

# Diet and effects of diet management on symptoms and quality of life in patients with irritable bowel syndrome

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A thesis submitted for the degree

Master of Clinical Nutrition



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## ABSTRACT

### Abstract

**Background:** Irritable bowel syndrome (IBS) is a gastrointestinal disorder manifested by abdominal discomfort or pain, bloating and abdominal distension, and changes in the defecation pattern between diarrhoea and constipation. A significant proportion of IBS patients attribute their symptoms to food items and food intolerance. More information is needed on the effect of diet management in the treatment of IBS and this thesis is a contribution with effort to advance our knowledge about this aspect of the disorder.

**Aim:** To investigate the diet and quality of life in IBS patients in comparison with the background population. Furthermore, to study the effects of guidance on diet management on changes in food intake, quality of life and symptoms.

**Design and methods:** The study group included 35 healthy controls, 36 unguided IBS patients and 43 IBS patients who received guidance in diet management two years earlier. The controls and patients were asked to complete a Food Frequency Questionnaire (FFQ), a Short -Form Nepean Dyspepsia Index (SF-NDI) questionnaire, an Irritable Bowel Syndrome-Quality Of Life questionnaire (IBS-QOL) and a Birmingham IBS symptom score questionnaire.

**Results:** With or without dietary guidance, there were no statistical differences in the intake of calories, carbohydrates, proteins and fat between the IBS patients and the controls. IBS patients made a conscious choice to avoid some foods belonging to the FODMAP group (*fermentable oligosaccharides, disaccharides, monosaccharides and polyols*). However, they consumed other food items which are rich in FODMAPs and avoided food sources which are important for their health. Two years after receiving guidance on diet management, IBS patient had a different diet profile. They consumed less FODMAP-rich foods, consumed more foods with probiotic supplements and less frequently avoided food sources that were important for their health as compared with unguided IBS patients. In addition, quality of life was improved and IBS symptoms was reduced.

**Conclusion:** Although at the first sight the diet of IBS patients does not seem to differ from that of the background population, detailed examination shows avoidance of certain food items. Guidance on the management of diet improves their choice of a healthier diet, improves quality of life and reduces symptoms.

## LIST OF ABBREVIATIONS

### List of abbreviations

FFQ:	Food Frequency Questionnaire
FODMAP:	Fermentable Oligo-, Di- and Monosaccharides and Polyols
FOS:	Fructo- Oligosaccharides
HRQoL:	Health Related Quality of Life
IBS:	Irritable Bowel Syndrome
IBS-C:	Constipation predominated Irritable Bowel Syndrome
IBS-D:	Diarrhea predominated irritable Bowel Syndrome
IBS-M:	Altering constipation and diarrhea predominated Irritable Bowel Syndrome
IBS-QOL:	Irritable Bowel Syndrome Quality of Life
SEM:	Standard Error of Mean
SF-NDI:	Short-Form Nepean Dyspepsia Index
SPP:	Species
UiB:	University of Bergen

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## 1. INTRODUCTION

### 1.1. IBS

#### 1.1.1 Definition

Irritable bowel syndrome (IBS) is a chronic gastrointestinal disorder in the absence of any structural, physiological or biochemical abnormalities in the gastrointestinal tract (1). The condition is classified as a functional disorder where the diagnosis is based on the symptom presented; abdominal discomfort or pain, bloating and abdominal distension, and changes in the defecation pattern between diarrhoea and constipation. The degree of symptoms varies in different patients from tolerable to severe, where the experience of pain can vary from a nagging, colicky, sharp or dull feeling of pain (1). Also the time pattern and discomfort can vary immensely from patient to patient. Some complain of daily symptoms, while others will report intermittent pain at intervals of weeks/ months. Over the years many different definitions have been used to define IBS (e.g. Manning criteria, Rome I, II and III criteria). The Manning criteria were originally defined to differentiate between organic disease and IBS in patients attending a gastroenterology outpatients clinic on the basis of symptom description (1). The five symptoms are listed in box 1. A weakness with this definition is the proportion of false-positive IBS diagnoses that occur; which results in under-diagnosing and under-treatment of other diseases that are overlooked when such false-positives occur. The definition also fails to differentiate between the subgroups of IBS (1).

**Box 1: Manning criteria (1):**

1. Visible abdominal distension
2. Relief of pain with bowel movement
3. More frequent bowel movements with the onset of pain
4. Loose stools at onset of pain
5. Passage of mucus per rectum

The Rome criteria were defined in order to enable more accurate diagnoses of IBS, especially in research use, and the definition of subgroups (1). Box 2 lists the second version of these

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criteria, a set of guidelines that outlines symptoms and applies parameters such as frequency and duration of symptoms (2).

### **Box 2: The Rome II criteria:**

At least 12 weeks, which not need to be consecutive, in the preceding 12 months of abdominal discomfort or pain that has two out of three of the following features (2):

1. Relief by defecation
2. Onset associated with a change in frequency of stool
3. Onset associated with the change in form (appearance) of stool

Symptoms that cumulatively support the diagnosis are:

- abnormal stool frequency (greater than 3 bowel movements per day or less than 3 bowel movements per week);
- abnormal stool form (lumpy/hard or loose/watery stool);
- abnormal stool passage (straining, urgency or feeling of incomplete evacuation);
- passage of mucus;
- bloating or feeling of abdominal distention.

Currently the third version of the Rome criteria, based on previous definitions and the Manning criteria, is being used. These criteria (listed in box 3) are the basis of a positive diagnosis of IBS and have to be present in the absence of any alarm symptoms which include fever, anemia, bleeding from the gut, significant weight loss, family history of cancer, inflammatory bowel or celiac disease, recent consistent change in bowel habit, persistent and daily diarrhea or constipation > 45 years of age or physical findings (e.g. abdominal mass, malnutrition). The Rome III criteria are thought to be the most precise criteria for the symptom-based diagnosis because of their utilization to identify and enroll patients into clinical IBS trials. They are therefore seen as the best criteria to identifying IBS patients (3). Additionally, it is important to undertake an evaluation in order to exclude possible organic causal factors. Clinical examinations, blood samples, gastroscopy, colonoscopy, x-ray of the small intestine and abdominal ultrasound are used to eliminate other causes and an IBS diagnosis is only given after excluding structural or biochemical abnormalities.

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### **Box 3: The Rome III criteria:**

Recurrent abdominal pain or discomfort, associated with two or more of the following, at least 3 days/month in the last 3 months (2):

1. Improvement with defecation
2. Onset associated with a change in frequency of stool
3. Onset associated with the change in form (appearance) of stool

The criteria must be fulfilled for the last 3 months with symptom onset at least 6 months prior to diagnosis.

Symptoms that cumulatively support the diagnosis are:

- abnormal stool frequency (greater than 3 bowel movements per day or less than 3 bowel movements per week);
- abnormal stool form (lumpy/hard or loose/watery stool);
- abnormal stool passage (straining, urgency or feeling of incomplete evacuation);
- passage of mucus;
- bloating or feeling of abdominal distention.

The supportive symptoms mentioned above can also be used to sub classify IBS patients into three subtypes: Diarrhea -predominant, constipation-predominant and alternating constipation/ diarrhea-predominant. Diarrhea-predominant IBS (IBS-D) is less frequent than the constipation form and is also more difficult to manage, as it can have a severe effect on ones social life. Diarrhea is defined as an altered stool consistency (looser) and an elevated stool frequency compared with healthy subjects. Constipation-predominant IBS (IBS-C) is involving infrequent defecation (less than three times per week), hard or lumpy stools, and/or straining during a bowel movement (4). Alternating bowel habits also occur and these patients experience both diarrhea and constipation alternately (IBS-M).

### **1.1.2 The prevalence of IBS**

The estimated prevalence of IBS varies from 12% to 30 %, a large variation that may be explained by the use of different definitions in different studies (3). A cross-sectional population-based survey conducted in Oppland and Hedmark Counties in Norway using

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recent diagnostic criteria estimated the prevalence among the Norwegian population to be 8,1% (5). There is a female predominance, with as much as twice as many women than men being diagnosed in most parts of the world. This higher prevalence in females is found regardless of the criteria used for diagnosis (3). IBS symptoms are prevalent in all age groups and the onset is not excluded to early adulthood. But younger patients are more likely to be affected than elderly and the prevalence of IBS diminishes in patients older than 60 years of age (6). This observation remains unexplained, but it is likely that several interacting factors play an effective role.

Research estimates that as many as 25-45 % of persons who experience symptoms similar to IBS-symptoms avoid seeking medical treatment (7, 8), suggesting that the estimated prevalence should be higher than studies report.

### **1.1.3 Impact on quality of life**

IBS symptoms may vary from tolerable to severe, and can severely affect the daily activities of many patients. Patients with IBS have been found to have a considerably reduction in quality of life as manifested by poorer sleep and problems with employment, relationships, sexual functioning, leisure, travel and diet (9, 10). IBS reduces quality of life to the same degree of impairment as major chronic diseases such as congestive heart failure, hepatic cirrhosis, renal insufficiency and diabetes (9, 11, 12).

### **1.1.4 Socioeconomic aspects of IBS**

Although few persons with IBS actually seek medical care (7, 8), IBS is still the most common gut disorder in primary healthcare, gastrointestinal clinics and in the general population (13, 14). As a result, patients with IBS constitute one of the largest diagnostic groups in the gastroenterological setting. The diagnosis remains an elimination diagnosis and given its prevalence and epidemiology, it is not surprising that IBS has the potential to impose a substantial financial burden on the society (15). The disorder has been shown to be associated with significant direct (use of health resources) and indirect (loss of workdays and loss of productivity during work) costs, where the latter accounts for most of the financial burden associated with IBS (16). Lacking a definite biological marker results in prescription of numerous medical examinations where one of the main goals is to exclude any organic disorders. Annual direct costs including number of medical consultations and diagnostic tests (excluding prescription and over-the-counter drug costs) in the treatment of IBS is estimated

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to be between \$1.7 billion and \$10 billion in the United States (15). IBS is also implicating in significant indirect costs to society in that it mainly strikes people of working age, a group that represent the economic output power of society. On average, IBS patients miss 13.4 days of work and school per year (4, 8). A study conducted on IBS patients in the United Kingdom and United States concluded that this patient group has a higher probability of losing a job, quitting work or turning down a promotion, and that patients work fewer hours as a result of their condition (17). The annual indirect costs in the United States are estimated at up to \$20 billion (18).

## **1.2 Nutrition**

### **1.2.1 General nutrition in IBS**

Although little is known about the pathological link between diet and IBS, it is well known that the patients' diet is greatly affected. Patients associate their IBS symptoms with the ingestion of food, combinations of foods, or a meal itself. Postprandial worsening of symptoms and adverse food reaction is common; bloating, flatulence and abdominal pain are especially of major importance (19). A study conducted on IBS patients in Sweden showed that 64% of the patients experienced a postprandial worsening of symptoms; 28% of these within 15 minutes after eating and 93% within 3 hours (20). Accordingly, most patients with IBS believe diet plays a significant role in their symptoms and 51-63% have reported that they are interested in knowing what foods to avoid (20, 21). Many IBS patients report problems with specific food items, most commonly implicating milk and milk products, wheat products, caffeine, certain meat, cabbage, onion, peas/beans, hot spices and fried food as the offending foods (20, 22). The proposed mechanisms behind this food related problems includes abnormal gas handling in the gastrointestinal tract, abnormal colonic fermentation, exaggerated motor responses after meals, psychological factors, and intolerance to specific foods (23). Such postprandial symptoms experienced by IBS patients may results in a changed and sometimes limited diet, though the data are conflicting. A Norwegian study on food intolerance and IBS showed that 62% of the subjects had limited or excluded food items from their daily intake and 12% of these had made such drastic changes to their diet that health damage could be possible in the long run (24). Other dietary surveys among IBS

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patients in the community have however failed to detect such differences in dietary composition between IBS patients and community controls (25, 26). Nevertheless, diet seems to play an important role in the pathophysiology and management of IBS patients, though the exact mechanism is not clearly outlined (see the following sections).

### **1.2.2 Meal size**

Large portion sizes have been shown to affect symptom response in IBS patients. Several studies on IBS have shown an exaggerated increase in rectal sensitivity to distension after a meal (27).

### **1.2.3 Food allergy and intolerance**

IBS patients identify trigger foods that they feel induce symptoms (such as dairy, fructose, wheat products, and caffeine) and describe worsening of their symptoms shortly after food ingestion. In a survey including more than 1200 individuals with IBS the participants were asked what lifestyle changes they had made or considered for treatment of IBS. Their answers included small meals (69%), avoiding fatty foods (64%), increased fiber intake (58%), and the avoidance of milk products (54%), carbohydrates (43%), caffeine (41%), alcohol (27%) and high-protein foods such as meat (21%) (28). Studies have proposed a number of dietary factors to produce IBS-like symptoms, such as sugar malabsorption (29), fiber intake (30) and lipids (27), but unfortunately there are no consistent findings. Organic causes to these reported adverse reactions to food may be food poisoning, food allergy, or food intolerance. The latter two will be discussed further.

An allergic response is based on the development of immunoglobulin E (IgE)-type antibodies against a food constituent, for example as seen in fish and peanut allergies. There is little evidence that the global food-related symptoms in IBS are caused by food allergy (31), but studies suggest that immune-mediated reactions to food (food allergy or hypersensitivity) are probably responsible for IBS symptoms in a small proportion of this group of patients (21, 32).

Food intolerance is a non-immune-mediated adverse reaction to food and may be caused by factors within food, such as pharmacologic agents (histamine, sulfites and caffeine), enzyme deficiency (lactase deficiency), metabolic disorders (galactosemia, alcohol intolerance), or

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idiosyncratic responses (32). Studies have shown, that there are important potentiating interactions between food intake, motility and visceral sensation among IBS patients. These interactions may directly lead to symptoms. One study describes a nutrient-dependent exaggeration of both the sensory component of the gastrocolonic response (27) and of rectal sensitivity to balloon distension (33).

### 1.2.4 FODMAP

Poorly absorbed, highly fermentable short-chain carbohydrates and sugar alcohols have the potential, through their osmotic effects and rapid fermentability by bacteria in the distal small bowel and colon, to potentiate IBS symptoms and cause metabolic reactions like bloating and diarrhea (34). These are collectively called FODMAPs (*f*ermentable *o*ligosaccharides, *d*isaccharides, *m*onosaccharides and *p*olyols), are widespread in the diet, and comprise monosaccharides (e.g. excess fructose), disaccharides (e.g. lactose), oligosaccharides (e.g. fructans and galactans) and polyols. A complete list of food items rich in FODMAPs and alternative foods, can be found in Appendix A. FODMAPs are hypothesized to be a trigger behind gastrointestinal symptoms in people with visceral hypersensitivity or abnormal motility responses. They operate largely by inducing luminal distention through a combination of osmotic effects and gas production due to rapid fermentation by bacteria in the small and proximal large intestine (35, 36). Such malabsorption can occur for a number of reasons, including the deficiency of luminal enzymes hydrolyzing the glycosidic bonds in carbohydrates (oligosaccharides; fructans and galactans), the absence or low activity of brush border enzymes (e.g. lactase) or presence of low-capacity epithelial transporters (fructose, GLUT2, GLUT5) (37). Restricting the intake of these carbohydrates globally (as opposed to individually) has in recent studies shown symptom reduction in functional disorders such as IBS (36, 38). It is noteworthy that these malabsorptions are individual and the FODMAP list in Appendix A is a complete listing of all foods that may cause symptoms, not a list of food items one has to exclude as an IBS patient. It is therefore recommended that food items be tested one by one, preferably together with a dietitian, to prevent unnecessary avoidance of foods items.

### ***Lactose***

Patients who get symptoms from lactose -containing foods (mostly milk and milk products) are probably hypersensitive to unabsorbed carbohydrate and have a reduced lactase

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production in the small bowel brush border. This is a common condition worldwide and both individuals with and without IBS may report increased symptoms. Additionally, lactose intolerance has not been found to play a role in IBS patients (39). Nevertheless, limiting lactose intake may help reduce the symptoms in some patients (40).

### ***Fructose, fructans and galactans***

Fructose is a monosaccharide found in three main forms in the diet: As free fructose (fruits, fruit juices, table sugar and honey), in the disaccharide sucrose, or as fructans (FOS; fructose oligosaccharides). While free fructose is slowly absorbed along the border of the small intestine, fructans are hardly absorbed at all (41).

Fructans are naturally occurring, nonstructural storage carbohydrates in various plants, and are found in wheat, onion, spring onions, shallots, leeks, artichokes and chicory (41). An additional source of fructans is inulin (mostly as a long-chain fructan) which is increasingly being added to foods for its presumed prebiotic effect (38). Unabsorbed, fructose and fructans may act as osmotic agents, drawing fluid into the intestinal lumen and creating distention of the small intestine. This can lead to the sensation of bloating, abdominal distention, discomfort and pain (21). This symptom production seems to be related to the fermentative effect of colonic bacteria on the malabsorbed carbohydrates (42) and may trigger symptoms especially in those who have underlying visceral hypersensitivity, like IBS patients (43). Some authors also suggest that an increased fermentative capacity in IBS patients may be the cause of such a reaction (44). Studies have shown that a fructose or fructan load can provoke acute gastrointestinal symptoms in IBS, and one-third of patients with suspected IBS have been reported to be fructose intolerant (43). In another study, as many as 72 % of patients fitting the Rome II criteria of functional abdominal bloating and gas-related symptoms, displayed sugar malabsorption (44). Coingestion of glucose enhances fructose absorption significantly and thus reduces symptom production. This is because glucose stimulates fructose absorption in a dose-dependent fashion, and malabsorption will only occur when fructose is present in excess of glucose (41). With fruits such as berry fruits (strawberry, raspberry), stone fruits (peach, plum, apricots), bananas and pineapples, glucose is present in equal or greater amounts as fructose and no symptoms are produced when ingested. In contrast, foods such as honey, oranges and dates consist of more fructose than glucose, and fruits such as cherries, apples, pears, grapes, mango and watermelon have excess of both fructose and sorbitol. These fruits may therefore cause symptoms in those with gastrointestinal hypersensitivity (33).



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Galactans (stacchyoise and raffinose) are chains of galactose molecules with one fructose molecule on the end. These carbohydrates act in the same manner as fructans in the gastrointestinal tract and may produce the same symptoms when consumed by IBS patients (38). Galactans-rich foods are legumes (soy, beans, chickpeas, lentils), cabbage and brussel sprouts.

### ***Polyols***

The most common sugar alcohols (also referred to as polyols) are sorbitol, mannitol, maltitol, lactitol and xylitol, where sorbitol constitutes the one most used and consumed. Small amounts of sorbitol are present in apples, pears, cherries, apricots and plums, and it is a common additive in sugar-free foods such as chewing gum, candy, mints, jelly, jam, drinks and chocolate (44).

The mixture fructose-sorbitol is absorbed more poorly and evokes more severe symptoms than either sugar or fructose alone, both in normal patients and in patients with IBS (41), a fact that seems to be important in the understanding of IBS. The prevalence of fructose plus sorbitol malabsorption in IBS is similar to that in healthy controls, where ingestion of 10g sorbitol (the amount present in two medium pears) caused moderate to severe abdominal discomfort in 17% of healthy subjects (45). However, IBS patients experienced significantly more symptoms than healthy subjects after combined fructose sorbitol ingestion, whereas no differences were seen after the consumption of fructose or sorbitol alone (46).

Unblinded, uncontrolled observational studie shows that 40-75% of IBS patients experience significant improvements in symptoms after following diets restricted in malabsorbed sugars such as lactose, fructose and/or sorbitol (43, 47, 48). Because of the study design one cannot exclude placebo effect in these trials, but a long-time sustained response to sugar-restricted diets in other studies argues against this as a possible placebo effect would diminish over time (49). A fructose- and sorbitol restricted diet both reduced gastrointestinal symptoms and significantly improved mood and early signs of depression in fructose malabsorbers (50). Also, a general FODMAP approach to dietary interventions has recently been used by restricting fructans in addition to fructose, thus a global restriction. The results provide strong evidence that fructose and fructans are dietary triggers for IBS-like symptoms when fructose malabsorption is present, and suggest that this effect is caused by the restriction of poorly absorbed short-chain carbohydrates and not due to a placebo effect (35, 36, 38).

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### 1.2.5 Fiber

Dietary fiber is non-starch polysaccharides derived from plant foods that are poorly digested by human enzymes (51). It occurs naturally in grains, fruits and vegetables, as well as in seeds, nuts and legumes, and can be divided into groups of water-soluble and -insoluble fiber. The reported low intake of dietary fiber among IBS patients suggests that adding dietary fiber in the diet can have a beneficial effect. Today the dietary fiber intake in Norway is 16-19 g/day (52) compared to the recommended >25 g/day (53). Increased consumption of dietary fiber has been thought to accelerate oro-anal transit and decrease intracolonic pressure, and therefore play a role in the management of IBS-symptoms, particularly in constipation (IBS-C, possible IBS-M) (54). Unfortunately, recent studies show inconsistent results (30, 55, 56) on this effect. One of the problems with the trials conducted is that their focus has to a large extent been on fiber as a whole, and few studies have made the distinction between insoluble and soluble fiber. Looking at the two forms separately, soluble fiber is seen to have a greater symptom improvement effect than insoluble fiber (21). While insoluble fiber has been shown to increase symptoms in some studies (30), a recent randomized, double-blinded, placebo-controlled trial of soluble fiber showed a significant reduction of intensity of abdominal pain, constipation, diarrhea, as well as improvement in performance of daily activities on minor functional bowel disorders (57).

### 1.2.6 Probiotics

Probiotics are defined as live microorganisms which, when administered in adequate amounts, have a therapeutic potential for gastrointestinal disease (58). Probiotics can occur naturally in fermented foods such as yoghurt, sour cream and fermented fish. It can also be added to other foods, tablets or liquids as pure or mixed cultures of organisms. Meta-analysis and reviews have been conducted on probiotics and IBS, concluding that probiotics may be beneficial as treatment. Suggested mechanisms behind such effects may be an increased mucosal anti-inflammatory and reduced proinflammatory cytokines, direct modulation of intestinal pain, blockage of the actions of potentially pathogenic bacteria on toll-like receptors, and enhancing the mucosal barrier function (59). Unfortunately there are many variables affecting the results, such as type and amounts probiotics used, short duration time, the size and the characteristics of the IBS groups studied (21). All in all, there is growing evidence that probiotics may be an important factor in the treatment of IBS, but additional studies are needed.

## INTRODUCTION

### **1.2.7 Gluten and wheat**

Gluten hypersensitivity, in the form of celiac disease, has several symptoms in common with the diagnosis criteria of IBS and recent studies suggest that approximately 0.4-4% of patients with IBS symptoms have celiac disease (60-62). This either indicates that many patients with undiagnosed celiac disease may be wrongly diagnosed as having IBS or that there is an unknown association between the two diseases. This nonceliac adverse reaction to wheat could also be related to the fructan level in wheat (47). As a major source of fructans in the diet, wheat is likely to be problematic when consumed in large amounts in food such as pasta, breakfast cereals, bread, cakes, cookies, and crackers. Wheat is comparatively low in fructans (1-4g/ 100g) compared to many vegetables and fruits, but its use as a dietary staple means that it is the major contributor to fructans in the western world (63). Dietary trends in United States and Europe indicate increasing consumption of these food items. But there is no need for an absolute elimination of grains in the diet, similar to the gluten-free diet used in the treatment of celiac disease, and not all forms of grains needs to be avoided. Some grain have a higher tolerability, also in IBS patients. For example, rye contains fructans with longer chain lengths than in those found in wheat, and may therefore not have the same osmotic activity or be as rapidly fermented. Alternative bread types such as spelt bread, contain less fructans (0.06g per portion eaten) than bread made of wheat (64). In one study, spelt bread was seen to have lowest levels of fructans and total FODMAPs (64). This may be the reason why many IBS patients benefit from changing from wheat to spelt bread (65).

Other data indicate that a large proportion of patients with IBS symptoms are gluten sensitive, without meeting the criteria for the diagnosis of celiac disease (66). There is some acceptance of the idea that a persistent low-grade inflammation may be present in some IBS patients. Several causal factors have been proposed, such as small-bowel bacterial overgrowth, postinfectious causes and immune-mediated responses to specific dietary constituents such as gluten (32).

### **1.3 The aim of the study**

The present study was undertaken to investigate the diet and quality of life in IBS patients in comparison with that of the background population. Furthermore, it aimed at studying the effects of guidance on diet management, as regards changes in food intake, quality of life and symptoms.

## **2. METHODS**

### **2.1 Patients and healthy subjects**

Patients were recruited from among those who were referred to the gastroenterology section, Stord Helse-Fonna Hospital (unguided) and those who received diet guidance two years earlier at Stord Hospital (guided). Patients between 18 and 65 years of age who satisfied Rome III criteria for the diagnosis of IBS were considered for inclusion in the study. Those with organic gastrointestinal disease, clinically significant system disease, and pregnant or lactating women were excluded. Patients who had undergone any abdominal surgery, with the exception of appendectomy, caesarean and hysterectomy, were also excluded. Healthy volunteers without any gastrointestinal complaints and without any of the exclusion criteria were recruited as controls by local announcement to students at the University of Bergen and hospital employees. The study was performed in accordance with the Declaration of Helsinki and was approved by the local Committee for Medical Research Ethics. All patients gave written consent.

### **2.2 Study design**

Four questionnaires were sent by mail to both patient groups (guided and unguided) and controls during October 2010 with a following reminder sent mid December 2010. These questionnaires were Food Frequency Questionnaire (FFQ), Short-Form-Nepean Dyspepsia Index (SF-NDI) quality of life questionnaire, Irritable Bowel Syndrome-Quality Of Life form (IBS-QOL) and Birmingham IBS Symptom score. The participants were asked to answer the questionnaires and return them by mail.

### **2.3 Guidance on diet management**

Guidance on diet management was given two years prior to the study. The patients were asked to keep a diary where they included time of eating/drinking and type of food and drinks ingested daily. Furthermore, they reported the occurrence of pain, abdominal distention, stool frequency and consistency. This was done for at least a month. Symptoms were graded as

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light, moderate or severe. Two sessions, of about an hour each, were scheduled with a nurse, where information about the disease and the role of diet were emphasized and a review of the diary was done together with the patient. The information was given verbally using charts and illustrative drawings. Diet instructions focused on avoiding foods that previous patients had reported causing symptoms (65), the importance of regular meals and healthy eating habits (Table 1). This diet guidance given at Stord Hospital two years ago correlates well with the FODMAP foods investigated in studies in recent years (Appendix A). Additionally, fiber-poor diets and trials with fat, protein, carbohydrates rich/poor diet were tried. With the participation of the patient, the nurse designed a suitable diet for the patient (65). The intention behind this change of diet was to reduce the production of pain- and discomfort-causing intestinal gas, to stimulate useful bacteria and to reduce/increase the release of gastrointestinal hormones.

**Table 1: General food advice given to IBS patients at Stord Hospital.**

<i>Food allowed</i>	<i>Food advised to avoid</i>
Spelt and spelt products	Flour
Meat	Pasta
Fish	Onion
Chicken	Garlic
Fat and oils	Paprika
Rice	Cabbage and rutabaga
Potatoes	Carbonated beverages (soda)
Carrot	Light products (food containing artificial sweeteners)
Apple and pear (peeled)	Banana
Citrus	Beans
Tomato	Peas
Milk	
Coffee, tea	
Chocolate	
Alcohol	
Probiotic foods	

### **2.4 Questionnaires used**

The questionnaires used in this study were Food Frequency Questionnaire (FFQ), Short Form Nepean Dyspepsia Index (SF-NDI), Irritable Bowel Syndrome Quality Of Life (IBS-QOL) and Birmingham IBS Symptom score. All the questionnaires was sent to the subjects by mail and the results are based on self-reporting.

#### **2.4.1 MoBa Food Frequency Questionnaire (Moba FFQ)**

A semi-quantitative Food Frequency Questionnaire (FFQ) is a common dietary assessment tool used in large epidemiologic studies of diet and health. The self-administrated FFQ asks participants to report the frequency of consumption and portion size of line items over a defined period of time. Each line item is defined by a series of foods or beverages. Additional questions on food purchasing and preparation methods enable the analysis software to further refine nutrient calculations. Although FFQs are not considered appropriate for estimating true nutrient intake at the individual level, they can be used in epidemiological studies to rank individuals along the distribution of intake, so that individuals with low intakes can be separated from those with high intakes (67). The FFQ used in this study is developed by the Norwegian Institute of Public Health for the Norwegian Mother and Child Cohort Study (MoBa). A validation of this questionnaire was conducted on healthy pregnant women in 2008 in Oslo, Norway (68). The MoBa FFQ is a semi-quantitative questionnaire that asks about the intake of 225 food items, including any oral supplements, grouped according to the Norwegian meal pattern and is designed to capture the participant's dietary habits during the previous 12 months (Appendix B). Data analysis gives information about intake of energy, water, macro and micro nutrients, minerals and alcohol in addition to 100 specific food groups and items (A complete listing of these groups and items are found in Appendix C). It also gives information about meal patterns.

#### **2.4.2 Short-Form Nepean Dyspepsia Index (SF-NDI)**

The Short-Form (SF) Nepean Dyspepsia Index (NDI) was primarily constructed and validated in patients with functional dyspepsia (69). A Norwegian translation of the form was later validated and proved to also perform well in patients, most of whom satisfied the Rome II criteria for IBS, with subjective food hypersensitivity (70). The form is a 10-item

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questionnaire (Appendix D) examining the influence of dyspepsia on domains of health in patients, namely tension/anxiety, interference with daily activities, disruption to regular eating/drinking, knowledge towards/control over disease symptoms and interference with work/study, with each subscale containing two items. Each item is measured by a 5-point Likert scale ranging from 1 (not at all or not applicable), 2 (a little), 3 (moderately), 4 (quite a lot) to 5 (extremely). Individual items in each sub-scale are aggregated to obtain a score range from 10 (lowest Health Related Quality of Life, HRQoL, score) to 50 (highest HRQoL score) as per the developers' original calculation formula. High scores indicates worse functioning or symptoms.

### **2.4.3 Irritable Bowel Syndrome Quality Of Life (IBS-QOL)**

The IBS-QOL is a 34-items-long IBS-specific, quality of life document concerning physical and psychosocial functioning as a result of IBS (71). A 5-point Likert response scale is used to assess how much the statement described the feeling of the respondent: not at all, slightly, moderately, quite a lot, and extremely (Appendix E). IBS-QOL consists of 8 domains: dysphoria, interference with activity, body image, health worry, food avoidance, social reaction, sexual function, and impact on relations. The IBS-QOL has been validated in IBS patients (72). Low scores indicates a reduction in quality of life related to these domains.

### **2.4.4 Birmingham IBS symptom questionnaire**

The Birmingham IBS symptom score questionnaire is a disease specific score to measure the symptoms of patients with IBS. It has been developed to be suitable for self-completion and has been found to be acceptable to patients. Its dimensions have good reliability, external validity and sensitivity (73). The questionnaire is comprised of 11 questions based on the frequency of IBS related symptoms (Appendix F). Each question has a standard response scale with symptoms all being measured on a 6-point Likert scale ranging from 0 ("none of the time") to 5 ("all of the time"). There are three underlying dimensions: pain (3 items), diarrhea (5 items) and constipation (3 items) (73).

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### **2.5 Statistical analysis**

Comparisons between three groups, controls, unguided IBS and guided IBS patients were performed with the Kruskal-Wallis non-parametric ANOVA test and Dunn's test as a post-test. To compare between two groups, unguided IBS and guided IBS patients, the Mann-Whitney non-parametric test was used. All tests were two-tailed and probabilities (P) less than 0,05 were considered statistically significant. All analysis were done using GraphPad Prism 5 (GraphPad Software, Inc., LaJolla, California, USA).



### 3. RESULTS

#### 3.1 Patients and healthy subjects

Forty-two controls, 63 unguided IBS patients and 70 guided IBS patients were enrolled in the study. Seventy-nine IBS patients replied and signed a written consent. Eight letters were returned by mail because the patients moved to a new address, which we were unable to trace. Ten patients returned the questionnaires unanswered and did not give their consent to participate in the study. These patients were six unguided and four guided patients. Thirty-six patients did not reply or return the questionnaire. Thus, 35 controls, 36 unguided IBS patients and 43 guided IBS patients satisfactorily completed the study. The mean age in controls, unguided IBS patients and guided IBS patients were 31 (range 20-54), 38 (range 19-61) and 40 (range 20-63) years, respectively. There was no statistical difference between the mean age in the three groups. The percentage of males in the unguided IBS patient group, guided IBS patient group and controls were 19%, 12% and 14%, respectively.

#### 3.2 Effect on diet and diet management

##### 3.2.1 MoBa Food Frequency Questionnaire

The FFQ showed that there were no statistical differences in the intake of calories, carbohydrates (total, starch and fiber), proteins, fat (total, saturated, cholesterol, trans, monounsaturated or polyunsaturated) or sugar between controls, unguided and guided IBS patients (Table 2). Nor was there any statistical difference in number of meals or meal pattern among the patient groups or between the patients and controls (Figure 1). A significant lower consumption of alcohol was reported in both guided and unguided IBS patients as compared with controls (Table 2). Accordingly, there was also a significant lower intake in the consumption of beer and wine when comparing guided ( $P=0.0095$  and  $0.0163$ , respectively) and unguided IBS ( $P=0.0008$  and  $0.0017$ , respectively) patients with controls. The daily consumption of beer and wine was  $45.0 \pm 10.9$  and  $34.2 \pm 5.9$  ml in controls,  $13.9 \pm 5.9$  and  $14.5 \pm 4.3$  ml in unguided patients and  $21.0 \pm 6.5$  and  $16 \pm 2.9$  ml in guided patients (mean + SEM). No statistical differences were reported in alcohol consumption or intake of beer/wine among the two IBS patient groups.

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**Table 2: Daily intake of macro nutrients and alcohol in controls, unguided IBS patients and guided IBS patients. Expressed as mean  $\pm$  S.E.M**

	<i>Controls</i>	<i>Unguided</i>	<i>Guided</i>
<i>Energy, kcal</i>	2338.7 $\pm$ 143.6	2102.9 $\pm$ 120.0	2243.2 $\pm$ 123.8
<i>Carbohydrates</i>			
- total, g	287.2 $\pm$ 19.1	257.2 $\pm$ 18.2	278.4 $\pm$ 19.6
- starch, g	139.5 $\pm$ 11.8	129.9 $\pm$ 10.9	124.9 $\pm$ 8.1
- fiber, g	32.5 $\pm$ 2.2	30.0 $\pm$ 2.5	31.5 $\pm$ 2.1
<i>Protein</i>	94.4 $\pm$ 5.8	81.3 $\pm$ 3.8	91.2 $\pm$ 4.2
<i>Fats</i>			
- total, g	86.4 $\pm$ 5.5	81.2 $\pm$ 4.7	82.9 $\pm$ 5.3
- saturated, g	32.4 $\pm$ 2.3	28.9 $\pm$ 1.7	30.0 $\pm$ 1.7
- cholesterol, mg	267.8 $\pm$ 17.0	261.2 $\pm$ 12.3	296.7 $\pm$ 16.7
- trans, g	2.0 $\pm$ 0.2	1.8 $\pm$ 0.2	1.7 $\pm$ 0.1
- monounsaturated, g	29.9 $\pm$ 2.1	27.1 $\pm$ 1.7	28.3 $\pm$ 2.2
- polyunsaturated, g	15.7 $\pm$ 1.1	17.2 $\pm$ 1.4	16.8 $\pm$ 1.5
<i>Sugar, g</i>	51.3 $\pm$ 6.3	48.1 $\pm$ 5.5	53.9 $\pm$ 5.7
<i>Alcohol</i>	4.7 $\pm$ 0.7	<b>1.9 <math>\pm</math> 0.4</b> <sup>A*** C**</sup>	2.3 $\pm$ 0.4

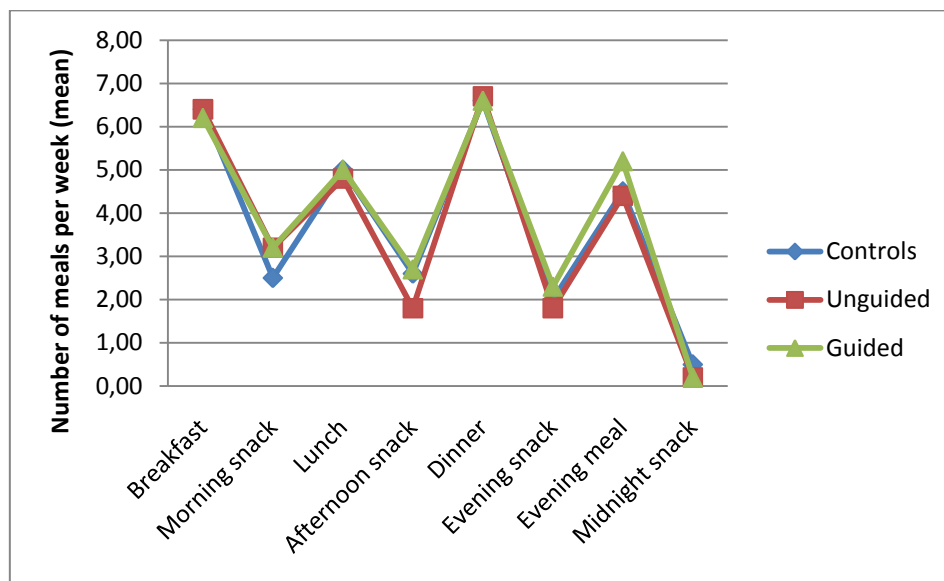
A: unguided patients vs controls

C: guided patients vs controls

\*\*.: P<0.01

\*\*\*.: P<0.001

**Figure 1: Meal pattern per week among controls, unguided IBS patients and guided IBS patients. Expressed as mean.**



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The difference in the intake of milk and milk products between IBS patients and controls is summarized in Table 3. The calcium intake in unguided IBS patients was significantly lower than intake in guided patients and controls (P=0.033 and P=0.020, respectively). The values are listed in table 4.

**Table 3: Daily intake of dairy products compared between controls, unguided and guided IBS patients. Expressed as mean  $\pm$  S.E.M.**

	<i>Controls</i>	<i>Unguided</i>	<i>Guided</i>
<b><i>Dairy products</i></b>			
<i>Milk products, whole fat, g</i>	53.0 $\pm$ 30.4	26.2 $\pm$ 9.8	20.3 $\pm$ 7.7
<i>Milk products, low-fat, g</i>	267.9 $\pm$ 50.9	<b>72.8 <math>\pm</math> 18.9</b> <sup>A** B**</sup>	195.8 $\pm$ 55.7
<i>Sour milk with probiotic supplement<sup>1</sup>, g</i>	100.5 $\pm$ 50.4	64.2 $\pm$ 19.7	<b>151.6 <math>\pm</math> 38.6</b> <sup>C**</sup>
<i>Yoghurt, g</i>	108.2 $\pm$ 42.3	60.9 $\pm$ 15.7	64.2 $\pm$ 10.8
<i>Soy, rice and oat milk, g</i>	1.2 $\pm$ 1.0	36.2 $\pm$ 25.2	12.6 $\pm$ 7.1
<i>Brown goat cheese, g</i>	4.8 $\pm$ 2.1	2.9 $\pm$ 1.0	3.6 $\pm$ 1.2
<i>Cheese, whole fat, g</i>	14.7 $\pm$ 1.8	17.0 $\pm$ 3.0	14.2 $\pm$ 2.8
<i>Cheese low fat, g</i>	4.2 $\pm$ 1.8	2.1 $\pm$ 1.0	2.4 $\pm$ 0.8
<i>Mold cheese, g</i>	0.94 $\pm$ 0.3	<b>0.8 <math>\pm</math> 0.7</b> <sup>A*</sup>	<b>0.3 <math>\pm</math> 0.1</b> <sup>C**</sup>

1: Includes the brand "Tine Biola" containing LGG® (Lactobacillus rhamnosus GG), and the brand "Tine Cultura" containing Lactobacillus acidophilus La-5 and Bifidobacterium Bb-12.

A: unguided patients vs controls

B: unguided vs guided patients

C: guided patients vs controls

\*: P<0.05

\*\* : P<0.01

The results of intake of vegetables and fruit are given in table 4, with a more thorough description in table 5 of micronutrients and minerals actually consumed.

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**Table 4: Comparison of daily intake of some vegetables, fruits and berries among controls, unguided and guided IBS patients. Expressed as mean  $\pm$  S.E.M.**

	<i>Controls</i>	<i>Unguided</i>	<i>Guided</i>
<b>Vegetables</b>			
<i>Raw vegetables, g</i>	45.2 $\pm$ 7.2	<b>18.9 <math>\pm</math> 3.2</b> <sup>A****</sup>	39.4 $\pm$ 7.3
<i>Cauliflower, raw, g</i>	1.6 $\pm$ 0.3	1.8 $\pm$ 0.5	1.9 $\pm$ 0.2
<i>Cauliflower, cooked, g</i>	7.6 $\pm$ 1.1	9.6 $\pm$ 1.6	10.3 $\pm$ 1.6
<i>Broccoli, raw, g</i>	2.3 $\pm$ 0.3	<b>2.6 <math>\pm</math> 0.9</b> <sup>B**</sup>	<b>5.4 <math>\pm</math> 1.1</b> <sup>C*</sup>
<i>Broccoli, cooked, g</i>	8.2 $\pm$ 1.2	6.2 $\pm$ 1.1	8.8 $\pm$ 1.3
<i>Peas, g</i>	2.9 $\pm$ 0.2	7.3 $\pm$ 2.7	4.6 $\pm$ 1.2
<i>Cabbage, raw, g</i>	1.8 $\pm$ 0.2	1.5 $\pm$ 0.1	4.2 $\pm$ 1.8
<i>Cabbage, cooked, g</i>	2.5 $\pm$ 0.2	4.9 $\pm$ 2.0	4.7 $\pm$ 1.9
<i>Paprika, raw, g</i>	9.9 $\pm$ 1.5	<b>4.7 <math>\pm</math> 0.9</b> <sup>A**</sup>	<b>7.9 <math>\pm</math> 2.2</b> <sup>C*</sup>
<i>Paprika, cooked, g</i>	3.2 $\pm$ 0.6	3.5 $\pm$ 0.7	3.2 $\pm$ 0.6
<i>Onion, leak, garlic, g</i>	12.6 $\pm$ 1.8	<b>7.5 <math>\pm</math> 1.2</b> <sup>A*</sup>	<b>7.9 <math>\pm</math> 1.8</b> <sup>C**</sup>
<i>Tomatoes, g</i>	78.8 $\pm$ 8.6	<b>38.1 <math>\pm</math> 4.5</b> <sup>A****</sup>	59.0 $\pm$ 7.1
<i>Potatoes, fried, g</i>	4.6 $\pm$ 0.7	<b>8.0 <math>\pm</math> 1.0</b> <sup>A*</sup>	6.6 $\pm$ 0.9
<i>Potatoes, cooked, g, mashed or gratinated, g</i>	34.4 $\pm$ 3.9	<b>51.1 <math>\pm</math> 6.1</b> <sup>A*</sup>	<b>58.8 <math>\pm</math> 5.8</b> <sup>C**</sup>
<b>Fruits/ berries, g</b>			
<i>Orange, g</i>	43.8 $\pm$ 11.7	50.4 $\pm$ 10.9	88.2 $\pm$ 17.1
<i>Banana, g</i>	37.1 $\pm$ 4.7	35.0 $\pm$ 6.9	51.2 $\pm$ 13.0
<i>Grapes, g</i>	12.0 $\pm$ 1.8	22.5 $\pm$ 7.5	20.1 $\pm$ 5.4
<i>Pears, g</i>	19.0 $\pm$ 3.8	34.4 $\pm$ 9.9	16.9 $\pm$ 4.2
<i>Apple, g</i>	66.3 $\pm$ 11.0	50.8 $\pm$ 13.3	54.9 $\pm$ 7.1
<i>Peach, g</i>	14.7 $\pm$ 3.4	23.3 $\pm$ 14.3	15.9 $\pm$ 4.2
<i>Grapefruit, g</i>	3.9 $\pm$ 1.1	3.0 $\pm$ 0.5	10.0 $\pm$ 6.1
<i>Kiwi, g</i>	12.9 $\pm$ 6.7	13.7 $\pm$ 4.5	14.2 $\pm$ 3.2
<i>Mango, g</i>	4.8 $\pm$ 0.8	5.5 $\pm$ 1.5	4.8 $\pm$ 0.8
<i>Plums, g</i>	4.8 $\pm$ 1.0	6.7 $\pm$ 2.2	6.0 $\pm$ 1.3
<i>Melon, g</i>	8.1 $\pm$ 1.3	14.2 $\pm$ 4.1	8.2 $\pm$ 0.9
<i>Blueberry, g</i>	12.0 $\pm$ 2.7	23.6 $\pm$ 11.7	14.5 $\pm$ 3.1
<i>Strawberry, g</i>	13.2 $\pm$ 3.4	22.8 $\pm$ 8.5	14.1 $\pm$ 4.9
<b>Dried fruits</b>			
<i>Prunes, dried, g</i>	1.7 $\pm$ 0.4	9.8 $\pm$ 7.9	3.5 $\pm$ 1.1
<i>Apricot, dried, g</i>	2.3 $\pm$ 0.5	6.8 $\pm$ 3.5	6.2 $\pm$ 2.7
<b>Others</b>			
<i>Mushrooms, g</i>	5.8 $\pm$ 1.0	<b>3.2 <math>\pm</math> 0.9</b> <sup>A**</sup>	5.9 $\pm$ 1.6
<i>Green beans, g</i>	1.7 $\pm$ 0.3	<b>0.7 <math>\pm</math> 0.3</b> <sup>A*</sup>	0.9 $\pm$ 0.2

A: unguided patients vs controls

B: unguided vs guided patients

C: guided patients vs controls

\*: P<0.05

\*\*.: P<0.01

\*\*\*.: P<0.001

## RESULTS

**Table 5: Comparison of daily intake of vitamins and minerals based on reported food consumption, among controls, unguided and guided IBS patients. Expressed as mean  $\pm$  S.E.M**

	<i>Controls</i>	<i>Unguided</i>	<i>Guided</i>
<b><i>Vitamins</i></b>			
<i>Beta-carotene, mg</i>	3.6 $\pm$ 0.5	<b>2.5 <math>\pm</math> 0.3</b> <sup>A* B*</sup>	3.9 $\pm$ 0.5
<i>Folate, <math>\mu</math>g</i>	278.2 $\pm$ 23.3	257.3 $\pm$ 17.8	296.4 $\pm$ 19.2
<i>Niacin equivalents, <math>\mu</math>g</i>	33.8 $\pm$ 1.9	30.1 $\pm$ 1.3	33.7 $\pm$ 1.6
<i>Retinol equivalents, mg</i>	1.3 $\pm$ 0.1	<b>1.0 <math>\pm</math> 0.1</b> <sup>A*</sup>	1.2 $\pm$ 0.1
<i>Riboflavin, mg</i>	2.1 $\pm$ 0.2	<b>1.6 <math>\pm</math> 0.1</b> <sup>A* B*</sup>	1.9 $\pm$ 0.1
<i>Thiamin, mg</i>	1.6 $\pm$ 0.1	1.3 $\pm$ 0.1	1.5 $\pm$ 0.1
<i>Vitamin B<sub>6</sub>, mg</i>	1.6 $\pm$ 0.1	<b>1.4 <math>\pm</math> 0.1</b> <sup>B*</sup>	1.7 $\pm$ 0.1
<i>Vitamin B<sub>12</sub>, <math>\mu</math>g</i>	6.3 $\pm$ 0.5	5.6 $\pm$ 0.4	6.3 $\pm$ 0.5
<i>Vitamin C, mg</i>	128.0 $\pm$ 11.9	134.9 $\pm$ 14.7	167.7 $\pm$ 18.0
<i>Vitamin D, <math>\mu</math>g</i>	3.9 $\pm$ 0.3	3.8 $\pm$ 0.3	3.8 $\pm$ 0.3
<i>Vitamin E, mg</i>	12.0 $\pm$ 1.0	12.3 $\pm$ 1.3	12.5 $\pm$ 0.9
<b><i>Minerals</i></b>			
<i>Calcium, mg</i>	1184.3 $\pm$ 126.6	<b>825.8 <math>\pm</math> 65.1</b> <sup>A* B*</sup>	1065.1 $\pm$ 82.3
<i>Copper, mg</i>	1.5 $\pm$ 0.1	1.3 $\pm$ 0.1	1.5 $\pm$ 0.1
<i>Iron, mg</i>	12.0 $\pm$ 0.8	10.8 $\pm$ 0.6	11.0 $\pm$ 0.6
<i>Magnesium, mg</i>	449.3 $\pm$ 29.2	<b>373.2 <math>\pm</math> 22.2</b> <sup>A*</sup>	433.1 $\pm$ 26.8
<i>Phosphorus, mg</i>	1890.2 $\pm$ 133.7	<b>1490.0 <math>\pm</math> 81.1</b> <sup>A*</sup>	1768.4 $\pm$ 103.6
<i>Potassium, mg</i>	4259.7 $\pm$ 268.6	3632.6 $\pm$ 225.3	4355.7 $\pm$ 271.3
<i>Selenium, <math>\mu</math>g</i>	60.8 $\pm$ 3.6	54.6 $\pm$ 2.7	61.3 $\pm$ 3.1
<i>Sodium, mg</i>	2988.5 $\pm$ 162.7	2799.8 $\pm$ 152.1	2866.4 $\pm$ 139.4
<i>Zink, mg</i>	12.3 $\pm$ 0.8	10.4 $\pm$ 0.5	11.4 $\pm$ 0.6

A: unguided patients vs controls

B: unguided vs guided patients

\*: P<0.05

The findings of the differences in wheat and wheat products in controls, unguided and guided IBS patients is shown in table 6. The intake of rice, millet and couscous was 38.1  $\pm$  5.6 g/day, 22.1  $\pm$  3.9 g/day and 34.5  $\pm$  4.9 g/day in controls, unguided and guided patients, respectively, which reflects a significant lower consumption among unguided patients as compared with both guided IBS patients (P=0.02) and controls (P=0.001).

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**Table 6: Comparison of daily intake of wheat and wheat products among controls, unguided and guided IBS patients. Expressed as mean  $\pm$  S.E.M.**

	<i>Controls</i>	<i>Unguided</i>	<i>Guided</i>
<i>White bread</i>	63.7 $\pm$ 13.5	97.1 $\pm$ 20.0	72.3 $\pm$ 12.5
<i>Dark bread</i>	105.1 $\pm$ 17.8	71.1 $\pm$ 17.6	73.1 $\pm$ 12.9
<i>Spaghetti, pasta</i>	29.1 $\pm$ 4.4	<b>18.9 <math>\pm</math> 3.7<sup>A**</sup></b>	<b>17.8 <math>\pm</math> 3.1<sup>C**</sup></b>
<i>Waffles, pancakes</i>	8.4 $\pm$ 1.0	8.1 $\pm$ 1.2	10.0 $\pm$ 1.6
<i>Cakes</i>	7.5 $\pm$ 1.1	6.5 $\pm$ 0.8	8.7 $\pm$ 1.4
<i>Crisp bread</i>	16.5 $\pm$ 3.5	16.1 $\pm$ 3.5	17.6 $\pm$ 4.7
<i>Buns</i>	5.7 $\pm$ 1.2	<b>3.3 <math>\pm</math> 0.6<sup>A*</sup></b>	<b>3.8 <math>\pm</math> 1.2<sup>C**</sup></b>

A: unguided patients vs controls

C: guided patients vs controls

\*: P<0.05

\*\* : P<0.01

### 3.3 Effect on quality of life

#### 3.3.1 Short-Form Nepean Dyspepsia Index (SF-NDI)

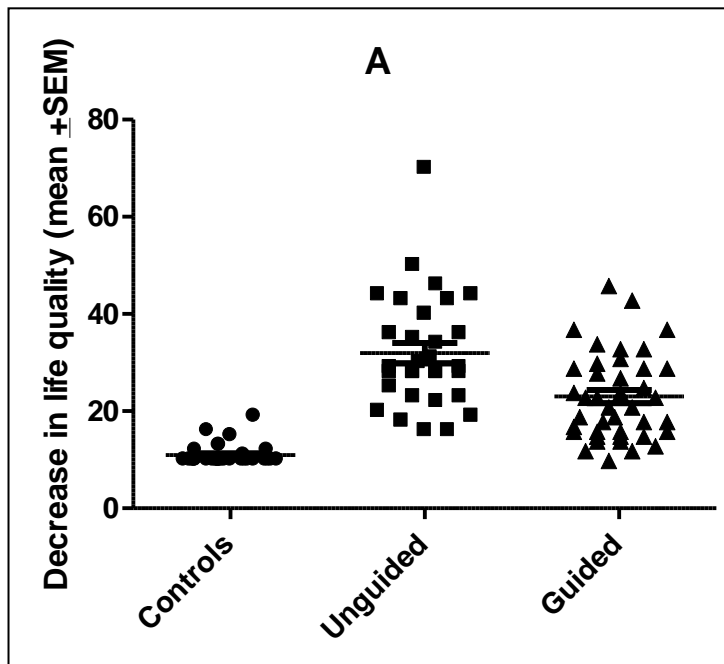
The reduction in quality of life in unguided patients, guided patients and healthy controls amounts to 31.6  $\pm$  1.6, 22.7  $\pm$  1.2 and 10.9  $\pm$  0.3, respectively (mean  $\pm$  S.E.M) (Figure 2). The reduction in quality of life as assessed by the SF-NDI form was significantly lower in the guided patients as compared with the unguided patients (P=0.0001). Both patient groups had significantly lower quality of life than controls (both P<0.0001).

#### 3.3.2 Irritable Bowel Syndrome Quality Of Life (IBS-QOL)

One guided patient did not answer this questionnaire. The total score of quality as measured by the IBS-QOL questionnaire was significantly improved in the guided patients compared with unguided IBS patients (p=0.015). All the domains were significantly improved in guided IBS patients except health worry, food avoidance and sexual function (Table 7).

## RESULTS

**Figure 2: The decrease in life quality assessed by SB-NDI, comparing controls, unguided and guided IBS patients.**



**Table 7: The scores of the 8 domains of the IBS quality of life questionnaire, comparing unguided and guided IBS patients. Shown as mean  $\pm$  S.E.M.**

	<i>Unguided</i>	<i>Guided</i>	<i>P</i>
<i>N</i>	36	42	0.0668
<i>Total score</i>	68.5 $\pm$ 2.0	75.4 $\pm$ 2.1	<b>0.0151*</b>
<i>Dysphoria</i>	65.3 $\pm$ 2.7	77.8 $\pm$ 2.2	<b>0.0009***</b>
<i>Interference with activity</i>	70.2 $\pm$ 2.5	78.5 $\pm$ 2.1	<b>0.0072**</b>
<i>Body image</i>	60.3 $\pm$ 2.2	70.3 $\pm$ 2.5	<b>0.0020**</b>
<i>Health worry</i>	73.3 $\pm$ 2.4	78.5 $\pm$ 2.3	0.0929
<i>Food avoidance</i>	59.4 $\pm$ 3.3	59.4 $\pm$ 2.6	0.9920
<i>Social reactions</i>	73.4 $\pm$ 2.5	83.8 $\pm$ 2.3	<b>0.0035**</b>
<i>Sexual relations</i>	75.6 $\pm$ 3.4	81.0 $\pm$ 3.2	0.1156
<i>Impact on relations</i>	73.3 $\pm$ 2.9	81.0 $\pm$ 2.1	<b>0.0352*</b>

\*: P<0.05  
 \*\*: P<0.01  
 \*\*\*: P<0.001

## RESULTS

### 3.4 Effect on symptoms

#### 3.4.1 Birmingham IBS Symptom Questionnaire

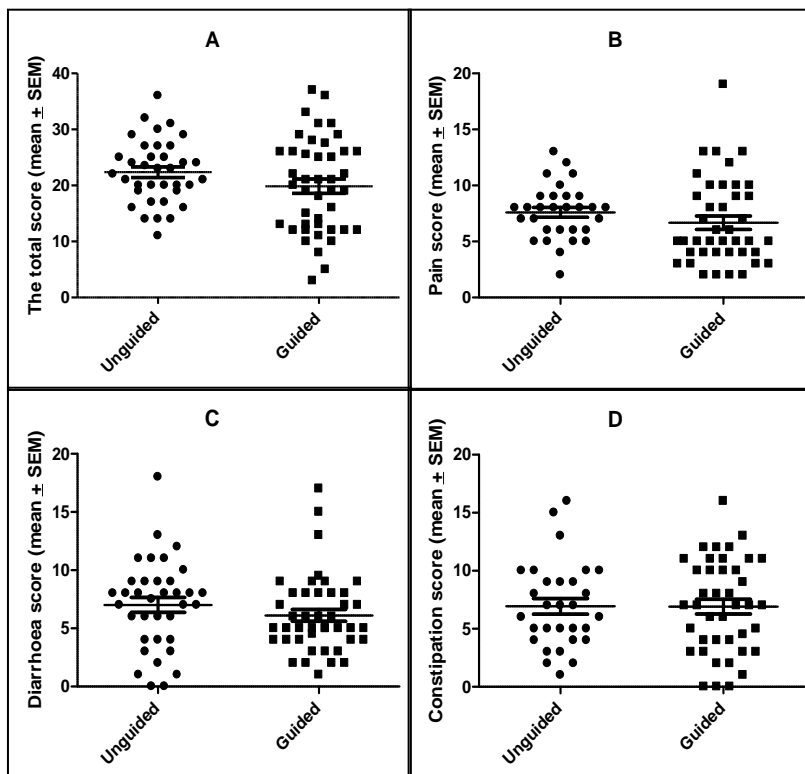
The total score of symptoms as assessed by the Birmingham IBS symptom questionnaire was lower but not significantly reduced in the guided compared to the unguided IBS patients. Nor were there any statistical differences between the occurrence of diarrhea and constipation in the two groups. The dimension of pain was significantly reduced in patients who had been given dietary advices (Table 8 and figure 3).

**Table 8: The scores of the 3 dimensions of the Birmingham IBS Symptom questionnaire in unguided and guided IBS patients. Expressed as mean  $\pm$  S.E.M.**

	<i>Unguided</i>	<i>Guided</i>	<i>P</i>
<i>N</i>	36	43	0.0668
<i>Total score</i>	22.4 $\pm$ 0.9	19.7 $\pm$ 1.2	0.0840
<i>Pain</i>	7.9 $\pm$ 0.4	6.5 $\pm$ 0.5	<b>0.0310*</b>
<i>Diarrhea</i>	7.0 $\pm$ 0.6	6.1 $\pm$ 0.5	0.1436
<i>Constipation</i>	7.4 $\pm$ 0.6	7.0 $\pm$ 0.6	0.6270

\*: P<0,05

**Figure 3: The score of the dimensions in the Birmingham IBS Symptom questionnaire; total score (A), pain (B), diarrhea (C) and constipation (D), in unguided and guided IBS patients.**





## 4. DISCUSSION

It is often stated that diet has a major role in triggering symptoms in IBS. Several dietary factors have been implicated but dietary trials have produced mixed results and have in general given little guidance for the management of IBS. Recent studies have illuminated the effect of a FODMAP-restricted diet in this patient group with good results. In the treatment program at Stord Hospital the patients have been given similar dietary advice as with a FODMAP-restricted diet. In the present study, an attempt was made to evaluate the effect of such dietary guidance two years after guidance.

### 4.1 Discussion of the results

#### 4.1.1 Effect on diet and diet management

In the present study, there were no statistical differences in the macro nutrients when comparing the two patient groups with the control group; which is a sign of low risk of malnutrition among IBS patients. However, the unguided and guided patients had a lower daily energy intake than controls;  $2103 \pm 120$  kcal,  $2243 \pm 124$  kcal and  $2339 \pm 144$  kcal (mean + SEM), respectively. As the same applies for the mean consumption of carbohydrates, proteins and fats, this indicates that unguided IBS patients generally eat less food than controls and guided patients. This is comparable with other studies on IBS and diet (24). That patients given dietary advice in general eat more than unguided patients may be due to improved symptoms and/or reassurance through acquired knowledge (74, 75). The significant lower alcohol consumption in the patient groups compared to controls in the present study correspond well with previous reported intolerance to various alcoholic beverages among IBS patients and that as many as 12% either limit or avoid such beverages (20, 24).

#### *Dairy products*

The most important dietary source of calcium in the Western world is milk and other dairy products, and the calcium content of these foods can contribute 50-75% of the daily dietary intake (76). The common believe among IBS patients that lactose is a main cause of their symptoms (77) can be the cause of the lower consumption of milk and milk products that is found among unguided IBS patients in this study. This, in turn, can explain the observation

## DISCUSSION

made here of a lower intake of calcium in these patients. IBS patients who did not receive guidance on diet management consumed only one third of the milk and milk products as controls. Also, they had a much higher consumption of alternative milk products such as soy, rice and oat milk compared with IBS patients that received guidance on diet management (3 times as such) and controls (30 times as much). This seems to be a result of a conscious choice to replace lactose containing food items in their diet. But despite such replacement (instead of exclusion of food items) unguided IBS patients still had a significant lower intake of calcium than IBS patients that received guidance on diet management and controls (826 mg/day versus 1065 mg/day and 1185 mg/day, respectively). This is in accordance with the recommendation (800 mg/day) for the age group 20-60 years (78). The recommendation for those between 18 and 20 years is 900mg/day (78) and the reported intake in unguided patients in this age group may imply an existing risk of not meeting their daily calcium needs. Milk and milk products are also abundant in phosphorus and contribute 20-30% of the daily phosphorus intake (76). The reduced consumption of these food items is most likely the cause of the significant lower intake of phosphorus when comparing unguided IBS patients with controls. Unguided IBS patients also had a significant lower intake of the vitamin riboflavin, and as milk counts for an average of 25-30% of the riboflavin in Western diet (76), this may explain such deviation from the control values.

The guided IBS patients report a consumption rate of sour milk products containing probiotics almost twice as much as that of the unguided IBS patients and one and half times that of controls. This may be as a result of the dietary advices given them. The products reported used were supplemented with *Lactobacillus rhamnosus* GG, *Lactobacillus acidophilus* La-5 and *Bifidobacterium* Bb-12. Patients with IBS have fewer *Lactobacillus* spp. and *Bifidobacterium* spp. in their intestinal flora than healthy individuals (79). These bacteria have shown to bind to epithelial cells and inhibit pathogen binding and to enhance barrier function (80). Furthermore, these bacteria spp. do not produce gas on fermenting carbohydrates, an effect which would be amplified as they also inhibit the *Clostridia* spp (bacteria potentially pathogenic to humans) (80). Several studies have shown a reduction in flatulence and abdominal distention with an accompanying reduction in composite IBS symptom score following probiotic intake (80, 81). The increase in consumption of sour milk products containing probiotics by guided IBS patients may increase their tolerance to food rich in FODMAPs.

## DISCUSSION

### ***Wheat and wheat products***

Unfortunately, the MoBa FFQ does not make it possible to get exact information on the patients' consumption of spelt containing food items. Several patients had, however, added spelt products on a question asking about additional food items not named in the questionnaire. In clinical practice, IBS patients who received guidance on diet management were advised to use spelt-bread and spelt products instead of wheat products. The guided patients were also advised to avoid pasta (containing wheat), and the consumption of pasta, rice, millet, couscous and buns reported by both patient groups were significantly lower than that of controls. Pasta and couscous are products made using durum wheat which tends to be high in FODMAP, while rice tends to be low (64). The unguided patients also reported a significant lower consumption of rice, millet and couscous compared with guided patients and controls.

### ***Fruits and vegetables***

The significant lower consumption of some vegetables (raw vegetables, raw broccoli, paprika, onion, leeks, garlic, tomatoes, mushrooms and green beans) is most likely the reason for the significant lower intake of retinol equivalent, beta-carotene and magnesium in unguided IBS patients compared with controls. Although not significant, a lower consumption of cabbage, raw broccoli and cooked potatoes also was reported.

The total vitamin A content of foods is expressed as  $\mu\text{g}$  retinol equivalents, which is the sum of provided by retinols and carotenoids. No significant difference was observed on the intake of retinol, so difference in intake of beta-carotene is most likely causing the significant difference in retinol equivalent intake among the groups. The significant lower intake of paprika, broccoli and tomatoes (foods rich in beta-carotene) in IBS patients compared with controls might explain such results.

Magnesium is found abundantly in legumes (beans and peas), nuts and seeds, and whole, unrefined grains. The reported lower consumption of beans and dark bread (contains unrefined grains) in unguided patients compared to controls may be the cause of this significant difference in magnesium intake. Although there were no statistical differences found when comparing the consumption of white and dark bread in patient groups and controls, there was a marked difference in the amount consumed. Both unguided and guided patients reported a lower consumption of dark bread compared to controls, while the unguided patients also had a considerably higher intake of white bread in their daily diet.

## DISCUSSION

There was a significant lower intake of vitamin B<sub>6</sub> in unguided IBS patients compared with that in guided patients. Food items such as bananas, beans, milk and vegetables are rich on vitamin B<sub>6</sub> and the lower consumption of these items among unguided patients might explain this difference.

Fruit tend to be high in potassium and although not significant, the intake of potassium in unguided patients was markedly lower than that in the guided patients and controls (P=0.0500 and P=0.0670, respectively).

None of the vitamin and mineral intakes in the unguided patients mentioned above were lower than the daily recommended intake. Even so, it is worth noticing that the mean reported intake for magnesium, calcium and vitamin B<sub>6</sub> in unguided IBS patients are at the borderline of recommended levels (78). As the reported intake is an estimated mean of the group, there is a risk that a proportion of the patients fall short of the estimated requirements.

The unguided IBS patients reported a higher consumption of grapes, pears, peach, peas, mango, plums and melon compared to guided patients and controls. These are all fruits and vegetables that are rich in FODMAPs, documented as causal symptom factors in IBS (35, 36) and advised to avoid in the dietary guidance at Stord Hospital. Such increased consumption of FODMAP food among unguided patients compared to guided patients may be a sign of the need for information and knowledge about diet in IBS patients. It is noteworthy that the advice given at Stord Hospital is that peeled apple and pears are "safe" to eat, as most of the fructans are found in the peel. Although not significantly different, the consumption of dried prunes and apricots was higher in the IBS patients as compared with controls and also among patient groups (unguided higher than guided patients). This could be attributed to the laxative effect on patients with constipation dominated IBS. Also, a significant lower intake of green beans and mushrooms was seen when comparing unguided patients with controls. These are legumes and vegetables rich on polyols and oligosaccharides, and the lower consumption may be the result of a conscious choice to avoid foods related to symptom production though experience.

Not so surprisingly, the treated patients who had been advised about foods to avoid reported a lower consumption of these items although they consumed more of the fruits and vegetables mentioned above (except pears and mango) than the controls. Better compliance with dietary

## DISCUSSION

advices and more information about FODMAPs could help patients in making right dietary choices and further improving symptoms.

### **4.1.2 Effect on quality of life**

The present study showed that both unguided and guided IBS patients have a reduced quality of life score compared with healthy controls as assessed by SF-NDI. This reduction in quality of life is less in guided IBS patients. While controls said they only had 1.8% decrease in quality of life, guided patients reported 45.4% and unguided patients as much as 63.2% decrease due to gastrointestinal problems. This is in accordance with previous reports (9-12).

Furthermore, the quality of life as assessed by IBS-QOL showed that quality of life was significantly higher in guided IBS patients than in those who were unguided, which is in accordance with previous research using non-pharmacological approaches such as education and diet management (35, 65). Of the eight domains analyzed there was significant improvement in the areas of dysphoria, interference with activity, body image, social reactions and impact on relations, and although improvement there was no statistical difference on the domains health worry and sexual relations in patients after guidance. This is consistent with other studies on IBS, diet and diet management (65, 82). When comparing the two patient groups, there was surprisingly little difference in their reported quality of life related to food avoidance. This in spite of the dietary advices given guided patients, and that their reported dietary habits may suggest otherwise.

### **4.1.3 Effect on symptoms**

Although all the dimensions evaluated using the Birmingham IBS Symptom Questionnaire were improved when comparing unguided patients with guided ones, only pain was statistically different. The mean degree of constipation was almost equal when comparing unguided patients with guided patients. This may be explained by the fact that IBS patients at Stord Hospital two years ago were advised to increase their consumption of fiber in general, dietary advice that was found beneficial in some trials (51) as mentioned earlier. As more research was conducted on this subject, conflicting results arose and the increased consumption of dietary fiber as a whole worsened symptoms in IBS patients in some trials (30, 55, 56). The focus has therefore now shifted towards dietary fiber types, insoluble and

## DISCUSSION

soluble, and the different effect these have on IBS symptoms. As a consequence, the diet advice given today at Stord Hospital is to increase the consumption of soluble fibers through the diet and to reduce the intake of insoluble fibers.

### **4.2 Limitations of the study**

#### **4.2.1 Study design and protocol**

Ideally, to see if there has been a direct change in diet management after a treatment program such as the one used at Stord Hospital, one should have followed the same patient group from admission into the program and two years on. This would give more information of the correlation between the patients dietary habits, symptoms and quality of life. Because of the time limit posed by a master thesis, this was not possible.

It is noteworthy that the ratio of females to males in this study was 7:1, which is higher than the IBS gender ratio in the general population (3). One should be cautious, therefore, when applying the results and conclusions drawn here on male IBS patients.

The control group was not randomly selected, which potentially could cause bias in the results. As students or hospital employees, the healthy controls may be better informed about health and a healthy lifestyle than the general population; a knowledge that may affect their own lifestyle and diet. They may also be more physical active compared to IBS patients, as IBS symptoms often affect the ability to be physically active (as shown in this study and others) (9-12). Studies indicate that increased physical activity affects energy intake in a positive direction (83) and may improve gastrointestinal problems such as constipation (84).

The questionnaires used contained no direct questions on the patient's subjective experience of possible improvement of symptoms or effects of diet management. Nor did they contain questions about which diet advice gave best results or if the patients still followed the advice two years after guidance. The results in this thesis therefore only gives an assumption regarding diet, diet management and the improvement on symptoms and quality of life.

## DISCUSSION

### 4.2.2 Food Frequency Questionnaire

Although FFQs are not considered appropriate for estimating true nutrient intake at the individual level, they can be used in epidemiological studies to rank individuals along the distribution of intake, so that individuals with low intakes can be separated from those with high intakes (67). Compared with short-term records, the FFQ also provides a better approximation of the habitual diet over a longer period (85). However, there are a few problems associated with the FFQ. The patient may not always remember his/her accurate intake and there is a tendency of underreporting (women more than men) of energy intake determined from such self-reporting dietary assessment methods as the FFQ (86, 87). To get a more exact nutrient intake at the individual level in IBS patients, one could use a self-administrating 24 hours dietary recall form in a four to seven days period instead of the FFQ. This may give more detailed dietary information and could be given several times (e.g. 3 times) during a year to get the habitual diet over time. To examine the relationship between diet and symptoms, such diet form can be combined with a symptom score (similar to the diary used at Stord Hospital, but made easier to self-report). However, this method will affect inclusion of patients as it require more time and effort from participants, as well as the duration time of the study.

While this study was being conducted, a new FFQ designed to estimate the consumption of FODMAPs in the diet, in addition to macro- and micronutrients, was developed, validated and published (88). This or a similar FFQ may be more accurate when investigating the effect of dietary guidance on FODMAPs as done here.

### **5 CONCLUSION**

In their diet, IBS patients make a conscious choice to avoid food items assumingly causing symptom production. However, they also consume other food items rich in FODMAPs that might increase symptom production.. Further, they avoid food sources which are important for their health. Two years after guidance, IBS patients who received two hours' guidance on diet management had a different diet profile than unguided patients. They consumed less FODMAP-rich foods, consumed more probiotic containing foods and less frequently avoided food sources that were important for their health as compared with unguided IBS patients. In addition, quality of life was improved and IBS symptoms was reduced.

### **6. FUTURE ASPECTS**

It would be interesting to follow the same group of IBS patients over time and investigate possible changes in diet, symptoms and quality of life when comparing the groups before and after diet guidance. One could also use alternative food registration methods to stronger relate dietary habits with symptom production and quality of life. It would then be easier to analyze for correlation between the results, and also evaluate for any dietary differences among the IBS subgroups. Another aspect interesting to examine, is the patients' compliance with dietary advice and their subjective experience of any results associated with such advice.



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## **8. APPENDICES**

Appendix A: FODMAP list

Appendix B: MoBa Food Frequency Questionnaire (MoBa FFQ)

Appendix C: Complete list of data analysed from the MoBa Food Frequency Questionnaire.

Appendix D: Short-Form Nepean Dyspepsia Index (SF-NDI)

Appendix E: Irritable bowel syndrome Quality Of Life (IBS-QOL)

Appendix F: Birmingham IBS Symptom Questionnaire

## Appendix A FODMAP list (38)

<b>FODMAP</b>	<b>Excess fructose</b>	<b>Lactose</b>	<b>Oligosaccharides (fructans and/or galactans)</b>	<b>Polyols</b>
<b><i>High FODMAP food sources</i></b>	<p><b><i>Fruits:</i></b> Apples, pears, peaches, mango, sugar snap peas, watermelon, tinned fruit in natural juice</p> <p><b><i>Honey</i></b></p> <p><b><i>Sweeteners:</i></b> Fructose, high fructose corn syrup, corn syrup solids</p> <p><b><i>Large total fructose dose:</i></b> Concentrated fruit sources; large serves of fruit, dried fruit, fruit juice.</p>	<p><b><i>Milk:</i></b> Cow, goat and sheep (regular and low-fat), ice cream, condensed and evaporated milk, milk powder</p> <p><b><i>Yoghurt:</i></b> (regular and low-fat)</p> <p><b><i>Cheeses:</i></b> Soft and fresh (e.g. ricotta, cottage)</p> <p><b><i>Others:</i></b> Dairy desserts, custard, margarine</p>	<p><b><i>Fruits:</i></b> Watermelon, custard apple, white peaches, rambutan, persimmon</p> <p><b><i>Vegetables:</i></b> Artichokes, asparagus, beetroot, Brussels sprout, broccoli, cabbage, fennel, garlic (large amounts), leeks, okra, onions (also onion powder), spring onion, peas, shallots.</p> <p><b><i>Legumes:</i></b> Chickpeas, lentils, red kidney beans, baked beans</p> <p><b><i>Cereals:</i></b> Wheat and rye when eaten in large amounts (e.g. bread, pasta, couscous, crackers, biscuits)</p> <p><b><i>Sweeteners:</i></b> Inulin</p>	<p><b><i>Fruits:</i></b> Apples, apricots, cherries, longon, lychee, nashi pears, nectarine, pears, peaches, plums, prunes, watermelon</p> <p><b><i>Vegetables:</i></b> Avocado, cauliflower, mushrooms, snow peas</p> <p><b><i>Sweeteners:</i></b> Sorbitol (420), mannitol (421), xylitol (967), maltitol (965), isomalt (953) and other endings in "-ol"</p>

APPENDICES

<b>FODMAP</b>	<b>Excess fructose</b>	<b>Lactose</b>	<b>Oligosaccharides (fructans and/or galactans)</b>	<b>Polyols</b>
<i>Suitable alternative low-FODMAP food sources</i>	<p><b>Fruit:</b> Banana, blueberry, carambola, durian, grapefruit, grape, honeydew melon, kiwifruit, lemon, lime, mandarin, orange, passionfruit, raspberry, strawberry</p> <p><b>Honey substitute:</b> Maple syrup, golden syrup</p> <p><b>Sweeteners:</b> Any except polyols</p>	<p><b>Milk:</b> Lactose-free, rice milk, gelati (ice cream), sorbet</p> <p><b>Butter</b></p> <p><b>Cheese:</b> "Hard" cheeses, including brie camembert</p> <p><b>Yoghurt:</b> Lactose-free</p>	<p><b>Vegetables:</b> Bamboo shoots, bok choy, carrot, celery, capsicum, corn, eggplant, green beans, lettuce, chives, parsnip, pumpkin, silverbeet.</p> <p><b>Substitute for onion/garlic:</b> Garlic-infused oil</p> <p><b>Cereals:</b> Gluten-free and spelt bread/ cereal products</p>	<p><b>Fruit:</b> Banana, blueberry, carambola, durian, grapefruit, grape, honeydew melon, kiwifruit, lemon, lime, mandarin, orange, passionfruit, raspberry, strawberry</p> <p><b>Sweeteners:</b> Sugar (sucrose), glucose, other artificial sweeteners not ending on "ol"</p>

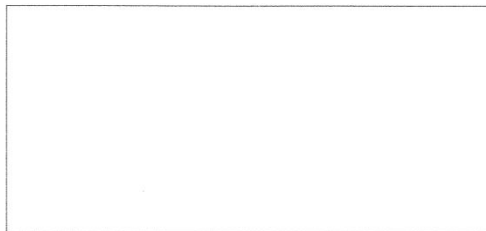
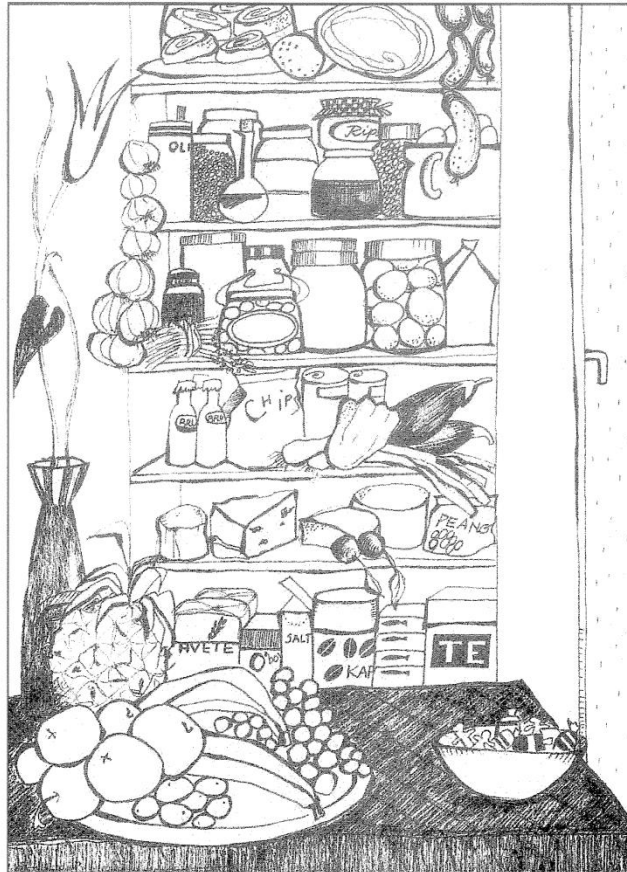


# Appendix B MoBa Food Frequency Questionnaire

1



## Kostholdet ditt



Borshing

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# APPENDICES

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## Veiledning for utfylling av kostskjemaet

I dette skjemaet spør vi hva du har spist det siste året. Dette innebærer at vi ber deg tenke tilbake på hva du har spist i de 12 siste månedene.

Vi takker for at du vil hjelpe oss med denne undersøkelsen.

**Skjemaet skal leses av en maskin. Det er derfor viktig at du legger vekt på følgende ved utfyllingen:**

- Bruk blå eller sort kulepenn.
- I de små avkrysningsboksene setter du *et* kryss for det svaret som du mener passer best, slik:
- Du skal sette ett kryss på hver linje.
- Skriver du feil, kan du ta bort krysset ved å fylle boksen helt, slik:  og deretter fylle i det riktige alternativet.

Eksempel:

Ost	Antall brødskeer med dette pålegg						eller pr. uke			eller pr. måned			
	6+	5	4	3	2	1	5-6	3-4	1-2	3	2	1	0
Brunost (Gudbrandsdalsost o.l.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

- Hvor det står et + betyr dette "og flere enn". Eksempel: 6+ betyr 6 og flere enn 6
- Når du fyller ut skjemaet skal du tenke på hva du har spist det siste året og angi et gjennomsnitt.  
*Eksempel: Hvis du spiste torsk, sei mm til middag 1 gang i uken i 6 måneder på rad, det første halve året, men ikke har spist torsk, sei med mer etter dette, har du totalt spist torsk og sei 24 ganger. I gjennomsnitt blir dette 2 ganger per måned og du setter da kryss i boksen for 2 ganger per måned slik;*

Middag med fjørfe	Antall middager					eller pr. måned			
	5+	4	3	2	1	3	2	1	0
Grillet kylling	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

- Enkelte steder kan du skrive tekst
  - Skriv tydelig
  - Skriv bare tekst når du blir bedt om det

+

**Så snart du har fylt ut dette skjemaet, ber vi om at du sender det tilbake til oss i den vedlagte, frankerte svarkonvolutten.**

Avdeling for miljømedisin  
Nasjonalt folkehelseinstitutt  
Postboks 4404 Nydalen  
0403 Oslo

+

+

Oppgi dag, måned og år for utfylling av skjemaet

(skriv årstall med 4 tall, f.eks. 2006)

dag måned år

# APPENDICES

3

## Kostvaner

1. Hvordan vil du beskrive dine kostvaner det siste året? +

### Kostvaner

1. I mitt kosthold inngår kjøtt og fisk
2. Jeg unngår kjøtt, men spiser fisk
3. Jeg unngår fisk, men spiser kjøtt
4. Jeg er vegetarianer og inkluderer melkeprodukter og egg i kosten (ovolakto-vegetarianer)
5. Jeg er vegetarianer og inkluderer melkeprodukter, men ikke egg i kosten (lakto-vegetarianer)
6. Jeg er vegetarianer og utelater alle melkeprodukter og egg fra kosten (veganer)

Sett bare ett kryss

2. Har du brukt økologiske matvarer det siste året? (Sett bare ett kryss på hver linje.) +

### Økologisk matvare

	Sjeldent/aldri	Noen ganger	Ofte	For det meste
1. Melk, melkeprodukter og ost	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Brød og kornprodukter (f. eks. mel, müsli)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Egg	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Grønnsaker	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Frukt	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Kjøtt	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## Antall måltider

3. Hvor ofte har du i gjennomsnitt spist følgende måltider per uke det siste året?

Et mellommåltid er et mindre måltid som for eksempel kan bestå av frukt, kjeks, bolle, yoghurt eller godteri. Mellommåltider som bare består av drikke skal ikke tas med da det blir spurt etter drikke senere. (Sett bare ett kryss på hver linje.)

	Antall måltider pr. uke							
	7	6	5	4	3	2	1	0
1. Frokost	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Mellommåltid, formiddag	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Formiddagsmat	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Mellommåltid, ettermiddag	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Middag	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Mellommåltid, kveld	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Kveldsmat	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Nattmat	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## Brød, knekkebrød, kjeks

4. Hvor mange skiver brød/knekkebrød/kjeks har du spist i gjennomsnitt per dag/uke det siste året? +

Når du svarer på spørsmålene, skal du tenke på brød til alle måltider i løpet av dagen. Et halvt rundstykke = 1 skive brød, 1 baguett = 4 skiver brød, 1 ciabatta = 3 skiver brød. (Sett bare ett kryss på hver linje.)

Brødtype	Antall brødskiver/knekkebrød/kjeks pr. dag										eller pr. uke			
	13+	9-12	8	7	6	5	4	3	2	1	5-6	3-4	1-2	0
1. Fint brød (loff, baguetter, ciabatta o.l.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Mellomgrovt brød (kneipp, husholdn.brød)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Grovt brød (fiberkneipp, rugbrød o.l.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Klibrød, kli-knekkebrød, rugspør	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Knekkebrød, skonrokk grov o.l.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Smørbrødkjeks (Kaptein kjeks o.l.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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# APPENDICES

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5. Bruker du smør/margarin på brød/knekkebrød/kjeks? +

Ja  Nei (gå til spørsmål 8)

6. Hvis du bruker smør/margarin, på hvor mange skiver i gjennomsnitt og hvilken type smør/margarin bruker du?  
(Sett bare ett kryss på hver linje.)

Type smør/margarin	Antall brødskeer										eller pr. uke			
	13+	9-12	8	7	pr. dag					5-6	3-4	1-2	0	
					6	5	4	3	2	1				
1. Smør/Bremyk	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Hard margarin (Per, Melange)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Brelett	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Myk margarin (Soft, Vita, Olivero o.l.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Lett margarin (Soft light, Vita lett, o.l.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

7. Hvor tykt lag med smør/margarin smører du på brødskeerene? +

Rikelig  Middels  Skrapet

## Pålegg på brød, knekkebrød, kjeks

8. Hvor mange brødskeer med de følgende påleggstypene har du spist i gjennomsnitt det siste året?  
(Sett bare ett kryss på hver linje.) +

Ost	Antall brødskeer med dette pålegg										eller pr. måned			
	6+	5	pr. dag			eller pr. uke			3	2	1	0		
			4	3	2	1	5-6	3-4	1-2					
1. Brunost (Gudbrandsdalsost o.l.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2. Brunost lettvarianter, prim	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3. Hvit ost, kremost, smøreost o.l.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4. Lettvarianter av hvit ost, smøreost	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5. Muggoster (Camembert, Norzola o.l.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
6. Annet ostepålegg	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>Fiskepålegg</b>														
7. Kaviar	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
8. Makrell/sardin i tomat	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
9. Sardin i olje	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
10. Røkt laks/ørret/makrell	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
11. Sild (sursild o.l.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
12. Reker	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
13. Krabbe	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
14. Tunfisk	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
15. Svolværpostei (postei av fiskelever/rogn)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
16. Annet fiskepålegg	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>Kjøttpålegg</b>														
17. Magert kjøttpålegg (skinke, roast biff o.l.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
18. Servelat, lammerull, kalverull	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
19. Salt pølse, spekepølse, salami	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
20. Kalkun- og kyllingpålegg	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
21. Leverpostei	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
22. Annet kjøttpålegg	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

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# APPENDICES

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Andre typer pålegg		Antall brødkiver med dette pålegg																
		6+	5	pr. dag		2	1	eller pr. uke			eller pr. måned							
23. Salater med majones (rekesalat o.l.)		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
24. Frokostsalat		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
25. Majones		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
26. Syltetøy	+	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
27. Honning		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
28. Peanøttsmør		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
29. Annet nøttepålegg (Nugatti o.l.)		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
30. Annet søtt pålegg (Sjokade, Hapå o.l.)		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
31. Vegetabiliske posteier (Tartex o.l.)		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
32. Frukt (banan, eple o.l.)		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
33. Grønnsaker (tomat, agurk o.l.)		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### Egg

9. Hvor mange egg har du spist i gjennomsnitt det siste året? Ta med egg til alle måltider! Egg i bakverk skal ikke tas med! (Sett bare ett kryss på hver linje.)

Egg	+	pr. dag		eller pr. uke			eller pr. måned		
		2+	1	5-6	3-4	1-2	2-3	1	0
Egg, stekt, kokt, eggerøre, omelett		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Antall måsegg spist siste 12 måneder		0	<input type="checkbox"/>	1-5	<input type="checkbox"/>	6-10	<input type="checkbox"/>	mer enn 10	<input type="checkbox"/>

### Frokostgryn, grøt

10. Hvor ofte har du spist frokostgryn eller grøt i gjennomsnitt det siste året? Dersom du har spist disse matvarene til andre måltider enn frokost skal du også ta det med her. (Sett bare ett kryss på hver linje.)

Grøt, frokostgryn	+	pr. dag		Hvor ofte eller pr. uke			eller pr. måned		
		2+	1	5-6	3-4	1-2	2-3	1	0
1. Usøtete kornblandinger (4-korn, All-Bran Flakes o.l.)		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Søtete müsli og müsli med frukt, nøtter		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Havregrøt, annen grøt		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Cornflakes, Frosties o.l.		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Sukker på frokostgryn/grøt		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Syltetøy på frokostgryn/grøt	+	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### Drikke

11. Hvor mange glass/kopper av følgende har du drukket i gjennomsnitt det siste året? Ta også med melk/yoghurt til frokostgryn/grøt. 1 krus = 1 glass = 2 kopper = 2,5 dl, 1/2 liters plastflaske = 2 glass. (Sett bare ett kryss på hver linje.)

Melk og yoghurt	+	(1 glass)	Hvor mange glass/beger eller pr. dag					eller pr. uke			eller pr. måned			
			8+	6-7	4-5	2-3	1	5-6	3-4	1-2	2-3	1	0	
1. H-melk, kefir, kulturmilk		(1 glass)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Lettmelk		(1 glass)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Ekstra lett lettmelk		(1 glass)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Skummet melk søt, sur		(1 glass)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Cultura, alle typer		(1 glass)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Biola drikke, Biola yoghurt		(1 glass/beger)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Yoghurt, naturlig/frukt		(1 glass/beger)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Lettyoghurt		(1 glass/beger)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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		Hvor mange glass/beger										
		pr. dag					eller pr. uke			eller pr. måned		
		8+	6-7	4-5	2-3	1	5-6	3-4	1-2	2-3	1	0
+												
<b>Melk og yoghurt</b>												
9. Go'morgen yoghurt	(1 beger)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Sjokolademelk, Litago	(1 glass)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. Soyamelk	(1 glass)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Ris-, havremelk	(1 glass)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
+												
		Hvor mange glass										
		pr. dag					eller pr. uke			eller pr. måned		
		8+	6-7	4-5	2-3	1	5-6	3-4	1-2	2-3	1	0
+												
<b>Juice/saft/brus/vann/alkohol</b>												
13. Appelsinjuice	(1 glass)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Annen fruktjuice, most, nektar	(1 glass)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. Tomat- og grønnsakjuice	(1 glass)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. Saft med sukker	(1 glass)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17. Saft, kunstig søtet	(1 glass)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18. Coca Cola/Pepsi med sukker	(1 glass)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19. Annen brus med sukker	(1 glass)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20. Coca Cola-light/Pepsi-light	(1 glass)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
21. Annen lettbrus	(1 glass)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
22. Energidrikk, Battery o.l.	(1 glass)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
23. Springvann (vann fra kran)	(1 glass)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
24. Flaskevann, uten kullsyre	(1 glass)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
25. Farris og annet vann med kullsyre	(1 glass)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
26. Alkoholritt øl, vorterøl, lettøl	(1 glass)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
27. Pilsnerøl	(1 glass)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
28. Vin	(1 glass)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
29. Brennevin, likør	(1 dram)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
+												
		Hvor mange kopper/krus										
		pr. dag					eller pr. uke			eller pr. måned		
		8+	6-7	4-5	2-3	1	5-6	3-4	1-2	2-3	1	0
+												
<b>Kaffe/te</b>												
30. Filterkaffe	(1 kopp)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
31. Pulverkaffe	(1 kopp)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
32. Kokekaffe/ presskaffe	(1 kopp)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
33. Kaffe latte, cappuccino	(1 kopp)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
34. Espresso	(1 kopp)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
35. Koffeinfri kaffe	(1 kopp)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
36. Fiken/ korn kaffe	(1 kopp)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
37. Te (vanlig te, Lipton fruktte o.l.)	(1 krus)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
38. Grønn te	(1 krus)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
39. Nypete, urtete	(1 krus)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
+												
12. I hvor mange kopper kaffe og te bruker du melk/fløte/sukker?												
<b>Melk/fløte/sukker i kaffe og te</b>		pr. dag					eller pr. uke			eller pr. måned		
		8+	6-7	4-5	2-3	1	5-6	3-4	1-2	2-3	1	0
+												
1. Melk/fløte i kaffe/te		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Sukker/ honning i kaffe/te		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Kunstig søtstoff i kaffe/te		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

# APPENDICES

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## Middagsmat (varm mat)

Først ber vi deg svare på et generelt spørsmål om ulike grupper av varm mat. Deretter ber vi deg svare mer i detalj på de ulike typene av varm mat du har spist det siste året. Når du svarer på disse spørsmålene, ber vi deg å tenke på både middagsmat og annen varm mat du eventuelt spiser i løpet av dagen.

13. Hvor ofte har du i gjennomsnitt spist følgende type varm mat det siste året? (Sett bare ett kryss på hver linje.)

Generelle spørsmål	+	pr. uke						eller pr. måned			
		6+	5	4	3	2	1	3	2	1	0
1. Kjøtt og kjøttprodukter		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Kjøtt og kjøttprodukter, grillet		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Innmat		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Kylling, kalkun		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Fisk, fiskeretter, kokt, ovnsbakt		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Fisk, fiskeretter, stekt		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Vegetarretter		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## Mer detaljerte spørsmål om hver enkelt middagsrett

14. Hvor ofte har du i gjennomsnitt spist følgende typer varm mat det siste året? (Sett bare ett kryss på hver linje.)

Middagsrett	+	Hvor ofte						eller pr. måned			
		6+	5	4	3	2	1	3	2	1	0
<b>Middag med blandingsprodukter av kjøtt</b>											
1. Kjøttpølser, medisterpølser		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Grillpølser, wienerpølser		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Kyllingpølser, kalkunpølser		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Kjøttkaker, medisterkaker, kjøttpudding		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Hamburgere, karbonader		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Kjøttdeig i saus el. gryteretter		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Middag med okse-/ kalvekjøtt</b>											
7. Oksestek, kalvestek		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Biff (indrefilet, løvbiff, mørbrad, entrecote)		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. T-bone stek, kalvekotelett		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Kjøttgryte, lapskaus, kjøttsuppe		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Middag med svinekjøtt</b>											
11. Kotelett, nakkekotelett, skinkestek		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Indrefilet, flatbiff		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. Sommerkotelett, hamburgerrygg		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Flesk, ribbe, "spare ribs"		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. Bacon		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. Gryterett		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Middag med lam/sau</b>											
17. Lammestek, lammekotelett		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18. Gryteretter med lam/sau (Får i kål o.l.)		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Middag med viltkjøtt</b>											
19. Reinsdyrstek		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20. Stek av elg, hjort, rådyr		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
21. Reinsdyrkaker, gryterett av reinsdyr		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
22. Karbonader, gryterett (elg, hjort, rådyr)		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Middag med innmat</b>											
23. Lever, nyre fra okse, gris		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
24. Lever, nyre fra sau		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
25. Lever, nyre fra villt		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
26. Blodmat, lungemos		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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	+	Hvor ofte					eller pr. måned			
		6+	5	pr. uke			3	2	1	0
<b>Middag med fjørfe</b>										
27. Kyllingfilet, kalkunfilet		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
28. Grillet kylling		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
29. Stekt/kokt kylling, høne og kalkun		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
30. Kyllingschnitzel, nuggets		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
31. Viltfugl (rype, orrfugl o.l.)		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
32. Annet fjørfe (and, gås, struts)		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Middag med fisk/sjømat</b>										
33. Torsk, sei, kolje, lyr (kokt/stekt/røkt)		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
34. Makrell, sild (kokt/stekt/røkt)		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
35. Laks, ørret		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
36. Flyndrefisker (kveite, rødspette o.l.)		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
37. Tunfisk (f.eks. i salat)		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
38. Abbor, gjedde, gjeddekaker		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
39. Annen ren fisk		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
40. Fiskekaker, fiskepudding, fiskeboller		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
41. Fiskepinner, fiskepanetter, panert fisk		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
42. Fiskegryte, fiskegrateng, suppe med fisk		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
43. Reker		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
44. Skjell		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
45. Krabbe		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
46. Rogn		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
47. Fiskelever		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Pastaretter</b>										
48. Pastarett med kjøtt (spaghetti med kjøttsaus, Lasagne o.l.)		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
49. Pastarett med fisk/reker/skjell		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
50. Pastarett med grønnsaker		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
51. Pastarett med bare tomat saus/ketchup		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
52. Ost (Parmesan o.l.) på pastarett		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Annen varm mat</b>										
53. Pizza		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
54. Taco, burritos o.l.		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
55. Pannekaker		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
56. Grøt (ikke frokostgrøt)		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
57. Suppe, hjemmelaget og posesuppe		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Grønnsaksrett som hovedrett</b>										
58. Bare med grønnsaker		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
59. Med bønner/linser		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
60. Med soyaprodukter (pølser, o.l.)		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Tilbehør til varm mat							
15. Hvor ofte har du i gjennomsnitt spist følgende matvarer det siste året? (Sett bare ett kryss på hver linje.)							+
Poteter/ris/spaghetti	pr. dag	Hvor ofte			eller pr. måned		
		1	5-6	3-4	1-2	2-3	1
1. Poteter (kokte, bakte, potetstappe)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Pommefrites, stekte poteter	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Potetstuing, gratinerte poteter	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Spaghetti, makaroni, nudler	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Ris	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Hirse, couscous o.l.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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Saus/tilbehør	pr. dag		Hvor ofte eller pr. uke			eller pr. måned			+
	1		5-6	3-4	1-2	2-3	1	0	
7. Smeltet smør	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
8. Smeltet margarin	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
9. Brun/hvit saus	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
10. Bearnaisesaus o.l.	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
11. Majones, remulade	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
12. Seterrømme, Crème Fraîche	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
13. Lettrømme	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
14. Ketchup	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	+
15. Sennep	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

### Type fett til matlaging

16. Hvor ofte har du i gjennomsnitt brukt følgende typer fett i matlagingen det siste året? (Sett bare ett kryss på hver linje.)

Type fett til matlaging	pr. dag		Hvor ofte eller pr. uke			eller pr. måned			+
	2+	1	5-6	3-4	1-2	2-3	1	0	
1. Smør	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2. Bremyk, Smørgod	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3. Melange, Per	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4. Soft soyamargarin (pakke, beger)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5. Olivero	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
6. Annen margarin	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
7. Soyaolje	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
8. Matolje	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
9. Olivenolje	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
10. Maisolje	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
11. Andre oljer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

### Grønnsaker

Forst ber vi deg svare på et generelt spørsmål. Deretter ber vi deg svare mer i detalj om de enkelte grønnsakene du har spist.

17. Hvor ofte har du i gjennomsnitt spist grønnsaker det siste året? (Sett bare ett kryss på hver linje.)

Oversiktsspørsmål	pr. dag		Hvor ofte eller pr. uke			eller pr. måned			+
	2+	1	5-6	3-4	1-2	2-3	1	0	
1. Rå grønnsaker i (salat, råkost o.l.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2. Grønnsaker i gryteretter, supper, wok o.l.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3. Kokte grønnsaker som tilbehør	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

### Mer detaljert om hver enkelt grønnsak

18. Hvor ofte har du i gjennomsnitt spist følgende grønnsaker det siste året? (Sett bare ett kryss på hver linje.)

Grønnsaker	pr. dag		Hvor ofte eller pr. uke			eller pr. måned			+
	2+	1	5-6	3-4	1-2	2-3	1	0	
1. Grønnsaksblandinger, frosne	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2. Agurk	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3. Aubergine	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4. Avocado	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	forts.

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Grønnsaker	pr. dag		Hvor ofte eller pr. uke			eller pr. måned			+
	2+	1	5-6	3-4	1-2	2-3	1	0	
5. Blomkål, rå	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
6. Blomkål, kokt/i gryteretter	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
7. Brokkoli, rå	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
8. Brokkoli, kokt/i gryteretter	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
9. Bønner (grønne-, aspargesbønner)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
10. Erter	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
11. Gulrot, rå	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
12. Gulrot, kokt/i gryteretter	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
13. Hodekål, rå	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
14. Hodekål, kokt/stuing/i gryteretter	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
15. Hvitløk	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
16. Kålrot, rå	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
17. Kålrot, kokt/stappe/i gryteretter	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
18. Løk, purre, vårløk, rå	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
19. Løk, purre, vårløk, stekt/i gryteretter	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
20. Mais	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
21. Paprika, rå	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
22. Paprika i gryteretter	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
23. Rosenkål, kokt/i gryteretter	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
24. Salatblandinger, ferdig i pose	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
25. Salat (bladsalat, issalat, kinakål o.l.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
26. Selleri, stilkselleri	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
27. Sjampinjong, rå	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
28. Sjampinjong, stekt/i gryteretter	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
29. Skogsopp, annen sopp	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
30. Spinat	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
31. Squash (Zucchini)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
32. Tomat	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
33. Andre grønnsaker	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

19. Hvor ofte har du i gjennomsnitt brukt dressing og annet tilbehør til salat og råkost det siste året? (Sett bare ett kryss på hver linje.)

Dressing/annet tilbehør	pr. dag		Hvor ofte eller pr. uke			eller pr. måned		
	2+	1	5-6	3-4	1-2	2-3	1	0
1. Dressing (Thousand island o.l.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Lett dressing, yoghurt dressing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Oliven, sorte/ grønne	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Fetaost	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Hjemmelaget dressing</b>								
5. Med olje	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Uten olje	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Med rømme/yoghurt	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

20. Hva er omtrentlig vektforhold av kjøtt/grønnsaker i gryterettene. (Sett bare ett kryss på hver linje.)

	Har ikke spist	Mer grønnsaker enn kjøtt	Like mye kjøtt og grønnsaker	Mer kjøtt enn grønnsaker
1. Gryteretter med helt kjøtt/fisk	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Gryteretter med innmat	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Gryteretter med kjøttdeig	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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## Frukt

21. Hvor mange friske frukter har du spist i gjennomsnitt det siste året?

Frisk frukt	+	pr. dag					eller pr. uke			eller pr. måned		
		8+	6-7	4-5	2-3	1	5-6	3-4	1-2	2-3	1	0
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

+

22. Hvor ofte har du i gjennomsnitt spist følgende friske frukter det siste året? (Sett bare ett kryss på hver linje.)

Frisk frukt		pr. dag				Hvor ofte eller pr. uke			eller pr. måned		
		4+	3	2	1	5-6	3-4	1-2	2-3	1	0
1. Appelsin, mandarin	(1 stykk)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Banan	(1 stykk)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Druer	(8-10 stykk)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Eple	(1 stykk)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Fersken, nektarin	(1 stykk)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Grapefrukt	(1/2 stykk)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Jordbær	(1/4 kurv)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Andre bær (blåbær o.l.)	(1/4 kurv)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Mango	(1/2 stykk)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Melon	(1 skive)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. Papaya	(1/2 stykk)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Plomme	(1 stykk)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. Pære	(1 stykk)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Annen frukt		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

23. Hvor ofte har du i gjennomsnitt spist tørket frukt og nøtter det siste året? (Sett bare ett kryss på hver linje.)

Tørket frukt /nøtter	+	pr. dag				Hvor ofte eller pr. uke			eller pr. måned		
		4+	3	2	1	5-6	3-4	1-2	2-3	1	0
1. Aprikoser		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Rosiner		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Svisker, fiken, dadler		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Peanøtter		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Mandler, hasselnøtter, cashewnøtter o.l.		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## Dessert, is, kaker, godteri

24. Hvor ofte har du i gjennomsnitt spist dessert og is det siste året? (Sett bare ett kryss på hver linje.)

Dessert/is	+	pr. dag		Hvor ofte eller pr. uke			eller pr. måned		
		2+	1	5-6	3-4	1-2	2-3	1	0
1. Pudding (sjokolade, karamell o.l.)		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Hermetisk frukt, fruktgrøt		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Fruktsalat med frisk frukt		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Fløteis		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Yoghurtis, lettis		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Saftis, sorbet		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Vaniljesaus		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Pisket krem, fløte		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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25. Hvor ofte har du i gjennomsnitt spist kaker og boller det siste året? (Sett bare ett kryss på hver linje.)

Kaker, boller		pr. dag				Hvor ofte eller pr. uke			eller pr. måned		
		4+	3	2	1	5-6	3-4	1-2	2-3	1	0
1. Boller, julekake o.l.	(1 stykke)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Wienerbrød, wienerstang o.l.	(1 stykke)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Smultring, fyrste- formkake	(1 stykke)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Vaffler	(1 plate)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Sjokoladecake, bløtkake o.l.	(1 stykke)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Søt kjeks, kakekjeks	(1 stykke)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

26. Hvor ofte har du i gjennomsnitt spist godteri det siste året? (Sett bare ett kryss på hver linje.)

Godteri og snacks		pr. dag				Hvor ofte eller pr. uke			eller pr. måned		
		4+	3	2	1	5-6	3-4	1-2	2-3	1	0
1. Ren sjokolade	+	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Sjokolade med nøtter o.l.		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Karameller, konfekt, lakris		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Smågodt, seigmenn		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Pastiller med sukker		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Pastiller uten sukker		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Marsipan	+	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Potetgull, potetskruer		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Popcorn		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Saltstenger, lettsnacks o.l.		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## Andre matvarer

27. Fordi det er vanskelig å få spurt om alle matvarer som du kan ha spist det siste året ber vi deg nedenfor å skrive navnet på matvarer som du kan ha spist og som det ikke er blitt spurt etter.

Andre matvarer		pr. dag						Hvor ofte eller pr. uke			eller pr. måned	
		6+	5	4	3	2	1	5-6	3-4	1-2	2-3	1
Navn: _____	+	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Navn: _____		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Navn: _____		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Navn: _____		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## Genmodifisert mat

28. I mange land, bl.a. USA, England, og Frankrike, tillater man salg av genmodifiserte matvarer. De fleste europeiske land krever merking ved salg av genmodifiserte matvarer. Vi ønsker å vite om du har spist genmodifiserte matvarer eller matvarer med genmodifiserte ingredienser på reiser eller i Norge det siste året.

Ja  Nei  Vet ikke

29. Hvis ja, ber vi deg skrive navnet på de genmodifiserte matvarene du kjenner til at du har spist

Genmodifiserte matvarer		pr. dag						Hvor ofte eller pr. uke			eller pr. måned	
		6+	5	4	3	2	1	5-6	3-4	1-2	2-3	1
Navn: _____		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Navn: _____		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Navn: _____		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Navn: _____		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## APPENDICES

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### Varm mat fra kiosk, bensinstasjon eller gatekjøkken

30. Hvor ofte har du i gjennomsnitt spist varm mat fra kiosk, bensinstasjon eller gatekjøkken det siste året?

Mat fra	pr. dag			Hvor ofte eller pr. uke			eller pr. måned		
	4+	2-3	1	5-6	3-4	1-2	2-3	1	0
1. Kiosk	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Bensinstasjon	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Gatekjøkken, McDonald's o.l.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### Kostendringer i livet ditt

31. Nedenfor ber vi deg angi om du spiser/drikker mer, mindre eller samme mengde sammenliknet med for 30 år siden, eventuelt da du var barn (før fylt 18 år).

Matvare	Spiste/drakk det heller ikke før	Som før	Mer	Mindre	Sluttet helt	
1. Krabbe	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2. Reker	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	+
3. Skjell (for eksempel blåskjell)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4. Fiskelever (ikke tran)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5. Tunnfisk eller Kveite	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
6. Flyndre/annen flattfisk	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	+
7. Gjedde (kaker) eller abbor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
8. Annen ferskvannsfisk	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
9. Reinsdyr	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
10. Sau / lammekjøtt	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
11. Lever eller nyre fra vilt	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
12. Viltvoksende sopp	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
13. Måseegg	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

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# APPENDICES

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Kosttilskudd																																																																																																																																																																																																																																																																														
39. Bruker du eller har du brukt kosttilskudd det siste året? <input type="checkbox"/> Ja <input type="checkbox"/> Nei																																																																																																																																																																																																																																																																														
40. Hvis ja, ber vi deg å angi hvilken type og mengde nedenfor. (ts = teskje, bs = barneskje, ss = spiseskje)																																																																																																																																																																																																																																																																														
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<table border="1"> <thead> <tr> <th rowspan="2">Flytende kosttilskudd</th> <th colspan="9">Antall ganger pr. uke</th> <th colspan="3">Mengde pr. gang</th> </tr> <tr> <th>7</th> <th>6</th> <th>5</th> <th>4</th> <th>3</th> <th>2</th> <th>1</th> <th>&lt;1</th> <th>0</th> <th>1 ts</th> <th>1bs</th> <th>1ss</th> </tr> </thead> <tbody> <tr> <td>1. Tran</td> <td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td> <td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td> </tr> <tr> <td>2. 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Biovit</td> <td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td> <td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td> </tr> <tr> <td>5. Flytende jernmixtur (Floradix o.l.)</td> <td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td> <td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td> </tr> <tr> <td colspan="10"><b>Annet flytende kosttilskudd</b></td> </tr> <tr> <td>6. 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3. Sanasol	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																																																																																																																																																																																																																																																		
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## Appendix C MoBa Food Frequency Questionnaire Complete list of data analysed

### Macro nutrients

Water	Cholesterol
Energy (kcal)	Total carbohydrates
Total protein	Starch
Total fat	Fibres
Saturated fat	Mono- and disaccharides
Total trans fat	Sugar
Monounsaturated fat	Alcohol
Polyunsaturated fat	

### Vitamins and minerals

Retinol	Calcium
Beta-carotene	Iron
Retinol equivalent	Sodium
Vitamin D	Potassium
Vitamin E	Magnesium
Thiamine	Zink
Riboflavin	Selenium
Niacin	Copper
Niacin equivalent	Phosphor
Vitamin B <sub>6</sub>	
Folate	
Vitamin B <sub>12</sub>	
Ascorbic acid	

### Food items

White bread	Fish toppings, oily fish	Jam
Brown bread	Seafood	Honey
Butter	Shellfish	Chocolate spread
Margarine	Tuna	Vegetable pâté
Light margarine	Liver, eggs (fish)	Sugar/honey on porridge or in tea/coffee
Brown goat cheese, "Prim"	Meats (fatty)	
Cheese, fatty	Meats (lean)	
Cheese, lighter	Turkey, turkey orders	
Mold cheese	Mayo, mayo salads	
Eggs	Soy, rice and oat milk	Alcohol-free beer
Seagull eggs	Orange and apple juice	Beer
Cereals, porridge	Vegetable juice	Wine
Cornflakes	Artificially sweetened drinks	Liquor/spirits

## APPENDICES

Dairy products, whole-fat  
Dairy products, low-fat  
Sour milk  
Yoghurt

Sugary soft drinks/soda  
Sugary "soft"  
Water, spring/bottle

Coffee  
Decaffeinated coffee  
Black tea  
Green tea/ herbal tea

Turkey or chicken sausage  
Mixed products of meat  
Beef  
Pork  
Bacon  
Stew meat  
Lamb  
Wild

Entrails  
Poultry  
Wildfowl  
Fish, lean  
Fish, oily  
Fish, mixed products  
Vegetables as main course  
Mustard

Pizza, taco  
Soup  
Potatoes, cooked, mashed, gratinated  
Potatoes, fried  
Spaghetti, pasta  
Rice, millet, couscous  
Sauces  
Tomato sause  
Olive oil

Vegetables, boiled  
Vegetables, raw  
Cauliflower, raw  
Cauliflower, cooked  
Broccoli, raw  
Broccoli, cooked  
Peas  
Cabbage, raw  
Cabbage, cooked  
Almonds, nuts

Onion, leek, garlic  
Paprika, raw  
Paprika, cooked  
Tomatoes  
Potatoes, fried  
Potatoes, cooked, mashed,  
gratinated  
Mushroom  
Green beans

Orange  
Banana  
Grapes  
Apple  
Peach  
Grapefruit  
Kiwi  
Mango  
Plums  
Melom  
Blueberry  
Strawberry

Desserts, dairy  
Waffles, pancakes  
Bun, rolls  
Cakes  
Chocolate  
Candy  
Marzipan  
Snacks

Crackers  
Artificially sweeteners  
Rice pudding  
Flour, grain, grain products  
Sweet cookies

Prunes, dried  
Apricots, dried



## Appendix D Short Form - Nepean Dyspepsia Index

### SF-NDI (Spørreskjema om livskvalitet) (sett kryss ved ett tall)

#### *Spenning*

1. Har ditt følelsesmessige velvære vært forstyrret av dine mageplager i løpet av de siste to ukene?

1 p - ikke i det hele tatt

2 p - litt

3 p - en del

4 p - ganske mye

5 p - svært mye

2. Har du vært irritabel, anspent eller frustrert på grunn av dine mageplager i løpet av de siste to ukene?

1 p - ikke i det hele tatt

2 p - litt

3 p - en del

4 p - ganske mye

5 p - svært mye

#### *Innflytelse på daglige aktiviteter*

3. Har din evne til å holde på med fritidsaktiviteter (rekreasjon, hobbyer, idrett, sosialt samvær osv.) vært forstyrret av dine mageplager i løpet av de siste to ukene?

1 p - ikke i det hele tatt

2 p - litt

3 p - en del

4 p - ganske mye

5 p - svært mye

4. Har gleden ved dine fritidsaktiviteter (rekreasjon, hobbyer, idrett, sosialt samvær osv.) vært forstyrret av dine mageplager i løpet av de siste to ukene?

1 p - ikke i det hele tatt

2 p - litt

3 p - en del

4 p - ganske mye

5 p - svært mye

#### *Spising/drikking*

5. Har mageplagene dine forstyrret deg i hva du har kunnet spise og drikke (inkludert når, hva og hvor mye) i løpet av de to siste ukene?

1 p - ikke i det hele tatt

2 p - litt

3 p - en del

## APPENDICES

4 p - ganske mye

5 p - svært mye

6. Har din mulighet til å nyte mat og drikke vært forstyrret på grunn av dine mageplager i løpet av de to siste ukene? (Vennligst ta i betraktning din matlyst og hvordan du føler deg etter at du har spist eller drukket.)

1 p - ikke i det hele tatt

2 p - litt

3 p - en del

4 p - ganske mye

5 p - svært mye

### ***Kunnskap/kontroll***

7. Har du, i løpet av de to siste ukene, lurt på om du alltid kommer til å ha disse mageplagene?

1 p - ikke i det hele tatt

2 p - litt

3 p - en del

4 p - ganske mye

5 p - svært mye

8. Har du, i løpet av de to siste ukene, lurt på om mageproblemene dine kan skyldes en svært alvorlig sykdom (for eksempel kreft eller hjerte problemer)?

1 p - ikke i det hele tatt

2 p - litt

3 p - en del

4 p - ganske mye

5 p - svært mye

### ***Arbeid/studier***

9. Har din evne til å arbeide eller studere vært forstyrret av dine mageplager i løpet av de siste to ukene?

1 p - ikke i det hele tatt

2 p - litt

3 p - en del

4 p - ganske mye

5 p - svært mye

10. Har mageproblemene dine forstyrret trivselen i ditt arbeide eller i dine studier i løpet av de to siste ukene?

1 p - ikke i det hele tatt

2 p - litt

3 p - en del

4 p - ganske mye

5 p - svært mye

## Appendix E Irritable Bowel Syndrom Quality of Life

### IBS-QOL- helse undersøking

Ver venleg og svar på alle spørsmål . Nokre spørsmål verkar like, men dei er ulike.

Navn persnr. Dato

**1. Eg kjenner meg hjelpelaus på grunn av mageplagene mine:**

- Aldri
- Av og til
- Ofte
- Svært ofte
- Alltid

**2. Eg føler at lukta som kjem av tarmproblema mine plagar meg:**

- Aldri
- Av og til
- Ofte
- Svært ofte
- Alltid

**3. Eg synest eg brukar for mykje tid på toalettet:**

- Aldri
- Av og til
- Ofte
- Svært ofte
- Alltid

**4. Eg føler eg har lett for å bli sjuk på grunn av magetarmproblema mine:**

- Aldri
- Av og til
- Ofte
- Svært ofte
- Alltid

**5. Eg kjenner meg oppblåst på grunn av tarmproblema mine:**

- Aldri
- Av og til
- Ofte
- Svært ofte
- Alltid

**6. Eg føler eg ikkje har kontroll over livet mitt på grunn av tarmproblema:**

- Aldri
- Av og til
- Ofte
- Svært ofte
- Alltid

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**7. Eg føler livskvaliteten er nedsatt på grunn av tarmproblema mine:**

- Aldri
- Av og til
- Ofte
- Svært ofte
- Alltid

**8. Eg føler det ubehageleg å snakke om tarmproblema mine:**

- Aldri
- Av og til
- Ofte
- Svært ofte
- Alltid

**9. Eg føler meg deprimert på grunn av tarmproblema mine:**

- Aldri
- Av og til
- Ofte
- Svært ofte
- Alltid

**10. Eg føler meg isolert frå andre på grunn av tarmproblema mine:**

- Aldri
- Av og til
- Ofte
- Svært ofte
- Alltid

**11. Eg må ta hensyn til mykje av maten eg et på grunn av tarmproblema mine:**

- Aldri
- Av og til
- Ofte
- Svært ofte
- Alltid

**12. Seksuell aktivitet er vanskeleg for meg på grunn av tarmproblema mine:**

- Aldri
- Av og til
- Ofte
- Svært ofte
- Alltid

**13. Eg er sint fordi eg har tarmproblem:**

- Aldri
- Av og til
- Ofte
- Svært ofte

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- Alltid

### **14. Eg føler at eg irriterer andre på grunn av tarmproblema mine:**

- Aldri
- Av og til
- Ofte
- Svært ofte
- Alltid

### **15. Eg er redd for at tarmproblema mine skal bli verre:**

- Aldri
- Av og til
- Ofte
- Svært ofte
- Alltid

### **16. Eg er irritert på grunn av tarmproblema mine:**

- Aldri
- Av og til
- Ofte
- Svært ofte
- Alltid

### **17. Eg er redd for at andre synest eg overdriv tarmproblema mine:**

- Aldri
- Av og til
- Ofte
- Svært ofte
- Alltid

### **18. Eg føler at eg gjer lite på grunn av tarmproblema mine:**

- Aldri
- Av og til
- Ofte
- Svært ofte
- Alltid

### **19. Eg må unngå stress-situasjonar på grunn av tarmproblema mine:**

- Aldri
- Av og til
- Ofte
- Svært ofte
- Alltid

### **20. Tarmproblema mine reduserer min seksuelle lyst:**

- Aldri
- Av og til
- Ofte
- Svært ofte
- Alltid

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### **21. Mine klesval blir begrensa på grunn av tarmproblema mine:**

- Aldri
- Av og til
- Ofte
- Svært ofte
- Alltid

### **22. Eg må unngå tunge aktivitetar på grunn av tarmproblema mine:**

- Aldri
- Av og til
- Ofte
- Svært ofte
- Alltid

### **23. Eg må vera nøyen med kva eg et på grunn av tarmproblema mine:**

- Aldri
- Av og til
- Ofte
- Svært ofte
- Alltid

### **24. På grunn av tarmproblema mine, er det vanskeleg for meg å vera med andre som eg ikkje kjenner godt:**

- Aldri
- Av og til
- Ofte
- Svært ofte
- Alltid

### **25. Eg kjenner meg trøytt på grunn av tarmproblema mine:**

- Aldri
- Av og til
- Ofte
- Svært ofte
- Alltid

### **26. Eg føler meg urein på grunn av tarmproblema mine:**

- Aldri
- Av og til
- Ofte
- Svært ofte
- Alltid

### **27. Eg kan ikkje ta lange turar eller lange reiser på grunn av tarmproblema mine:**

- Aldri
- Av og til
- Ofte

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- Svært ofte
- Alltid

**28. Eg er frustrert over at eg ikkje kan eta kva eg vil på grunn av tarmproblema mine:**

- Aldri
- Av og til
- Ofte
- Svært ofte
- Alltid

**29. Det er viktig å vera i nærleiken av toalett på grunn av tarmproblema mine:**

- Aldri
- Av og til
- Ofte
- Svært ofte
- Alltid

**30. Livet mitt er sentrert om tarmproblema mine:**

- Aldri
- Av og til
- Ofte
- Svært ofte
- Alltid

**31. Eg er redd for å miste kontroll over tarmen min:**

- Aldri
- Av og til
- Ofte
- Svært ofte
- Alltid

**32. Eg er redd for at eg ikkje vil kunna tømme tarmen min:**

- Aldri
- Av og til
- Ofte
- Svært ofte
- Alltid

**33. Tarmproblema mine påverker mine næraste forhold:**

- Aldri
- Av og til
- Ofte
- Svært ofte
- Alltid

**34. Eg føler at ingen forstår seg på tarmproblema mine:**

- Aldri
- Av og til
- Ofte

## APPENDICES

- Svært ofte
- Alltid



## Appendix F    **Birmingham Irritable Bowel Syndrome symptom form**

		Hele tida	Det meste av tida	Ein heil del av tida	Av og til	Ein liten del av tida	Ikkje i det heile tatt
1.	Kor ofte har du ubehag eller smerte i magen?						
2.	Kor ofte har du problem med laus, eller vatn tynn avføring?						
3.	Kor ofte har du problem med diaré?						
4.	Kor ofte har du hard avføring?						
5.	Kor ofte har du behov for å presse, for å få ut avføring?						
6.	Kor ofte har du problem med forstoppelse?						
7.	Kor ofte har du ubehag eller smerte etter at du har spist?						
8.	Kor ofte har du vanskar med å sove eller har du våknet på grunn av magesmerte?						
9.	Kor ofte har du problem med å halde på avføring?						
10.	Kor ofte må du springe til toalettet fordi det er vanskelig å halde seg?						
11.	Kor ofte har duslim i avføringen?						