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Calcium and Vitamin D intake among community dwelling older adults in Oslo and the association with Education

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Abstract

Background: Adequate level of vitamin D and calcium is needed to older adults for maintaining good health and prevention of chronic diseases. However, previous studies have often reported lower intake than official recommendation in elderly populations.

Objective: To investigate the intakes of Vitamin D and Calcium of older adults in Oslo; to find out the association between education level and dietary intakes of vitamin D and calcium; and to find out if elderly with a recent hip- or forearm fracture have vitamin D and calcium intake according to the recommendations.

Method: Dietary intake was assessed in 102 (30 males and 70 females) apparently healthy, community dwelling older adults aged over 65 years using a validated food frequency questionnaire (FFQ) and a supplementary questionnaire collecting background information. Nutrient intake was computed by a nutrient calculation system at the Department of Nutrition, University of Oslo. Independent sample t-test, ANOVA and linear regression model was used to analyse the data.

Result: Mean intake of vitamin D was somewhat lower than the official recommendation (17 µg/d), whereas mean intake of calcium reached the official recommendation (1040 mg/d). Dietary intakes reduced moderately with increase in age. No significant association was found between vitamin D and calcium intake and education level among older adults ($p > 0.05$). None of the participants with a prior fracture took recommended vitamin D (20 µg/d), while 11.1% of them met calcium recommendation (800 mg/d).

Conclusion: Daily vitamin D intake among elderly of Oslo is significantly lower than recommended value. The elderly with fracture didn't take intakes according to recommendations. Supplementation was important for vitamin D in elderly population.

Keywords: vitamin D intake, calcium intake, older adults, FFQ, education level, fracture

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LIST OF ABBREVIATIONS

ANOVA	Analysis of Variance
BMD	Bone Mass Density
BMI	Body Mass Index
CI	Confidence Interval
DBP	Vitamin D Binding Protein
EFSA	European Food Safety Authority
EURRECA	EUROpean micronutrient RECommendations Aligned Network of Excellence
FFQ	Food Frequency Questionnaire
HUBRO	Oslo Health Study
IU	International Unit
KBS	Kostneregningssystemet
LI	Lower Intake
MNA	Mini Nutritional Assessment
NHANES	National Health And Nutrition Examination Survey
NIPH	National Institute of Public Health
NNR	Nordic Nutrition Recommendation
NSD	Norwegian Center for Research Data
NUFFE-NO	Nutritional Form for the Elderly
PTH	Parathyroid Hormone
RECORD	Randomized Evaluation of Calcium or Vitamin D
RI	Reference Intake
SES	Socio-economic status
SD	Standard Deviation
TSD	Tjenester for Sensitive Data
UI	Upper Intake
UNECE	United Nations Economic Commission for Europe
UN	United Nations
UVB	Ultraviolet B rays
VDR	Vitamin D Receptor
WHO	World Health Organization

CHAPTER I

INTRODUCTION

1 Introduction

Nutrition is one of the necessary factors that helps to achieve a healthy life (Papanikolaou, 2000) and calcium and vitamin D intake are of universal concern in this regard. Vitamin D is produced in the skin from UVB radiation from the sun, but this cutaneous vitamin D production varies according to season, geographical latitude, and genetic background and age. Therefore, diet and supplements are the main sources of vitamin D during winter, since vitamin D is less readily obtained from conversion by the UV radiation, especially in Nordic countries. Calcium and vitamin D intakes are of particular concern especially in older adults, as gastrointestinal absorption is reduced with age, often making it difficult to meet the nutritional requirements. A large proportion of older adults do not consume necessary amount of nutrients from diet alone. Supplementation can compensate the nutrient need and can reduce the proportion of individual with inadequate calcium and vitamin D intake. In addition, food fortification is also another means to help achieve certain amounts of recommended nutrients in individuals (Cashman, 2015).

Older adults (≥ 65 years) constitute about 12.6% in the population in Oslo (Statistikken, 2020). Low intake of calcium and vitamin D may contribute to the development of osteoporosis and osteoporotic fracture and this is a large health problem in the elderly. The current level of intake of vitamin D and calcium among older adults in Oslo is poorly described. The main objective of this study is therefore to assess vitamin D and calcium intake in the elderly population attending senior centers in Oslo, Norway.

The thesis consists of a background with context, followed by a rationale with aims and objectives for the study. Then the methods used in data collection and analysis of data are described followed by the results, discussion and conclusions, along with an appendix at the end.

1.1 Background

1.1.1 World's ageing population

The world has an ageing population. The world's population aged 60 years and older numbered 962 million in 2017 which is more than a double from 382 million older population in 1980. It is expected that this number will double again to reach 2.1 billion by 2050, according to a report by the United Nations (World Population Ageing, 2017). In 2017, 125 million people were of age 80 years older.

1.1.2 Europe

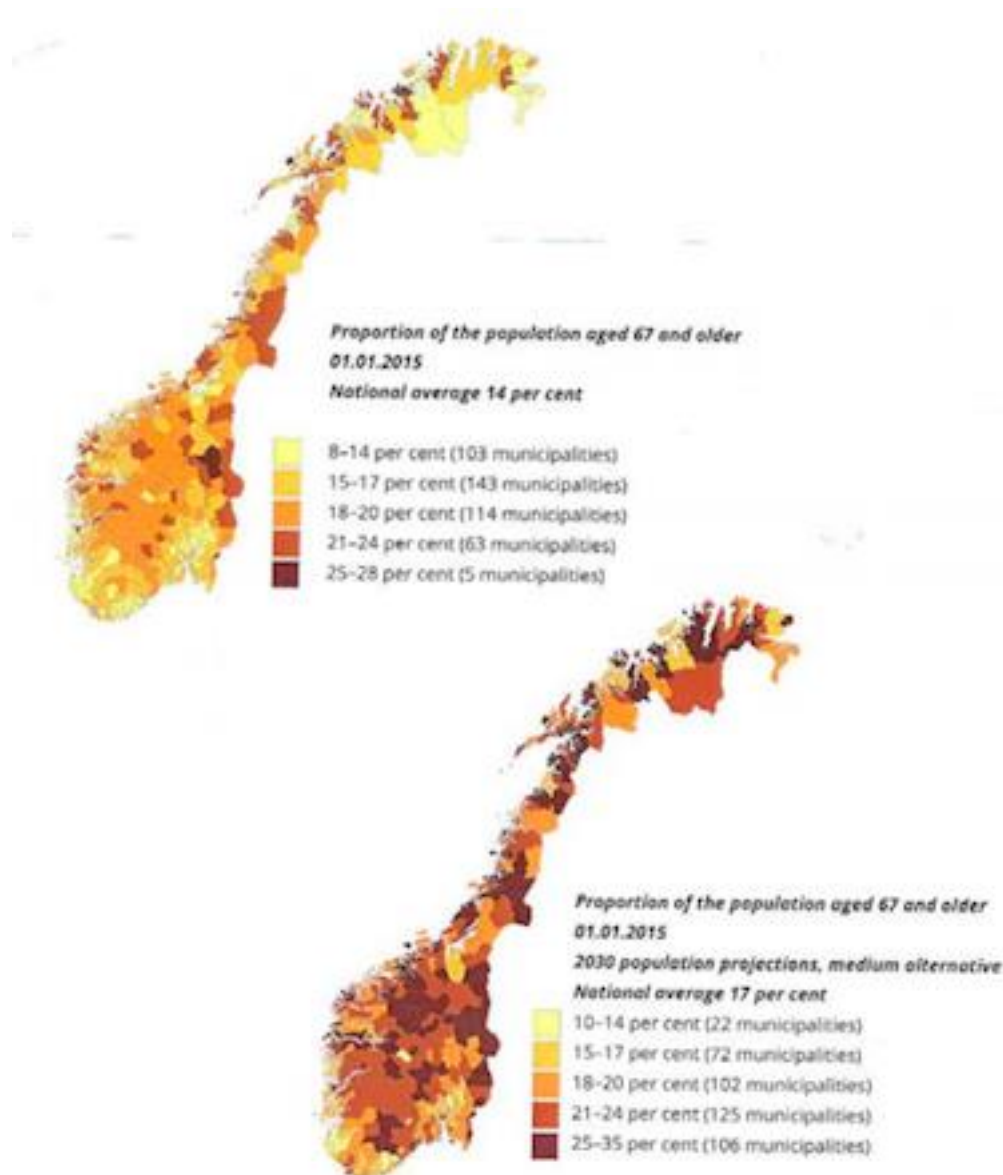
Every country in the world is experiencing a considerable increase in the number of older citizens. This shift in the distribution of a country's population towards an older population, known as population ageing, is mainly due to declining fertility rates and an increasing life expectancy in a country. According to data from the World Population Prospects: the 2019 Revision, one in four persons living in Europe could be age of 65 or over by 2050. This is also expected to be the case for Norway, due to a high life expectancy, low fertility rate and high net migration. However, the population ageing in Norway is predicted to increase less as compared to other European countries, according to the United Nations Economic Commission for Europe (UNECE) National report. Currently, the average life expectancy is 80 years for males and 84 years for females in Norway.

Table1.1: Number and distribution of person aged 60 years or over by region, in 2017 and 2050

	No. of persons aged 60 years or older in 2017 (millions)	No. of persons aged 60 years or older in 2050 (millions)	Percentage change between 2017 and 2050	Distribution of older persons in 2017 (percentage)
World	962.3	2080.5	116.2	100
Africa	68.7	225.8	228.5	7.1
Asia	549.2	1273.2	131.8	57.1
Europe	183.0	247.2	35.1	19.0
North America	78.4	122.8	56.7	8.1
Latin America and Caribbean	76.0	198.2	160.7	7.9
Oceania	6.9	13.3	92.6	0.7

Data source: Unites Nation (2017). World Population Prospects: the 2017 Revision

Figure 1.1: Demographic old age ratio in Norwegian Municipalities 2015



Source: UNECE National report on Ageing- Norway

1.2 Nutrition and Ageing

With this rapid increase in population ageing in most countries, new and considerable challenges also arise, such as an increased need of health care, social care and economic care (Christensen et al., 2009). Frailty and disability are commonly seen in an aged population (Söderhamn et al., 2012b) which can result in an inadequate intake of food and subsequent

malnutrition which again increases the risks of health problems in the older populations. This inadequate food intake may be due to difficulty in preparing meals, loss of appetite, eating difficulties or nausea or constipation (Engelheart and Akner, 2015). Similarly, loss of spouse (Han et al., 2009; Kwon et al., 2006), living alone (Söderhamn, et al., 2012a; Tomstad et al., 2012), low quality of life (Yap et al., 2007), ill health (Söderhamn, et al., 2012a; Johansson et al., 2009) and having a low level of education (Chen et al., 2010) are also associated with the poor dietary status among the home dwelling older populations.

More than 30% of population were at risk for inadequate intakes of vitamins from food alone for both men and women (ter Borg et al., 2015). Of these, about 84 and 91% of males and females, respectively, were at the risk of inadequate vitamin D intake and 65% of males and 73% of females were at risk for inadequacy for calcium in community dwelling older adults in Western countries (ter Borg et al., 2015). By using nutritional screening methods in Nutritional Form for the Elderly (NUFFE-NO) and Mini Nutritional Assessment Short Form (MNA-SF), it was found that 22.3 and 13.5% are at risk of undernutrition in home dwelling older Norwegians (Söderhamn et al., 2012b).

Proper intake of a balanced diet, exercise, non-smoking and social activities and genetic factors contribute to a long healthy life of an individual (Minuti et al., 2014). Hence, a good knowledge of nutrition status among older population is of importance in order to uphold and improve quality of life of these population.

1.3 Vitamin D

Vitamin D, also known as calciferol, is one of the major micronutrients which is important to maintain bone integrity in human beings. Vitamin D is a fat-soluble vitamin and is now recognized as a prohormone. Vitamin D has two major forms: vitamin D₂ and vitamin D₃. Vitamin D₂ (ergocalciferol) mainly comes from a plant sources such as mushroom / fungi. Vitamin D₃ (cholecalciferol) is synthesized in the skin of human beings and is also found in animal-based foods. Both the forms differ only in their side structure, but do not have major difference in their metabolic activity, i.e. both function as a prohormone in the human body.

1.3.1 Sources

Since very few foods naturally contain vitamin D, dermal synthesis of vitamin D is the most important source for most humans. The dietary sources of vitamin D are limited, and include among other fatty fish, cod liver oil and egg yolk. Infants, older adults and some vulnerable people may not have adequate exposure to sunlight. Along with the improper conversion to active vitamin D in older people and in the northern latitude where there is not enough radiation to convert vitamin D, particularly in winter, supplements and foods become important sources. Hence, several foods are fortified with vitamin D. In Norway, milk, margarine and butter are enriched with vitamin D. (Holvik et al., 2008)

1.3.2 Physiology and Metabolism

Synthesis in Skin: Cutaneous production of vitamin D take place in humans. Exposure of skin to sunlight with a UV wavelength of 290-315 nm (UVB) photoconverts 7-hydroxy cholesterol, which is present in the skin epidermis, to pre vitamin D₃, which is then converted to vitamin D₃. The amount of UVB from sunlight differs according to season of the year, time of day, latitude, skin surface, skin pigmentation, use of sunscreen, clothing and age (Ross et al., 2011). It is estimated that brief exposure to sunlight on face and arms is equivalent to the consumption of 200 IU of vitamin D per day (Haddad, 1992). Similarly, melanin in the skin, sunscreen and clothing block UV radiation from reaching 7 dehydroxycholesterol, thus limiting the production of vitamin D (D'Orazio, 2013; Diehl and Chiu, 2010; Misra et al., 2008).

Metabolism: Vitamin D, both the D₂ or D₃ form, that is obtained from diet or dermal synthesis is biologically inactive and requires two enzymatic hydroxylation reactions to form active metabolites. Vitamin D is transported to liver via vitamin D binding protein (DBP). In the liver, vitamin D is hydroxylated to yield 25- hydroxyvitamin D, mediated by enzyme 25-hydroxylase. This is the major circulating form of vitamin D and also commonly used index of vitamin D status (Ross et al., 2011). Since 25- hydroxyvitamin D has longer half-life of (≥ 2 weeks) as compared to 1,25- dihydroxyvitamin D with only 4 to 6 hours and also circulates at a 1000 times higher concentration than the later, it is used as a marker to determine vitamin D status in humans (Holick, 2006). 25- hydroxyvitamin D, bound to DBP, is transported back to circulation from liver to kidney. The second hydroxylation mainly take place in kidney where 25- hydroxyvitamin D is converted to 1,25- dihydroxyvitamin D, a biologically active hormone and a process mediated by 1 α -hydroxylase. When 1,25- dihydroxyvitamin D is present in

excessive amounts in the blood, 25- hydroxyvitamin D is instead converted to 24,25-dihydroxyvitamin D in the kidney, which is believed to be a biologically inactive metabolite (Holick, 2003).

1.3.3 Functions

- ❖ Calcium and phosphate homeostasis- The major biological function of 1,25-dihydroxyvitamin D₃ is the promotion of intestinal absorption of calcium and phosphate. This absorption in turn, elevates the calcium and phosphate levels in plasma which are required for the bone mineralization (Holick, 1996) and also for proper functioning of neuromuscular junctions, hormonal secretion and nerve transmission. Therefore, 1,25-dihydroxyvitamin D₃ is a primary regulator of calcium homeostasis. In low vitamin D condition, the small intestine absorbs less dietary calcium, while in an adequate state, the intestinal absorption of dietary calcium rises (Holick 2004). Hence, less circulating vitamin D₃ (25 hydroxyvitamin D₃) may result in insufficient dietary calcium absorption.

When there is a low level of calcium in the blood (hypocalcemia), it triggers the parathyroid gland to secrete parathyroid hormone (PTH) which increases the conversion of 25- hydroxyvitamin D₃ to 1,25- dihydroxyvitamin D₃. Thus, a normal calcium level is restored by reabsorption of calcium from the kidney and intestine when required (Yamamoto et al., 1984). In addition, 1,25- dihydroxyvitamin D₃ plays an important role in mobilization of calcium from bone (Lips, 2006). In bone cells, 1,25- dihydroxyvitamin D₃ stimulates osteoclastogenesis through a direct effect on osteoblast, which in turn increases the mobilization of calcium from bone tissues, which is known as bone resorption. This process contributes to the mineral homeostasis (Turner et al., 2012).

- ❖ Bone health - Vitamin D is important for the health of musculoskeletal system. Vitamin D plays a vital role in bone metabolism by acting through VDR which is also present in muscle cells (Pojednic & Ceglia, 2014) and osteoblast (bone forming cells) (Kraichely & MacDonald, 1998). In addition, vitamin D increases bone mineral density, and lowers the bone turnover and hence decreases fracture and fall incidence (Lips et al., 2014).

1.3.4 Vitamin D and health outcomes

Studies have shown vitamin D may play role in lowering the risk or prevent various chronic diseases like osteoporosis, cancer, cardiovascular diseases like diabetes, total mortality

(Touvier et al., 2011; Kim & Je, 2014; Schmitt et al., 2018). However, many of these associations are uncertain when it comes to causality. The role of vitamin D in one's health is further discussed in 1.3.8 and 1.3.9.

1.3.5 Dietary Vitamin D requirement and Vitamin D intake

The intake of vitamin D required throughout the life of an individual from new-born to adult and into old age. Children and adults require less vitamin D as compared to older people. The Nordic Nutrition Recommendation 2012 (NNR2012) set the recommended intake as 10 µg/d for children and adults and at 20µg/d for older people of more than 75 years of age for both males and females. The lower intake (LI) of vitamin D is set at 2.5 µg/d for people >60 years of age. While the upper level (UL) for adults and adolescents 11–17 years of age is set at 100 µg/d. Similarly, for younger children, the UL is set at 50 µg/d and for infants (0–12 months) the UL is set at 25 µg/d.

The recommendations are set to secure vitamin D status in the large proportion of the population with little or no sun exposure. During winter, this applies to the whole population staying in Norway, whereas in summer it does not apply to persons with adequate vitamin D synthesized in the skin.

1.3.6 Deficiency and resistance

Severe vitamin D deficiency may result in rickets in children and osteomalacia in adults, which are the result of inadequate bone mineralization. In rickets, cartilage fails to mature and mineralize normally, whereas in osteomalacia newly deposited bone matrix fails to mineralize forming a wide bone matrix (Ross et al., 2011). In addition, vitamin D deficiency results in muscle weakness which increases the risk of falling in adults and ultimately may increase the risk of fracture (Hollick, 2006).

While vitamin D deficiency is commonly seen, hypervitaminosis is more rare (Cesari et al., 2011) and is usually due to excessive use of supplements (Roop, 2018). Hypervitaminosis leads to hypercalcemia and hyperphosphatemia which then cause cardiovascular and kidney damage (Tebben et al., 2016). With an overdose of vitamin D, tissue calcification can also be seen as a possible side effect (Cheskis et al., 2006).

1.3.7 Vitamin D metabolism in old age

Lower production of vitamin D by skin, decreased vitamin D binding receptor (VDR), decreased appetite and reduced metabolism may result in poor vitamin D status among older people.

Dermal vitamin D production- Ageing decreases the vitamin D formation in the skin. Elderly people have low a concentration of 7 dehydrocholesterol in the epidermis of the skin and also have atrophic changes in the skin (Mosekilde, 2005), which may impact the production of vitamin D. The dermal synthesis of vitamin D in elderly people is reduced by two-fold as compared with young individuals when exposed to the same amount of sunlight (MacLaughlin & Holick, 1985). Furthermore, changes in lifestyle, like clothing and reduced outdoor activity, may also results in less sun exposure and hence contribute to the reduced production of vitamin D in older individuals (Mosekilde, 2005).

Decreased VDR- As the years go by, the VDR expression decreases in muscle cells (Bischoff-Ferrari et al., 2004) which may result in an increased risk of falls and fractures in older people. Ageing may also affect the intestinal concentration of VDR causing a decrease in intestinal absorption of calcium (Ebeling et al., 1992).

Renal production of 1,25(OH)₂D- The kidney plays an important role in regulating the concentration of active 1,25(OH)₂D the active metabolite. The renal function decreases with age and production of 1,25(OH)₂D decreases due to reduced renal 1 α hydroxylation which converts 25(OH)D to 1,25(OH)₂D (Gallagher, 2013). Hence, serum 1,25(OH)₂D level decreases in elderly people due to declining renal function by aged kidney.

1.3.8 Vitamin D and bone health in old age

Low serum 25(OH)D, due to reduced dietary intake and/ or reduced cutaneous production, increases parathyroid hormone secretion which may cause bone resorption leading to bone loss and osteoporosis (Gennari, 2001). The risk of osteoporotic fractures increases in the elderly population, partly due to bone loss/ decreased bone mineral density (BMD) which is an important predictor of fracture risk, with increasing age of people (Krall et al., 1997). Many studies reported that the prevalence of hip fracture is the highest in North America and Scandinavian countries (Cooper et al., 2011; Johnell & Kanis, 2005). In Europe, the highest

prevalence fracture is found in Oslo, Norway (Lofthus et al., 2008; Cummings & Melton, 2002) and the rate is declining among elderly populations (Omsland et al., 2012).

The intake of vitamin D has suggested to reduce the risk of fracture in elderly people. For example, the intervention done by Chapuy et al. (1992) found a reduced the risk of hip and other non-vertebral fractures in elderly women when giving them a combined supplement of vitamin D and calcium.

1.3.9 Vitamin D and muscle health in old age

There is a reduction in muscle mass and muscle strength when we grow old. (Lexell, 1995). The gradual loss of muscle strength causes many difficulties in the elderly, like the need for support in performing daily activities (Avlund et al., 1994) and an increased risk of falling and fracture (Wolfson et al., 1995). Falls and subsequent fractures in old people can lead to long-term disability and even death. Inadequate vitamin D intake and status can also affect the muscle function in elderly people. In muscle cells, vitamin D deficiency activates pathway which causes increase in protein turnover and eventually causes muscle atrophy (Girgis et al., 2015). The supplementation of combined vitamin D and calcium improves muscle strength and muscle mass and may hence reduce the risk of falls in community dwelling elderly population (Sahota, 2007).

1.4 Calcium

Calcium is one of the most important minerals which is essential for life. It is the fifth richest element found in the human body (Peacock, 2010). An important role of calcium in the human body is the formation, normal growth, development and metabolism of bones and teeth in human body. Over 99% of total calcium is stored as hydroxyapatite in the bones and teeth of human body, where it provides skeletal strength and structure. The remainder (less than 1%) is located in blood, soft tissues and extracellular fluid where it plays a very important role in mediating vascular contraction, blood clotting, vasodilation, nerve impulse transmission, muscle function, hormone secretion and intracellular signaling. The bone tissues serve as a reservoir and also the source of calcium for the function and maintenance of these metabolic activities. (Veldurthy et al., 2016)

1.4.1 Source

Calcium is available to the human body only through the dietary intake. Milk, yogurt and cheese are the main calcium rich source found in the Norwegian diet (NNR2012). Other sources include fish and fish products, pulses, soybean, and some leafy vegetables.

1.4.2 Calcium physiology and metabolism

In the intestine, absorption of dietary calcium takes place by passive diffusion or by energy-requiring active diffusion. The active process is dependent on the action of $1,25(\text{OH})_2\text{D}$. Hence, calcium absorption is reduced when there is vitamin D deficiency. The unabsorbed calcium is lost via feces, urine and sweat from the body (NNR2012).

Calcium balance: Dietary intake of calcium, intestinal calcium absorption, renal excretion and bone modelling maintains the calcium balance in the body. Bone balance ensures the state of skeletal growth. Positive bone balance, mostly seen in children, is the indication of healthy skeletal growth where the bone formation is greater than the bone resorption and sometimes also referred to as bone accretion. Neutral bone balance where formation is equal to resorption is seen in healthy young adults after they have achieved peak bone mass and indicates maintenance of bone. Elderly people are in negative bone mass, where the resorption is greater than formation of bones and this leads to age related bone loss. (Peacock, 2010). Negative bone balance might lead to substantial bone loss and ultimately osteoporosis.

Calcium homeostasis: Calcium homeostasis refers to hormonal regulation system of $1,25$ dihydroxyvitamin D, parathyroid hormone and serum ionized calcium that control calcium transport in intestine, kidney and bone. A decrease in serum calcium activates PTH secretion from parathyroid gland, which acts in the kidney to increase calcium reabsorption and to increase bone resorption. The increased PTH also stimulates the kidney to increase $1,25$ dihydroxyvitamin D secretion which activates VDR in intestine to the increase calcium absorption. When the serum calcium level is raised, then these actions are reversed, and hormonal responses reduces serum calcium. (Peacock, 2010). Hence, this mechanism tightly regulates the serum calcium level to remain of within a narrow range of 8.5 and 10.5 mg/dl.

Bone calcium remodeling: Bone is remodeled and repaired structural damage itself continuously by controlled mechanisms in order to adapt its strength according to growth and physical exercise (Robling et al., 2006). Hence old, damaged and unnecessary bone is resorped

and new bone is formed. The structural function of skeleton and fracture healing are the result of bone modeling, while an imbalance in bone resorption and bone formation may result in osteoporosis (Vannucci et al., 2018).

1.4.3 Functions

- ❖ Bone health- A major function of calcium is the proper growth and maintenance of bones and teeth. Calcium is necessary in every span of life, from childhood to adulthood and even to pregnancy and fetal growth. Calcium intake affect peak bone mass. Adequate calcium intake is necessary to gain peak bone mass in first 2 to 3 decades of life (Wosje et al., 2000).
- ❖ Others- As described above, calcium found in blood has a main function in mediating vascular contraction, blood clotting, vasodilation, nerve impulse transmission, muscle function, hormone secretion and intracellular signaling (Veldurthy et al., 2016).

1.4.4 Dietary calcium requirement

Calcium is needed in every stage of life in the body. According to NNR2012, RI is set to be 600 mg/d for the age group of 2-5 years. Similarly, for 6-9 years, RI is 700 mg/d and for 10-13 years, it is 900 mg/d. Since 99% of body calcium is in skeleton, calcium intake during the growth period should be high. Likewise, for adults, RI is set to be 800 mg/d for both the genders. During pregnancy and lactation, RI is set to 900 mg/d. The average requirement of calcium is 500 mg/d. The lower intake level is 400 mg/d and upper intake level is 2500 mg/d for both genders.

1.4.5 Calcium and bone health in old age

Intestinal absorption of calcium begins to decline with advancing age (Morris et al., 1991). This may be due to abnormalities in the transport proteins associated with passive diffusion in the intestinal gut which is regulated by $1,25(\text{OH})_2\text{D}$ (Gallagher, 2013) and may also be due to development of resistance to $1,25(\text{OH})_2\text{D}$ (de Jongh et al., 2017) which regulates the intestinal calcium uptake. Because of the poor dietary intake or poor absorption of calcium due to vitamin D deficiency in old age, it may result in the bone loss and potential development of osteoporosis (Peterlik & Cross, 2005), with a subsequent increase in fracture risk. Hence, a low peak bone mass and high bone loss are possible risk factors for osteoporosis and osteoporotic fracture among older adults. Calcium intake also influences the bone mass in postmenopausal women (Nieves et al., 2008) which are at further increased risk of developing osteoporosis. The age-

related bone loss can be reduced with the use of calcium supplementation in elderly populations (Peacock et al., 2000). A review by Shea et al. (2004) also concluded that calcium supplementation has a positive effect on bone density. The use of calcium supplementation reduces serum PTH (Gennari, 2001) which in turn increase the bone turnover (Fardellone et al., 1998). Hence, the bone health of an older population can be improved with calcium supplementation.

1.5 Education

The adequate consumption of micronutrients and minerals such as vitamin D and Calcium determine the diet quality. The quality of diet is of importance for disease occurrence (Darmon & Drewnowski, 2008). Education being one of the measures of socio-economic status (SES) effect the quality of food to be consumed. Many studies have reported that education, occupation or income which are indicators of socio-economic status play an important role in determining health inequalities (Brown, et al., 2016; Prus, 2007). Therefore, it is to be expected that low socio-economic status of people could be associated with the difference in micronutrient intake and status. Darmon & Drewnowski (2008) stated that energy dense diets which are poor in nutrients are often consumed by people of low SES of limited economic source and lower educational level. An individual with a low educational level may lack the nutritional knowledge, resulting in the consumption of unhealthy diets.

1.5.1 Previous studies on association of education with vitamin D and calcium intake

Many of the studies have found an association between dietary intake and SES indicators like education, occupation or income (Friel et al., 2003; Bates et al., 1999). A study done by Galobardes et al. (2001) on adults aged 35- 74 resulted in lower intake of calcium and vitamin D as well as iron and vitamin A intake among people in lower educational and occupational groups. Similarly, a study done in elderly people in Spain showed that low educational level was associated with poor self-assessed health. The less educated elderly consumes less vegetables and meat and more carbohydrates. The educational level influences the nutrient intake and food consumption (Lasheras et al., 2001).

Similar findings have been observed in the intake of calcium and vitamin D in relation to education. A study conducted in Switzerland which assessed dietary intake according to gender

and education showed that people with high education has higher calcium and vitamin D intakes in both male and female, compared to people with low education level (Marques-Vidal et al., 2015). In contrast, a finding of de Mestral et al. (2017) showed that men with low education consume more calcium but less vitamin D than men with a higher education and also that low income occupation women consume less calcium and vitamin D than high income occupation women.

1.6 Supplement Use

The use of supplements can cover the need for minerals and vitamins in the population that are not easily fulfilled by a common diet. Supplemental use is associated with higher nutrient intake and helps to lower the prevalence of inadequacies in micronutrients and also to improve nutrient biomarkers (Wallace et al., 2019). Hence, the dietary supplements are sometimes necessary in order to boost their diets and also close the nutrient gaps that are needed to meet the recommended intakes of nutrients that are not readily available from diet alone, such as for example vitamin D and calcium. The use of dietary supplements is more common in older adults (Tetens et al., 2011; Reinert et al., 2007). It has been found that older adults primarily use the supplements for health-related reasons like improving and maintaining bone health (Gahche, et al., 2017). It has also been found that individuals who intended to eat healthy (Tetens et al., 2011) and have a healthier lifestyle (Reinert et al, 2007) are more frequent supplement users. However, the use of high dose supplements may be harmful. The American Dietician Association found that dietary supplements may increase the risk for toxicities (Kulik, 2005).

Dietary supplement may contribute to daily nutrient intake, but the use of supplements to maintain the bone health in an elderly population has been a matter of debate over the years. Some reports showed that calcium and vitamin D are not that effective and have a limited role in reducing the risk of falling and fractures in elderly (López-Torres, 2014; Bischoff-Ferrari et al, 2018). In a Randomised Evaluation of Calcium or vitamin D (RECORD) trial, calcium and vitamin D supplements, either alone or in combination, did not reduce fractures in elderly people (RECORD, 2005). Similarly, Zhao et al. (2017) reported no association between vitamin and calcium supplements and fracture incidence. However, some reports have also found that supplement use can reduce fracture risk and improve bone health in an elderly population. The Cochrane review by Avenell et al. (2014) suggested that vitamin D with calcium may prevent

any type of fracture, but not vitamin D alone. Weaver et al. (2016) showed that calcium with vitamin D may reduce the fracture risk in community dwelling as well as institutionalized older adults. Boonen et al. (2007) suggested that vitamin D together with calcium supplementation can reduce the risk of hip fracture. Tang et al. (2007) reported that a combined dose of 1200 mg of calcium and 20 µg of vitamin D is recommended to prevent fracture risk and osteoporotic bone loss.

1.7 Food fortification

Fortification of food is another method which help in acquiring adequate nutrients from food when it is not easily fulfilled by the diet alone. Fortified food is associated with higher dietary intake in older adults, particularly for vitamin D with small contribution to calcium (Berendsen et al, 2016). According to them, 70% of older adults consumed fortified foods which contributed to 18% intakes of vitamin D and small percentage of calcium. A study including Finnish older adults has showed that food fortification policy helps to improve nutritional status at a population level (Jääskeläinen, 2017).

Vitamin D Fortification policy differs according to countries, US have many fortified foods. In Norway, mild fortification policy is implemented. In Norway, one type of milk is fortified with 0.4 µg/ 100 g of vitamin D and butter and margarine with 10 µg/ 100g (NNR 2012). During recent years, a limited selection of other foods has also been fortified (some oils, some types of bread, etc.), but this is not systematic.

1.8 Vitamin D and Calcium intakes across the globe

Nutrient intake varies according age, gender, supplement habit and fortification policy implementation (EFSA, 2012). Mean vitamin D and calcium intake also differ due to difference in country's dietary recommendation and dietary habit of the people. Nutrient intake as reported may also vary between countries due to different in study methodologies of the country and variation in assessment techniques.

A project, EUROpean micronutrient RECommendations Aligned Network of Excellence (EURRECA) (Viñas, et al., 2011) reported mean intake of vitamin D was the lowest in Spain (0.7 µg/d), between 3 and 4µg/d in most other countries and the highest in Norway (14 µg/d). Mean calcium intake was the lowest in Belgium (657 mg/d) and the highest in Finland (966

mg/d). In most of the European country, the intake of vitamin D is reported to be below 10µg/d. A review of Kehoe et al. (2018) showed over 90% and 50% of older adult had inadequate intakes of vitamin D and calcium respectively across Europe.

A review of Mensink et al. (2013) had mapped low intake of micronutrients across Europe. They reported more than 5% of population had vitamin D intake below lower recommended intake (2.5µg/d) among older population in countries like Denmark, France, Germany Poland, Spain, Netherland and the UK. For calcium intake, countries like Denmark and Poland had intakes below lower recommended intake (400 mg/d) in 5% of older population. The difference in intakes across countries may be explained by supplement intake. Results from the Finnish FINDIET2012 (Helidan et al., 2013) showed that 10µg/d of vitamin D intake from diet only increased to total mean intake of 20 µg/d with supplement intake.

The total intake of vitamin D and calcium among the older adults of US (≥ 71 years of age) from data of NHANES was 10µg/d and 1100 mg/d respectively (Bailey et al, 2010). Less than 7% of older adults met adequate intake of vitamin D through diet only, but intake increase with the supplement.

There are limited data on intake of vitamin D in South East Asia and Middle East countries. Most of these countries have low dietary calcium intake (less than 400 mg/d), compared to Northern Europe countries (Balk et al, 2017). The dietary calcium was found to be 330 mg/ d in older adults over 60 years in China (Liu, 2019). The intake was below recommended level in 98% of elderly. In a study done in Lebanon, the mean vitamin D intake was found to be 2.5µg/d and mean calcium intake was 683 md/d (Gannagé-Yared et al., 2009). A study done on elderly population in South Africa reported found mean vitamin D as 1.7 µg/d and mean calcium as 238 mg/d which is very low intake and all the participants had intake lower than dietary recommendation (Oldewage-Theron & Kruger, 2008).

1.9 Rationale of the study

Nutrition is an important element of health and is necessary for a better quality of life at any stage of life. Because of a decline in physiological functioning, older adults are at high risk of undernutrition. Ageing may result in decrease in dietary intake of multiple nutrients including calcium and vitamin D which are two of the important nutrients responsible for proper bone health and body functioning. Many studies have been conducted until now concerning the nutritional intake, but most of these focus on children and adults (Rippen et al., 2018; Lane et al., 2019). Rather few nutritional surveys have been performed in the elderly including a small

number with a narrow age range. For instance, NORKOST3, a diet study among men and women in Norway, had an upper age limit of 70 years. Some health surveys have been concerned with disease occurrence in older adults but very few have focused on nutrient intake of elderly who are living at home. Hence, there is a significant knowledge gap in the status of dietary intake of calcium and vitamin D among home dwelling elderly. Findings in epidemiological studies and meta-analyses have shown that inadequate dietary calcium and vitamin intake among elderly can have adverse health consequences. The findings from this study may help to shed light in this knowledge gap as it is important to have balanced nutrition for maintaining quality of life in older adult population.

This study aims to provide a picture of the situation of nutritional intake among older adults in Oslo. This may form a baseline for building health strategies and also indicates the level of attention that is needed towards promoting and improving adequate intake of nutrients among the elderly population. The data can shed light on vitamin D and calcium intake level in people who have experienced a fracture in the past, and hence can inform future policies on monitoring other factors related to fracture risk.

1.10 OBJECTIVES

Main Aim:

The main aim of this study is to estimate calcium and vitamin D intake among community dwelling older adults ≥ 65 years attending senior centres in Oslo, Norway.

Objectives:

- a) To assess calcium and vitamin D from diet in older adults using Food Frequency Questionnaire (FFQ).
- b) To investigate whether education level is associated with the dietary intake of calcium and vitamin D.
- c) To find out if elderly with a recent hip- or forearm fracture have calcium and vitamin D intake according to the national recommendations

CHAPTER II

METHODS

2 Methods

2.1 Study Area

This study was done in Oslo, the capital of Norway. The city is located at 60° N. It has a total population of approximately 694,000 of which about 12.60% of the population are older adults of 65 or over years of age (Statistikken, 2020). The study was conducted in senior centers in Oslo.

A senior center is a type of community center which offers a social service to older adults. These centers are often run by users themselves or with collaboration with state or local governments. The older adults gather for education, recreation, dance, exercise, gaming and other activities which reflect their interests. They provide services such as café, library, hairdresser and footcare. There are about 41 senior centers in Oslo and we selected five senior centers for the study so as to include participants from all directions of Oslo (convenience sampling). The selected senior centers were Vindern eldersenter, Grønland flerkulturelle seniorsenter, Sagene eldersenter, Stovner eldersenter and Ensjøtunet bo og aktivitetshus. Each senior center would be given a gift certificate of approximately NOK 1000 (Norwegian Kroner) for their help. The senior centers were also promised to get a presentation of the findings after the results were known.

2.2 Study Design and Population

This is a cross sectional observation study conducted over a period of approximately 3 months (mid-November 2019 to end of January 2020). Data was collected from 102 participants living in Oslo.

This study is a pilot study, although the larger study has not been planned yet. Norwegian Institute of Public Health (NIPH) contributed financially (up to 50,000 NOK) as NIPH were interested in testing out the feasibility of using the extensive FFQ in this elderly population and the ability to include elderly with immigrant background. Due to the funding from NIPH, we had the financial resources to include 500 participants although we thought of a smaller study with around 200 participants to start with.

2.3 Study organization

We were two master's students, our supervisors (Cecilie Dahl and Jesper Dahl) and a translator (Synøve Sørli) for data collection. A short presentation about the study was given by translator or our supervisors to people of senior center. Interested people were handed out a set of FFQ, additional questionnaire and consent form. Some were even helped to fill out the forms by any one of us. We, the students, participated in development of protocol, participated in data collection, checked all the data after the data collection, entered the data from the additional questionnaire in SPSS and did the analysis of the result under the guidance of our supervisors.

2.4 Participants

2.4.1 Sample Selection

Inclusion criteria

Community dwelling older adults who are 65 years and older in age attending the respective senior centers in Oslo were asked to participate.

Exclusion criteria

The individuals with dementia were not included in the study.

2.4.2 Sample size

In a previous study done on elderly population, mean calcium intakes of male and female population was found to be 900 mg/d and 800 mg/ day respectively and the standard deviation was 300. Based on this mean and SD, the sample size was calculated to achieve 80% power at $p < 0.05$ and 95% confidence interval.

The sample size was calculated using the following formula:

$$N = (Z_{\alpha/2} + Z_{\beta})^2 * 2 * \sigma^2 / d^2,$$

Where,

N = desired sample size

$Z_{\alpha/2}$ = critical value of normal distribution at α (in this case confidence level at 95%, α is 0.05 and the critical value is 1.96)

Z_{β} = critical value of normal distribution at β (here, for a power of 80%, β is 0.2 and the critical value is 0.84)

σ = standard deviation

d = difference in the mean, in this case 100 (900-800).

Thus,

$$N = (1.96 + 0.84)^2 * 2 * 300^2 / 100^2 = 141$$

The sample size was calculated to be 141 in each group, i.e. 282 participants.

2.5 Data collection procedure

Data collection was performed in November 2019 to January 2020, with one or more visits to each selected senior center to recruit participants. Convenience sampling technique was used in order to recruit participants in the study. At first, senior centers were selected and then the local management was contacted by our supervisors. After scheduling time to collect the data, a short presentation upon visit was given with the help of a translator or our supervisors about the purpose and benefits of the study to all the people in the senior center. Interested participants were given Food Frequency Questionnaire (FFQ) along with an additional questionnaire and consent forms. The individuals could take the forms home with them and delivered them to the reception of the senior center during the next week or they were helped in filling out the forms personally by one of us during the visit.

Visible aids such as pictures of food items were also shown to the participants in case if they were not familiar with the food types. After completion of forms, they were checked manually, and necessary corrections were made (for example, omitting one box if they have ticked in two boxes, since the computer doesn't read two values while computing nutritional data). After thorough checking, all the FFQ were sent for computation of food and nutrient intakes.

2.5.1 Translator

Since we have to communicate to older adults in Norwegian, a translator, who is also a nurse, was recruited to communicate and help in filling out the forms. She would give a short presentation to the older adults and inform them the purpose and potential benefits of the project.

2.5.2 Dietary Data

The study used two forms for the information about the dietary intakes: one for dietary assessment and another additional form for background information. For the dietary assessment a semi quantitative food frequency method is used that aimed to cover vitamin D, calcium and dietary supplements along with other nutrients. It is a validated questionnaire from the Department of Nutrition, University of Oslo which has been used in previous studies (Lundblad et al., 2019). The first page of FFQ includes the information about the questionnaire and how to select the answers in the form, followed by next page showing example of filling the questionnaire. FFQ includes different types of food which are commonly used in a Norwegian diet and asks the participant to specify the size and frequency of specific meals. The meal frequency is usually specified as the number of times per day, per week or per month, or if it is never/ rare. The FFQ also includes slices of bread per day, what they take with bread, milk consumption, cold and hot drinks, alcohol consumptions, sugar consumption, different types of meat, fruits and vegetables and desserts. The FFQ also includes questions about different types of dietary supplements, their frequencies and quantities of use. There are also columns for gender, age, current height and weight of participants which are self- reported. At the end of FFQ, there is a box for the extra diet they consume other than those mentioned in FFQ.

The additional questionnaire (see appendix II) is adapted from the Health Survey in Oslo (HUBRO) and MNA form (Directorate of Health) (2012). It includes background information about highest level of education attained (in six categories: primary level <7years; primary school 7-10 years/ upper secondary level; vocational school/ 1-2 years of high school; high school; college/university less than 4 years and college/university more than 4 years.), living status if living in own apartment (yes/no), with someone else (yes/no) and with children nearby (yes/no); smoking behavior (yes/no/earlier); own health status (four categories); arm or hip fracture in last 5 years (yes/no), use of medicines (three categories), special diet (yes/no), experience of filling out the FFQ form (four categories) and lastly two questions about the ethnicity (country of origin) and time period living in Norway. The country of origin includes North Africa and the Middle East, Sub-Saharan Africa, South Asia, East Asia, Latin America/ Caribbean, Oceania, North America and Europe.

Since the number of participants in each level of education they attained was limited, a new variable was made, classifying education level in three categories: basic, intermediate and high. Primary level <7years and primary school 7-10 years/ upper secondary level were categorized

as ‘basic’; vocational school/ 1-2 years of high school and high school were categorized as ‘intermediate’; and college/university less than 4 years and college/university more than 4 years were categorized as ‘high’ level. Similarly, age in continuous variable was also categorized into two intervals: ≤ 75 and > 75 so that there were an almost equal number of participants in both groups.

2.6 Nutrient intake calculation

Energy and nutrient intake were calculated using a food database and a dietary calculation system (KBS, version 7.3, database AE-14) developed at the Department of Nutrition, University of Oslo. The food database has all the data on food items and their nutrient contents according to the official Norwegian food composition tables (Matportalen, 2020) and is also supplemented with data from calculated recipes. Intakes from dietary supplements and fortified foods were included in the nutrient calculations.

2.7 Data Handling

Data collected from the FFQ are handled in TSD (Service for Sensitive Data). TSD is an IT-platform developed and operated by UiO. It collects, stores, analyzes and shares sensitive data in a most secure environment in agreement with Norwegian privacy regulations.

The data on nutrient intakes calculated by KBS, along with additional information from FFQ and questionnaire on background information, were then transferred into SPSS inside TSD for further analysis.

2.8 Statistical Analysis

Means and standard deviation were calculated for continuous variables, and proportions were computed for categorical variables. Differences between means were evaluated using an independent sample t-test. For categorical variables, chi square test was used. Simple one-way ANOVA was used to test for significance between different levels of education and intake.

Simple linear regression was used to explore the association between vitamin D and calcium intakes and education level. In these models, nutrient intakes were adjusted for age and gender

in order to compare the relationship between intake and education level among the participants. Similarly, age and gender were adjusted for each other.

All the statistical analysis was performed using Statistical Package for the Social Sciences software package (IBM SPSS Version 26.0). The level of statistical significance was set at $p < 0.05$.

2.9 Ethical approval

The study was approved by the Norwegian Centre for Research Data (NSD) in Norway (Appendix IV).

All participants were given detailed information about the study prior to being asked to participate. This information included the potential benefits of the study, as well as a clarification that all participation was voluntary and that they could withdraw their participation from the study at any time. The interested participants would sign the form. Some forms were taken into consideration, even if the participants had not signed but had filled both the FFQ and additional questionnaire. We had included those forms because filling the forms indicate that they have given consent to the study but did not want to be traced/ identified. Hence, the participants who signed the consent forms and as well as who completed the FFQ were included in the study. All the data was kept anonymous and confidential, with each participant being given an anonymous identification number. All the consent forms from the participants were placed in a safe locker which was only accessible to the supervisor.

CHAPTER III

RESULTS

3 Results

Table 3.2. Demographic characteristics of older adults in senior centers by gender

Characteristics	Male 31(30.4 %)	Female 71(69.6 %)	Total n=102
Age, mean years (sd)	80.8 (8.7)	76.5 (6.2)	
BMI, mean kg/m ² (sd)	25.3 (5.3)	25.6 (4.5)	
Energy intake, KJ/d mean (sd)	8869 (3922)	8416 (3060)	
Education Level, n (%)			
Basic	4 (13.3)	9 (13.0)	13(13.1)
Intermediate	8 (26.7)	24 (34.8)	32 (32.3)
High	18 (60.0)	38 (52.2)	54 (54.5)
Living in own apartment, n (%)			
Yes	29 (96.1)	65 (95.6)	94 (95.9)
No	1 (3.9)	3 (4.4)	4 (4.1)
Living with partner/spouse, n (%)			
Yes	12 (41.4)	25 (36.8)	37 (38.1)
No	17 (58.6)	43 (63.2)	60 (61.9)
Living children nearby, n (%)			
Yes	18 (62.1)	52 (76.5)	70 (72.2)
No	11 (37.9)	16 (23.5)	27 (27.8)
Smoking habit, n (%)			
Yes, currently	3 (10.0)	3 (10.0)	6 (6.1)
Earlier	14 (46.7)	26 (37.7)	40 (40.4)
Never	13 (43.3)	40 (58.0)	53 (53.5)
Own health, n (%)			
Bad	3 (10.0)	4 (5.7)	7 (7.0)
Not so good	5 (16.7)	18 (25.7)	23 (23.0)
Good	16 (53.5)	36 (51.4)	52 (52.0)
Very good	6 (20.0)	12 (17.1)	18 (18.0)
Broken legs/arms, n (%)			
Yes	2 (6.9)	10 (15.2)	12 (12.6)
No	27 (93.1)	56 (84.8)	83 (87.4)
Medicine use, n (%)			
None	4 (13.3)	10 (14.3)	14 (14.0)
1-3	11 (36.7)	42 (60.0)	53 (53.0)
More than 4	15 (50.0)	18 (25.7)	33 (33.0)
Special diet, n (%)			
Yes	5 (17.2)	8 (12.3)	13 (13.8)
No	24 (82.8)	57 (87.7)	81 (86.2)
Living in Norway, n (%)			
<5 years	0	1 (1.4)	1 (1.0)
>10 years	2 (6.7)	6 (8.6)	8 (8.0)
Born in Norway	28 (93.3)	63 (90.0)	91 (91.0)
Origin, n (%)			
Europe	28 (93.3)	63 (90.0)	91 (91.0)
Non- Europe	2 (6.7)	7 (10.0)	9 (9.0)

3.1 Characteristics of participants

A total of 102 individuals participated in the study of which 31 were males and 71 were females. Table 3.2 summarizes the characteristics of participants by gender. The mean age of the study sample population was 77.8 years (± 7.2); 80.8 years (± 8.7) for males and 76.5 years (± 6.2) for females. The mean BMI of males was 25.3 kg/m² and females was 25.6 kg/m². More than half of the participants had a higher level of education. The majority of the participants were living on their own (n=95, 95.9%) and had their children living nearby them (n=70, 72.2%). About 38% (n=37) were living with a partner/spouse. More than half of the participants reported that they had never smoked (n=53, 54%) and only 6% (n=6) were current smokers. Less than a quarter (n=12, 13%) reported a fracture over the last 5 years. About 52% (n=52) of the participants reported their health condition as 'good'. The majority of the study population used less than 4 medications (n=53, 53%). Even though the study aimed to include the people of different origins, most of the participants included were of European origin and born in Norway (n=91, 91%).

3.2 Vitamin and calcium intakes

Vitamin D and calcium intakes was calculated for dietary intake alone and for dietary intake with supplements. Since mean intakes were similar to median intakes in the present study, only means are presented. Mean vitamin D and calcium intakes were 17 μ g/day (± 12.35) and 1040 mg/d (± 600) respectively when supplement use was included. But when the intake from diet only was considered, the mean vitamin D intake dropped to 6 μ g/day (± 3.8), while the intake of dietary calcium did not show much change with a mean of 993 mg/day (± 577).

Vitamin D intake was also presented on the basis of gender (male and female), age group (≤ 75 and > 75 years) and education level (basic, intermediate and high) (table 3). There was no significant difference in vitamin D intake from diets with supplements between genders and different levels of education (p=0.72 & p=0.70 respectively). However, there was a significant difference between age groups (p<0.05). Individuals who were 75 years and younger of age had higher vitamin D intake than in individuals older than 75 years of age (19.7 μ g/d and 14.7 μ g/d respectively). Calcium intake also showed no significant association with gender and education but was associated with the age group (p<0.05) (table 3.3). Individuals who were 75

years or younger in age had higher calcium intake than individuals who were older than 75 years of age (1167 mg/d and 931 mg/d respectively, $p= 0.04$).

Table 3.3: Mean vitamin D and calcium intake from diet with supplements by sample characteristics in older adults in senior centers in Oslo

Variables	Vitamin D intake		Calcium intake	
	Mean, $\mu\text{g/d}$ (sd)	p-value	Mean, mg/d (sd)	p-value
Age group				
≤ 75	19.7 (13.9)	0.04*	1167 (725)	0.04*
>75	14.7(10.5)		931 (447)	
Total	17.0 (12.4)		1040 (600)	
Gender				
Male	16.3 (10.3)	0.72*	1025 (770)	0.87*
Female	17.3(13.2)		1046 (516)	
Education level				
Basic	19.1 (11.4)	0.70**	931 (618)	0.80**
Intermediate	17.8 (13.9)		1064 (540)	
Higher	16.2 (11.9)		1048 (645)	

*independent sample t test

**ANOVA

With the dietary intake alone, the vitamin D intake showed no significant association with age group, gender or education level ($p= 0.09, 0.43$ & 0.68 respectively) (table 3.4). Calcium intake was associated with age group ($p=0.03$), with individuals who were 75 years or younger having a higher calcium intake than in individuals who were older than 75 years of age, but the intake showed no association with gender or education level ($p= 0.09$ & 0.77 respectively).

Table 3.4: Mean vitamin D intake from diet without supplement by sample characteristics in older adults in senior centers in Oslo

Variables	Vitamin D intake		Calcium intake	
	Mean, µg/d (sd)	p-value	Mean, mg/d (sd)	p-value
Age				
≤75	7.6 (5.2)	0.09*	1124 (717)	0.03*
>75	6.0 (3.8)		880 (377)	
Total	6.8 (4.6)		993 (577)	
Gender				
Male	7.3 (4.7)	0.43*	1000 (762)	0.09*
Female	6.5 (4.5)		989 (469)	
Education level				
Basic	6.9 (5.8)	0.68**	890 (625)	0.77**
Intermediate	7.3 (4.4)		1027 (484)	
High	6.4 (4.5)		997 (622)	

*independent sample t test

**ANOVA

3.3 Intakes according to recommendation

When diet with supplements was considered, 42% of male and 32% of female participants met the official vitamin D recommendation of 20µg/day, while about 58% of male and 60% of female participants met the official calcium recommendation of 800 mg/day (table 3.5). However, the official vitamin D intake recommendation was met by only 6.5% of the males and 2.8% of the females when diet without supplements was considered, while the calcium intake recommendation was met by 54.8% of males and 57.7% of females (table 3.6).

Table 3.5: Proportion of participants who meet the official vitamin D and calcium recommendation of 20 µg/day and 800 mg/day respectively from diet with supplements

Intake as recommended	Vitamin D intake			Calcium intake		
	Male	Female	Total	Male	Female	Total
Yes	13 (41.9%)	23 (32.4%)	36 (35.3%)	18 (58.1%)	43 (60.6%)	61 (59.8%)
No	18 (58.1%)	48 (67.7%)	66 (64.7%)	13 (41.9%)	28 (34.9%)	41 (40.2%)

Table 3.6: Proportion of the participants who meet the official vitamin D and calcium recommendations of 20 µg/day and 800 mg/day from diet without supplements

Intake as recommended	Vitamin D intake			Calcium intake		
	Male	Female	Total	Male	Female	Total
Yes	2 (6.5%)	2 (2.8%)	4 (3.9%)	17 (54.8%)	41 (57.7%)	58 (56.9%)
No	29 (93.5%)	69 (97.2%)	98 (96.1%)	14 (45.2%)	30 (42.3%)	44 (43.1%)

3.4 Fracture and intakes

The tables below present the mean intakes from diet with supplements according to prior fracture and the proportion meeting the official intake recommendations. The mean vitamin D intake in those individuals who had reported a fracture during the last five years was found to be 20.6 µg/day (± 19.6) (table 3.7). However, there was no significant association between vitamin D intake and a prior fracture ($p=0.32$). The mean calcium intake in individuals with a fracture during the last five years was 944 mg/day (± 604), and this intake was also not significantly different from the intake in those without a prior fracture ($p=0.52$). Only 25% and 50% of participants with a fracture during the last five years met the recommended intake of vitamin D and calcium, respectively, as show in table 3.8.

Table 3.7: Mean vitamin D and calcium intakes from diet with supplements for individuals with and without a prior fracture

Prior fracture	Vitamin D intake		Calcium intake	
	Mean µg/d (sd)	p-value	Mean mg/d (sd)	p-value
Yes	20.6 (19.6)	0.32	944 (604)	0.52
No	16.8 (11.2)		1065 (615)	

Table 3.8: Proportion of participants who meet the official vitamin D and calcium recommendations from diet with supplements in participants with and without a prior fracture

Prior fracture	Vitamin D intake according to recommendation		Calcium intake according to recommendation	
	Yes	No	Yes	No
Yes	3 (25%)	9 (75%)	6 (50%)	6 (50%)
No	31 (37.3%)	52 (63.7%)	51 (61.4%)	32 (38.6%)

Similarly, looking at diet without supplements in tables 3.9 & 3.10, the mean vitamin D and calcium intakes among participants who reported a fracture during the last five years was 5.3 µg/day and 896 mg/day respectively. No significant association was found between intakes and a prior fracture ($p > .05$). None of the participants with a prior fracture met the recommended vitamin D intake without supplements, while 50% met the recommended calcium intake.

Table 3.9: Mean vitamin D and calcium intakes from diet without supplements for individuals with and without a prior fracture

Prior fracture	Vitamin D intake		Calcium intake	
	Mean µg/d (sd)	p-value	Mean mg/d (sd)	p-value
Yes	5.3 (3.0)	0.21	896 (553)	0.50
No	7.1 (4.8)		1019 (590)	

Table 3.10: Proportion of participants who meet the official vitamin D and calcium recommendation from diet without supplements in participants with and without a prior fracture

Prior fracture	Vitamin D intake according to recommendation		Calcium intake according to recommendation	
	Yes	No	Yes	No
Yes	0	12 (100%)	6 (50%)	6 (50%)
No	4 (4.8%)	79 (95.2%)	48 (57.8%)	35 (42.25%)

3.5 Education and intake

The proportion of participants who met the official intake recommendations from diet with supplements according to education level is presented in table 3.10. When looking at intake with supplements among those with a higher education, 33.3% of participants met the recommended vitamin D intake and 61.1% met the recommended calcium intakes as shown in table 3.11. Similarly, 53.8% of participants with a basic education met the recommended vitamin D intake and 53.8% met the recommended calcium intake. The suggested differences by education were not statistically significant.

Table 3.11: Proportion of participants who meet official vitamin D and calcium recommendation from diet with supplements according to education level

Education level	Recommended vitamin D intake		p-value	Recommended calcium intake		p-value
	yes	no		yes	no	
Basic	7 (53.8%)	6 (46.2%)	0.32*	7 (53.8%)	6 (46.2%)	0.89*
Intermediate	10 (31.3%)	22(68.7%)		19 (59.4%)	13 (40.6)	
High	18 (33.33%)	36 (66.7%)		33 (61.1%)	21 (38.9%)	

*chi- square test

When diet without supplement was considered as illustrated in table 3.12, among those with higher education, only 3.7% participants met the official vitamin D intake, whereas calcium recommended intake was met by more than half of the participants (59.3%). Again, the proportion were similar among those with a basic education, and the differences between levels of education were not statically significant.

Table 3.12: Proportion of participants who meet official vitamin D and calcium recommendation from diet without supplement according to education level

Education level	Recommended vitamin D intake		p-value	Recommended calcium intake		p-value
	yes	no		yes	no	
Basic	1 (7.7%)	12 (92.3%)	0.77	6 (46.2%)	7 (53.8%)	0.69
Intermediate	1 (3.1%)	31 (96.1%)		18 (56.3%)	14 (43.7%)	
High	2 (3.7%)	52 (96.3%)		32 (59.3%)	22 (40.7%)	

*chi- square test

3.6 Linear Regression Model

Finally, tables 3.13 & 3.14 show the linear regression model with vitamin D and calcium intake adjusted for age and gender in diets including supplements. In this model, individuals with age > 75 years had a significantly lower mean vitamin D intake as compared to individuals who were 75 years and younger ($\beta = -5.0$; 95% CI -10.0, -0.4). Similarly, individuals aged above 75 years had a significantly lower mean calcium intake than individuals below 75 years of age ($\beta = -248$; 95% CI -491.6, 5.1). After adjusting for age, female participants had a slightly lower mean vitamin D ($\beta = -0.5$; 95% CI -5.9, 4.9) and calcium intake ($\beta = -50$; 95% CI -314.3, 213.0) than males, however, these differences were not statistically significant ($p > 0.05$). There was no significant difference in intake between levels of education ($p > 0.05$).

Table 3.13: Linear regression of vitamin D intake from diet with supplements in older adults in senior centers in Oslo

Variables	Model 1			Model 2		
	β *	95% CI	p-value	β *	95% CI	p-value
Age						
≤ 75		ref			ref	
> 75	-4.9	-9.7, -0.1	0.04	-5.0	-10.0, -0.4	0.04
Gender						
Male		ref			ref	
Female	1.0	-4.3, 6.3	0.72	-0.5	-5.9, 4.9	0.85
Education level						
Basic		ref			ref	
Intermediate	-1.3	-9.5, 6.8	0.75	0.2	-8.0, 8.4	0.96
High	-2.9	-10.6, 4.7	0.45	-2.2	-9.8, 5.4	0.57

*Difference in vitamin ($\mu\text{g}/\text{d}$)

Model 1: unadjusted; Model 2: model 1 adjusted for age and gender

Table 3.14: Linear regression of calcium intake from diet with supplements in older adults in senior centers in Oslo

Variables	Model 1			Model 2		
	β *	95% CI	p-value	β *	95% CI	p-value
Age						
≤ 75		ref			ref	
> 75	-236	-469.1, -2.5	0.04	-248	-491.6, 5.1.	0.04
Gender						
Male		ref			ref	
Female	22	-236.1, 279.5	0.87	-50	-314.3, 213.0	0.70
Education level						
Basic		ref			ref	
Intermediate	133	-264.7, 531.4	0.51	248	-139.3, 635.2	0.21
High	117	-256.6, 491.4	0.54	172	-187.2, 531.3	0.34

*Difference in calcium (mg/d)

Model 1: unadjusted; Model 2: model 1 adjusted for age and gender

Looking at diets without supplements using the same linear regression model demonstrated similar results, with only age being significantly associated (tables 3.15 & 3.16). Participants of >75 years of age had a lower vitamin D intake ($\beta = -1.9$; 95% CI -3.7, -0.3) and calcium intake ($\beta = -266.6$; 95% CI -496.4, -36.7) as compared to participants of ≤ 75 years, and female tended to consume slightly less dietary vitamin D ($\beta = -1.3$; 95% CI -3.3, 0.67) and less dietary calcium ($\beta = -88.6$; 95% CI -337.7, 160.5) than male participants. However, the gender differences were not statistically significant. Again, there was no significant difference in intake between levels of education ($p > 0.05$)

Table 3.15: Linear regression of vitamin D intake from diet without supplement among older adults in senior centers in Oslo

Variables	Model 1			Model 2		
	β *	95% CI	p-value	β *	95% CI	p-value
Age						
≤ 75		ref			ref	
> 75	-1.5	6.2, 12.0	0.09	-1.9	-3.7, -0.3	0.04
Gender						
Male		ref			ref	
Female	-0.8	-2.7, 1.1	0.42	-1.3	-3.3, 0.7	0.19
Education level						
Basic		ref			ref	
Intermediate	0.5	-2.5, 3.5	0.76	1.1.	-1.9, 4.1	0.46
High	-0.4	-3.3, 2.4	0.77	-0.1	-3.0, 2.6	0.90

*Difference in vitamin ($\mu\text{g}/\text{d}$), Model 1: unadjusted, Model 2: model 1 adjusted for age and gender

Table 3.16: Linear regression of calcium intake from diet without supplement among older adults in senior centers in Oslo

Variables	Model 1			Model 2		
	β *	95% CI	p-value	β *	95% CI	p-value
Age						
≤ 75	ref			ref		
> 75	-244.6	-465.4, -23.8	0.03	-266.6	-496.4, -36.7	0.02
Gender						
Male	ref			ref		
Female	-11.0	-256.0, 234.0	0.93	-88.6	-337.7, 160.5	0.48
Education level						
Basic	ref			ref		
Intermediate	136.3	-243.5, 516.2	0.48	263.5	-99.0, 626.0	0.15
High	107.0	-249.8, 463.8	0.55	166.1	-170.2, 502.4	0.33

*Difference in calcium (mg/d)

Model 1: unadjusted

Model 2: model 1 adjusted for age and gender

CHAPTER IV

DISCUSSION

4 Discussion

4.1 Main Results

The present study focuses on describing vitamin D and calcium intake in apparently healthy community dwelling older adults in Oslo. It considers dietary intake both with and without supplements. Whereas mean intake of calcium reached the official recommendation, it was somewhat lower than recommended for vitamin D. For both nutrients, the intake was moderately reduced with age. However, this study showed that there was no significant difference between vitamin D and calcium intake and education among older adults.

4.1.1 Vitamin D and Calcium intakes

In the current study, the total intake of vitamin D and calcium was better in elderly population. In general, older adults are more vulnerable to nutritional deficiencies. Loss of appetite, depression, decreased metabolic function and physical impairment may reduce dietary intake causing malnutrition in an elderly population (McMinn et al., 2011). In addition, poor nutrition intake, less exposure to sun and decreased metabolic functions with an increasing age will further lower vitamin D and calcium statuses among the older adults. There are multiple studies suggesting that lower vitamin D and calcium statuses could be risk factors for number of diseases, such as different types of cancer, inflammatory and autoimmune diseases, metabolic disorders and other cardiovascular diseases (Peterlik & Cross, 2009).

Low dietary intakes of vitamin D and calcium have been reported in several older adult populations around Europe (Norkost 3, 2012; Elmadfa, et al., 2012; Sette, et al., 2011; Olza, et al., 2017). The mean intakes of both vitamin D and calcium were higher in older adults in our study as compared to the findings in Italy (Sette, et al., 2011), Spain (Olza, et al., 2017), Austria (Elmadfa, et al., 2012). The intakes were almost similar to the findings of Norkost 3 (2012) and of Watanabe et al. (2004). Watanabe et al. (2004) found that the mean intake in healthy free-living older Japanese was 17.7 µg/day, whereas the calcium intake was 756 mg/day when the supplement was included. The high intake in our study than other European countries may be due to consumption of fatty fish, vitamin D fortified foods and use of supplements among older adults of Oslo. In Norway, fish contribute 40%, fat spreads 30% and eggs 17% of vitamin D (Norkost3).

Although the intakes were high rather in the study, the recommended intakes of vitamin D and calcium were not met by most of the participants i.e., only 42% males and 32% females met the official vitamin D recommendation of 20 µg/day, whereas 58% male and 61% female were able to meet the calcium recommendation of 800 mg/day, even with supplements included.

Considering diet without supplement, 94% of the males and 97% of the females had vitamin D intake below the recommended value (94% for male and 97% for females). Calcium intake was somewhat better, with less than 50% of the total study population having an intake below the recommended value, both among males and females even without supplements. One possible explanation for the sufficient calcium intake might be consumption of more milk and milk products by elderly.

Possible factors for adequate vitamin D and calcium intake

The intake of calcium and vitamin D in this current analysis could also be discussed in light of BMI of the participants. BMI is indicator of health risk (WHO, 2000). Underweight and obesity represent development and prevalence of several health issues (Nuttall, 2015) and hence indicate poor nutritional status. A low proportion (4%) of the study population were underweight (BMI <18.5 kg/m²) and mean BMI of the participants was 25.5 kg/m² in the current study. This indicate that they might have good nutritional status and concern with consuming proper nutrients. This could be one of the reasons for sufficient intake of vitamin D and calcium among them.

Nutritional habit is also influenced by the living style of the individual. It has been shown that individuals living alone are at higher nutritional risk. In our study most of the participants did not live alone. The consumption of fish and other meat products are less common in older men and women who live alone, as they should necessarily to cooked. In addition, loss of appetite and mode of feeding (eating with or without assistance) had also a role in being at nutritional risk (de Morais et al., 2013). The current study was done at senior center where they often eat meal prepared at the centers and in companion with other by themselves. Eating together might stimulate the appetite. Furthermore, most of the participants were living in own apartment and with children nearby and might be the reason for the adequate nutrient intake among them.

4.1.2 Vitamin D and calcium intakes by education level

The level of education also influences the dietary intake in the population. The education attained in early life might help to understand the importance of dietary intake and hence result in improved food habits (Kant & Graubard, 2007). The mean intake in the study was higher in higher education level. Participants with higher education level are likely more conscious about health and nutrition. This consciousness might lead to an increased chance of misreporting a higher consumption of healthy foods such as fruits and vegetables (Trichopoulou et al., 2002), thus giving an elevated intakes of vitamin D and calcium.

Interestingly, there was no significant association found between education and vitamin D intake or between education and calcium intake in the present study. Our study is in line with the finding of de Mistral et al. (2017) which also found no educational difference in vitamin D intake among female participants. A study by Kiehn et al. (2007) also found no association between intakes of two nutrients and years of education. However, the present study was in contrast with the previous findings (Hassen et al., 2016; Cai et al., 2007). The vitamin D and calcium intakes in these studies were found to be significantly associated with level of education. Similarly, a study done by Marques-Vidal et al. (2015) in Swiss adults demonstrated that dietary intake is high in individuals with higher education.

4.1.3 Vitamin D and calcium intakes by gender

In this study, vitamin D and calcium intakes in female participants were rather similar to the intakes in males. The energy intake was also similar among them. In general, women demonstrate healthier food choices than men. A survey on a Norwegian population showed that healthy food behavior is associated with female gender, increasing age and higher education (Fagerli & Wandel, 1999). In addition, female consume more dietary supplements than males (Weeden et al., 2010). In contrast, a study done in Lebanon (Nasreddine et al., 2020) found that females were more malnourished in all age groups which they related to gender inequalities and females consuming smaller food portions (Zhu et al., 2010).

The present study was in accordance with the study of in elderly German cohort where they found similar median intake of vitamin D in both males and females and there was no association between intake and gender (Jungert, et al., 2014). A similar result showed intake of calcium and vitamin D had no significant difference between men and women among community dwelling older Japanese adults (Watanabe, et al., 2003), whereas the intakes were

756 mg/d 18 µg/d for calcium and vitamin D respectively. However, some studies showed association between calcium and vitamin D intake and gender (Power et al., 2014; Robinson et al., 2009)

4.1.4 Vitamin D and calcium intakes by age group

In the present study, age was significantly associated with the intake of vitamin D and calcium. Individuals who were older than 75 years had less vitamin D and calcium intakes than individuals who were 75 and younger. However, the intake in those older than 75 years was only moderately lower compared to those younger in our study, with a mean intake of vitamin D of 14.7µg /d and calcium of 931 mg/d. Decline in nutrient intake with ageing is one of the factors for low intakes in the former. Furthermore, older populations are at the risk of micronutrients deficiencies due to impaired oral health, use of multiple medications, limited financial resources and physiological changes in ageing (Lee et al., 2001; Ronni, 2006). Another reason for low intakes in older adults could be a lack of mobility, as this hampers their ability to go out for shopping and to cook meals, which makes it difficult to achieve the dietary requirement of vitamin D and calcium. The intake in those older than 75 years was not lower in our study. This indicates those older than 75 had rather healthy eating habits. However, the result was in contrast with Jungert et al. (2014) where dietary intake was higher in older participants.

4.1.5 Vitamin D and calcium intakes by supplement use

In the present study, the mean intake of vitamin D from diets with supplements were much higher than the mean dietary intake from diets without supplements (17 µg/d vs 7µg/d), while there was not much difference for calcium intake (1040mg/d vs 993mg/d). This means that the participants on average met the current calcium intake recommendation of 800 mg/day without supplements, while for vitamin D, the intake was approaching the vitamin D recommendation of 20 µg/day when supplements were also included, indicating that supplement use can be a good source of nutrients. The use of supplements had a significant impact on maintaining the intake level.

About 68% of the participants took vitamin D supplements and 18% took calcium supplement. The high use of vitamin D supplement may be because of reduced sun exposure during winter in Norway (during data collection time) and hence they prefer taking vitamin D from supplement. The use of supplement differs during the season, in winter being more than in

summer. However, in those who were not taking vitamin D containing supplement, the intake came only from the food.

Among those who were non-supplement users, the mean vitamin D intake was 6.19 $\mu\text{g}/\text{d}$ and mean calcium intake was 932mg/d. Although non-supplement users might consume vitamin D or calcium rich diet and hence preferred not taking supplements, our data suggest that this is not the case for vitamin D, indication that it is difficult to meet the recommended intake by diet alone.

A good vitamin D status can be secured by sun exposure. However, our data were collected during winter with virtually no sun induced cutaneous vitamin D production. The data on vitamin D supplement use was almost similar to the data reported on Canadian women over 71 years of age (Vatanparast et al., 2010). The prevalence and frequency of dietary supplemental use was found to be high among older adults in United States in a study by Gahche et al. (2017). They also found that the supplement use was higher among those with a higher education level. The fortification of food with vitamin should be encouraged to achieve the recommendation among them.

4.1.6 Vitamin D and calcium intakes below recommended level

Despite the inclusion of supplements in diet, there was certain proportion of participants who did not meet the official dietary intake of vitamin D and calcium among the participants (65% and 40% respectively) in our study. This proportion became greater when the supplement was not included in diet. 96% of participants adults had dietary vitamin D intake below the recommended level in this study, if the supplement use was not taken in account. there was no predominant change in calcium intake when including the use of supplements. The reason for similar intake of calcium could be due to the consumption of milk and milk products being sufficient calcium sources. Since the supplemental calcium was included as part of vitamin D in FFQ (no option for calcium supplement only), it might be a reason for similar intake before and after supplementation.

Low intakes of calcium and vitamin D has also been reported in other of the studies (Marshall et al. 2001; Volkert et al, 2004). The study of Marshall et al. (2001) done in community dwelling elderly found 84% and 67% of participants did not meet adequate intake of vitamin D and calcium respectively. Similarly, a study in elderly German reported 62% of male and 72%

of female participants remained below half of the recommended value of vitamin D (Volkert et al, 2004).

4.1.7 High dietary vitamin D and calcium intakes

Although dietary supplements may fill the dietary gaps, there may be a chance of exceeding the recommended upper limit. In the present study, a high dietary intake of calcium and vitamin D were observed for some individuals, with vitamin reaching 62µg/d and calcium reaching 4741mg/day. This may be due to the individual eating specific foods that contain high amounts of vitamin D and calcium when the data was collected, or it also may be overreporting of such items or the use of supplements in high amounts. Bailey et al. (2012) also found in their study that some nutrients were in very high amounts in older adults, except for vitamin D.

4.1.8 Vitamin D and calcium intakes and fracture

In the current study, the participants were asked to report any forearm or hip fracture during the last 5 years. There was no significant association between vitamin D and calcium intakes and a prior fracture among the study participants. The reason for this could be the small number of reported fractures (12.6%), which is likely too low to draw any clear conclusions.

The study was not in agreement with the study by Yoon et al. (2016) where they reported 80% of patients with fracture had vitamin D and calcium intakes below the recommended level. Cho, et al. (2008) in their study found that one- third elderly patients with hip fracture had calcium intake below the recommended 800 mg/day.

Among those who reported a fracture in our study, one third met the official vitamin D recommendation, whereas about 37% met the calcium recommendation. This suggests that even in this group of elderly who have an increased risk of a subsequent fragility fracture, the majority do not meet the recommendation for vitamin D and calcium.

4.2 Methodological considerations

4.2.1 Population and sample size

The aim of the study was to assess the older population in senior centers in Oslo. The senior centers were located in five different locations around Oslo. These included Vindern eldersenter in the west, Sagene eldersenter in the central north, Ensjøtunet bo og aktivitetshus in the east, Stovner eldresenter in the north and Grønland flerkulturelle seniorsenter in the center of the city.

The sample size was planned to be as much as 500 participants, although the power calculation was done according to 282 participants (see 2.4.2). We only managed to recruit 241 participants. Of these participants, only 102 participants filled out the FFQ. The response rate was calculated as

$$\text{Response rate} = (\text{No. of received forms} / \text{no. of distributed forms}) * 100\%$$

Hence, the response rate of the study was 42.32% of the invited participants.

The response rate was highest in Vindern eldersenter with 63% and very few people took part in the study in Ensjøtunet bo og aktivitetshus and Grønland flerkulturelle seniorsenter. Earlier report of Oslo says that people in the west have higher living standard and live 10 years more than the people in the east. In addition, in Grønland flerkulturelle seniorsenter, it has many people who are ethnically divergent and are less than 65 years (since they don't have much to do before 65 years). Some did not understand English as well as Norwegian, hence it was difficult to take data from them. In all centers, women showed more interest to participate than men hence more women in our study. Some elderly wanted to take part as they were eager to know about diet, while some individuals refused because they said that they knew they were eating healthy diets and doing regular exercise.

The low response rate is not uncommon in health research. However, this low response rate could result in biased study outcomes (Galea & Tracy, 2007). The doubts about disclosing information from the FFQ could also have negatively impacted the low response rate, although confidentiality was ascertained.

Data collection time could also be a factor for the low response rate, as data was collected from mid-November to the end of January, which was near to Christmas time when many were not

at the center. In addition, different routines and activities around Christmas could also influence the willingness to participate. In order to meet the deadlines in the master program, the data collection could not be extended.

Regarding the participants in the study, around two-third of the participants were females. The higher participation of females could be explained by the interest of women in health and nutrition surveys (Galea & Tracy, 2007). To increase the response rate among males in future studies, recruitment processes that increase interest and motivation should be implemented.

The participants who were unable to fill out the forms themselves were helped by any of us. This might have increased the number of participants who were willing to participate but could not fill out the forms by themselves.

4.2.2 Education level and senior centers

The high age among potential participants also made it difficult to convince them to take part in the study. The study had a team where three members with fluent in Norwegian language contributed to recruit participants. The food frequency questionnaire set was also one of the problems, as it was challenging to fill in the 14 pages long form, and some refused to do so.

Looking at the population among older than 65 years of age in Oslo, the proportion of education level attaining highest level of education is lower than our study, while for basic and intermediate level, it was higher than our study. 39% of population has higher education level, 42% and 18% have intermediate and basic level of education respectively in Oslo (Statistikken, 2020).

4.2.3 Assessment tools

The present study used a validated food frequency questionnaire (Lundbald, et al., 2019). The FFQ was checked thoroughly for the completion by participants. Some challenges were encountered in the application of this questionnaire. Some participants found difficulty in remembering the frequency and estimates of monthly diet, some took too much of time in filling out the questionnaire (from 45 mins to 4 hours), cross repetitive foods and seasonal foods in the questionnaire were hard to select (example, strawberry is mainly available only during summers). Some of the participants did not select the quantity of food items they consumed, so

the least intake of food was chosen by us in order to be scanned during data calculation. Hence, there might be possibility of the data becoming skewed towards the least.

4.2.4 Bias

Selection bias

Selection bias occurs when the people recruited for the study are not representative of the target population. (Hammer et al., 2009). It might be possible that people who were interested have not participated and those who are not interested have participated and might have affected the results. The present study is among community dwelling elderly population; hence exclusion of institutionalized population can impose a sampling bias in the study. In addition, the people from other ethical background showed less interest in participation. Importantly, all participants were recruited at senior centers and we only included 5 senior centers so it might not be representative for the whole older adult population in Oslo. In addition, more than half of our study population had a high level of education giving an over- representation of person with high education compared to the general elderly population of Oslo. This is not an uncommon problem, and in the national nutrition survey NORKOST carried out among adults in 2010-11, more than 50% had higher education compared to less than 30 % in the general population (Norkost 3, 2012).

Information bias

Sometimes error may occur while estimating the serving size and recognizing the food in the questionnaire (not at least for those who are not from Norway). This was corrected by using visual aids like pictures and food models to the participants to clear the confusion. However, there might be chance of bias while collecting data from two different individuals. The measurement bias appears if there is difference in the measuring tool (questionnaire, in this case). The questionnaire is validated and has already used in Tromsø 7 survey (Lundbald, et al., 2019). The variables in the FFQ is related to diet and were not highly sensitive.

Other bias

Although validated FFQ is used in the study, there might be a report bias while reporting about nutritional intakes, as high educated people are more concern about giving socially desirable answer and may overreport of having a healthy diet. We do not consider confounding to be a major problem in our descriptive study. However, in some analysis we have adjusted for age in

order to see if that confound gender or adjusted for age and gender, e.g. when studying the association between education and intake.

4.2.5 Validity

Validity in quantitative research is defined as the extent to which measuring instrument truly measures which it is intended to be (Thatcher, 2010). It determines how truthful the results are (Golafshani, 2003). Two essential parts of validity are: internal validity and external validity.

- Internal validity

Internal validity refers whether a study can be replicated under same circumstances (Willis, 2007). It indicates whether the results are valid because of the selected groups in the study, recorded data or analyses performed in the research (Mohajan, 2017). High internal validity can be achieved by minimizing the bias and confounders in the study. In the present study, precautions were taken as much as possible to reduce the bias. The FFQ used was validated and included food consumed by most of the Norwegian population. All the food intakes were calculated at the Department of Nutrition.

- External validity

External validity refers to whether the results from the study can be applied to the general population (Last, 2001). It should be noted that the present study is conducted in Oslo. Hence it cannot be generalized to the entire population of Norway, as it only included older adults attending the senior centers in Oslo and persons with high education were over- represented. Therefore, the measures used in our study can likely only be compared to the studies done in similar age group with similar socio-economic context in similar settings.

4.3 Strengths and Limitations

Although we had somewhat low numbers of participants, those that did participate provided a very detailed data as we employed a validated FFQ. The inclusion of supplement use adds information about the pattern of use of supplement among elderly.

The study subjects were community dwelling predominantly healthy older adults attending senior centers, hence the data might not be representative of the entire older adult population living in Oslo. The aim of the study was to include up to 500 participants (282 according to the

power calculation), but we could manage only to include 102 participants. This gives the study reduced statistical power and limit the ability to study group difference, e.g. differences in vitamin D and calcium intake across educational groups. In addition, the data in the study are self-reported. There may be some recall bias or reduced memory in older adult populations which may result in under reporting or over reporting of nutrient intake than the actual intake. The results may also be biased due to the self-selection (e.g. education) of participants in the study.

CHAPTER V

CONCLUSION

5 Conclusion

The present study assessed dietary vitamin D and calcium intakes of community dwelling older adults in Oslo using food frequency questionnaire (FFQ). The finding demonstrated a somewhat lower than recommended vitamin D intake among them, whereas average calcium intake was sufficient. Vitamin D intake was substantially better in those who used supplements. Age was associated with calcium and vitamin D intake, while education and gender did not show a significant association.

Implications: The data can be used to describe the intakes among the elderly population in Oslo, but as the participants were somewhat selected, this should be done with caution. The findings could be a basis for local or national level research on dietary intake of nutrients among older adults and can be helpful for policy making as they underscore the need of vitamin D supplementation or increased fortification in order to reach recommended intake. In addition, the data provides a platform to study health related risk factors due to lower nutrient intake among elderly, despite not being representative of the sample population. The results from the study also provide direction for improving health of older population, for example through a nutrition intervention program.

Recommendations: Nutritional intervention to the older population should be enhanced to assess their nutritional pattern and proper dietary advice, and nutritional education should be given in order to improve their nutritional intake. We found that dietary supplement is important to meet the recommended intake of vitamin D. Hence its use should be motivated but with a caution as it causes adverse effect when taken in high dose. Necessary measures for improving vitamin D and calcium intake should be taken into consideration for better health outcome in these population. Furthermore, assessment of dietary intake of food and nutrition among elderly with immigrant background should be emphasized, with the inclusion of the ethnic food and length of questionnaire keeping in mind.

Future research: More research with different methods of data collection are necessary to get more data from elderly. Future researches are needed to shed light on identifying nutritional comorbidities and complexities in the risk groups. More investigations through proper screening and strategies could be made for the improvement of nutrient intakes through food selection in community dwelling older adults. Fortification of food in the country should

probably be promoted more, since it is difficult to meet recommended intake from the diet alone.

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7 Appendices

7.1 Appendix I: Food Frequency Questionnaire

SPØRRESKJEMA OM KOSTHOLD



I dette skjemaet spør vi om dine spisevaner. Vi spør om hvor ofte du vanligvis spiser og drikker ulike typer mat og drikke. Vi er klar over at kostholdet varierer fra dag til dag, men prøv så godt du kan å gi et "gjennomsnitt" av dine spisevaner. Ha det siste året i tankene når du fyller ut skjemaet. Der du er usikker anslår du svaret ditt.

Skjemaet skal leses av en maskin, og det er derfor viktig at du setter tydelige kryss i rutene. Bruk blå eller sort kulepenn.

Riktig markering er slik:

Ved feil markering, fjern krysset eller skravér ruten slik:

Av hensyn til den maskinelle lesingen – pass på at arkene ikke brettes.

Alle svar vil behandles fortrolig.

Takk for at du tar deg tid til å fyller ut skjemaet!



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Det medisinske fakultet

Eksempel på utfylling av spørsmålene.

Kari Normann spiser daglig 5 skiver brød og ett grovt knekkebrød. Hun spiser vanligvis kneippbrød, men i helgene spiser hun som oftest loff. Spørsmål 1 fyller hun ut slik:

1. Hvor mye brød pleier du å spise?

Legg sammen det du bruker til alle måltider i løpet av en dag.
(1/2 rundstykke = 1 skive, 1 baguett = 4 skiver, 1 ciabatta = 2 skiver)

	Aldri/ sjelden	Antall skiver pr. dag												
		1/2	1	2	3	4	5	6	7	8	9	10	11	12+
Fint brød (loff, baguetter, fine rundstykker, ciabatta)	<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"/>	<input type="checkbox"/>	<input type="checkbox"/>
Mellomgrovt brød (helkornbrød, kneipp, grove rundstykker)	<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"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Grovt brød (mer enn 50 % sammalt, mørkt rugbrød)	<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"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fint knekkebrød (kavring)	<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"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Grovt knekkebrød (grovt skonrok)	<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"/>	<input type="checkbox"/>	<input type="checkbox"/>

Sum skiver pr. dag = 6

Antall skiver pr. uke: 6 x 7 = 42. Tallet brukes i spørsmål 4.
(sum skiver pr. dag)

**Prøv så godt du kan å gi et "gjennomsnitt" av dine spisevaner.
Ha det siste året i tankene når du fyller ut.**

1. Hvor mye brød pleier du å spise?

Legg sammen det du bruker til alle måltider i løpet av en dag.
(1/2 rundstykke = 1 skive, 1 baguett = 4 skiver, 1 ciabatta = 2 skiver)

	Aldri/ sjelden	Antall skiver pr. dag												
		1/2	1	2	3	4	5	6	7	8	9	10	11	12+
Fint brød (loff, baquetter, fine rundstykker, ciabatta)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Mellomgrovt brød (helkornbrød, kneipp, grove rundstykker)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Grovt brød (mer enn 50 % sammalt, mørkt rugbrød)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fint knekkebrød (kavring)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Grovt knekkebrød (grov skonrok)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Sum skiver pr. dag = _____

Antall skiver pr. uke: _____ x 7 = _____. Tallet brukes i spørsmålene 2 og 4.
(sum skriver pr. dag)

2. Hva pleier du å smøre på brødet?

Legg sammen det du bruker på skivene i løpet av en uke.
(1/2 rundstykke = 1 skive, 1 baguett = 4 skiver, 1 ciabatta = 2 skiver, 1 knekkebrød = 1 skive)

	Aldri/ sjelden	Antall skiver pr. uke								
		1-5	6-14	15-21	22-28	29-35	36-42	43-49	50-56	57+
Smør (meierismør)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Bremykt	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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"/>
Myk margarin (Soft Flora, Soft Ekstra)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Soft Oliven	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Vita	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Soft Light, Vita Lett	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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"/>
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"/>	<input type="checkbox"/>	<input type="checkbox"/>
Olivenolje, annen olje på 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"/>
Majones, remulade på 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"/>

3. Hvis du bruker smør/margarin på brødet, hvor mye bruker du?

	Antall skiver					
	1/2	1	2	3	4	5 eller flere
En porsjonspakke smør/margarin på 12 g rekker til antall skiver:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

4. Hvilke typer pålegg spiser du?

	Aldri/ sjelden	Til antall skiver pr. uke								
		1	2-3	4-5	6-7	8-12	13-18	19-24	25-30	31+
Brunost/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"/>
Lett/mager brunost/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"/>
Hvitost (eks. Norvegia, Gulost)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lett/mager hvitost	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dessertost (eks. Brie, Gräddost, blåmuggoster)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Smøreost (eks. kremost, Philadelphia)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lett/mager 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"/>
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"/>
Mager 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"/>
Servelat	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Kokt skinke, lettservelat, kalkunpålegg	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Salami, fårepølse, spekepølse	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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"/>
Svolværpostei, Lofotpostei	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Makrell 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"/>
Røkt, gravet 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"/>	<input type="checkbox"/>
Sardiner, sursild, ansjos	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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"/>
Reker, 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"/>
Egg (kokt, stekt, eggerøre)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Syltetøy, marmelade	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lett syltetøy, frysetøy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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"/>
Sjokolade-, nøttepålegg	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Annet søtt pålegg (eks. honning, Sunda, sirup)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cottage cheese	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Majonesalat (eks. italiensk 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"/>	<input type="checkbox"/>
Majonesalat lett (eks. lett italiensk 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"/>	<input type="checkbox"/>
Frukt som pålegg (eks. banan, eple)	<input type="checkbox"/>	<input type="checkbox"/>	<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 som pålegg (eks. agurk, 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"/>



Prøv så godt du kan å gi et "gjennomsnitt" av dine spisevaner.
Ha det siste året i tankene når du fyller ut.

5. Frokostgryn

Svar enten per måned eller per uke.

	Aldri/ sjelden	Gang pr. måned			eller	Gang pr. uke					Mengde pr. gang				
		1	2	3		1	2-3	4-5	6-7	8+	1	1½	2	3+	
Havregrøt	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(dl)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Havregryn, 4-korn	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(dl)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Mysli, søtet (eks. Solfrokost)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(dl)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Mysli, usøtet (eks. Go'Dag)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(dl)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cornflakes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(dl)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Honnikorn/Frosties/Chocofrokost	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(dl)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
All Bran, Weetabix, Havrefras 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"/>	(dl)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Puffet ris, havrenøtter	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(dl)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	Aldri/ sjelden	Gang pr. måned			eller	Gang pr. uke					Mengde pr. gang				
		1	2	3		1	2-3	4-5	6-7	8+	1	1½	2	3+	
Syltetøy til 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"/>	<input type="checkbox"/>	<input type="checkbox"/>	(ss)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sukker til 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"/>	<input type="checkbox"/>	<input type="checkbox"/>	(ts)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

6. Melk (Husk også å ta med melk du bruker på frokostgryn, grøt og dessert) (1 glass = 2 dl)

	Aldri/ sjelden	Antall glass pr. dag							
		½	1	2	3	4	5	6	7+
Helmelk, kefir, kultur	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lettmelk	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ekstra lettmelk	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Skummet melk, skummet kultur	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Biola/Cultura naturell	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Biola/Cultura med bær/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"/>
Sjokolademelk, jordbærmelk	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Drikkeoghurt	<input type="checkbox"/>	<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 (Husk å ta med yoghurt du bruker til frokostgryn)

Svar enten per måned eller per uke.

	Aldri/ sjelden	Gang pr. måned			eller	Gang pr. uke					Beger pr. gang			
		1	2	3		1	2-3	4-5	6-7	8+	½	1	2	3+
Yoghurt naturell (125 g)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Yoghurt med frukt (125 g)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Go'morøen yoghurt m/mysli	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lettyoghurt med frukt (125 g)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lettyoghurt m/mysli	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<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. Kalde drikker

Svar enten per uke eller per dag, <1 betyr sjeldnere enn 1 gang. Merk at porsjonsenhetene er forskjellige, 1/5 liter tilsvarer ett glass (2 dl), mens 1/3 liter tilsvarer 0,33 liter glassflaske/boks.

	Aldri/sjelden	Gang pr. uke				eller	Gang pr. dag				Mengde pr. gang				
		<1	1-2	3-4	5-6	1	2	3	4+	1	2	3	4+		
Vann (springvann)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(glass)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Flaskevann med/uten kullsyre (eks. Farris, Imsdal)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(liter)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Appelsinjuice	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(glass)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Eplejuice, annen juice	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(glass)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Eplenektar, annen nektar	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(glass)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Saft 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"/>	(glass)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Saft, kunstig søtet	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(glass)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Brus 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"/>	(liter)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Brus, kunstig søtet	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(liter)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Iste 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"/>	(liter)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Iste, kunstig søtet	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(liter)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Alkoholfritt øl (eks. Vørterøl, Munkholm)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(liter)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

9. Alkoholholdige drikker

Svar enten pr. måned eller pr. uke. Merk at porsjonsenhetene er forskjellige, 1/5 liter tilsvarer ett glass (2 dl), mens 1/3 liter tilsvarer 0,33 liter glassflaske/boks.

	Aldri/sjelden	Gang pr. måned			eller	Gang pr. uke			Mengde pr. gang						
		1	2	3	1	2-3	4-5	6-7	1/3	1/2	1	2	3	4+	
Øl, sterk øl, pils	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(liter)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lettel	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(liter)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Rusbrus, Cider m/alkohol	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(liter)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Rødvín	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(vinglass)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hvitvín	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(vinglass)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hetvín (portvín, sherry 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"/>	(1 glass = 4cl)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Brennevin, likør	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(1 dram = 4cl)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Blandede drinker, cocktail	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(drink)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Prøv så godt du kan å gi et "gjennomsnitt" av dine spisevaner.
Ha det siste året i tankene når du fyller ut.

10. Varme drikker

Svar enten per uke eller per dag, < 1 betyr sjeldnere enn 1 gang.

	Aldri/ sjelden	Gang pr. uke				eller	Gang pr. dag				Mengde pr. gang							
		<1	1-2	3-4	5-6		1	2	3	4+	1	2	3-4	5-6	7-8	9+		
Kaffe - kokt og presskanne 1 kopp = 2 dl	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(kopp)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Kaffe - traktet, filter 1 kopp = 2 dl	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(kopp)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Kaffe - pulver (instant) 1 kopp = 2 dl	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(kopp)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Espresso 1 kopp = 0,3 dl	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(kopp)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Caffe latte 1 kopp = 3 dl	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(kopp)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cappucino 1 kopp = 3 dl	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(kopp)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Kakao/varm sjokolade 1 kopp = 2 dl	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(kopp)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sort te (eks. Earl Grey, solbær) 1 kopp = 2 dl	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(kopp)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Grønn te 1 kopp = 2 dl	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(kopp)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Urtete (eks. nype, kamille, Rooibois) 1 kopp = 2 dl	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(kopp)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	Bruker		Antall pr. kopp			
	ikke	½	1	2	3	4+
Sukker til te (ts/sukkerbit)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sukker til kaffe (ts/sukkerbit)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sukketter til te (stk)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sukketter til kaffe (stk)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Melk/fløte til te (ss)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Melk/fløte til kaffe (ss)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



11. Middagsretter

Vi spør både om middagsmåltidene og det du spiser til andre måltider. Legg til slutt sammen hvor mange retter per måned du har merket av for å se om summen virker sannsynlig.

	Aldri/ sjelden	Gang pr. måned							Mengde pr. gang					
		1	2	3	4	5-6	7-8	9+	1/2	1	1 1/2	2	3+	
Kjøtt/kjøttretter														
Kjøttpølse av storfe/svin	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(pølse)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Kjøttpølse av storfe/svin, lett/mager	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(pølse)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Kjøttpølse av 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"/>	(pølse)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Grillpølse/wienerpølse av storfe/svin	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(pølse)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Grillpølse/wienerpølse av 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"/>	(pølse)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hamburger (m/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"/>	(stk)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Karbonade	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(stk)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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"/>	(stk)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Kjøttsaus, gryterett med kjøttdeig	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(dl)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Taco (tacoskopjell med kjøtt og 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"/>	(stk)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tortilla lufse (med kjøtt og salat)/ wrap	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(stk)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Kebab	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(stk)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lasagne, moussaka	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(dl)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pizza (en Grandiosa = ca 550 g)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(pizza)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Calzone (1 stk = 250-300 g)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(stk)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pai/quiche	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(bit)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Vårruller	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(stk)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Biff (svin, okse, lam)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(stk)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Koteletter (svin, okse, lam)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(stk)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Stek (svin, okse, lam)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(skive)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Stek (elg, hjort, reinsdyr, 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"/>	(skive)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Gryterett med helt kjøtt, frikassé, færikål	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(dl)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lapskaus, suppelapskaus, betasuppe	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(dl)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Middagsretter fortsetter neste side.....



Prøv så godt du kan å gi et "gjennomsnitt" av dine spisevaner.
Ha det siste året i tankene når du fyller ut.

Middagsretter forts...

	Aldri/ sjelden	Gang pr. måned							Mengde pr. gang					
		1	2	3	4	5-6	7-8	9+	1-2	3-4	5-6	7-8	9+	
Kjøtt/kjøttretter forts...														
Bacon, stekt flesk	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(skive)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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"/>	(stk)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Kyllingfilet	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(stk)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wok med kjøtt/kylling og 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"/>	(dl)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Kyllinggryte	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(dl)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fisk/fiskeretter														
Fiskekaker, fiskepudding	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(kake)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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"/>	(stk)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Torsk, sei, hyse, steinbit, uer (kokt)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(stk)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Torsk, sei, hyse, steinbit, uer (stekt, panert)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(stk)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fiskepinner	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(stk)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sild (fersk, speket, 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"/>	(filet)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Makrell (fersk, 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"/>	(filet)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Laks, ørret (kokt, 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"/>	(skive)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fiskegryte, fiskesuppe	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(dl)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fiskegrateng	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(dl)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Reker, 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"/>	(dl, rensset)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wok med sjømat og 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"/>	(dl)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Annet														
Rømmegrøt	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(dl)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Risengrynsgrøt, annen melkegrøt	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(dl)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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"/>	(stk)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Suppe (tomat, blomkål, ertesuppe)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(dl)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Vegetarrett, vegetarpizza, grønnsaksgrateng	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(bit/dl)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hurtignudler (eks. Mr Lee)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(pakke)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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"/>	(av antall egg)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



Prøv så godt du kan å gi et "gjennomsnitt" av dine spisevaner.
Ha det siste året i tankene når du fyller ut.

Middagsretter forts...

	Aldri/ sjelden	Gang pr. måned							Mengde pr. gang					
		1	2	3	4	5-6	7-8	9+	1-2	3-4	5-6	7-8	9+	
Kjøtt/kjøttretter forts...														
Bacon, stekt flesk	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(skive)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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"/>	(stk)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Kyllingfilet	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(stk)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wok med kjøtt/kylling og 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"/>	(dl)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Kyllinggryte	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(dl)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fisk/fiskeretter														
Fiskekaker, fiskepudding	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(kake)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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"/>	(stk)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Torsk, sei, hyse, steinbit, uer (kokt)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(stk)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Torsk, sei, hyse, steinbit, uer (stekt, panert)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(stk)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fiskepinner	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(stk)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sild (fersk, speket, 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"/>	(filet)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Makrell (fersk, 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"/>	(filet)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Laks, ørret (kokt, 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"/>	(skive)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fiskegryte, fiskesuppe	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(dl)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fiskegrateng	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(dl)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Reker, 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"/>	(dl, rensset)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wok med sjømat og 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"/>	(dl)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Annet														
Rømmegrøt	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(dl)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Risengrynsgrøt, annen melkegrøt	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(dl)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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"/>	(stk)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Suppe (tomat, blomkål, ertesuppe)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(dl)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Vegetarrett, vegetarpizza, grønnsaksgrateng	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(bit/dl)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hurtignudler (eks. Mr Lee)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(pakke)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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"/>	(av antall egg)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

12. Poteter, ris, spaghetti, grønnsaker

Svar enten per måned eller per uke.

Disse spørsmålene dreier seg først og fremst om tilbehør til middagsretter, men spiser du for eksempel en rå gulrot eller salat til lunsj, skal det tas med her.

	Aldri/ sjelden	Gang pr. måned			eller	Gang pr. uke					Mengde pr. gang					
		1	2	3		1	2-3	4-5	6-7	8+	1	2	3	4	5+	
Poteter, kokte og bakte	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(stk)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Potetmos	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(dl)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Potetsalat m/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"/>	(ss)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fløtegratinerte poteter	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(dl)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Stekte poteter	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(dl)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pommes frites (gatekjøkken, frityrstekt)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(dl)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pommes frites, varmet i ovn	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(dl)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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"/>	<input type="checkbox"/>	(dl)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ris	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(dl)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Spagetti, makaroni, pasta	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(dl)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pølsebrød, lomper	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(stk)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Gulrot	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(stk)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hodekål	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(skalk)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Kålrot	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(sklave)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Blomkål	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(hode)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Brokkoli	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(stk)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Rosenkål	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(stk)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Løk, rå og 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"/>	(ss)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Salat (eks. issalat, ruccola)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(dl)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Paprika	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(ring)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Avokado	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(stk)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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"/>	(stk)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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"/>	<input type="checkbox"/>	<input type="checkbox"/>	(ss)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Frosne grønnsakblandinger	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(dl)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Blandet salat (eks. salat, tomat, agurk, 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"/>	<input type="checkbox"/>	<input type="checkbox"/>	(dl)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



15. Frukt

Svar enten per måned eller per uke.

	Aldri/ sjelden	Gang pr. måned			eller	Gang pr. uke					Mengde pr. gang				
		1	2	3		1	2-3	4-5	6-7	8+	1/2	1	2	3+	
Eple	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(stk)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pære	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(stk)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Banan	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(stk)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Appelsin	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(stk)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Klementiner	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(stk)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Grapefrukt	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(stk)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fersken, nektarin	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(stk)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Kiwi	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(stk)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Druer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(stk)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Melon	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(sklve)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Jordbær (friske, 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"/>	<input type="checkbox"/>	<input type="checkbox"/>	(dl)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Bringebær (friske, 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"/>	<input type="checkbox"/>	<input type="checkbox"/>	(dl)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Blåbær	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(dl)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Multer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(dl)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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"/>	(dl)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tørket frukt (eks. aprikos, fiken)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(stk)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Frukt- og nøtteblanding	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(neve)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

16. Grønnsaker og frukt

Hvor mange porsjoner grønnsaker (utenom potet) spiser du vanligvis pr. dag? (En porsjon er f. eks. 1 gulrot, 1 bolle salat)

Mindre enn 1 1 2 3 4 5+

Hvor mange frukt spiser du vanligvis pr. dag?

Mindre enn 1 1 2 3 4 5+



Prøv så godt du kan å gi et "gjennomsnitt" av dine spisevaner.
Ha det siste året i tankene når du fyller ut.

17. Desserter, kaker, godteri

Svar enten per måned eller per uke.

	Gang pr. måned			eller	Gang pr. uke					Mengde pr. gang				
	Aldri/ sjelden	1	2		3	1	2-3	4-5	6-7	8+	1/2	1	2	3+
Iskrem (1 dl=1 pinne=1 kremmerhus)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(dl)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Saftis/sorbet (1 dl=1 pinne)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(dl)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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"/>	<input type="checkbox"/>	(dl)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Frisk fruktsalat	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(dl)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pudding (eks. sjokolade, karamell)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(dl)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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"/>	<input type="checkbox"/>	(dl)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pisket krem	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(ss)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Boller, julekake, kringle	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(stk)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Skolebrød, skillingsbolle	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(stk)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wienerbrød, -kringle	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(stk)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Muffins, formkake	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(stk)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Vafler	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(plate)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lefse, påsmurt	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(stk)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sjokoladekake, brownie	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(stk)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Marsipankekake, bløtkake	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(stk)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Søt kjeks, kakekjeks (eks. Cookies, Bixit, Hob Nobs)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(stk)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Kokosbolle	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(stk)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sjokolade (60 g) (eks. melkesjokolade, snickers)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(stk)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Mørk sjokolade (70% kakao)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(biter)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sjokoladebiter/konfekt	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(stk)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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"/>	(stk)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Drops, pastiller, lakris, 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"/>	(stk)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Smågodt (1 hg = 100g)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(hg)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Potetgull	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(neve)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Annen snacks (skruer, crisp, 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"/>	(neve)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Peanøtter, cashewnøtter (1 neve = 25 gram)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(neve)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Mandler, hasselnøtter, valnøtter (1 neve = 25 gram)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(neve)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

18. Kosttilskudd (ts = teskje, bs = barneskje)

	Aldri/ sjelden	Gang pr. uke				Mengde pr. gang			
		1	2-3	4-5	6-7	1 ts	1 bs	1 ss	
Tran	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Trankapsler	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(kapsler) <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fiskeoljekapsler, omega-3 tilskudd	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(kapsler) <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Seloljekapsler	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(kapsler) <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Multipreparater	Aldri/ sjelden	Gang pr. uke				Mengde pr. gang			
Sana-sol	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(bs) <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Biovit	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(bs) <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Multivitamin og mineral (eks. Vitamineral)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(tablett) <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Multivitaminer (uten mineraler)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(tablett) <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Jernpreparater	Aldri/ sjelden	Gang pr. uke				Mengde pr. gang			
Duroferon Duretter, Ferromax	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(tablett) <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hemofer, hemjern	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(tablett) <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Amino Jern	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(tablett) <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Jernmikstur (eks. Floradix)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(bs) <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Annet	Aldri/ sjelden	Gang pr. uke				Mengde pr. gang			
B-vitaminer (flere b-vitaminer i samme tablett)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(tablett) <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
C-vitamin (60 mg/tablett)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(tablett) <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D-vitamin (10 µg/tablett)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(tablett) <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
E-vitamin (30 mg/tablett)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(tablett) <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Folat (folsyre) (200 µg/tablett)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(tablett) <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Annet (inkludert helsekostpreparater). Noter navn på preparatet, hvor ofte og hvor mye du tar pr. gang.

19. Måltider

Hvor ofte pleier du å spise følgende måltider i løpet av en uke? (Sett ett kryss for hvert måltid)

	Aldri/ sjelden	1 gang i uken	2 ganger i uken	3 ganger i uken	4 ganger i uken	5 ganger i uken	6 ganger i uken	Hver dag
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"/>
Formiddagsmat/lunsj	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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"/>
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"/>

Hvor mange ganger i løpet av dagen pleier du å spise et eller annet utenom hovedmåltidene? (eks. godteri, frukt, brødkive)

Sjelden	1 gang om dagen	2 ganger om dagen	3 ganger om dagen	4 ganger om dagen	Mer enn 4 ganger om dagen
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

20. Kjønn

Mann

Kvinne

21. Alder

Alder: år

22. Vekt og høyde

Høyde: cm

Vekt: kg

23. Eventuelle andre matvarer

Bruker du regelmessig matvarer, drikker eller andre produkter som ikke er nevnt i spørreskjemaet? Skriv ned dette så detaljert som mulig. Skriv også hvor ofte du spiser/drikker dette (ganger per måned eller uke) og hvor mye du spiser av dette per gang.

BRUK BLOKKBOKSTAVER

Tusen takk for innsatsen!



UiO : **Institutt for medisinske basalfag**
Det medisinske fakultet



7.2 Appendix II: Additional questionnaire

DATO:

UIO/LØPE NR:

DAG: Mandag / Tirsdag / Onsdag / Torsdag / Fredag / Lørdag / Søndag

STED (SENIORSENTER): _____

1. UTDANNING

Hvilken utdanning er den høyeste du har fullført? (Sett bare ett kryss)

Mindre enn 7 års grunnskole

Grunnskole 7-10 år, framhaldsskole, folkehøgskole ...

Realskole, middelskole, yrkesskole,
1-2 årig videregående skole.....

Artium, økonomisk gymnas, allmennfaglig
retning i videregående skole

Høgskole/universitet, mindre enn 4 år

Høgskole/universitet, 4 år eller mer

2. BOFORHOLD OG FAMILIE

2.1. Bor du i egen bolig (ikke på alders/sykehjem)? | Ja | | Nei |

2.2. Bor du sammen med ektefelle/samboer? | Ja | | Nei |

2.3. Har du egne barn i nærheten (f.eks. i Oslo eller Bærum)? .. | Ja | | Nei |

3. RØYKING

Har du røykt/røyker du?..... | Ja, nå | | Ja, tidligere | | Aldri |

4. EGEN HELSE

Hvordan er helsen din nå? (Sett bare ett kryss)

Dårlig Ikke helt god God Svært god

5. Har du i løpet av de siste fem årene hatt brudd i arm eller hofte? | Ja | | Nei |

6. MEDISINBRUK

Hvor mange reseptbelagte medisiner bruker du per dag? (Sett bare ett kryss)

Ingen

1-3

4 eller flere

7. ERNÆRING

Har du en spesiell diett

angitt av lege, ernæringsfysiolog eller annet helsepersonell?.....

| Ja |

| Nei |

Dersom ja, er dette på grunn av

7.1.Diabetes (sukkersyke).....

| Ja |

| Nei |

7.2.Hjerte og karsykdom

| Ja |

| Nei |

7.3.Sykdom og / eller operasjon i mage eller tarm.....

| Ja |

| Nei |

7.4.Sykdom i nyrene

| Ja |

| Nei |

7.5.Sykdom i lungene.....

| Ja |

| Nei |

7.6.Annen sykdom.....

| Ja |

| Nei |

8. Hvordan var din opplevelse av å fylle ut spørreskjemaet om kosthold?

Veldig lett

Lett

Middels

Litt vanskelig

Vanskelig

BESVARES KUN AV DE MED INNVANDRERBAKGRUNN

9. Hvor lenge har du bodd i Norge?

< 5 år

> 5 år

>10 år

Født i Norge

10. Hvilken region i verden kommer du fra opprinnelig?

Nord Afrika og Midtøsten (inkl. Tyrkia)

Sub-Sahara Afrika.....

Sør-Asia.....

Øst-Asia.....

Latin Amerika/Karibisk.....

Oseania.....

Nord –Amerika.....

Europa.....

7.3 Appendix III: consent form



FORESPØRSEL OM DELTAKELSE I FORSKNINGSPROSJEKTET

Næringsinntak hos hjemmeboende eldre personer i Oslo

Dette er et spørsmål til deg om å delta i et forskningsprosjekt for å kartlegge kostholdet hos hjemmeboende eldre personer. Det finnes lite informasjon om inntak av næringsstoffer fra kostholdet hos eldre personer. Vi forskere på Universitetet i Oslo ønsker å få innblikk i om voksne i denne aldersgruppen har et tilstrekkelig inntak av ulike næringsstoffer som eksempelvis magnesium, kalsium, vitamin D, jern, jod og hvordan inntaket av de forskjellige matvarene er.

HVA INNEBÆRER PROSJEKTET?

Din deltakelse består av to spørreskjema. Du vil bli spurt en rekke spørsmål om det kostholdet du vanligvis har. Det er også et begrenset antall spørsmål om din bakgrunn og helseforhold, bl.a. for å kunne undersøke om personer med ulik bakgrunn har forskjellig næringsinntak. Det tar ca. 30 minutter å fylle ut skjemaene. Du kan spørre om hjelp underveis hvis det er noe du ikke forstår, og du kan også ta med deg skjemaet hjem og levere det på et senere tidspunkt.

Vi vil ikke samle inn annen informasjon om deg enn det du oppgir på skjemaene

MULIGE FORDELER OG ULEMPER

Fordelen med din deltakelse er at du bidrar med informasjon om kostholdet og næringsinntak for din aldersgruppe. Dette er viktig både for å få en oversikt over kosthold og næringsinntak hos eldre personer, og kan gi grunnlag for anbefalinger og tiltak som er særskilt rettet mot din aldersgruppe. Det er ingen risiko forbundet med å delta i undersøkelsen, men det kreves at du fyller ut spørreskjemaene.

FRIVILLIG DELTAKELSE OG MULIGHET FOR Å TREKKE SITT SAMTYKKE

Det er frivillig å delta i prosjektet. Dersom du ønsker å delta, undertegner du samtykkeerklæringen på siste side. Du kan når som helst og uten å oppgi noen grunn trekke ditt samtykke. Dersom du trekker deg fra prosjektet, kan du kreve å få slettet innsamlede prøver og opplysninger, med mindre opplysningene allerede er inngått i analyser eller brukt i vitenskapelige publikasjoner. Dersom du senere ønsker å trekke deg eller har spørsmål til prosjektet, kan du kontakte professor Haakon E Meyer, telefon 480 82 7020, e-post: h.e.meyer@medisin.uio.no eller Cecilie Dahl, telefon 228 50630, e-post: cecilie.dahl@medisin.uio.no.

HVA SKJER MED OPPLYSNINGENE OM DEG?

Opplysningene som registreres om deg skal kun brukes slik som beskrevet i hensikten med prosjektet. Du har rett til innsyn i hvilke opplysninger som er registrert om deg og rett til å få korrigert eventuelle feil i de opplysningene som er registrert. Du har også rett til å få innsyn i sikkerhetstiltakene ved behandling av opplysningene.

Alle opplysningene vil bli behandlet uten navn og fødselsnummer eller andre direkte gjenkjennende opplysninger.

Navnet ditt vil kun stå på samtykkeskjemaet, men det vil ikke bli registrert elektronisk eller koblet til de andre opplysningene.

Opplysningene om deg vil bli anonymisert ved prosjektslutt den 31.12.2023.

GODKJENNING

Norsk senter for forskningsdata har vurdert prosjektet, og har gitt forhåndsgodkjenning: referansekode 82668

Etter ny personopplysningslov har behandlingsansvarlig Universitetet i Oslo og prosjektleder Haakon E Meyer et selvstendig ansvar for å sikre at behandlingen av dine opplysninger har et lovlig grunnlag. Dette prosjektet har rettslig grunnlag i EUs personvernforordning artikkel 6 nr. 1a og artikkel 9 nr. 2a og ditt samtykke.

Du har rett til å klage på behandlingen av dine opplysninger til Datatilsynet.

KONTAKTOPPLYSNINGER

Dersom du har spørsmål til prosjektet kan du ta kontakt med Haakon E Meyer, telefon 480 82 7020, e-post: h.e.meyer@medisin.uio.no eller Cecilie Dahl, telefon 228 50630, e-post: cecilie.dahl@medisin.uio.no.

Personvernombud ved institusjonen er Roger Markgraf-Bye: personvernombud@uio.no

**JEG SAMTYKKER TIL Å DELTA I PROSJEKTET OG TIL AT MINE PERSONOPPLYSNINGER
BRUKES SLIK DET ER BESKREVET**

Sted og dato

Deltakers signatur

Deltakers navn med trykte bokstaver

7.4 Appendix IV: Ethical Approval from NSD



NSD sin vurdering

Prosjektittel

Næringsinntak hos hjemmeboende eldre personer i Oslo

Referansennummer

826683

Registrert

01.10.2019 av Cecilie Dahl - cecida@uio.no

Behandlingsansvarlig institusjon

Universitetet i Oslo / Det medisinske fakultet / Institutt for helse og samfunn

Prosjektansvarlig (vitenskapelig ansatt/veileder eller stipendiat)

Haakon Meyer, Haakon E Meyer <h.e.meyer@medisin.uio.no>, tlf: 228 50649

Type prosjekt

Forskerprosjekt

Prosjektperiode

14.10.2019 - 31.12.2023

Status

17.10.2019 - Vurdert

Vurdering (1)

17.10.2019 - Vurdert

Det er vår vurdering at behandlingen av personopplysninger i prosjektet vil være i samsvar med personvernlovgivningen så fremt den gjennomføres i tråd med det som er dokumentert i meldeskjemaet 17.10.2019 med vedlegg, samt i meldingsdialogen mellom innmelder og NSD. Behandlingen kan starte. MELD VESENTLIGE ENDRINGER Dersom det skjer vesentlige endringer i behandlingen av personopplysninger, kan det være nødvendig å melde dette til NSD ved å oppdatere meldeskjemaet. Før du melder inn en endring, oppfordrer vi deg til å lese om hvilke type endringer det er nødvendig å melde: https://nsd.no/personvernombud/meld_prosjekt/meld_endringer.html Du må vente på svar fra NSD før endringen gjennomføres. TYPE OPPLYSNINGER OG VARIGHET Prosjektet vil behandle særlige kategorier av personopplysninger om etnisitet

og helseforhold og alminnelige kategorier av personopplysninger frem til 31.12.2023. LOVLIG GRUNNLAG Prosjektet vil innhente samtykke fra de registrerte til behandling av personopplysninger. Vår vurdering er at prosjektet legger opp til et samtykke i samsvar med kravene i art. 4 nr. 11 og art. 7, ved at det er en frivillig, spesifikk, informert og utvetydig bekreftelse, som kan dokumenteres, og som den registrerte kan trekke tilbake. Lovlig grunnlag for behandlingen vil dermed være den registrertes uttrykkelige samtykke, jf. personvernforordningen art. 6 nr. 1 bokstav a, jf. art. 9 nr. 2 bokstav a, jf. personopplysningsloven § 10, jf. § 9 (2). PERSONVERNPRINSIPPER NSD vurderer at den planlagte behandlingen av personopplysninger vil følge prinsippene i personvernforordningen om: - lovlighet, rettferdighet og åpenhet (art. 5.1 a), ved at de registrerte får tilfredsstillende informasjon om og samtykker til behandlingen - formålsbegrensning (art. 5.1 b), ved at personopplysninger samles inn for spesifikke, uttrykkelig angitte og berettigede formål, og ikke viderebehandles til nye uforenlige formål - dataminimering (art. 5.1 c), ved at det kun behandles opplysninger som er adekvate, relevante og nødvendige for formålet med prosjektet - lagringsbegrensning (art. 5.1 e), ved at personopplysningene ikke lagres lengre enn nødvendig for å oppfylle formålet

DE REGISTRERTES RETTIGHETER Så lenge de registrerte kan identifiseres i datamaterialet vil de ha følgende rettigheter: åpenhet (art. 12), informasjon (art. 13), innsyn (art. 15), retting (art. 16), sletting (art. 17), begrensning (art. 18), underretning (art. 19), dataportabilitet (art. 20). NSD vurderer at informasjonen som de registrerte vil motta oppfyller lovens krav til form og innhold, jf. art. 12.1 og art. 13. Vi minner om at hvis en registrert tar kontakt om sine rettigheter, har behandlingsansvarlig institusjon plikt til å svare innen en måned. **FØLG DIN INSTITUSJONS RETNINGSLINJER** NSD legger til grunn at behandlingen oppfyller kravene i personvernforordningen om riktighet (art. 5.1 d), integritet og konfidensialitet (art. 5.1. f) og sikkerhet (art. 32). For å forsikre dere om at kravene oppfylles, må dere følge interne retningslinjer og eventuelt rådføre dere med behandlingsansvarlig institusjon. **OPPFØLGING AV PROSJEKTET** NSD vil følge opp underveis (hvert annet år) og ved planlagt avslutning for å avklare om behandlingen av personopplysningene er avsluttet/pågår i tråd med den behandlingen som er dokumentert. Lykke til med prosjektet! Kontaktperson hos NSD: Kajsa Amundsen Tlf. Personverntjenester: 55 58 21 17 (tast 1)