



Year: 2023

Updating national physical activity guidelines based on the global WHO guidelines: experiences and challenges from Switzerland

Kahlmeier, Sonja ; Frei, Anja ; Kriemler, Susi ; Nigg, Claudio ; Radtke, Thomas ; Manike, Katja ; Endes, Simon

Abstract: Physical activity guidelines are recognized as an important element of a national approach to promote physical activity. This publication summarizes the approach and process taken to update the Swiss Guidelines, presents a summary of the updated guidelines and discusses experiences and identifies challenges. The multistage project involved: 1) to summarize the scientific evidence underpinning the 2020-edition of the WHO guidelines; 2) to systematically analyze the existing Swiss guidelines for different target groups and to develop proposals for updates 3) a participatory process to gain consensus with the main interested groups 4) to finalize the guidelines. Updated guidelines were adopted for infants, pre-school children, children and young people, adults, older adults and pregnant and postpartum women, in most cases following the WHO guidelines. Children, young people and adults living with disability and adults and older adults with chronic conditions are specifically addressed in each of the general guidelines for healthy populations, rather than developing separate guidelines for each of these groups as done by the WHO. The systematic approach in identifying aspects to update, the participatory approach and a scientific consortium and project coordination group with different thematic backgrounds were key strengths in the process. Challenges included the large amount of feedback and finding scientifically sound compromises. The updated versions of the Swiss national guidelines provide an excellent basis to further promote physical activity in Switzerland. A remaining key task is to develop a range of communication tools and materials for different target groups beyond the circle of experts and interested groups, considering available evidence on optimal messaging and best outlet tools and channels. To track population prevalence, inform policy and evaluate physical activity promotion at national and sub-national level in a timely fashion, strengthening existing physical activity monitoring will be important.

DOI: <https://doi.org/10.36950/2023.1ciss014>

Posted at the Zurich Open Repository and Archive, University of Zurich

ZORA URL: <https://doi.org/10.5167/uzh-254169>

Journal Article

Published Version



The following work is licensed under a Creative Commons: Attribution-NonCommercial 4.0 International (CC BY-NC 4.0) License.

Originally published at:

Kahlmeier, Sonja; Frei, Anja; Kriemler, Susi; Nigg, Claudio; Radtke, Thomas; Manike, Katja; Endes, Simon (2023). Updating national physical activity guidelines based on the global WHO guidelines: experiences and challenges from Switzerland. *Current Issues in Sport Science*, 8(1):014.

DOI: <https://doi.org/10.36950/2023.1ciss014>

Updating national physical activity guidelines based on the global WHO guidelines: Experiences and challenges from Switzerland

Sonja Kahlmeier^{*1}, Anja Frei², Susi Kriemler², Claudio R. Nigg³, Thomas Radtke², Katja Manike⁴, Simon Endes⁴

¹ Department of Health, Swiss Distance University of Applied Science, Zurich, Switzerland

² Epidemiology, Biostatistics and Prevention Institute, University of Zurich, Zurich, Switzerland

³ Institute of Sport Science, University of Bern, Bern, Switzerland

⁴ Area Health and Ageing, EcoPlan AG, Bern, Switzerland

* sonja.kahlmeier@ffhs.ch

TARGET ARTICLE

Submitted: 22 June 2023

Accepted: 21 July 2023

Published: 21 September 2023

Editor-in-Chief:

Markus Tilp, University of Graz, Austria

ABSTRACT

Physical activity guidelines are recognized as an important element of a national approach to promote physical activity. This publication summarizes the approach and process taken to update the Swiss Guidelines, presents a summary of the updated guidelines and discusses experiences and identifies challenges. The multistage project involved: 1) to summarize the scientific evidence underpinning the 2020-edition of the WHO guidelines; 2) to systematically analyze the existing Swiss guidelines for different target groups and to develop proposals for updates 3) a participatory process to gain consensus with the main interested groups 4) to finalize the guidelines. Updated guidelines were adopted for infants, pre-school children, children and young people, adults, older adults and pregnant and postpartum women, in most cases following the WHO guidelines. Children, young people and adults living with disability and adults and older adults with chronic conditions are specifically addressed in each of the general guidelines for healthy populations, rather than developing separate guidelines for each of these groups as done by the WHO. The systematic approach in identifying aspects to update, the participatory approach and a scientific consortium and project coordination group with different thematic backgrounds were key strengths in the process. Challenges included the large amount of feedback and finding scientifically sound compromises. The updated versions of the Swiss national guidelines provide an excellent basis to further promote physical activity in Switzerland. A remaining key task is to develop a range of communication tools and materials for different target groups beyond the circle of experts and interested groups, considering available evidence on optimal messaging and best outlet tools and channels. To track population prevalence, inform

policy and evaluate physical activity promotion at national and sub-national level in a timely fashion, strengthening existing physical activity monitoring will be important.

Keywords

physical activity, guidelines, recommendations, stakeholder process

Citation:

Kahlmeier, S., Frei, A., Kriemler, S., Nigg, C. R., Radtke, T., Manike, K., & Endes, S. (2023). Updating national physical activity guidelines based on the global WHO guidelines: Experiences and challenges from Switzerland. *Current Issues in Sport Science*, 8(1), Article 014. <https://doi.org/10.36950/2023.1ciss014>

Introduction

Over recent decades, a lack of physical activity has been recognized as a major determinant of ill health. Insufficient physical activity has been associated with almost all common chronic diseases, including coronary heart disease, stroke, hypertension, many forms of cancers, and type II diabetes, as well as excess body weight, poor mental health, and reduced independence in old age (Katzmarzyk et al., 2022). Overall, more than 7% of all-cause and cardiovascular disease deaths and up to 8% of 13 major non-communicable diseases are attributable to insufficient physical activity (Katzmarzyk et al., 2022). Globally, almost one out of four adults, and four out of five adolescents are not sufficiently active for good health (Guthold et al., 2018, 2020). While insufficient physical activity has been decreasing in Switzerland, also almost one out of four adults and more than one out of three young people are still insufficiently active to reach the guidelines (Federal Office of Public Health FOPH & Swiss Health Observatory, 2023).

Physical activity guidelines, i.e. a government statement on how much physical activity is recommended for good health, are recognized as an important element of a national approach to promote physical activity (Bull et al., 2014; Hohberg et al., 2022; Kahlmeier et al., 2015). The first global guidelines on physical activity and health were launched in 2010 (World

Health Organization, 2010) and in 2020 an updated version was presented, including sedentary behavior (World Health Organization, 2020b). The recently published Global Action Plan on Physical Activity (World Health Organization, 2018) encourages countries to develop and/or periodically update their national guidelines (Bull et al., 2014; Kahlmeier et al., 2015; WHO Regional Office for Europe, 2016; World Health Organization, 2018). Developing national guidelines rather than just adopting the WHO guidelines allows taking into account historic developments and cultural characteristics of each country, for example having different ministries for sport and health promotion. It also increases the ownership of those institutions and interested groups ultimately promoting and implementing the guidelines in the population.

In Switzerland, the first national guidelines have been developed in 1999 for adults and in 2006 for young people, followed by an update and the development of guidelines for older adults in 2013 (Kahlmeier et al., 2012; *Netzwerk Gesundheit Und Bewegung Schweiz, Bundesamt Für Gesundheit, Gesundheitsförderung Schweiz, Bfu – Beratungsstelle Für Unfallverhütung, & Suva*, 2013), for pre-school children in 2016 (Institut für Sportwissenschaft, Universität Lausanne, 2016) and for pregnant and post-partum women in 2018 (Kahlmeier, Hartmann, & Martin-Diener, 2018; Kahlmeier, Hartmann, Martin-Diener, et al., 2018).

After the launch of the updated guidelines of the WHO in 2020 (World Health Organization, 2020a), the Swiss Federal Office of Sports mandated the authors as part of a scientific consortium to support and facilitate the update of the Swiss national guidelines across all target groups. This publication summarizes the approach and process taken, presents a summary of the recommendations and outlines experiences and identifies challenges for countries in this endeavor, based on the case of Switzerland.

Methods

The process to update the Swiss guidelines included the following aspects, based on experiences from previous updates (Kahlmeier et al., 2012; Kahlmeier, Hartmann, Martin-Diener, et al., 2018) and from Germany (Rütten & Pfeifer, 2015, 2017):

1. summarizing the scientific evidence underpinning the 2020-edition of the WHO guidelines to identify elements to update or add to the existing Swiss guidelines;
2. to systematically analyze the existing Swiss guidelines for different target groups and to develop proposals for updates
3. to develop and implement a participatory process to gain consensus with the main interested groups for each guideline target group of new guidelines
4. to finalize the guidelines and develop the Swiss core document on health-enhancing physical activity.

In detail, the analysis of the updated scientific evidence included on the one hand the WHO guidelines for different age groups (World Health Organization, 2019, 2020a), along with the underlying evidence profiles (World Health Organization, 2020b), as well as key international documents that were used as part of the WHO guidelines development (2018 Physical Activity Guidelines Advisory Committee, 2018; Canadian Academy of Sport and Exercise Medicine, 2019;

Department of Health and Social Care et al., 2019; U.S. Department of Health and Human Services, 2018) or in neighboring countries (Fonds Gesundes Österreich, 2020; Rütten & Pfeifer, 2016; Santé France, 2022). These were analyzed in comparison to the existing Swiss guidelines regarding the recommended amount of physical activity, strength training, sedentary time and further recommendations as well as with regard to the addressed age and target groups. On this basis, recommendations were derived on how to update the Swiss Guidelines. In addition, the evidence for different health endpoints in different target groups was collated as a basis for an updated summary table for the Swiss core document (*Health-Enhancing Physical Activity*, 2013).

The process was led by a project coordination group formed by the organizing body of the Swiss network for the promotion of health-enhancing physical activity (hepa.ch), including the Swiss Federal Office of Sports, the Federal Office of Public Health, Health Promotion Switzerland, the Council on Accident Prevention. It mandated a scientific consortium consisting of the authorship of this article at Ecoplan, Swiss Distance University of Applied Science, University of Zurich and University of Bern. Furthermore, a list of interested professional organizations was collated and a participatory process was developed. A participatory workshop was carried out in September 2021, where a draft version of the guidelines was discussed with representatives of the interested groups. The results were documented and used as a basis for a final draft of the guidelines. This was followed by an iterative written feedback process including the project coordinating group and representatives of the involved professional organizations. Decisions were taken by the project coordinating group in exchange with the lead of the scientific consortium resulting in a final version of the Guidelines as well as an updated version of the Swiss core document (Bundesamt für Sport et al., 2023).

Results

Analysis of the existing Swiss versus the new WHO guidelines

In Table 1, the results of the analysis of the existing Swiss guidelines (*Health-Enhancing Physical Activity*, 2013; Institut für Sportwissenschaft, Universität Lausanne, 2016) versus the new WHO guidelines (World Health Organization, 2020a) together with the scientific consortium’s derived recommendations are summarized. In many cases, the differences between the existing Swiss and new WHO guidelines were small except for the increased upper range of recommended physical activity of up to 300 minutes of moderate or

up to 150 minutes of vigorous intensity physical activity for adults and the removal of the previous minimum 10-minutes bouts of physical activity to count towards the minimum recommendations. For children, the proposed inclusion of recommendations for sleep time was also a major change from the existing recommendations. With a few exceptions, the recommendation of the scientific consortium was to propose to the interested groups to follow the WHO guidelines.

In addition, the WHO had issued specific recommendations for children and youth living with disability, adults and older adults with chronic condition and adults living with disability which the scientific consortium also recommended for adoption.

Table 1

Summary of the existing Swiss and the new WHO guidelines and recommendations for the Swiss update

Target group & aspect	Switzerland (existing guidelines)	WHO (new guidelines)	Recommendation for Swiss update
Preschool children - infants			
• Physical activity	Free activities several times per day	Several times a day in a variety of ways, for those not yet active at least 30 minutes in prone position throughout the day	Add prone position
• Sedentary time	Avoid long inactivity	Not be restrained for more than 1 hour at a time	Add time limit
• Sleep	-	Specific number of hours/day	Integrate sleep (general rec.)
• Screen time	No screen time up to 2-3 years of age	No screen time, > 2 years not more than 1hours/day	Adopt WHO recommendation
Preschool children – toddlers and young children			
• Physical activity	At least 180 minutes per day, regardless of intensity	At least 180 minutes in a variety of types, including MVPA; 3-4 years at least 60 minutes of MVPA	Add intensity recommendations
• Sleep	-	Specific number of hours/day	Integrate sleep
• Sedentary time	Avoid long inactivity	Not be restrained for more than 1 hour at a time	Add time limit
• Screen time	No screen time recommended up to 2-3 years of age	> 2 years not more than 1hours/day	Adopt WHO recommendation

Target group & aspect	Switzerland (existing guidelines)	WHO (new guidelines)	Recommendation for Swiss update
Children and young people 5-17 years of age			
• Physical activity	At least 1 hours/day MVPA for older children, considerably more for younger children	At least 60 minutes/day MVPA across the week	Adopt average across the week
• Sedentary time	Avoid long inactivity and take active breaks every 2 hours	Avoid long inactivity, esp. screen time	Integrate reducing screen time
• Other aspects	Do several times/week varied activities that strengthen bones, muscles and improve balance, coordination and cardiovascular functions	Vigorous intensity and muscle and bone strengthening PA at least 3 times/week	Adopt WHO recommendation Keep national recommendation to improve balance & coordination
Adults 18-64 years of age			
• Physical activity	At least 150 minutes of moderate or 75 minutes of high intensity PA/week At least 10-minutes bouts	At least 150-300 minutes of moderate or 75-150 minutes of vigorous intensity PA/weeks No minimum bouts	Adopt WHO recommendation No minimum bouts
• Strength training	As additional recommendation on at least 2 times/week	At least 2 times/week	Integrate into general recommendation
• Sedentary time	Interrupt long sedentary time	Limit sedentary time and replace by any form of PA	Adopt WHO recommendation, specify sedentary behavior
Older adults > 64 years of age			
• Physical activity	At least 150 minutes of moderate or 75 minutes of high intensity PA/week At least 10-minutes bouts	At least 150-300 minutes of moderate or 75-150 minutes of high intensity PA/week No minimum bouts	Adopt WHO recommendation No minimum bouts
• Strength training	As additional recommendation on at least 2 times/week	At least 2 times/week	Integrate into general recommendation
• Sedentary time	Interrupt long sedentary time	Limit sedentary time and replace by any form of PA	Adopt WHO recommendation, specify sedentary behavior
• Other aspects	As additional recommendation multicomponent balance and strength training to reduce the risks of falls	Multicomponent balance and strength training	Integrate into general recommendation
Pregnant and postpartum women			
• Physical activity	Separate recommendations for pregnant and postpartum women At least 150 minutes of moderate intensity PA	Same recommendation for both groups At least 150 minutes of moderate intensity PA	Keep separate recommendations No changes

Target group & aspect	Switzerland (existing guidelines)	WHO (new guidelines)	Recommendation for Swiss update
	Higher intensity if done before pregnancy	Higher intensity for postpartum women after 6-8 weeks or if done before pregnancy	No changes
<ul style="list-style-type: none"> • Strength training & stretching 	As additional recommendation on at least 2 times/week	At least 2 times/week	Integrate into general recommendation
<ul style="list-style-type: none"> • Sedentary time 	Limit sedentary time and replace by any form of PA	Interrupt long sedentary time	Adopt WHO recommendation, specify sedentary behavior
Children and young living with disability Adults and older adults with chronic conditions Adults living with disability	No recommendations	Separate recommendations	Adopt separate recommendations
Target group & aspect	Switzerland (existing guidelines)	WHO (new guidelines)	Recommendation for Swiss update

Note: PA = physical activity, MVPA = moderate to vigorous intensity physical activity

Participatory process with interested groups

The scientific consortium collated a list of interested groups to be invited to give feedback to the proposed updated recommendations. The list was assembled based on institutions involved in the development of previous versions of Swiss guidelines and topical knowledge for new target groups, such as people living with disabilities or chronic diseases. Elements for the participatory process were defined and are summarized below.

Participatory workshop to discuss the proposed updates for the Swiss guidelines

Within the framework of the 2021 annual meeting of the Swiss network for the promotion of health-enhancing physical activity (hepa.ch), led by the Federal Office of Sports, the invited institutions participated in a half-day workshop of 4 working groups according to different target groups, as listed in Table 1. The proposed key parts of updated recommendations had been shared with the participants ahead of the workshop with the aim to identify changes as deemed necessary and to discuss and agree the final formulations for each target group. The results of the

subgroups were presented in plenary to identify any inconsistencies between target groups.

Table 2

Interested groups in the participatory workshops to discuss updates for the Swiss physical activity guidelines

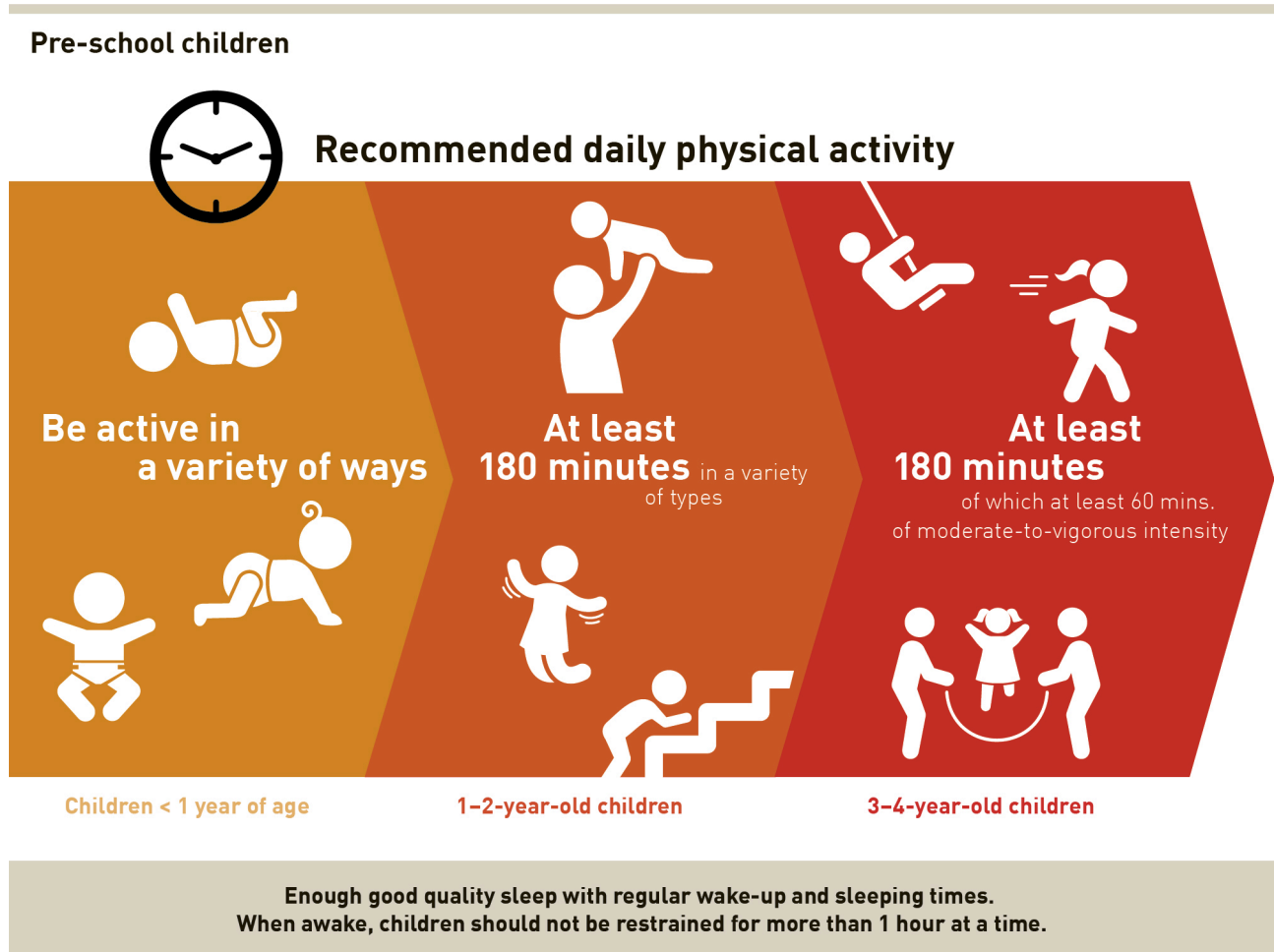
Preschool and school aged children and young people (< 5 and 5-17 years of age)	Adults (18-64 years of age)	Older adults (> 64 years of age)	People living with disabilities or chronic diseases, women during and after pregnancy
<ul style="list-style-type: none"> • University of Zurich, Epidemiology, Biostatistics and Prevention Institute (lead) • Communal Sports Services, Yverdon-les-Bains • Federal Office of Sports • Health Promotion Switzerland • School of Applied Sciences Vaud, Midwives Department • Swiss Society of Pediatrics 	<ul style="list-style-type: none"> • Swiss Distance University of Applied Sciences, Department of Health (lead) • Alliance for Physical Activity, Sport and Health • Federal Office of Health • Federal Office of Sports • Federal University for Sports • Public Health Switzerland • Swiss Fitness and Health Centres Association SFGV • Swiss Society of Sports Science • Swiss Medical Association, Public Health Department • Swiss Injury Insurance SUVA 	<ul style="list-style-type: none"> • University of Berne, Institute for Sport Sciences (lead) • Federal Office of Sports • Swiss Council for Accident Prevention • Swiss Fitness and Health Centres Association SFGV • Swiss Society for Geriatrics • University of Bern, Institute for Sport Science • Ecoplan AG, Department of Health 	<ul style="list-style-type: none"> • University of Zurich, Epidemiology, Biostatistics and Prevention Institute (lead) • Association PEBS (Promotion of nutrition and physical activity during pregnancy) • Association of Sports Medicine Switzerland • Health Promotion Switzerland • Federal Office of Sports • PluSport (sports association of people living with disability) • Swiss Association of Midwives • Swiss Society of Sports Science • Swiss Society of Sports Medicine

The group on children agreed to provide guidelines for preschool children and to adopt the proposed amendments for school aged children and young adults, following the guidelines of the WHO (see Table 1). Only the exact recommended hours of sleep from the WHO guidelines were not adopted, because the evidence supporting an exact number of hours was deemed insufficient for adoption. Instead, a general guideline to ensure sufficient good quality sleep was endorsed (see Figure 1).

For children and young people, all proposals for amendments were approved, namely adopting an

average of 60 minutes of physical activity across the week (instead of every day) and integrating reducing screen time (see Figure 2).

For the adults, the proposals were supported to adopt the wider range of recommended activity (up to 300 minutes of moderate intensity or 150 minutes of high intensity physical activity per week), to drop the 10-minutes bouts, to integrate strength training into the general guidelines and to adopt the amended phrasings on reducing sedentary time. Owing to the organization of the Swiss administration with separate Federal Offices of Sport and of Health, it was decided



Source: hepa.ch, Magglingen 2023

Figure 1 Swiss guidelines graph for preschool children (Bundesamt für Sport et al., 2023)

to keep the mention of both physical activity and sport in the guidelines (see Figure 3).

Also for older adults, all proposals were adopted, albeit some participants expressed a concern that the new upper range of recommended physical activity of up to 300 minutes could be perceived as unachievable by less fit older adults. The concurrent discussions also allowed exchange with the working group on adults during the process to make sure that changes were adopted in both groups to avoid semantic differences in the guidelines for adults and older adults (see Figure 4).

The biggest diversion from the proposed approach resulted from the working group on people with special needs. On the one hand, the working group recommended to include a short version of the guidelines for women during and after pregnancy, including the minor amendments as suggested (see Table 1), but to keep the detailed existing version as a separate document (Kahlmeier, Hartmann, & Martin-Diener, 2018; Kahlmeier, Hartmann, Martin-Diener, et al., 2018); see Figure 5 & Figure 6).

On the other hand, the proposed separate guidelines for people living with chronic diseases or with disabilities, respectively, were not adopted. Regarding chronic

Children and young people



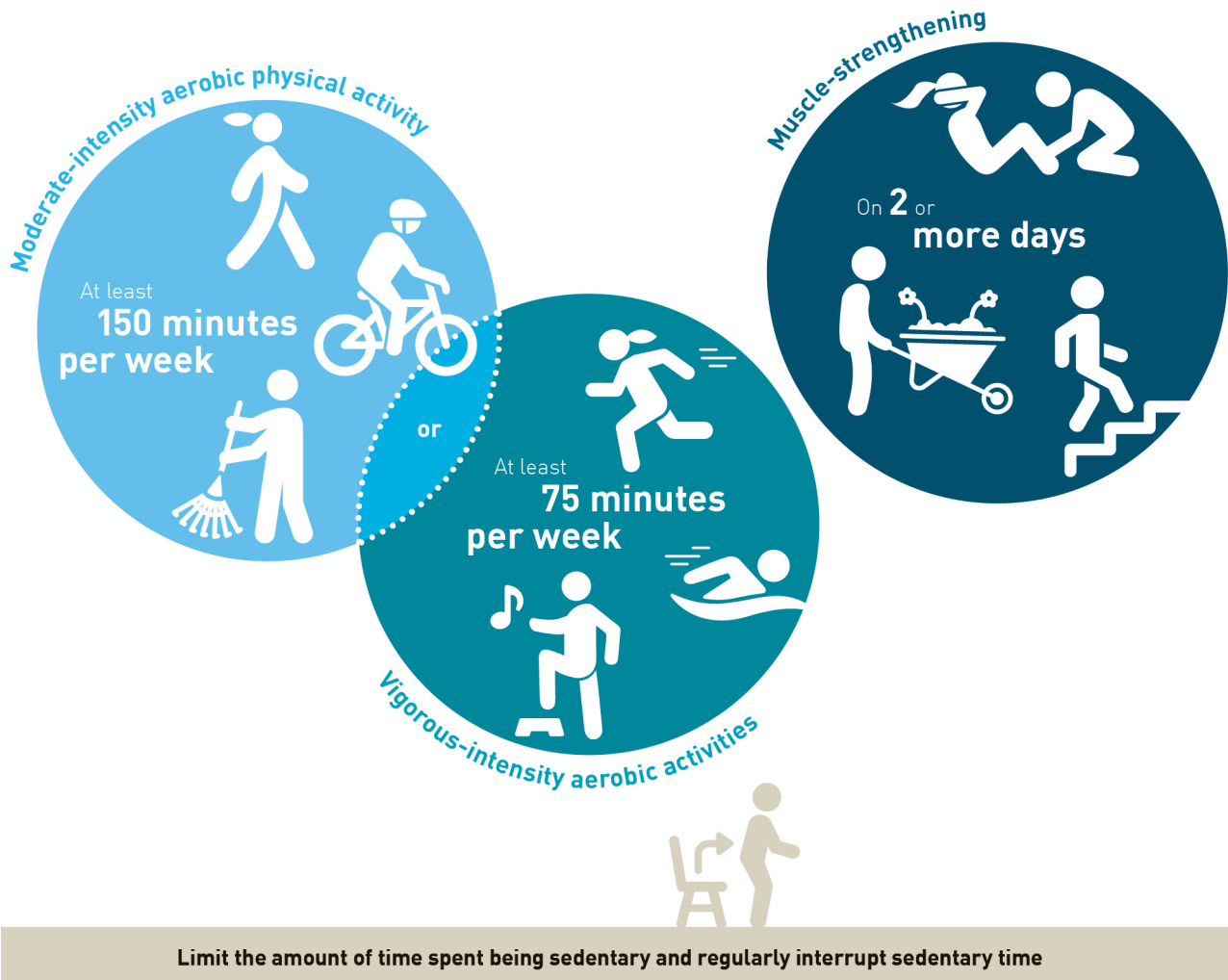
Source: hepa.ch, Magglingen 2023

Figure 2 Swiss guidelines graph for children and young people 5-17 years of age (Bundesamt für Sport et al., 2023)

diseases, the working group concluded that the selection of listed diseases did not seem to be comprehensive (e.g. COPD was not listed), it was very heterogeneous and that the abilities and needs of people living with different diseases or disabilities differed too much for addressing them in one guideline. Instead, the working group recommended to insert a box addressing people living with chronic disease or disabilities into the guidelines for children/young people,

adults, older adults and women during/after pregnancy. In addition, the professional associations on different chronic diseases would be called upon to develop specific guidelines for their target group, based on the example of the guidelines for women during and after pregnancy.

Adults



Source: hepa.ch, Magglingen 2023

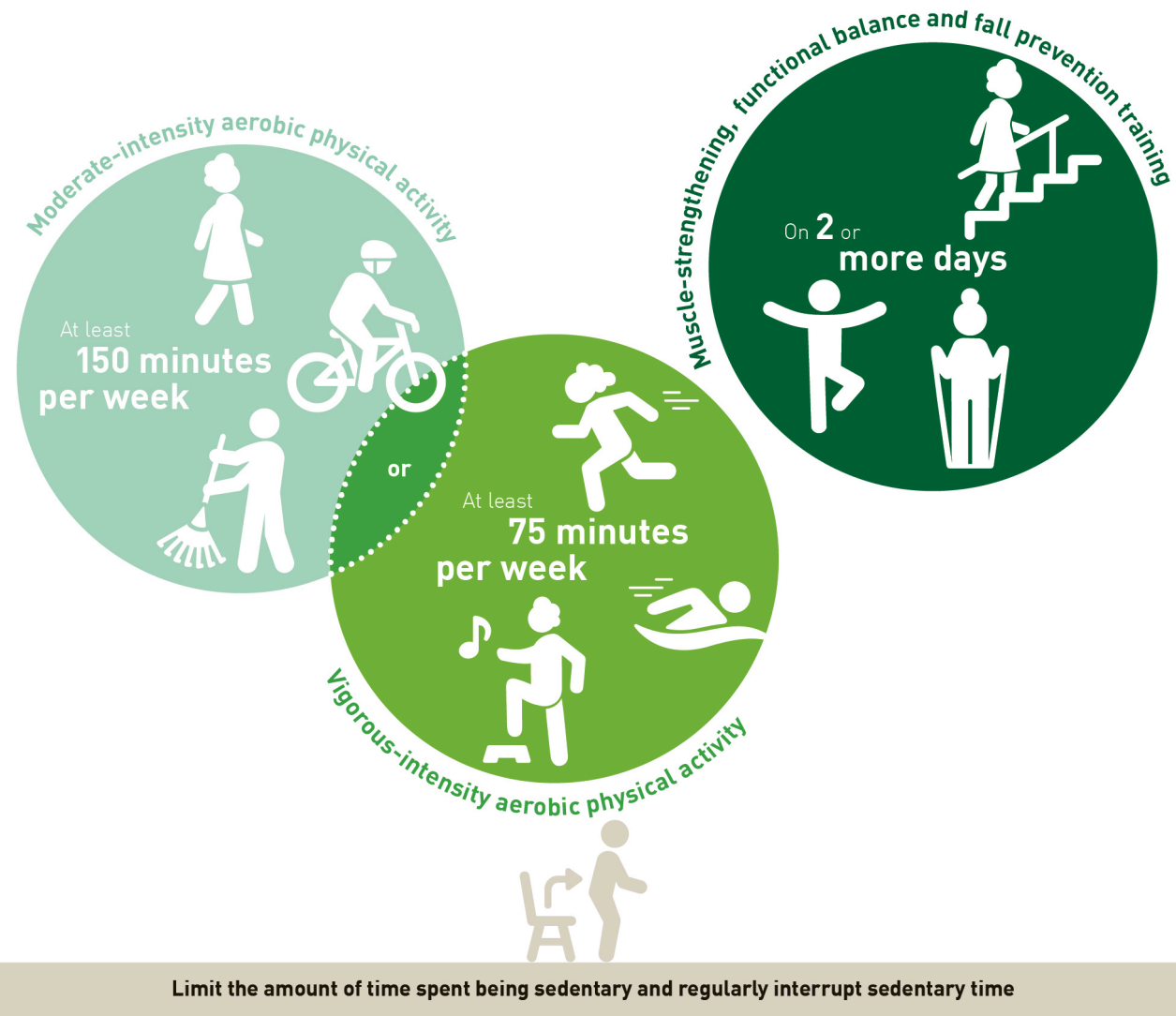
Figure 3 Swiss guidelines graph for adults 18-64 years of age (Bundesamt für Sport et al., 2023)

Written feedback rounds

After the workshop, the feedback was used to create a final draft version of the guidelines for preschool children, children and young people, adults, older adults and a short version of the guidelines for women during/after pregnancy. This version was disseminated for written feedback. In addition to several institutions who had participated in the workshop, additional institutions gave written feedback in this step, including:

- Federal Office of Social Security, Platform Youth and Media
- Pediatric Doctors Switzerland
- Procap (Swiss Association of people living with a handicap)
- Radix Health Foundation
- Swiss Olympics
- Swiss Paraplegic Association (SPV) & Wheelchair Sports Switzerland

Older adults



Source: hepa.ch, Magglingen 2023

Figure 4 Swiss guidelines graph for adults > 64 years of age (Bundesamt für Sport et al., 2023)

- Swiss Society of Pediatrics
- University Children's Hospital Zurich
- University of Applied Science Zurich (ZHAW), School of Health Sciences, Institute of Physiotherapy
- University of Health, Department Epidemiology and Health Systems, Lausanne

After several iterative rounds of written exchange, the final draft phrasings were agreed. In some cases, exchange was sought with the expert teams from Germany and Austria to take into account the experiences of neighboring countries. The text and layout was then finalized under the lead of the Federal Office of Sport, in exchange with the scientific consortium.



Target group: Pregnant women

2½ hours moderate intensity per week

Ideally spread over several days per week, for example:



Cycling



Brisk walking



Dancing



Swimming or water
gymnastics

Supplementary



Light strength
training



Pelvic floor training



Stretching

Source: Gesundheitsförderung Schweiz [2018]

Figure 5 Swiss guidelines graph for women during pregnancy (Kahlmeier, Hartmann, & Martin-Diener, 2018)



Target group: Women after pregnancy

2½ hours moderate intensity per week

Ideally spread over several days per week, for example:



Cycling



Brisk walking



Dancing



Swimming or water gymnastics

or

1¼ hours vigorous intensity per week

Ideally spread over several days per week, for example:



Cross-country skiing



Brisk cycling



Step Aerobic



Hiking uphill

Recommended



Pelvic floor training

Supplementary



Light strength training



Stretching

Source: Gesundheitsförderung Schweiz [2018]

Figure 6 Swiss guidelines graph for women after pregnancy (Kahlmeier, Hartmann, & Martin-Diener, 2018)

Presentation of draft guidelines

A draft version of the guidelines for the different target groups was presented at the 2022 annual meeting of the hepa.ch network. Feedback by relevant organizations was received both at the annual meeting and through emails afterwards.

Finalization of the guidelines and core document and development of graphs

The final versions of the guidelines were integrated into the core document and its other sections were also updated (Bundesamt für Sport et al., 2023). The core document is aimed at decision makers in federal, cantonal and local administration as well as practitioners who use the guidelines in their daily work.

It includes:

- an introductory section with the key messages, such as “every minute counts”,
- a summary of the process to develop the guidelines and main changes from the previous versions,
- a glossary of terms and explanation of key concepts (such as how to sum up moderate and high intensity physical activity to reach the guidelines),
- a chapter on the main health effects and the strength of the evidence,
- the actual guidelines for each target group,
- the prevalence of physical activity in different groups of the population,
- societal impacts of insufficient physical activity,
- an outline of the main determinants of physical activity, and
- a final chapter on proposed actions, based on the WHO's Global Action Plan on Physical Activity (World Health Organization, 2018).

This step also included the development of graphical representations of the guidelines for each target group (Bundesamt für Sport et al., 2023; except for women during and after pregnancy, where graphs were included in the detailed separate version (Kahlmeier, Hartmann, & Martin-Diener, 2018) and thus it was deemed preferable not to create an additional, differing graph in the Swiss core document and guidelines materials; see Figure 5 & Figure 6 above)). Existing graphs from other countries were considered in this step, such as from Germany (Rütten & Pfeifer, 2016), Austria (Fonds Gesundes Österreich, 2020) and the UK (Department of Health and Social Care et al., 2019). Weighing understandability and comprehensiveness, it was decided to take the graphs from Germany as a basis, see Figure 1 and Figure 2 (Bundesamt für Sport et al., 2023). In addition, it was decided to focus the graphs on the core elements of the guidelines and to, for example, leave out the recommendation of “more than 300 minutes of moderate intensity or 150 minutes of vigorous intensity physical activity per week for additional health benefits”, which was, in addition, perceived by the stakeholders as being discouragingly high for many target audiences. Therefore, it was deemed preferable to continue using graphs with a focus on the same core recommendation of “at least 150 minutes per week of moderate intensity or 75 minutes of vigorous intensity physical activity per week”, which had been used since 2013, and only make amendments where absolutely necessary (Kahlmeier et al., 2012; *Netzwerk Gesundheit Und Bewegung Schweiz, Bundesamt Für Gesundheit, Gesundheitsförderung Schweiz, Bfu – Beratungsstelle Für Unfallverhütung, & Suva*, 2013). However, the recommendation of more physical activity for additional health benefits is included in the accompanying text (Bundesamt für Sport et al., 2023).

Discussion

Switzerland understands the value and has a long-standing tradition of national physical activity guidelines. While progress has been made regarding increasing population levels of physical activity, about

one quarter of adults and more than one third of young people are still insufficiently active for good health. The WHO guidelines (World Health Organization, 2020a) have been a significant basis for keeping the national guidelines up to date and for integrating additional target groups.

The most recent Swiss update process included a comprehensive process of reviewing the WHO's, neighboring countries', as well as other international guidelines. The systematic approach in identifying aspects to update provided a solid basis for the exchange with all interested groups. The involvement of a strong scientific consortium with different thematic backgrounds (physical activity, public health, epidemiology, sports science, physiology, health behavior change) was another strength in the process, along with a coordinating team representing the key national institutions (Federal Offices of Sport and of Public Health, Health Promotion Switzerland and Council for Accident Prevention).

The participatory approach is deemed key to secure buy-in of the interested groups who are those who work directly with the target population groups. However, the amount of feedback, sometimes on detailed technical aspects, led to a longer than foreseen finalization process with multiple rounds of email exchanges and additional meetings with the project coordinating group. Finding a scientifically sound compromise without losing support of an interested group, all the while ensuring understandability by non-experts was challenging in some cases. In this regard, involvement of a communications expert as part of the coordinating team already at the start of the process would have been helpful. In addition, a more systematic needs assessment in terms of which communication tools and channels will be required eventually to best reach the target audiences would have further strengthened the development process.

While there are many publications focusing on developing the contents of national physical activity guidelines (for example 'CSEP Special Supplement: Canadian 24-Hour Movement Guidelines for Adults Aged 18–64 Years and Adults Aged 65 Years or Older/Supplément

Spécial de La SCPE: Directives Canadiennes En Matière de Mouvement Sur 24 Heures Pour Les Adultes Âgés de 18 à 64 Ans et Les Adultes Âgés de 65 Ans et Plus', 2020; 'World Health Organization Guidelines Issue', 2020), we could only identify one other country giving some insight into the experiences and challenges around the development process of national guidelines, namely Canada (Tremblay et al., 2010, 2011). Like ourselves, they appreciated the exchange with experts from other countries and deemed having a multidisciplinary team and a participatory process as a strength. They also involved a range of institutions and interested professional groups but did not report on challenges around aligning sometimes differing views and feedbacks into the final guidelines, besides mentioning having had to reach "unanimous consensus in working groups" (Tremblay et al., 2010, p. 8).

Therefore, while it can be assumed that many of the presented challenges may be generally relevant, and it is hard to judge which are specific to Switzerland, besides the need to use of both "sport" and "physical activity", owing to the allocation of these topics in two different Federal Offices. The Canadian process of 2010 faced as an additional challenge the need to harmonize, standardize and connect to other existing guidelines, e.g. for vascular health (Tremblay et al., 2010), which was not the case in Switzerland.

The updated versions of the Swiss national guidelines for small children, young people, adults and women during and after pregnancy provide an excellent basis to further promote and encourage maintaining recommended levels of physical activity in Switzerland in all population groups. More detailed guidelines should be developed by the respective professional associations for people living with specific chronic diseases, supported by the Federal Office and/or a core team of the involved experts to ensure scientific rigor and consistency.

A remaining key task is to develop a range of communication tools and materials for different target groups beyond the circle of experts and interested groups. Available evidence on optimal messaging and best outlet tools and channels to reach all parts of the pop-

ulation should be considered, as available for example from Canada (Brawley & Latimer, 2007; Faught et al., 2020) and Germany (Hartung et al., 2022; Rütten et al., 2018).

Finally, to track population prevalence, inform policy, and evaluate physical activity promotion efforts at national and sub-national level in a timely fashion, it is recommended to strengthen the periodic systematic national monitoring system for physical activity. This should ensure it employs state of the science methods and measures while preserving trend measurement, and that it is adequately powered to also track progress in population subgroups with particularly low levels of physical activity (Burchartz et al., 2020; Nigg et al., 2020).

References

- 2018 Physical Activity Guidelines Advisory Committee. (2018). *2018 Physical Activity Guidelines Advisory Committee Scientific Report*. U.S. Department of Health and Human Services.
- Brawley, L. R., & Latimer, A. E. (2007). Physical activity guides for Canadians: Messaging strategies, realistic expectations for change, and evaluation. *Canadian Journal of Public Health = Revue Canadienne De Sante Publique, 98 Suppl 2*, 170–184.
- Bull, F., Milton, K., Kahlmeier, S., Arlotti, A., Backovic-Jurican, A., Belander, O., Martin, B. W., Martin-Diener, E., Marques, A., Mota, J., Vasankari, T., & Vlasveld, A. (2014). Turning the tide: National policy approaches to increasing physical activity in seven European countries. *British Journal of Sports Medicine, 49*(11), 749–756. <https://doi.org/10.1136/bjsports-2013-093200>
- Bundesamt für Sport, Bundesamt für Gesundheit, Gesundheitsförderung Schweiz, & Beratungsstelle für Unfallverhütung bfu. (2023). *Bewegungsempfehlungen Schweiz Grundlagen [Physical activity guidelines Switzerland: Basics]*. https://www.hepa.ch/content/hepa-internet/de/bewegungsempfehlungen/_jcr_content/content-Par/accordion_copy/accordionItems/weitere_dokumente/accordionPar/downloadlist/downloadItems/12_1480416084606.download/hepa_Bro_Bewegungsempfehlungen_Grundlagen_DE_screen.pdf
- Burchartz, A., Anedda, B., Auerswald, T., Giurgiu, M., Hill, H., Ketelhut, S., Kolb, S., Mall, C., Manz, K., Nigg, C. R., Reichert, M., Sprengeler, O., Wunsch, K., & Matthews, C. E. (2020). Assessing physical behavior through accelerometry – State of the science, best practices and future directions. *Psychology of Sport and Exercise, 49*, Article 101703. <https://doi.org/10.1016/j.psych-sport.2020.101703>
- Canadian Academy of Sport and Exercise Medicine (Ed.). (2019). *Canadian guideline for physical activity throughout pregnancy*. Canadian Academy of Sport; Exercise Medicine. <https://csepguidelines.ca/guidelines-for-pregnancy>
- CSEP Special Supplement: Canadian 24-hour movement guidelines for adults aged 18–64 years and adults aged 65 years or older/Supplément spécial de la SCPE: Directives canadiennes en matière de mouvement sur 24 heures pour les adultes âgés de 18 à 64 ans et les adultes âgés de 65 ans et plus. (2020). *Applied Physiology, Nutrition, and Metabolism, 45*(10 (Suppl. 2)). <https://doi.org/10.1139/apnm-2020-0874>
- Department of Health and Social Care, Llwodraeth Cymru Welsh Government, Department of Health Northern Ireland, & Scottish Government. (2019). *UK Chief Medical Officers' physical activity guidelines*. GOV.uk. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/832868/uk-chief-medical-officers-physical-activity-guidelines.pdf

- Faught, E., Walters, A. J., Latimer-Cheung, A. E., Faulkner, G., Jones, R., Duggan, M., Chulak-Bozzer, T., Lane, K. N., Brouwers, M. C., & Tomasone, J. R. (2020). Optimal messaging of the Canadian 24-hour movement guidelines for adults aged 18–64 years and adults aged 65 years and older. *Applied Physiology, Nutrition, and Metabolism*, 45(10 (Suppl. 2)), 125–150. <https://doi.org/10.1139/apnm-2020-0494>
- Federal Office of Public Health FOPH & Swiss Health Observatory. (2023). *Swiss monitoring system of addiction and noncommunicable diseases (MonAM): Diet, physical activity, obesity*. <https://ind.ob-san.admin.ch/en/monam/topic/1ERN>
- Fonds Gesundes Österreich (Ed.). (2020). *Österreichische Bewegungsempfehlungen [Austrian physical activity recommendations]*. Fonds Gesundes Österreich. https://fgoe.org/sites/fgoe.org/files/2020-08/WB_17_bewegungsempfehlungen_bfrei.pdf
- Guthold, R., Stevens, G. A., Riley, L. M., & Bull, F. C. (2018). Worldwide trends in insufficient physical activity from 2001 to 2016: A pooled analysis of 358 population-based surveys with 1.9 million participants. *The Lancet Global Health*, 6(10), 10. [https://doi.org/10.1016/S2214-109X\(18\)30357-7](https://doi.org/10.1016/S2214-109X(18)30357-7)
- Guthold, R., Stevens, G. A., Riley, L. M., & Bull, F. C. (2020). Global trends in insufficient physical activity among adolescents: A pooled analysis of 298 population-based surveys with 1.6 million participants. *The Lancet. Child & Adolescent Health*, 4(1), 23–35. [https://doi.org/10.1016/S2352-4642\(19\)30323-2](https://doi.org/10.1016/S2352-4642(19)30323-2)
- Hartung, V., Messing, S., Pfeifer, K., Geidl, W., & Abu-Omar, K. (2022). Disseminierung der nationalen Bewegungsempfehlungen: Partizipative Entwicklung von Disseminierungsstrategien in Deutschland [Dissemination of the national physical activity guidelines: Participatory development of dissemination strategies in Germany]. *Das Gesundheitswesen*, 84(11), 1015–1021. <https://doi.org/10.1055/a-1547-6667>
- Health-enhancing physical activity: Core document for Switzerland*. (2013). Federal Office of Sport FOS-PO.
- Hohberg, V., Kreppke, J.-N., Cody, R., Guthold, R., Woods, C., Brand, R., Dunton, G., Rothman, A., Ketelhut, S., & Nigg, C. (2022). *What is needed to promote physical activity? Current trends and new perspectives in theory, intervention, and implementation*. 7, Article 005. <https://doi.org/10.36950/2022ciss005>
- Institut für Sportwissenschaft, Universität Lausanne. (2016). *Gesundheitswirksame Bewegung bei Säuglingen, Kleinkindern und Kindern im Vorschulalter. Empfehlungen für die Schweiz [Health-enhancing physical activity in infants, young and pre-school children. Recommendations for Switzerland]*. <https://gesundheitsfoerderung.ch/node/541>
- Kahlmeier, S., Alpiger, P., & Martin, B. W. (2012). National recommendations for health-enhancing physical activity: The situation for Switzerland in 2011 and options for further developments. *Schweizerische Zeitschrift für Sportmedizin und Sporttraumatologie*, 60(3), 3.
- Kahlmeier, S., Hartmann, F., & Martin-Diener, E. (2018). *Gesundheitswirksame Bewegung bei Frauen während und nach der Schwangerschaft: Empfehlungen für die Schweiz [Health-enhancing physical activity in during and after pregnancy: Recommendations for Switzerland]*. https://gesundheitsfoerderung.ch/sites/default/files/2023-01/Infoblatt_GFCH_-_2018-09_Gesundheitswirksame_Bewegung_bei_Frauen_waehrend_und_nach_der_Schwangerschaft.pdf
- Kahlmeier, S., Hartmann, F., Martin-Diener, E., Lötscher, K. Q., & Schläppy-Muntwyler, F. (2018). Schweizer Bewegungsempfehlungen für schwangere und postnatale Frauen [Swiss exercise recommendations for pregnant and postnatal women]. *Schweizer Zeitschrift für Ernährungsmedizin*, 4, 14–19.

- Kahlmeier, S., Wijnhoven, T. M., Alpiger, P., Schweizer, C., Breda, J., & Martin, B. W. (2015). National physical activity recommendations: Systematic overview and analysis of the situation in European countries. *BMC Public Health*, *15*, Article 133. <https://doi.org/10.1186/s12889-015-1412-3>
- Katzmarzyk, P. T., Friedenreich, C., Shiroma, E. J., & Lee, I.-M. (2022). Physical inactivity and non-communicable disease burden in low-income, middle-income and high-income countries. *British Journal of Sports Medicine*, *56*(2), 101–106. <https://doi.org/10.1136/bjsports-2020-103640>
- Netzwerk gesundheit und bewegung schweiz, bundesamt für gesundheit, gesundheitsförderung schweiz, bfu – beratungsstelle für unfallverhütung, & suva. (2013). Bundesamt für Sport.
- Nigg, C. R., Fuchs, R., Gerber, M., Jekauc, D., Koch, T., Krell-Roesch, J., Lippke, S., Mnich, C., Novak, B., Ju, Q., Sattler, M. C., Schmidt, S. C. E., Poppel, M., Reimers, A. K., Wagner, P., Woods, C., & Woll, A. (2020). Assessing physical activity through questionnaires – A consensus of best practices and future directions. *Psychology of Sport and Exercise*, *50*, Article 101715. <https://doi.org/10.1016/j.psychsport.2020.101715>
- Rütten, A., Abu-Omar, K., Messing, S., Weege, M., Pfeifer, K., Geidl, W., & Hartung, V. (2018). How can the impact of national recommendations for physical activity be increased? Experiences from Germany. *Health Research Policy and Systems*, *16*(1), 121. <https://doi.org/10.1186/s12961-018-0396-8>
- Rütten, A., & Pfeifer, K. (2015). *Deutsche Empfehlungen für Bewegung und Bewegungsförderung – Ein Projekt zur wissenschaftlichen Konzeptualisierung [German guidelines for physical activity and physical activity promotion – A project on the scientific conceptualization]*. https://www.bundesgesundheitsministerium.de/fileadmin/Dateien/5_Publikationen/Praevention/Berichte/Abschlussbericht_Konzeptualisierung_Bewegungsempfehlungen.pdf
- Rütten, A., & Pfeifer, K. (2016). *Nationale Empfehlungen für Bewegung und Bewegungsförderung [National recommendations for physical activity and physical activity promotion]*. Bundeszentrale für gesundheitliche Aufklärung. <https://shop.bzga.de/sonderheft-03-nationale-empfehlungen-fuer-bewegung-und-bewegungsfoerd-60640103/>
- Rütten, A., & Pfeifer, K. (2017). *Deutsche Empfehlungen für Bewegung und Bewegungsförderung. Disseminierung der Empfehlungen. Abschlussbericht [German recommendations for physical activity and promotion of physical activity. Dissemination of the guidelines recommendations. Final report]*. https://www.bundesgesundheitsministerium.de/fileadmin/Dateien/5_Publikationen/Praevention/Berichte/Disseminierung_Bewegungsempfehlungen_Abschlussbericht.pdf
- Santé France. (2022). *Augmenter l'activité physique. Manger bouger [Increase physical activity. Eat move]*. <https://www.mangerbouger.fr/l-essentiel/les-recommandations-sur-l-alimentation-l-activite-physique-et-la-sedentarite/augmenter/augmenter-l-activite-physique>
- Tremblay, M. S., Kho, M. E., Tricco, A. C., & Duggan, M. (2010). Process description and evaluation of Canadian physical activity guidelines development. *International Journal of Behavioural Nutrition and Physical Activity*, *7*, Article 42. <https://doi.org/10.1186/1479-5868-7-42>
- Tremblay, M. S., Warburton, D. E. R., Janssen, I., Paterson, D. H., Latimer, A. E., Rhodes, R. E., Kho, M. E., Hicks, A., LeBlanc, A. G., Zehr, L., Murumets, K., & Duggan, M. (2011). New Canadian physical activity guidelines. *Applied Physiology, Nutrition, and Metabolism*, *36*(1), 36–46. <https://doi.org/10.1139/H11-009>
- U.S. Department of Health and Human Services. (2018). *Physical activity guidelines for Americans* (2nd ed.). U.S. Department of Health and Human Services. https://health.gov/paguidelines/second-edition/pdf/Physical_Activity_Guidelines_2nd_edition.pdf

- WHO Regional Office for Europe. (2016). *Physical activity strategy for the WHO European region 2016-2025*. WHO Regional Office for Europe. https://www.euro.who.int/__data/assets/pdf_file/0014/311360/Physical-activity-strategy-2016-2025.pdf
- World Health Organization. (2010). *Global recommendations on physical activity for health*. World Health Organization. http://www.who.int/dietphysicalactivity/factsheet_recommendations/en/
- World Health Organization. (2018). *WHO global action plan on physical activity 2018–2030: More active people for a healthier world*. World Health Organization. http://apps.who.int/gb/ebwha/pdf_files/EB142/B142_R5-en.pdf
- World Health Organization. (2019). *WHO guidelines on physical activity, sedentary behaviour and sleep for children under 5 years of age*. World Health Organization. <https://apps.who.int/iris/handle/10665/311664>
- World Health Organization. (2020a). *WHO guidelines on physical activity and sedentary behaviour*. World Health Organization. <https://www.who.int/publications-detail-redirect/9789240015128>
- World Health Organization. (2020b). *WHO guidelines on physical activity and sedentary behaviour: Web annex: Evidence pro-files*. World Health Organization. <https://apps.who.int/iris/handle/10665/336657>
- World Health Organization Guidelines Issue. (2020). *British Journal of Sports Medicine*, 54(24). <https://bjsm.bmj.com/content/54/24>

Acknowledgements

We gratefully acknowledge the inputs of the involved institutions and experts.

Funding

The work described in this article has been funded through a grant of the national network for the promotion of health-enhancing physical activity (hepa.ch) at the Federal Office of Sports.

Competing interests

The authors have declared that no competing interests exist. The authors alone are responsible for the views expressed in this article and they do not necessarily represent the views, decisions or policies of the institutions with which they are affiliated, nor those of the Federal Office of Sports.

Data availability statement

All relevant data are within the paper.