the findings of our studies in greater samples and in different countries, especially outside Europe. In these studies, it would also be of benefit to study the development of well-being during longer vacations again by assessing H&W from the beginning until the very end of each vacation period (as in our study on long summer vacations, measurements stopped at the 16<sup>th</sup> vacation day). To reduce the burden put on the participants, researchers could also decide to limit assessments to certain vacation stages (e.g. in the first, second, third or last quarter of a holiday) instead of measuring every fourth day.

**Baggage 6:****General Recommendations for Future Research**

- Replicate findings in greater samples and in different countries, measure H&W developments in long vacations again
- Employ longitudinal studies (+/- 10 years) on long term H&W in employees with different vacation patterns (i.e. different vacation frequencies, durations)
- Examine vacation (after-) effects on H&W in non-workers
- Test the influence of vacations spent at home
- Identify key features of vacations
- Investigate the effect of “working vacations” on H&W changes
- Test several theories more explicitly
- Conduct experimental studies to examine the effect of vacation memories on stress
- Develop, implement and evaluate interventions to increase and prolong vacation (after-) effects

Secondly, to our knowledge, Gump and Matthews (2000) are the only researchers who yet focused on the long term effects of (not) going on vacation. However, their sample consisted of men with an already increased risk for heart diseases. Studies enclosing several years are needed in order to estimate the value of the frequency and duration of vacations for long term well-being.

Thirdly, further work needs to be done regarding the definition of a vacation. As described in Chapter 1, studies on vacation tend to emphasize either the aspect of travelling to and staying in places away from home (see for example Nawijn & Peeters, 2010) or the absence of work stress, i.e. temporary not working (Eden, 1990). In light of these important conceptual differences, future research might explore how vacations affect H&W of non-working people like unemployed persons or pensioners. As work- and organizational psychologists, we primarily viewed vacations as a prolonged recovery period from work. However, as we found that vacations not only remove strain but also add pleasure to people's life, it seems plausible that vacations have similar positive effects on non-working people. It would be especially interesting to study vacation after-effects in this non-working and non-work resuming population.



Fourthly, elaborating on this issue, research should also focus on the effects of vacations spent at home. Whilst in the field of tourism, staying in places away from home is viewed as a key feature of a holiday, it could be that staying at home and pursuing pleasant activities of one's own choice have similar positive effects on well-being as vacations abroad. Nonetheless, our results regarding decreasing H&W levels during a day at home after short vacations (see Chapter 5) and findings concerning sabbatical leaves (Davidson et al., 2010) slightly point into the direction that free time spent at home may be somewhat less beneficial than free time spent outside the home.

Fifthly, also arising from issues regarding the definition of vacation, an interesting question is what actually constitutes a "short" vacation. We found similar levels of H&W across shorter and longer vacations and the short vacations we investigated were getaways of four or five days. What distinguishes these vacations from regular free weekends? Is it merely the duration which is at least twice as much as a normal weekend? Or is the key being away from home in a different surrounding? Or do even normal weekends generally have the potential to increase health of working people? Future research might further establish which aspects of leisure time are most crucial for recovery to occur.

Sixthly, studies on "working vacations" could also constitute an interesting line of research and could add to our understanding of recovery processes. Working vacations are holidays in which employees spend time on activities that cost them considerable effort, like learning a language or humanitarian work in developing countries. Most recovery theories assume that psychophysiological systems recover particularly when resources are no longer drawn on (Geurts & Sonnentag, 2006; Sonnentag, 2001). However, I suppose that working vacations may well enhance well-being, independent from the fact that vacationers have to invest considerable energy. But would these vacations increase well-being in white collar workers and in manual workers alike? Do "working mainly with your hands" (e.g. building houses in Africa) and "working with your head" (e.g. learning a language) have differential effects on well-being of white or blue collar workers respectively (i.e. workers who either make use of the same or different resources already drawn on during working times)?

Seventhly, it is recommended that research is undertaken to test recovery theories more explicitly than we did. For example, based on Broaden- and -Build Theory (Fredrickson, 2001) it can be assumed that positive emotions experienced during vacation build personal resources, enhance creativity or buffer future stress. According to Self-Determination Theory (Ryan & Deci, 2000) fulfillment of the need for relatedness and autonomy should lead to improvements in well-being. In future vacation studies, these hypotheses could be tested more directly than we did until now.

Eighthly, considerably more work will need to be done to determine the value of autobiographical vacation memories for well-being. Experimental designs in which for example vacation photographs are used to induce positive mood states could be applied in order to assess the possibility of vacations memories to buffer acute stress.

Finally, a number of factors seemed to be associated with stronger and longer lasting positive vacation effects on H&W. Future research should therefore concentrate on the development, implementation and evaluation of interventions to strengthen and prolong positive vacation effects. Self-Determination Theory (Ryan, Patrick, Deci & Williams, 2008), strategies to enhance the degree of Savoring (Bryant, Smart & King, 2005) and recovery experiences (Hahn, Binnewies, Sonnentag & Mojza, 2011) could constitute the basis for such interventions.

### 7.5.2. Suggestions for different vacation outcomes

In this thesis, I focused on the effect of vacation on H&W. However, vacations may affect more variables which have not yet been investigated.

Most importantly, studying physiological indicators of recovery in prolonged respites is an uncharted territory until now. There is, therefore, a definite need to investigate the physiological adaptation process during and after vacation. Cardiovascular (e.g. blood pressure, heart rate, heart rate variability) or neuroendocrine (e.g. cortisol) indicators could be applied as indices for physical restoration (see Sluiter, Van der Beek & Frings-Dresen, 1998; Strauss-Blasche, Reithofer, Schobersberger, Ekmekcioglu & Marktl, 2005).

In addition, we learned that holidays were positively related to quantity and quality of conversations in couples (Chapter 5). Consequently, future studies that focus on the effect of vacations on relationships with the partner, family members or friends could provide interesting new insights.

new insights.

Last

but not least,

upcoming

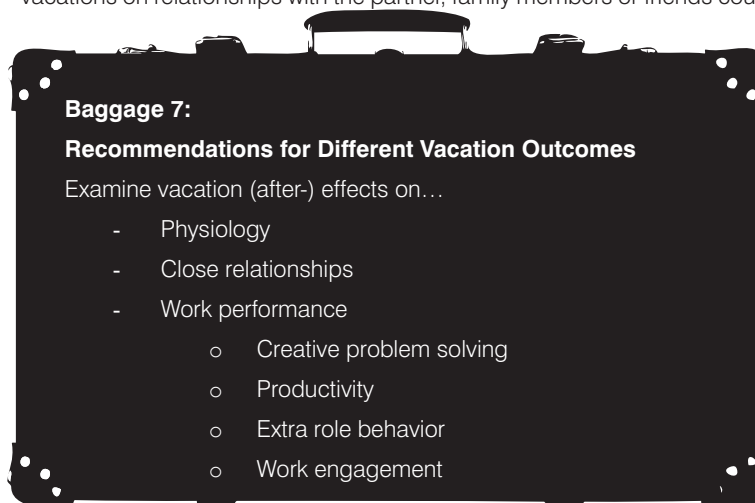
vacation studies

should focus

on the effect

of vacation on

work



performance, including creative problem solving, productivity, extra role behavior and work engagement.

### 7.5.3. Suggestions for different determinants of vacation effects

In the first place, more studies on the role of work-related activities during vacations are highly needed. Due to our small sample sizes and the small percentage of working vacationers, the jury on the effect of working during holidays is still out. Especially the freedom of choice to work, rumination and negative work reflection seem to play a crucial role in regard to well-being. I would therefore recommend conducting more studies on this issue to further unravel the relationship between working, vacationing and well-being.

In the second place and complementary to what we did in our studies, it would be useful to focus on more general variables like job type, workaholism and personality in relation to developments in H&W across a vacation period. Finally, research on factors that de- or accelerate the fade-out process would be useful. In this regard, increased workload before or after vacations (Kuehnel & Sonnentag, 2011), homeload (e.g. washing clothes, unpacking, social obligations) and the structure of return (e.g. resuming work on Monday or Wednesday; for a first study on this issue, see also Strauss-Blasche, Muhry, Lehofer, Moser & Marktl, 2004) seem to be prime candidates to affect changes in well-being.

#### Baggage 8:

#### Recommendations for Different Determinants of Vacation (After-) Effects

Investigate the relation between developments in H&W and...

- Working during vacation
  - o Autonomy
  - o Rumination
  - o Negative work reflection
- Job type
- Workaholism
- Personality
- Fade-out de- and accelerators
  - o Workload pre & post
  - o Homeload pre & post
  - o Structure of return

## 7.6. Practical implications

For employees, our results seem to suggest that, due to the short duration of positive vacation effects, regularly scheduled getaways may be more beneficial to preserve H&W in the long term than one long vacation across a working year. In addition, H&W do not necessarily improve during vacation for every employee (see findings in Chapter 4), for example due to negative incidents during holidays. Another recent study on pre-vacation time (Nawijn, De Bloom & Geurts, 2012) suggests that H&W deteriorate prior to vacation and that this decrease is related to workload. It appears plausible that longer vacations (i.e. longer absences from work) might go hand in hand with rises in workload previous to vacation. Consequently, vacationers should not put all eggs in one basket and take regular vacations instead of one long vacation only.

In addition, our research cautiously suggests that employees may need a couple of days to fully recover from work and reach highest levels of H&W. Therefore, a vacation should also be long enough to attain peak levels of H&W. Moreover, two weeks of high well-being are



in itself better than one week, regardless of the persistence of these effects after work resumption. Employees should therefore also schedule a longer vacation across a work year.

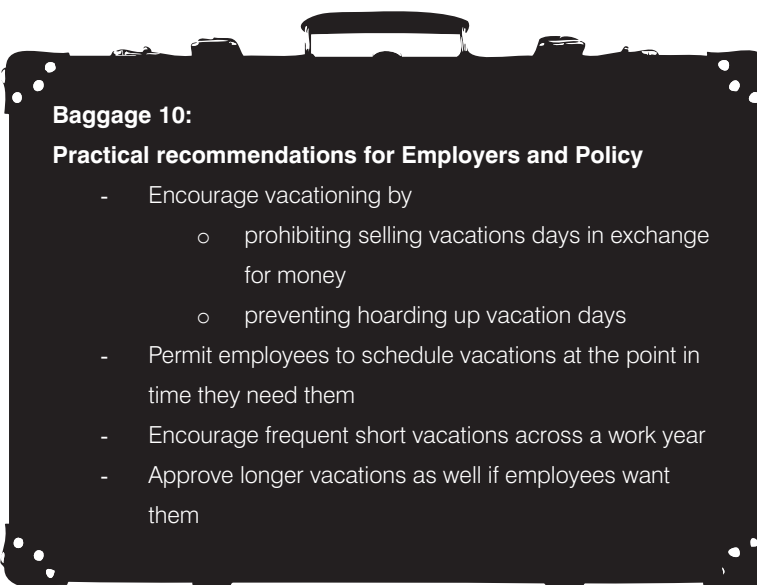
Regarding vacation activities and experiences, it seems crucial to engage in activities that match one's preferences. Moreover, psychological detachment from work is in general negatively associated with work-related activities during vacation (see Chapter 5 and Chapter 6). Consequently, in order to stimulate detachment, working should be prevented or reduced

to a minimum. Moreover, if employees choose to work, they should make sure that they are completely “in charge”. This means, they should be able to freely decide when and how long to work and which work-related activity to pursue. In order to ward off unsuited phone calls, employees could indicate a limited time span in which they may be available for phone calls or even totally refuse being called while on holiday.

Considering the impact of negative incidents on H&W during vacation, solid preparations before vacation seem to be useful in order to forestall common holiday hassles. It is wise to spend some time and effort on reading travel guides to prepare for a different culture, language and environment. Moreover, it seems reasonable to achieve some consensus with co-travelers about vacation expectancies and activities beforehand, to check the car, to see that important prescriptions are available, and to arrange a first aid kit. In case of vacations in which employees spend a great deal of their time on certain physical activities (e.g. skiing, bicycling, mountain climbing), vacationers should exercise before vacation in order to prevent sore muscles at best and serious injuries at worst. For an overview of all recommendations for employees, see Baggage 9.

Regarding employers and policy, our recommendations can be expanded by the following four recommendations (see also Baggage 10). Firstly, vacations increase H&W of employees and seem to be important to preserve long term workability. Therefore, employers should encourage vacationing. They could achieve this aim by adopting a policy that prohibits selling and hoarding up vacation days. For example, in Europe, a minimum period of annual leave (20 days) may not be replaced by an allowance in lieu (EC of the European Parliament

7



and the Council, 1993). Further, employers may forbid taking along vacation days to the next work year.

Secondly, employees should be permitted to schedule vacations at a point in time that they need them, because vacations could serve as way to balance stress and conserve well-being (Westman & Etzion, 2001). Thirdly, frequent (short) vacations across a work year should be promoted.

Fourthly, in addition to short vacations, employers should also approve longer vacations. During longer vacations, peak levels of well-being can be achieved and employees may value these holidays because they are highly rewarding and pleasant. So, if employees prefer a longer vacation (for example because they want to spend time on special activities like diving, a roundtrip through America or a cruise), employers are advised to meet this demand in order to give the employee a feeling of control. It is eventually very likely that employee' H&W improve most during vacations that fulfill the need for control and enable workers to engage in activities they like most.

To conclude, the current findings of my thesis add substantially to our understanding of vacations as relatively long term recovery processes. The evidence of our studies suggests that a vacation constitutes a powerful opportunity to replenish lost resources, to increase employee' well-being and to maintain long term workability. Moreover, our studies indicate that a holiday is more than mere relief from work strain: vacationing enables employees to engage in activities of their own choice and experience positive emotions. Although the after-effects of vacation seem to be rather short-lived, vacations and the associated memories may help building up personal resources that may act as buffers for future stress. Research on the effects of vacations on other life domains and factors that may speed up or slow down the fade-out process is hardly needed.

## 7.7. References

- Bryant, F. B. (2003). Savoring Beliefs Inventory (SBI): a scale for measuring beliefs about savoring. *Journal of Mental Health, 12*, 175-196.
- Bryant, F. B., Smart, C. M., & King, S. P. (2005). Using the past to enhance the present: boosting happiness through positive reminiscence. *Journal of Happiness Studies, 6*, 227-260.
- Davidson, O. B., Eden, D., Westman, M., Cohen-Charash, Y., Hammer, L. B., Kluger, A. N., et al. (2010). Sabbatical leave: Who gains and how much? *Journal of Applied Psychology, 95*, 953-964.
- DeFrank, R. S., Konopaske, R., & Ivancevich, J. M. (2000). Executive travel stress: Perils of the road warrior. *The Academy of Management Executive, 14*, 58-71.
- EC of the European Parliament and of the Council. (1993). Directive 93/104/EC of the European Parliament and of the Council of 23 November 1993 concerning certain aspects of the organisation of working time. Retrieved June 21, 2011, from [http://eurlex.europa.eu/smartapi/cgi/sga\\_doc?smartapi!celexapi!prod!CELEXnumdoc&lg=EN&numdoc=31993L0104&model=guichett](http://eurlex.europa.eu/smartapi/cgi/sga_doc?smartapi!celexapi!prod!CELEXnumdoc&lg=EN&numdoc=31993L0104&model=guichett).
- Eden, D. (1990). Acute and chronic job stress, strain, and vacation relief. *Organizational Behaviour and Human Decision Processes, 45*, 175-193.
- Eden, D. (2001). Vacations and other respites: Studying stress on and off the job. In C. Cooper & I. T. Robertson (Eds.), *Well-being in organizations* (pp. 305-330). West Sussex (UK): John Wiley & Sons, Ltd.
- Etzion, D. (2003). Annual vacation: duration of relief from job stressors and burnout. *Anxiety, Stress, and Coping, 16*, 213-226.
- Fredrickson, B. L. (2000). Extracting meaning from past affective experiences: the importance of peaks, ends, and specific emotions. *Cognition and Emotion, 14*, 577-606.
- Fredrickson, B. L. (2001). The role of positive emotions in positive psychology. The Broaden- and -Build Theory of positive emotions. *American Psychologist, 56*, 218-226.
- Fredrickson, B. L., & Kahnemann, D. (1993). Duration neglect in retrospective evaluation of affective episodes. *Journal of Personality and Social Psychology, 65*, 45-55.
- Fritz, C., & Sonnentag, S. (2006). Recovery, well-being, and performance-related outcomes: the role of workload and vacation experiences. *Journal of Applied Psychology, 91*, 936-945.
- Fritz, C., Sonnentag, S., Spector, P., & McInroe, J. A. (2010). The weekend matters: relationships between stress recovery and affective experiences. *Journal of Organizational Behavior, 31*, 1137-1162.
- Geurts, S. A. E., & Sonnentag, S. (2006). Recovery as an explanatory mechanism in the relation between acute stress reactions and chronic health impairment. *Scandinavian Journal of Work, Environment & Health, 32*, 482-492.
- Gilbert, D., & Abdullah, J. (2002). A study of the impact of the expectation of a holiday on an individual's sense of well-being. *Journal of Vacation Marketing, 8*, 352-361.
- Gilovich, T. (1991). *How we know what isn't so: The fallibility of human reason in everyday life*. New York: The Free Press.

- Gump, B. B., & Matthews, K. A. (2000). Are vacations good for your health? The 9-year mortality experience after the multiple risk factor intervention trial. *Psychosomatic Medicine*, *62*, 608-612.
- Hahn, V. C., Binnewies, C., Sonnentag, S., & Mojza, E. J. (2011). Learning how to recover from job stress: effects of a recovery training program on recovery, recovery-related self-efficacy, and well-being. *Journal of Occupational Health Psychology*, *16*, 202-216.
- Henrich, J., Heine, S. J., & Norenzayan, A. (2010). The weirdest people in the world? *Behavioral and Brain Sciences*, 1-75.
- Hobfoll, S. E. (1989). Conservation of resources: a new attempt at conceptualizing stress. *American Psychologist*, *44*, 513-524.
- Kemp, S., Burt, C. D. B., & Furneaux, L. (2008). A test of the peak-end rule with extended autobiographical events. *Memory and Cognition*, *36*, 132-138.
- Kompier, M., & Taris, T. W. (2011). Understanding the causal relations between psychosocial factors at work and health – a circular process. *Scandinavian Journal of Work, Environment & Health*, *37*, 259-261.
- Kuehnel, J., & Sonnentag, S. (2011). How long do you benefit from vacation? A closer look at the fade-out of vacation effects. *Journal of Organizational Behavior*, *32*, 125-143.
- Lounsbury, J. W., & Hoopes, L. L. (1986). A vacation from work: changes in work and nonwork outcomes. *Journal of Applied Psychology*, *71*, 392-401.
- McEwen, B. S. (1998). Stress, adaptation, and disease: allostasis and allostatic load. *Annals of the New York Academy of Sciences*, *840*, 33-44.
- Meijman, T. F., & Mulder, G. (1998). Psychological aspects of workload. In P. J. D. Drenth, H. Thierry & C. J. de Wolff (Eds.), *Handbook of work and organizational psychology (2nd edition)*. *Work psychology* (Vol. 2, pp. 5-33). Hove: Psychology Press.
- Mitchell, T. R., Thompson, L., Peterson, E., & Cronk, R. (1997). Temporal adjustments in the evaluation of events: The “rosy view”. *Journal of Experimental Social Psychology*, *33*, 421-448.
- Muraven, M., & Baumeister, R. F. (2000). Self-regulation and depletion of limited resources: does self-control resemble a muscle? *Psychological Bulletin*, *126*, 247-259.
- Nawijn, J. (2010). The holiday happiness curve: A preliminary investigation into mood during a holiday abroad. *International Journal of Tourism Research*, *12*, 281-290.
- Nawijn, J., De Bloom, J., & Geurts, S. (2011). *Pre-vacation time: blessing or burden?* Manuscript submitted for publication.
- Nawijn, J., & Peeters, P. M. (2010). Travelling ‘green’: Is tourists’ happiness at stake? *Current Issues in Tourism*, *13*, 381-392.
- Parrott, W. G., & Sabini, J. (1990). Mood and memory under natural conditions: evidence for mood incongruent recall. *Journal of Personality and Social Psychology*, *59*, 321-336.
- Pressman, S. D., Matthews, K. A., Cohen, S., Martire, L. M., Scheier, A., Baum, A., et al. (2009). Association of enjoyable leisure activities with psychological and physical well-being. *Psychosomatic Medicine*, *71*, 725-732.



- Redelmeier, D. A., & Kahnemann, D. (1996). Patient's memories of painful medical treatments: real-time and retrospective evaluations of two minimally invasive procedures. *Pain, 116*, 3-8.
- Reed, J., & Ones, D. S. (2006). The effect of acute aerobic exercise on positive activated affect: a meta-analysis. *Psychology of Sport and Exercise, 7*, 477-514.
- Ryan, R. M., & Deci, E. L. (2000). Self-Determination Theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist, 55*, 68-78.
- Ryan, R. M., Patrick, H., Deci, E. L., & Williams, G. C. (2008). Facilitating health behaviour change and its maintenance: interventions based on Self-Determination Theory. *The European Health Psychologist, 10*, 2-5.
- Sluiter, J. K., Van der Beek, A. J., & Frings-Dresen, M. H. W. (1998). Work stress and recovery measured by urinary catecholamines and cortisol excretion in long distance coach drivers. *Occupational and Environmental Medicine, 55*, 407-413.
- Sonnentag, S. (2001). Work, recovery activities, and individual well-being: A diary study. *Journal of Occupational Health Psychology, 6*, 196-210.
- Sonnentag, S., & Jelden, S. (2009). Job stressors and the pursuit of sport activities: a day-level perspective. *Journal of Occupational Health Psychology, 14*, 165-181.
- Strauss-Blasche, G., Muhry, F., Lehofer, M., Moser, M., & Marktl, W. (2004). Time course of well-being after a three-week resort-based respite from occupational and domestic demands: carry-over, contrast and situation effects. *Journal of Leisure Research, 36*, 293-309.
- Strauss-Blasche, G., Reithofer, B., Schobersberger, W., Ekmekcioglu, C., & Marktl, W. (2005). Effect of vacation on health: moderating factors of vacation outcome. *Journal of Travel Medicine, 12*, 94-101.
- Thorndike, E. L. (1924). The influence of chance imperfections of measures upon the relation of initial score to gain or loss. *Journal of Experimental Psychology, 7*, 225-232.
- Tucker, P., Dahlgren, A., Akerstedt, T., & Waterhouse, J. (2008). The impact of free-time activities on sleep, recovery and well-being. *Applied Ergonomics, 39*, 653-662.
- Westman, M. (2005). Strategies for coping with business trips: A qualitative exploratory study. *International Journal of Stress Management, 11*, 167-176.
- Westman, M., & Eden, D. (1997). Effects of a respite from work on burnout: vacation relief and fade-out. *Journal of Applied Psychology, 82*, 516-527.
- Westman, M., & Etzion, D. (2001). The impact of vacation and job stress on burnout and absenteeism. *Psychology and Health, 16*, 595-606
- Wilder, J. (1962). Basimetric approach (law of initial value) to biological rhythms. *Annals of the New York Academy of Sciences, 98*, 1211-1220.





# Epilogue

*“Ladies and gentlemen, this is again your captain speaking. We are about to begin our final descent and we expect an uneventful landing. Please make sure that your overhead storage is securely closed, stay seated, raise your chair to the upright position and prepare for landing.”*

Approaching the official end of my PhD project, I would like to thank a couple of extraordinary people, who made my journey pleasant, exciting, delightful, and fascinating.

Voordat ik een vliegtuig als captain mocht besturen, moest ik natuurlijk allereerst een gedegen opleiding ondergaan. In het begin van zo'n opleiding vlieg je eerst vele uren als copiloot mee. Ik had daarbij niet maar één expert aan mijn zijde die me de kneepjes van het vak leerde, maar zelfs twee! De ervaren 'piloten' Prof. Sabine Geurts en Prof. Michiel Kompier waren gedurende mijn hele opleiding bijzonder betrokken en geïnteresseerd in mijn werk. Gedurende onze reis heb ik ontzettend veel van ze geleerd. Structureren, focussen, prioriteiten stellen en je eigen ideeën duidelijk en overtuigend presenteren, om maar een paar dingen te noemen. Ik heb er veel respect voor hoe zij me geleidelijk aan steeds vaker het stuur in handen gaven. Naarmate mijn vliegkunsten vorderden, mocht ik zelfs eens een looping of een landing op voor hen onbekend terrein maken. Michiel en Sabine: dank jullie wel voor jullie steun de afgelopen 5 jaar. Ik hoop dat we ook in de toekomst blijven samenwerken.

Verder waren tevens Prof. Sabine Sonnentag, Prof. Toon Taris en Dr. Carolina de Weerth actief bij mijn opleiding betrokken. Ook met hen mocht ik regelmatig de cockpit delen en een beroep doen op hun expertise.

Gedurende mijn talrijke vlieglessen was ik gelukkig niet de enige leerling. Op het moment dat ik al aardig wat uren in het vliegtuig erop had zitten, begeleidde ik beginnende piloten in de vliegsimulator. Dat was niet alleen buitengewoon leuk en leerzaam; mijn stagiaires Lineke, Deborah, Judith, Desiree en Jenny hebben daarnaast ook bergen werk verzet en voor een heel gezellige sfeer op het vliegveld gezorgd.

Voor de hardware aan boord was Andre van Wijk verantwoordelijk. Een telefoontje en een minuut later was Andre er al om creatieve oplossingen voor de meest uiteenlopende problemen te verzinnen.

Een bijzonder kenmerk van onze luchtvaartmaatschappij is dat je als toekomstige piloot ook verantwoordelijk bent voor de marketing. Je moet dus zelf zorgen dat genoeg

mensen met je op reis willen gaan. Ik was daarom dan ook heel blij dat twee reisorganisaties bereid waren om met mij samen te werken en een mail naar hun klanten te versturen. Pim Jansen van Chalets Plus en Jenny Impens van Center Parcs: dank jullie wel voor het werven van vakantiegangers.

De 'passagiers' van mijn vluchten ben ik dankbaar voor hun medewerking. Zonder hun engeligeduld en de vele, soms waarschijnlijk best saaie uren van vragenlijsten invullen, had dit proefschrift nooit kunnen ontstaan.

Nadat ik genoeg passagiers voor mijn vluchten warm kon krijgen, heeft Pieter van Groenestijn van het RTOG me geholpen om enquêtes te maken om de reizigers gedurende hun vakanties te ondervragen. Rinske de Graaf-Stoffers en Dr. William Burk stonden me met de statistische verwerking van de gegevens terzijde. Een aantal journalisten, collega's en reizigers ben ik bijzonder dankbaar voor hun kritische vragen en nuttige suggesties: Joop Hintzen, Jan ter Huurne en Arno Gelder.

Mijn collega's van de Radboud Universiteit wil ik graag bedanken voor de goede gesprekken en het plezier tussen mijn vlieglessen door. Of het nou gaat om gezamenlijke lunchpauzes op de thuisbasis, wandelingen over het vliegveld of tussenstops in het buitenland zoals in Santiago de Compostella, Rome of Orlando: met jullie was het altijd heel gezellig. Ik zal jullie missen.

I would also like to thank my (international) colleagues with whom it was a great pleasure to work together: Ulla Kinnunen, Bengt Arnetz, Sirkku Kivisto, Ad Vingerhoets, Jeroen Nawijn, Jana Kühnel, Inga Nägel, Maja Tirkkonen, Laurenz Meier and Fred Bryant. I hope that there will be plenty of opportunities to collaborate in the future, too.

De leescommissie wil ik graag bedanken voor hun moeite en de mooie woorden waarmee ze mijn proefschrift beoordeeld hebben. Het is bijzonder fijn om zulke positieve feedback van een groep experts te krijgen.

Tenslotte wil ik graag mijn familie en vrienden, en in het bijzonder mijn ouders, Jorne, Merel, Rianne, Anouk, Edwin, Chi, Klaus, Jan en Johanna voor hun onvoorwaardelijke steun bedanken. Zij hebben ervoor gezorgd dat mijn gezondheid en welbevinden constant op peil bleven. En Arnaud: jij maakt mijn leven een grote vakantie, elke dag!

*"We just landed. Welcome home. For your own confidence and safety, remain seated until the fasten seatbelt signs are turned off and we arrive at the final parking position. As you exit, please make sure to gather all of your personal belongings and especially Baggage 1 to Baggage 10 which contain the most important insights about vacation effects on employee' health and well-being. I hope you enjoyed your journey with me, as I have certainly enjoyed having you on board today. Thank you for your attention."*





# Appendix

## 1. Qualitative study on vacation

In order to get a general idea about possible effects of vacation on well-being, we set up a survey with predominantly open questions. We promoted this digital survey on the website of our research institute via snowball sampling and appeals in newspaper articles, magazines and radio interviews.

In total, our convenience sample consisted of 63 persons of which 19% were male. Age ranged between 19 and 64 years with a mean age of 38 years. The majority of the sample was higher educated (63%, higher professional and higher education), 32% was medium (senior general secondary and university preparation education) and 5% was lower educated (no secondary education, lower secondary or junior secondary education). In terms of personal living situation, 41% of the respondents lived together with a partner, 35% lived together with a partner and at least one child and a minority of 24% was single or single-parent. Below, we present an overview of the answers of the respondents (recoded into meaningful categories).

### 1.1. Vacation (after-) effects

#### 1. *Why do you take a vacation? What do you hope to find during your vacation?*

Almost two thirds of the respondents (62%) mention recovery related motives like 'rest' and 'relaxation'. Half of the participants (48%) name the wish to discover and experience something new. Another frequently reported vacation motive is the desire to escape from daily routines and boredom (43%). One third (32%) goes on vacation to engage in certain activities like skiing, surfing or diving. A quarter of the participants (24%) enumerates 'quality time' and the possibility to spend time with significant others like partner, family and friends. Nineteen percent of the sample brings up the motive to be free from duties and 18% mention the wish to enjoy nature.

#### 2. *Is pre-vacation time for you mainly characterized by preparation stress or looking forward to vacation? Why is that?*

The majority (74%) says that pre-vacation time is characterized by the pleasure of looking forward to the vacation, while 12% mainly experiences preparation stress. Interestingly, 14% report both stress and pleasure directly before vacation. Frequently



reported reasons for pre-vacation stress are increased workload and homeload due to the approaching period of absence like finishing work tasks, handing work over to colleagues, packing one's suitcases and worrying about forgetting important things.

3. *How much time does it take you to unwind (mentally and physically) after the start of your vacation period?*

About one third (34%) says that unwinding happens immediately within the first day of vacation. Another third of the sample (37%) reports to need a time span between two and four days after the start of the vacation period to calm down. A minority of the participants (23%) asserts that they need five to seven days to fully unwind, whilst 7% need even more than seven days.

4. *How long does it take you to feel completely recovered after the start of your vacation?*

More than half of the participants (57%) say that they feel completely recovered within one week after the start of the vacation, while 22% need more than one week but less than two weeks. Few participants say that it takes them two to three weeks (7%) or even more than three weeks (6%) to recover. Seven percent of the participants state that they can never fully recover from work during vacation.

5. *How much time does it take you to acclimate and resume normal working life after returning home?*

One third (32%) asserts that they are used to working life immediately or within one day after vacation (quotes: "About one minute..." or "Perhaps two hours. Sighing."). Half of the participants (47%) need two to four days to get accustomed to normal working routines. For 15% of the returnees, it takes five to seven days to acclimate and 7% need more than one week to habituate. Some participants also come up with stringent rules of the thumb, like "For every week I am on holidays, I need one day to acclimatize after returning home".

6. *According to your experience, how long do positive vacation effects last after returning home?*

One third of the vacationers (33%) reports that positive vacation effects vanish within one week or even less (quote: "Much too short. After a couple of days, vacation seems an eternity ago"). Another third (33%) state that positive effects last more than one week to about one month after vacation. Sixteen percent believe that their vacation effects persist one to six months. Finally, optimistic 18% of the sample state

that their vacation effects last long or even do not vanish at all (quote: “Very long!” or “Long, because of all the great memories”). An interesting remark of some of participants is that they feel that the “vacation feeling” is gone very rapidly. However, they state, the memories remain forever. Many respondents also note that they are able to get back the positive effects by thinking about and reflecting on their vacation again (quote: “The effects last as long as I like talking about my vacation” or “By looking at the photographs from my vacation in Spain this year (which is already 8 months ago) I get back my ‘vacation feeling’ straightaway.”).

7. *Do you intentionally try to prolong positive vacation effects? If so, how do you do that?*  
The majority of the participants (71%) deliberately tries to prolong positive vacation effects. They try to do so by thinking (76%) or talking about the vacation (16%). Many returnees (47%) report to use aide-mémoires (mnemonic devices) like photographs, videos, souvenirs or food from their vacation to help them to recollect their vacation memories.

## 1.2. Vacation duration:

1. *What is the perfect vacation duration for you (independent from financial costs, duties and possibilities)?*

For 8% of the respondents, the perfect vacation length is one to two weeks. Half of the participants (45%) think that two to three weeks is the best vacation duration. One third (31%) would like to go on holidays for more than three weeks whilst 16% would like to stay on holiday even longer than four weeks. Interestingly, a few participants name an exact number of days (e.g. 12, 15, 16, 17 or 18 days). Regrettably, they do not explain why the duration should be for example exactly 17 days. Some participants only state “as long as possible” whilst some answer that “there is no perfect duration”.

## 1.3. Activities & experiences:

1. *Please list 3 aspects of vacation which are most important to you.*

Half of the respondents (54%) state that nice weather is very important to them. Certain kinds of activities (e.g. diving, being active outside, taking photographs) are mentioned by 40% of the participants. Compelling 22% name ‘food’ or ‘eating’ in the top three aspects of their vacation (quote: “Delicious food” or “Going out for dinner with the family”). ‘Autonomy or self-determination’ (quote: “Freedom” or “Being free

to do what you like”) and ‘rest or relaxation’ are crucial vacation elements for 32% both. Quality time is considered an important vacation aspect by 29%.

2. *To what extent are the aspects listed below important to your vacation experience?*

We offered the respondents a list with seven different aspects. They had to rate each aspect on a scale from 1 (not important at all) to 10 (very important). From this list, sociability (gezelligheid) is considered most important (8.1). Nice weather and relaxation are also rated highly important (7.8 both) as is the match between expectations and reality (7.4). Moreover, quality of food is considered crucial (6.8) whereas amusement and tourist attractions are not strongly cared about (6.0 and 5.2 respectively).

3. *Do you occasionally experience stress during vacation? If so, why is that?*

Our sample is pretty much divided into halves: 52% says that a vacation on occasion can be stressful, while 48% postulate to never experience stress during vacation. Most answers regarding vacation stress (20%) are related to travelling to the vacation destination (e.g. traffic jams, delayed flights, carsick children). Finishing household chores at home (17% of the answers) is another source of stress for many vacationers (e.g. finding a dog sitter, informing neighbours about absence, tidying up). Conflicts with fellow vacationers constitute 15% of all answers regarding reasons for vacation stress. Other origins of stress listed are bad weather (9%), unexpected negative incidents (7%), illness (6%), bad services (5%), being afraid of the unknown (5%) or other issues (17%) like noise, worries about work or feeling a bit ‘homeless’.

4. *Do you think about your work during vacation? If so, how do you experience that?*

Two thirds (66%) indicate to think about work during vacation occasionally. Most of these workers (56%) experience these thoughts as negative (quote: “thoughts about work interrupt my vacation feeling; I cannot detach” or “I sometimes think about my work and I really do not like that. I even worry about it”) whereas 16% evaluate these reflections as positive (quote: “I regularly have creative ideas when I’m on vacation” or “I’m an entrepreneur. My best ideas arise during vacation”). The remaining 28% of the sample do not evaluate the thoughts positively or negatively (quote: “I don’t mind.”).

5. *Do you engage in work-related activities during vacation? If so, how do you experience that?*

One third (32%) does engage in work-related activities during vacation. Half of these vacation-workers (50%) experience working as an unpleasant interruption of vacation time (quote: "I sometimes work during vacation which results in losing my 'vacation feeling' for a moment"), whereas 10% evaluate work-related activities during vacation positively (quote: "I write down new ideas. I like that."). Forty percent do not have a clear value judgement regarding working (quote: "Reading or writing an email now and then is perfectly fine").

## 2. Summary

### 2.1. Summary in English

#### Introduction

Numerous studies have shown that job stress has detrimental consequences for workers' health and well-being (H&W). Recovery can be considered an antagonist of stress and plays an important role in protecting employees' H&W. However, research revealed that workers often recover insufficiently during shorter respites like regular evening hours and weekends, due to for example working overtime and cognitive processes (like worrying, rumination) eventuating in sustained physiological activation.

A vacation as a prolonged period of respite from work may constitute a more powerful opportunity to recover from work than shorter recovery periods. Our historical overview and the international comparison of vacation rights indicate that the concept of 'vacation' dates back to Classical Antiquity and that even ancient Romans used the term "vacatio" to refer to free time. Nevertheless, it was not before 1919 that several countries established the legal right on vacation. Today, there appear to be considerable differences in vacation rights, customs and traditions across and even within countries. For example, whilst the European Union requires employers of their member states to grant every employee at least four weeks of paid vacation per year, workers in other countries (e.g. the US) do not even have the right to take a short vacation of a couple of days once a year.

We suppose that vacations contribute to recovery through two mechanisms. Firstly, a passive mechanism reflects a direct release from daily exposure to job demands. Secondly, an active mechanism through which vacation may facilitate recovery covers the engagement in pleasant and self-chosen non-work activities. Accordingly, the effect of vacation on workers' H&W will partly be determined by these two mechanisms.

The three central research questions of this thesis are:

1. Vacation effect: Do H&W improve during vacation?
2. Vacation after-effect: How long do vacation effects last after work resumption?
3. Activities & experiences: How do vacation activities and -experiences relate to changes in H&W during and after vacation?

In order to answer these questions, we conducted a meta-analysis and four studies that focused on three different types of vacations: short vacations in the Netherlands, 9-day active winter sports vacations and long summer vacations.

## Results of the studies

In *chapter 2*, we present the findings derived from a systematic literature search. The results based on seven vacation studies suggest that vacation has positive effects on H&W that soon fade-out after work resumption. Our meta-analysis further revealed that vacation activities and experiences have hardly been studied before. Accordingly, their contribution to vacation (after-) effects remains unclear. Moreover, our meta-analysis revealed that progresses in future vacation research will depend on solid research designs that incorporate repeated measurements before, during and after vacation.

In *chapter 3*, we present our first study on 9-day winter sports vacations. In conducting this research, we applied our knowledge from earlier vacation studies to develop a proper research design. In this longitudinal field study, we measured H&W among 96 Dutch employees before, during and after their vacation. We found that workers' H&W (health status, mood, tension, energy level and satisfaction) improve during vacation, but return to pre-vacation levels during the first week of work resumption. This means that winter sports vacations have positive effects on H&W that vanish rapidly after work resumption.

In *chapter 4*, we examined whether the improvement in well-being across a winter sports vacation applied to all employees. Moreover, we investigated how vacation activities and -experiences relate to changes in H&W during vacation. Results demonstrated that the majority of participants' experiences a substantial increase of H&W during and after vacation. Yet, a small group experiences no or even a decrease of H&W during vacation. This means, although vacation has a positive effect for many, it is not invariably positive for all employees. Furthermore, it appeared that engagement in pleasant vacation activities was associated with improvements in H&W, whereas negative incidents as well as passive activities were related to decreases in H&W during active vacations.

In *chapter 5*, we focussed on the vacation (after-) effects of short vacations in the Netherlands (4 or 5 days). Hereby, we inquired into the relationship between vacation activities and -experiences and changes in H&W during and after vacation. Our results, based on 80 workers, showed that H&W increase during vacation and decrease in the first week after vacation. Moreover, vacationers report more and higher quality conversations with their spouse during vacation compared to working times. Additionally, employees experience higher H&W during and after vacation, the more relaxed and psychologically detached they feel, the more time they spend on high-quality conversations with the partner, the more pleasure they derive from vacation activities, and the lower the number of negative incidents during vacation.

In *chapter 6*, we examined H&W before, during and after long summer vacations (23 days) in 54 workers, and we studied the relation between H&W changes and vacation activities and -experiences. H&W increase rapidly during holidays, peak on the eighth vacation day and

return to baseline within the first week of work resumption. Vacation duration and most vacation activities are hardly linked to H&W changes during and after vacation. Engagement in passive activities, savoring, pleasure derived from activities, relaxation, control as well as sleep quality and quantity show strong relations with improved H&W during (and to a lesser degree) after vacation.

Summing up, the answers to our research questions are:

1. Vacation effect: H&W improve during vacation compared to pre-vacation levels. In all types of vacations, we found medium effect sizes.
2. Vacation after-effect: Positive vacation effects on H&W fade out within the first week of work resumption.
3. Activities & experiences: Vacation activities are only weakly associated with H&W changes in all types of vacation. Concerning vacation experiences, it seems that pleasure derived from vacation activities and relaxation during vacation are strongly related to advancements in H&W. In most, but not all vacations that we investigated, psychological detachment from work and negative incidents are also linked to changes in H&W.

## Discussion

*Chapter 7* focuses on the major findings of this thesis and their theoretical implications. Moreover, we discuss the weaknesses and strengths of this thesis and we suggest directions for future research. We conclude with practical implications of our results.

*Implications of main findings:* As regards vacation effects, our research substantiates that a holiday serves as a powerful opportunity to recover from work. However, our results also raise the question why positive vacation effects wash out fast and whether, in light of the short duration of these effects, it is beneficial to go on a vacation at all. Since research also demonstrated that non-vacationers get ill more often and even die earlier than vacationers, we speculate that there might be two types of resources involved in recovery: easily accessible and rechargeable resources that we daily live on and a more basic resource (i.e. a reserve) that we in principle not draw upon on a daily basis. Regular vacations may prevent using our basic resource that we urgently need in order to prevent health damage. Despite the fact that vacation effects are short-lived, vacation memories may temporarily enhance mood and well-being and may act as buffer against future stressors. Vacations may help people to mentally distance themselves from daily hassles and to put life in perspective which might engender psychological resilience. Concerning the underlying processes of vacation (after-) effects, our

studies suggest that a vacation period affects employee' H&W not only by removing work strain (i.e. a passive mechanism), but also by allowing them to actively engage in pleasant and relaxing vacation activities (active mechanism).

*Weaknesses and strengths of this thesis:* We discuss the two main weaknesses of this thesis. Firstly, our small, possibly selective samples may limit the external validity of our findings. Secondly, our research design does not allow us to draw causal inferences. Concerning strengths, this thesis methodologically contributes to recovery research and to vacation research in particular. In applying multiple, digital diaries and telephone interviews two weeks before, during and in several weeks following a vacation in a user-friendly way, we prevented attrition and at the same time increased the reliability and validity of our findings.

*Suggestions for future research:* We present several general suggestions and we propose different vacation outcomes as well as possible determinants of vacation (after-) effects. General suggestions boil down to: 1) replications of our findings in greater samples and in different countries, 2) longitudinal studies on long term health in employees with varying vacation patterns, 3) examinations of vacation (after-) effects in non-working populations, 4) research on the influence of vacations spent at home, 5) identifications of the key features of vacation, 6) investigations of the effect of "working vacations" on H&W changes, 7) explicit tests of recovery theories, 8) experimental studies on the influence of vacation memories on mood and 9) research on interventions to increase and prolong vacation (after-) effects.

Different vacation outcomes that deserve to be examined in the future are physiologic indicators of recovery, close relationships and work performance. Possible determinants of vacation (after-) effects that may be investigated in upcoming studies are: 1) working during vacation (including autonomy concerning working, rumination, work reflection), 2) job type, 3) workaholism, 4) personality and 5) fade-out de- and accelerators (e.g. workload and homeload).

*Practical implications:* Concerning the short duration of vacation effects on H&W, it seems useful to schedule frequent short vacations across a work year. However, considering the time it takes to attain peak levels of H&W, it may also be reasonable to regularly go on a longer vacation as well. During vacation, it is important to have control over one's vacation activities and to engage in self-chosen and pleasant activities that match one's preferences. If working during vacation is unavoidable, it should be reduced to a minimum and employees should have time control during vacation. In order to prevent negative incidents during vacation, employees should prepare their vacations, for example by reading travel guides. In order to conserve workers' well-being in the long run, employers are advised to monitor that employees take vacation days and do not build up a reservoir of leave days. By establishing national vacation rights, policy may ensure that employees are able to go on a vacation on a regular basis to recover from work and to preserve long term workability.



## 2.2. Summary in Dutch

### Introductie

Diverse studies hebben aangetoond dat stress op het werk nadelige gevolgen heeft voor de gezondheid en het welbevinden (G&W) van werknemers. Herstel kan gezien worden als een antagonist van stress en speelt een belangrijke rol in het beschermen van G&W van werknemers. Uit onderzoek blijkt dat werknemers vaak onvoldoende herstellen tijdens avonduren en weekenden als gevolg van bijvoorbeeld overwerk en cognitieve processen (zoals piekeren) die gepaard gaan met langdurige fysiologische activiteit.

Vakantie, als een langere periode van afwezigheid van werk, stelt werknemers wellicht beter in de gelegenheid om te herstellen van werk. Ons historisch overzicht en de internationale vergelijking van vakantierechten laten zien dat het concept 'vakantie' dateert uit de Klassieke Oudheid en dat de oude Romeinen de term "vacatio" al gebruikten om te verwijzen naar vrije tijd. Toch voerden pas in 1919 enkele landen het wettelijke recht op vakantie in. Tegenwoordig blijken er aanzienlijke verschillen te bestaan tussen en zelfs binnen landen wat betreft vakantierechten, gewoonten en tradities. Ter illustratie, terwijl de Europese Unie eist dat werkgevers in de lidstaten elke werknemer het recht toekennen om minimaal vier weken per jaar betaald op vakantie te kunnen gaan, hebben arbeiders in sommige andere landen (zoals Amerika) niet eens het recht om een korte vakantie van enkele dagen per jaar op te nemen.

We veronderstellen dat vakanties via twee mechanismen een bijdrage leveren aan herstel. Enerzijds via een passief mechanisme: werknemers zijn tijdens vakantie niet langer blootgesteld aan dagelijkse werkeisen. Anderzijds via een actief mechanisme: vakantie biedt werknemers de gelegenheid om activiteiten te ondernemen waar ze zelf voor kiezen en die ze prettig vinden. Het effect van vakantie op G&W van werknemers zal mede bepaald worden door deze twee herstel bevorderende mechanismen.

De drie centrale onderzoeksvragen van dit proefschrift zijn:

1. Vakantie-effect: Verbeteren G&W tijdens vakantie?
2. Vakantie na-effect: Hoe lang houden vakantie-effecten aan na werkhervatting?
3. Activiteiten & ervaringen: Hangen vakantieactiviteiten en -ervaringen samen met veranderingen in G&W tijdens en na een vakantieperiode?

Om deze vragen te beantwoorden, hebben wij een meta-analyse en vier studies uitgevoerd. We hebben ons bij deze vier studies gericht op drie verschillende typen vakanties: korte vakanties in Nederland, 9-daagse actieve wintersportvakanties en lange zomervakanties.

## Resultaten van de studies

In *hoofdstuk 2* bespreken we de uitkomsten van een systematisch literatuuronderzoek. De resultaten, gebaseerd op zeven vakantiestudies, laten zien dat vakantie een positief effect heeft op G&W. Dit effect verdwijnt echter snel nadat vakantiegangers het werk weer hervatten. Vakantieactiviteiten en -ervaringen blijken in eerder onderzoek nauwelijks te zijn bestudeerd. Door deze lacune weten we dus niet in hoeverre vakantieactiviteiten en -ervaringen bijdragen aan herstel tijdens vakantie. Uit onze meta-analyse blijkt dat een gedegen onderzoeksdesign met herhaalde metingen voor, tijdens en na de vakantie van belang is om goed zicht te krijgen op de rol van vakantie bij herstel van werk.

*Hoofdstuk 3* beschrijft onze eerste veldstudie naar G&W rondom een 9-daagse wintersportvakantie. We hebben gebruik gemaakt van kennis uit eerder vakantieonderzoek om een adequaat onderzoeksdesign te ontwikkelen. In dit longitudinaal veldonderzoek hebben we G&W bij 96 Nederlandse werknemers voor, tijdens en na hun vakantie onderzocht. G&W (gezondheidstoestand, stemming, spanning, energieniveau en tevredenheid) blijken toe te nemen tijdens vakantie, maar weer af te nemen tot het pre-vakantieniveau tijdens de eerste week van werkhervatting. Een wintersportvakantie heeft dus een positief effect op G&W, maar dit effect verdwijnt snel na werkhervatting.

In *hoofdstuk 4* hebben we onderzocht of de toename in G&W in een wintersportvakantie van toepassing is op alle vakantiegangers. Daarnaast hebben we onderzocht in hoeverre vakantieactiviteiten en -ervaringen gepaard gaan met veranderingen in G&W tijdens vakantie. De meerderheid van onze participanten laat een toename zien in G&W tijdens en na de vakantie in vergelijking met G&W vóór de vakantie. Er is echter ook een kleine groep die geen verandering of zelfs een afname in G&W tijdens de vakantie ervaart. Hoewel voor veel werknemers geldt dat vakantie een positief effect heeft op G&W, geldt dit niet voor alle werknemers. Verder blijken plezierige vakantieactiviteiten gepaard te gaan met verbeteringen in G&W tijdens de vakantie, terwijl vervelende incidenten en passieve activiteiten negatief samenhangen met herstel tijdens actieve vakanties.

In *hoofdstuk 5* hebben we ons gericht op vakantie (na-) effecten van korte vakanties in Nederland (4 of 5 dagen). Hierbij hebben we ook de relaties onderzocht tussen vakantieactiviteiten en -ervaringen enerzijds en veranderingen in G&W tijdens en na de vakantie anderzijds. De resultaten, gebaseerd op 80 werknemers, tonen aan dat G&W tijdens vakantie toenemen en in de eerste week na de vakantie weer verminderen tot het niveau van vóór de vakantie. Verder blijkt dat werknemers een sterkere toename in G&W ervaren naarmate zij meer ontspannen zijn, psychologisch afstand nemen van hun werk, meer plezier ontlenen aan hun vakantieactiviteiten en minder vervelende incidenten tijdens vakantie meemaken. Voorts blijkt uit onze resultaten dat werknemers tijdens vakantie meer tijd besteden aan gesprekken met

hun partner dan tijdens werkperiodes, dat de kwaliteit van deze gesprekken positiever wordt beoordeeld dan vóór de vakantie, en dat de kwantiteit en kwaliteit van deze gesprekken tijdens vakantie samenhangen met verbeteringen in G&W tijdens en na de vakantie.

In *hoofdstuk 6* hebben wij G&W voor, tijdens en na een lange zomervakantie (23 dagen) bij 54 werknemers onderzocht. We hebben wederom de relatie met vakantieactiviteiten en -ervaringen bestudeerd. G&W nemen snel toe tijdens vakantie, pieken op de achtste vakantiedag en keren terug naar het pre-vakantieniveau in de eerste week van werkhervatting. Vakantieduur en de meeste vakantieactiviteiten hangen nauwelijks samen met veranderingen in G&W tijdens en na de vakantie. Zowel passieve vrije tijdsbesteding, het vermogen om te genieten ('savoring'), plezier aan vakantieactiviteiten, ontspanning, controle over tijdsbesteding als ook slaapkwaliteit en -kwantiteit hangen sterk samen met een verbetering in G&W tijdens (en in mindere mate na) de vakantie.

Samenvattend zijn de antwoorden op onze onderzoeksvragen:

1. Vakantie-effect: G&W nemen toe tijdens vakantie in vergelijking met G&W vóór de vakantie. In alle typen vakanties gaat het om 'medium-sized' effecten.
2. Vakantie na-effect: Positieve vakantie-effecten op G&W verdwijnen binnen de eerste week van werkhervatting.
3. Activiteiten & ervaringen: Vakantieactiviteiten vertonen zwakke relaties met G&W-veranderingen in alle typen vakanties. Wat betreft vakantie-ervaringen zijn plezier aan vakantieactiviteiten en ontspanning tijdens vakantie sterk gerelateerd aan verbeteringen in G&W tijdens en na de vakantie. In de meeste vakanties die we hebben onderzocht gaat psychologisch afstand nemen van het werk gepaard met verbeteringen in G&W. Vervelende incidenten tijdens vakantie hangen ook doorgaans samen met verslechtingen in G&W.

## Discussie

*Hoofdstuk 7* richt zich op de belangrijkste bevindingen van dit proefschrift en de theoretische implicaties hiervan. Verder bespreken we ook enkele sterke en minder sterke kanten van dit proefschrift en doen wij aanbevelingen voor toekomstig onderzoek. We sluiten dit hoofdstuk af met praktische implicaties van onze resultaten.

*Implicaties van de belangrijkste bevindingen:* De onderzoeksresultaten ondersteunen onze veronderstelling dat een vakantie een krachtig middel is om te herstellen van werk. Onze resultaten roepen echter ook de vraag op waarom positieve vakantie-effecten snel verdwijnen en of het, in het licht van de korte duur van de effecten, überhaupt wel zinvol is om op vakantie te gaan. Eerder onderzoek heeft aangetoond dat mensen die langdurig niet op vakantie gaan, vaker ziek zijn en zelfs eerder overlijden dan mensen die regelmatig op vakantie gaan. We speculeren dat er wellicht twee typen 'bronnen' zijn die een rol spelen bij herstel: gemakkelijk toegankelijke en eenvoudig oplaadbare bronnen waaruit wij dagelijks putten en een meer fundamentele bron (onze 'reserve') waaruit we in principe niet dagelijks putten. Vakanties kunnen wellicht voorkomen dat we een beroep moeten doen op deze fundamentele bron. Ondanks het feit dat vakantie-effecten van korte duur zijn, kunnen positieve veranderingen in stemming en welzijn wellicht een buffer vormen tegen toekomstige stressoren. Een vakantie kan mensen helpen om afstand te nemen van dagelijkse besommeringen en om zaken in perspectief te zien, wat de psychologische veerkracht zal doen toenemen. Wat betreft de onderliggende processen van de vakantie (na-) effecten suggereren onze studies dat een vakantie werknemers niet alleen vrij stelt van dagelijkse werkeisen (passief mechanisme), maar hen ook de mogelijkheid biedt om actief voor vakantieactiviteiten te kiezen die plezierig en ontspannend zijn (actief mechanisme). Beide mechanismen dragen bij aan herstel tijdens vakantie.

*Zwakke en sterke punten van dit proefschrift:* We bespreken de twee belangrijkste kanttekeningen bij dit proefschrift. Ten eerste zou de externe validiteit van onze bevindingen vanwege de relatief kleine en mogelijk selectieve steekproeven beperkt kunnen zijn. Ten tweede staat onze onderzoeksopzet niet toe om causale uitspraken te doen over de relaties tussen G&W en vakantieactiviteiten en -ervaringen. Een sterk punt is dat dit proefschrift methodologisch bijdraagt aan herstelonderzoek en in het bijzonder aan vakantieonderzoek. Een gebruikersvriendelijke afname van vragenlijsten en interviews in de weken voor, tijdens en na een vakantie (herhaalde metingen) hebben bijgedragen aan een zeer beperkte hoeveelheid missende data en aan betrouwbare en valide bevindingen.

*Suggesties voor toekomstig onderzoek:* We presenteren een aantal algemene suggesties. Daarnaast doen wij suggesties voor mogelijke variabelen die door een vakantie beïnvloed worden en voor mogelijke determinanten van vakantie (na-) effecten. Algemene suggesties komen neer op: 1) replicaties van onze bevindingen in grotere steekproeven en in andere landen, 2) longitudinale studies naar de effecten van verschillende vakantiepatronen op lange termijn gezondheid, 3) onderzoek naar vakantie-effecten bij niet-werkenden, 4) studies naar het effect van vakanties die je thuis doorbrengt, 5) identificatie van de essentiële kenmerken van vakantie, 6) onderzoek naar het effect van werkvakanties, 7) het expliciet toetsen

van hersteltheorieën, 8) experimentele studies naar de invloed van vakantieherinneringen op stemming en 9) onderzoek naar interventies die het vakantie-effect kunnen versterken en verlengen. Factoren die door een vakantie beïnvloed kunnen worden en die in toekomstig onderzoek bestudeerd zouden kunnen worden, zijn fysiologische indicatoren van herstel, relaties met naasten en werkprestaties. Mogelijke determinanten van vakantie (na-) effecten die in de toekomst onderzocht kunnen worden, zijn 1) werken tijdens vakantie (inclusief controle ten aanzien van werken tijdens vakantie, piekeren, denken aan werk), 2) de aard van het werk, 3) werkverslaving, 4) persoonlijkheid en 5) factoren die een rol kunnen spelen bij de na-effecten van vakantie (bijvoorbeeld werkdruk en thuisdruk).

*Praktische implicaties:* Gezien de korte duur van de vakantie-effecten op G&W lijkt het zinvol om tijdens een jaar regelmatig korte vakanties te plannen. Maar aan de andere kant lijken vakantiegangers het piekniveau van G&W pas na meerdere dagen te ervaren. Daarom kan het zinvol zijn om ook geregeld langer op vakantie te gaan. Tijdens vakantie is het van belang dat men controle heeft over de tijdsbesteding en voornamelijk tijd besteedt aan activiteiten waar men zelf voor kiest en waar men plezier aan beleeft. Indien werken tijdens vakantie onvermijdelijk is, is het wenselijk dit tot een minimum te beperken en zowel de duur als ook het moment van werken zoveel mogelijk zelf te bepalen. Om vervelende gebeurtenissen tijdens vakantie te voorkomen is een goede voorbereiding essentieel, bijvoorbeeld door middel van het lezen van reisgidsen. Werkgevers worden geadviseerd om erop toe te zien dat werknemers jaarlijks voldoende vakantiedagen opnemen en geen stuwmeer aan vakantiedagen opbouwen. Wetgeving kan door middel van vakantierechten ervoor zorgen dat werknemers regelmatig op vakantie gaan om te herstellen van dagelijkse werkspanningen en om tenslotte de gezondheid op langere termijn te waarborgen

## 2.3. Summary in German

### Einführung

Zahlreiche Studien haben demonstriert, dass Stress am Arbeitsplatz negative Auswirkungen auf die Gesundheit von Berufstätigen hat. Folglich spielt Erholung als Antagonist von Stress eine wichtige Rolle beim Schutz der Gesundheit und des Wohlbefindens (G&W) von Beschäftigten. Allerdings zeigten Studien ebenfalls, dass sich Erwerbstätige in kurzen Erholungsphasen, so wie beispielsweise in den Abendstunden oder an Wochenenden, oft nur unzureichend erholen. Dies kann auch eine Folge sein von Überstunden und/oder persistierender physiologischer Aktivierung durch kognitive Prozesse (wie beispielsweise Grübeln).

Urlaub als ein längerer Zeitraum der Abwesenheit vom Arbeitsplatz und von Stress kann deshalb eine wirksamere Möglichkeit zur Erholung darstellen. Unser historischer Überblick und unser internationaler Vergleich der Urlaubsrechte deuten darauf hin, dass diese Annahme tatsächlich nicht neu ist: der erste Beweis, dass Menschen Urlaub feiern, geht auf die Antike zurück und sogar im alten Rom verwendete man schon den Begriff "vacatio", um Freizeit anzudeuten. Trotzdem etablierte sich das Recht auf Urlaub erst ab 1919. Heute bestehen erhebliche Unterschiede im Urlaubsrecht, in Urlaubsbräuchen und -traditionen zwischen Ländern, aber sogar innerhalb eines Landes. Während beispielsweise die Europäische Union von den Arbeitgebern ihrer Mitgliedstaaten verlangt, Mitarbeitern das Recht auf mindestens vier Wochen bezahlten Urlaub pro Jahr zu gewähren, besitzen Arbeitnehmer in einigen Ländern (wie beispielsweise den USA) noch nicht einmal das Recht auf einen Kurzurlaub von ein paar Tagen im Jahr.

Wir nehmen an, dass Urlaub über zwei Mechanismen zur Erholung beiträgt. Erstens die Befreiung von den täglichen beruflichen Anforderungen; diese bildet den passiven Mechanismus. Zweitens, die Ausübung angenehmer, selbstgewählter, nicht-arbeitsbezogener Tätigkeiten; diese bildet den aktiven Mechanismus, durch den Urlaub zur Erholung beiträgt. Die Urlaubswirkung auf G&W von Berufstätigen wird demzufolge auch durch diese beiden Mechanismen bestimmt.

Die drei zentralen Fragestellungen dieser Dissertation sind:

1. Urlaubseffekt:                   Verbessern sich G&W während des Urlaubs?
2. Urlaubsnachwirkung:       Wie lange dauern Urlaubseffekte nach Arbeitswiederaufnahme fort?
3. Aktivitäten & Erfahrungen: In welchem Zusammenhang stehen Urlaubsaktivitäten und -erfahrungen mit Veränderungen in G&W im und nach einem Urlaub?

Um diese Fragen zu beantworten, haben wir eine Meta-Analyse und vier Studien über drei verschiedene Arten von Urlaub durchgeführt: Kurzaurlaube in den Niederlanden, 9-tägige Skiurlaube und lange Sommerurlaube.

### **Ergebnisse der Studien**

Im *zweiten Kapitel* besprechen wir die Ergebnisse aus sieben früheren Urlaubsstudien, die aus einer systematischen Literaturuntersuchung hervorgegangen sind. Die Ergebnisse der Studien deuten darauf hin, dass sich Urlaub positiv auf G&W auswirkt. Dieser positive Effekt schwindet allerdings sehr bald nachdem die Arbeit wieder aufgenommen wird. Unsere Meta-Analyse ergab weiterhin, dass Urlaubsaktivitäten und -erfahrungen bisher noch kaum untersucht worden sind, sodass ihr Beitrag zur Urlaubswirkung unklar bleibt. Außerdem konstatieren wir, dass Fortschritte in der Urlaubsforschung vor allem durch solide Forschungsdesigns mit wiederholten Messungen vor, im und nach dem Urlaub erzielt werden können.

Im *dritten Kapitel* präsentieren wir unsere erste Längsschnittstudie über 9-tägige Skiurlaube. Zur Durchführung dieser Studie und zur Entwicklung eines angemessenen Forschungsdesigns, haben wir unsere Erkenntnisse aus früheren Urlaubsstudien herangezogen. Zum Zweck dieser Längsschnittstudie erfassten wir G&W bei 96 niederländischen Berufstätigen vor, während und nach ihrem Urlaub. Im Urlaub verbessern sich G&W (das heißt, Gesundheitszustand, Stimmung, Spannung, Energieniveau und Zufriedenheit). Während der ersten Woche nach Arbeitsbeginn kehren G&W auf das Niveau vor dem Urlaub zurück. Das bedeutet, Urlaub hat einen positiven Effekt auf G&W, der direkt nach Arbeitswiederaufnahme verschwindet.

Im *vierten Kapitel* untersuchten wir, ob die allgemeine Entwicklung des Wohlbefindens während eines Skiurlaubs und nach dem Urlaub auf alle Beschäftigten zutrifft. Darüber hinaus erforschten wir, inwiefern Urlaubsaktivitäten und -erfahrungen mit Veränderungen von G&W im Urlaub zusammenhängen. Die Ergebnisse zeigten, dass die Mehrheit unserer Stichproben eine erhebliche Verbesserung des G&W im und nach dem Urlaub erlebt. Dennoch erfährt eine kleine Gruppe keine oder sogar negative Urlaubsauswirkungen. Das bedeutet, obwohl Urlaub einen positiven Effekt für viele hat, ist Urlaub dennoch nicht für alle Erwerbstätigen positiv. Ferner zeigte sich in unserer Studie, dass angenehme Urlaubsaktivitäten, sowie die Vermeidung negativer Vorfälle und passiver Tätigkeiten während eines Aktivurlaubs mit einer Verbesserung von G&W im Urlaub zusammenhängen.

Im *fünften Kapitel* haben wir uns erneut auf den Urlaubseffekt, die Nachwirkung des Urlaubs und die Rolle von Urlaubsaktivitäten und -erfahrungen in Bezug auf Veränderungen in G&W konzentriert. Dieses Mal haben wir unser Augenmerk auf Kurzaurlaube in den Niederlanden (4 oder 5 Tage) gerichtet. Zusätzlich zu dem, was wir in unserer ersten Studie

über Skiurlaube erfasst haben, ergründeten wir in dieser Studie auch die Beziehung zwischen Urlaubsaktivitäten und –erfahrungen einerseits und Veränderungen in G&W nach dem Urlaub andererseits. Unsere Ergebnisse bei 80 Berufstätigen zeigen, dass G&W sich während des Urlaubs erhöhen, um direkt nach der Rückkehr auf Anfangsniveau zurückzukehren. Außerdem erreichen Erwerbstätige ein höheres Niveau von G&W im und nach dem Urlaub, wenn sie sich im Urlaub entspannen und sich mental von ihrer Arbeit distanzieren können, wenn sie Freude an ihren Urlaubsaktivitäten haben und wenn sie keine negativen Vorfälle im Urlaub erleben. Des Weiteren fanden wir heraus, dass Paare sich im Urlaub länger miteinander unterhalten als zuhause und sie auch die Qualität dieser Gespräche höher bewerten. Qualität und Quantität der Gespräche im Urlaub stehen auch in Verbindung mit Verbesserungen des G&W im und nach dem Urlaub.

Im *sechsten Kapitel* untersuchten wir G&W vor, im und nach einem langen Sommerurlaub (23 Tage) bei 54 Berufstätigen. Wir ergründeten in dieser Studie ebenfalls den Zusammenhang zwischen Veränderungen in G&W und Urlaubsaktivitäten und -erfahrungen. G&W erhöhen sich rapide nach Urlaubsbeginn, erreichen am achten Urlaubstag ihren Höhenpunkt und fallen in der ersten Woche der Arbeitswiederaufnahme auf den Ausgangswert zurück. Die Urlaubsdauer und die meisten Urlaubsaktivitäten stehen in keinem nennenswerten Zusammenhang zu Veränderungen von G&W. Sowohl passive Aktivitäten, bewusstes Genießen („savoring“), Freude an den eigenen Urlaubsaktivitäten, Entspannung, Kontrolle als auch Schlaf stehen in starkem Zusammenhang mit verbessertem G&W im und in geringerem Maße nach dem Urlaub.

Zusammenfassend sind die Antworten auf unsere Fragestellungen:

1. Urlaubseffekt: G&W steigen im Urlaub. Die Effektstärke des Anstiegs von G&W vom Ausgangsniveau auf das Niveau im Urlaub ist medium.
2. Urlaubsnachwirkung: Positive Effekte von Urlaub auf G&W verschwinden innerhalb der ersten Woche nach dem Urlaub.
3. Aktivitäten & Erfahrungen: Urlaubsaktivitäten stehen kaum in einem nennenswerten Zusammenhang zu Veränderungen in G&W.  
In Bezug auf Urlaubserfahrungen hängen insbesondere Freude an Urlaubsaktivitäten und Entspannung im Urlaub stark mit Verbesserungen von G&W im und nach dem Urlaub zusammen. In den meisten Urlauben, die wir untersucht haben, hängen auch psychologischer Abstand zur Arbeit und negative Vorfälle im Urlaub mit Verbesserungen beziehungsweise Verschlechterungen von G&W zusammen.



## Diskussion

Kapitel 7 widmet sich den wichtigsten Ergebnissen dieser Dissertation und ihren theoretischen Implikationen. Darüber hinaus erörtern wir die Schwächen und Stärken dieser Arbeit und suggerieren Richtungen für zukünftige Forschungsprojekte. Wir schließen dieses Kapitel mit praktischen Implikationen unserer Ergebnisse ab.

*Implikationen der wichtigsten Ergebnisse:* In Bezug auf Urlaubseffekte belegen unsere Studien, dass ein Urlaub eine wirkungsvolle Möglichkeit darstellt, sich von der Arbeit zu erholen. Allerdings werfen unsere Ergebnisse auch die Frage auf, warum positive Urlaubseffekte schnell verschwinden und ob es angesichts der kurzen Dauer der Effekte überhaupt sinnvoll ist, Urlaub zu nehmen. Hierauf lässt sich entgegnen, dass andere Studien zeigten, dass Nicht-Urlauber häufiger krank werden und sogar früher sterben als Menschen, die regelmäßig Urlaub nehmen. Wir nehmen daher an, dass möglicherweise zwei Arten von Ressourcen eine Rolle in der Erholung spielen: allgemeine Ressourcen, die wir täglich nutzen und die relativ einfach ‚aufladbar‘ sind und eine grundlegende Ressource (unsere Reserve), die wir grundsätzlich nicht nutzen. Die Verwendung der grundlegenden Ressource geht unmittelbar einher mit Gesundheitsschädigungen. Sie wird nur genutzt, wenn die anderen allgemeinen Ressourcen verbraucht sind. Regelmäßige Urlaube können womöglich verhindern, dass wir auf grundlegende Ressourcen, die wir dringend benötigen, zurückgreifen müssen. Trotz der Tatsache, dass Urlaubseffekte nur von kurzer Dauer sind, können positive Urlaubserinnerungen die Stimmung und das Wohlbefinden vermutlich zumindest kurzzeitig verbessern und somit eine Pufferwirkung gegen zukünftigen Stress ausüben. Ferner kann ein Urlaub eine Möglichkeit darstellen, Zeit mit Aktivitäten zu verbringen, die ein Gefühl der Verbundenheit schaffen und auf diese Art die psychische Vitalität erhöhen. Außerdem kann Urlaub vielleicht dazu beitragen, die Bedeutsamkeit von Arbeit zu relativieren und helfen, sich auf andere wichtige Aspekte des Lebens zu besinnen und auf diese Weise die psychische Belastbarkeit erhöhen. In Bezug auf die zugrunde liegenden Prozesse von Urlaub, deuten unsere Studien darauf hin, dass Urlaub G&W nicht nur durch die Befreiung von den täglichen Anforderungen der Arbeit verbessert (passiver Mechanismus). Urlaubsaktivitäten und insbesondere die damit verbundenen Erfahrungen von Freude und Entspannung standen konsequent im Zusammenhang mit Verbesserungen von G&W im und nach dem Urlaub, was den aktiven Mechanismus von Urlaub belegt.

*Stärken und Schwächen dieser Dissertation:* Die zwei größten Schwachpunkte dieser Arbeit sind zum Einen unsere kleinen, möglicherweise selektiven Stichproben, die die externe Validität unserer Ergebnisse einschränken können, und zum Anderen, unser Forschungsdesign, das kausale Zusammenhänge nicht eindeutig beweisen kann. In Bezug auf Stärken, leistet diese Arbeit einen wichtigen Beitrag zur Entwicklung einer Methodik um Erholungsprozesse im Allgemeinen und Urlaub im Speziellen zu erforschen. Die benutzerfreundliche Erfassung

von G&W zwei Wochen vor, während und in den Wochen nach einem Urlaub hat dazu geführt, dass das Ausschneiden von Versuchsperson auf ein Minimum reduziert und gleichzeitig die Reliabilität und Validität unserer Ergebnisse erhöht wurden.

*Empfehlungen für Urlaubsforschung:* Wir präsentieren einige allgemeine Empfehlungen. Des Weiteren geben wir Vorschläge zu möglichen Faktoren, die von Urlaub beeinflusst werden können und mögliche Determinanten von Veränderungen im und nach dem Urlaub. Allgemeine Vorschläge umfassen: 1) Reproduktionen unserer Ergebnisse in größeren Stichproben und in anderen Ländern, 2) Längsschnittstudien zu langfristigen Effekten von unterschiedlichen Urlaubs-Mustern auf die Gesundheit, 3) Studien zu Urlaubseffekten bei Menschen, die nicht berufstätig sind, 4) Untersuchungen zum Effekt von Urlauben, die man zuhause verbringt, 5) Identifikation von den Schlüsselmerkmalen eines Urlaubs, 6) Studien zum Effekt von Urlauben, in denen man arbeitet, 7) Erforschung von speziellen Erholungstheorien, 8) experimentelle Studien zum Einfluss von Urlaubserinnerungen auf Stimmung und 9) Entwicklung, Implementierung und Evaluation von Interventionen, um Urlaubseffekte zu verstärken und zu verlängern. Urlaubseffekte auf Physiologie, Liebesbeziehungen, Freundschaften und Arbeitsleistung, sollten in Zukunft ebenfalls erforscht werden. Mögliche Determinanten der Urlaubseffekte und -nachwirkungen, sind: 1) Arbeiten während des Urlaubs (einschließlich Autonomie, Grübeln über die Arbeit, Denken an die Arbeit), 2) die Art der Arbeit, 3) Workaholismus, 4) Persönlichkeit und 5) Faktoren, die positive Urlaubseffekte schneller beziehungsweise langsamer verschwinden lassen (so wie beispielsweise Arbeitsbelastung oder private Belastungen)

*Praktische Implikationen:* Im Hinblick auf die kurze Dauer der Urlaubseffekte auf G&W erscheint es sinnvoll, anstatt eines langen Urlaubs häufige Kurzurlaube zu planen. Um Spitzenwerte von G&W zu erreichen, kann es dennoch auch zweckdienlich sein, regelmäßig länger in den Urlaub zu fahren. Im Urlaub ist vor allem die Kontrolle über die Urlaubsaktivitäten entscheidend und die Möglichkeit, Tätigkeiten auszuüben, die den eigenen Vorlieben entsprechen. Arbeit im Urlaub sollte vermieden oder auf ein Minimum begrenzt werden. Falls Arbeit im Urlaub unvermeidbar ist, ist auch dabei die Kontrolle über Aufgaben und Arbeitszeit (Zeitpunkt, Dauer) wichtig. Um negative Vorfälle während des Urlaubs zu vermeiden, sollten Berufstätige sich gut auf ihren Urlaub vorbereiten, zum Beispiel durch das Lesen von Reiseführern. Arbeitgeber sollten Maßnahmen ergreifen, um Urlaub und vor allem häufigen Kurzurlaub zu stimulieren und das Horten von Urlaubstagen zu verhindern. Allerdings sollten Arbeitgeber ihren Arbeitnehmern auch längere Urlaube zugestehen. Urlaub kann schließlich helfen, Stress auszubalancieren und Wohlbefinden auf lange Sicht zu erhalten. Die Politik sollte durch die Schaffung großzügiger Urlaubsrechte sicherstellen, dass Mitarbeiter in der Lage sind, regelmäßig Urlaub zu nehmen und sich von der Arbeit zu erholen.

### 3. The Journey So Far: Curriculum Vitae



Jessica de Bloom was born on March 1<sup>st</sup> 1983 in Lingen (Germany) and raised in Nordhorn, close to the Dutch border. After learning Dutch and countless terrific vacations in the neighbouring country, studying in the Netherlands was virtually inescapable for her.

From 2002 to 2006, she studied psychology at the University of Twente in Enschede and specialized in both health psychology and work- and organizational psychology.

During her years at the university, Jessica soon discovered that psychological theories are fascinating, but that it is also compelling to put them into practice. Her part time job as student-ambassador gave her the unique opportunity to apply many of the psychological theories and approaches she only read about so far in a real life setting: as head of a student recruitment- and counselling-team, Jessica was responsible for recruitment, selection, training and performance management of the teams' employees.

After graduation, the psychologist headed for more possibilities to practice her acquired skills. During an internship in dolphin-assisted therapy on Curacao (Dutch Antilles), Jessica repeatedly wondered whether it may be vacations rather than dolphins that seemed to improve handicapped children's health during therapy. After a couple of months, the intern moved on to Germany to work as a human resource manager at a business consultancy company.

In May 2007, Jessica finally picked up her earlier considerations about vacation effects on health and well-being, when she started her PhD project at the Department of Work- and Organizational Psychology of the Behavioural Science Institute (Radboud University Nijmegen).

Besides her regular tasks, the PhD student presented her findings at numerous international congresses. During the conference of the European Academy of Occupational Health Psychology in 2010, Jessica organized and chaired a symposium on recovery in relation to health, well-being and workability.

During her time in Nijmegen, Jessica also discovered her enthusiasm for teaching. She gave many lectures, supervised seminars and students' research projects and she also obtained her University Teaching Qualification (Basiskwalificatie onderwijs). Furthermore, Jessica served as a member of the PhD council on both institute and faculty level.

Her aspirations to bridge the gap between science and practice and her pursuits to disseminate the results from her research project become evident in numerous interviews with journalists, eventuating in national and international coverage of her findings in the public media. Examples of these publications can be found on her website ([www.vakantiestudie.nl](http://www.vakantiestudie.nl)) on which she also communicates her results in easily-written language for a non-specialist audience.

In June 2012, Jessica will issue a popular science book with “easy to digest” facts and figures about vacation and practical suggestions that may increase and prolong positive vacation effects on well-being.

After an inspiring period of ‘Work & Travel’ in New Zealand, Jessica hopes to find a great job which gives her the opportunity to keep learning and to combine her passions for applied research, teaching and coaching.

### 3.1. Publications

Scientific papers:

- **De Bloom, J.**, Geurts, S.A.E., & Kompier, M.A.J. (in press). Vacation (after-) effects on employee' health and well-being, and the role of vacation activities, experiences and sleep. *Journal of Happiness Studies*.
- Nawijn, J., **De Bloom, J.**, & Geurts, S. (2011). *Pre-vacation time: blessing or burden?* Manuscript submitted for publication.
- Blank, H., Ziegler, R., & **De Bloom, J.** (in press). Self-monitoring and linguistic adaptation. *Social Psychology*.
- **De Bloom, J.**, Geurts, S., & Kompier, M. (in press). Effects of short vacations, vacation activities and experiences on employee' health and well-being. *Stress & Health*.
- **De Bloom, J.**, Geurts, S.A.E., Sonnentag, S., Taris, T., De Weerth, C. & Kompier, M.A.J. (2011). How does a vacation from work affect employee' health and well-being? *Psychology & Health, 26*, 1606-1622.
- **De Bloom, J.**, Geurts, S., & Kompier, M. (2010). Vacation from work as prototypical recovery opportunity. *Gedrag & Organisatie, 23*, 333-349.
- **De Bloom, J.**, Geurts, S.A.E., Taris, T.W., Sonnentag, S, De Weerth, C., & Kompier, M.A.J (2010). Effects of vacation from work on health and well-being: Lots of fun, quickly gone. *Work & Stress, 24*, 196-216.
- **De Bloom, J.**, Kompier, M., Geurts, S., De Weerth, C., Taris, T., & Sonnentag, S. (2009). Do we recover from vacation? Meta-analysis of vacation effects on health and well-being. *Journal of Occupational Health, 51*, 13-25.

Book chapter:

- **De Bloom, J.**, Geurts, S., & Kompier, M. (2012). How does a vacation from work affect tourists' health and well-being? In S. Filep & P. Pearce (Eds), *Tourist experience and fulfilment: insights from positive psychology*. Oxford: Routledge.

Book:

- **De Bloom, J.** (2012). *De kunst van het vakantieviereen*. Amsterdam: Boom.