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Degree Programme in Health Promotion

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THE CHANGE OF THE LIVING HABITS OF THE PARTICIPANTS
IN THE GROUP COUNSELLING OF OSTEOPOROSIS/OSTEOPENIA
IN ASKO-PROJECT

Master's Thesis 2013

ABSTRACT

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KOEMETS, KADRI	The Change of the Living Habits of the Participants in the Group Counselling of Osteoporosis/Osteopenia in ASKO-Project.
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The master's thesis topic grew out from a project run by Suomen Osteoporoosiliitto Ry from 2011 through 2012. The name of the project is "Avomuotoisen Sopeutumisvalmennustoiminnan Kehittämishanke Osteoporoosia sairastaville" (ASKO). The purpose of this study was to assess the change of the living habits of the participants in the group counselling of osteoporosis/osteopenia in ASKO-project. The thesis focused on the outcome of the project for these participants suffering from osteoporosis/osteopenia in two areas: Lappeenranta and Lahti.

The study was carried out using questionnaires and a statistical analysis method (n = 22). The data was collected from questionnaires that the participants filled twice - on their first meeting and also at the end of the two-month counselling session, on their sixth meeting.

Though not statistically significant, the results still indicate that the participants started to consume more milk products, increased their daily calcium and vitamin D supplement intake and discovered for themselves muscle strengthening exercises. Statistically significant was the change in the self-assessed level of knowledge of the participants in Lappeenranta. The participants had positive attitude towards the group counselling style educative course already before the course started and the assessment remained the same at the end of the counselling period. These findings encourage continuation of the group counselling style educative courses with people suffering from osteoporosis/osteopenia. All indicators that did not change in positive direction should be more carefully considered while planning further similar educative courses.

It turned out that there were some issues that were presented as risk factors in literature on osteoporosis/osteopenia, which were not common among participants of the ASKO course. Only two of the participants were smokers and the average BMI and weight of the participants was normal. Therefore further research in Finland should concentrate on determining the main risk factors by analysing the past and present habits of the people suffering from osteoporosis/osteopenia. The outcome could be very useful for preventing osteoporosis in Finland.

ACKNOWLEDGMENTS

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LIST OF TERMS

ASKO	Avomuotoisen Sopeutumisvalmennustoiminnan Kehittämishanke Osteoporoosia sairastaville
AUDIT	Alcohol Use Disorders Identification Test
BMI	Body mass index
BMD	Bone mineral density
DXA	Dual-energy X-ray Absorptiometry
HRT	Hormone replacement therapy
IU	International Unit
NIH	National Institutes of Health
Obs	Observable
OHBS	Osteoporosis Health Belief Scale
OKAT	The Osteoporosis Knowledge Assessment Tool
OSES	Osteoporosis Self-Efficacy Scale
Q nr	Question number in the numbered questionnaire
RAY	Finland's Slot Machine Association
Std. Dev	Standard Deviation
T-score	The result of bone density test
WHO	The World Health Organization
95%CI	95% Confidence Interval

1 INTRODUCTION

Osteoporosis is a disease of bones that causes an increased risk of fracture. This disease, prevalence of which increases dramatically as the population ages, is a serious global health problem nowadays. The number of hip fractures worldwide because of osteoporosis is expected to rise to 6.3 million by the year 2050 (WHO, 1999). There is urgent need to pay more attention at present to control this disease spreading, therefore early detection of the osteoporosis and support of rehabilitation are extremely important and help to prevent fractures.

"The consequences of osteoporosis include the financial, physical, and psychosocial, which significantly affect the individual as well as the family and community" (NIH, 2000, p.6). Besides the discomfort and pain fractures caused to people, the increasing number of people who have osteoporosis are also extremely expensive for health services worldwide. Lau (2005, p.2) points out that hip fractures are already very costly in developed countries and increasingly becoming so in developing countries. Piirtola (2011, p.87) recommends that keeping this high cost in mind, attention should be paid to prevention to avoid fractures among both women as well as older men.

The topic of this master's thesis has grown out from a project "Avomuotoisen Sopeutumisvalmennustoiminnan Kehittämishanke Osteoporoosia sairastaville" (ASKO). ASKO is abbreviation of the Finnish words and it means a development of the adaptation-training model for the osteoporosis and osteopenia rehabilitees. Suomen Osteoporoosiliitto Ry ran the project from 2011 through 2012. The aim of the ASKO-project was to build a model of a course that is suitable to educate people with osteoporosis/osteopenia. The educative courses took place in two different areas of Finland, two times in Lahti and once in Lappeenranta.

The aim of the master's thesis is to analyze the changes of the ASKO course participants' health behaviour and analyze the outcome of the project for these participants suffering from osteoporosis/osteopenia in two areas: Lappeenranta and Lahti. The main aspects investigated in this research are: 1) change of the participants' living habits (physical activity, dietary), 2) the participants' level of knowledge regarding the disease before and after the course and 3) participants' confidence in their ability to improve their condition. In addition it is important to find out how

suitable the group counselling method is in the preventive work with osteoporosis in Finland.

2 LITERATURE REVIEW

2.1 Osteoporosis- a growing public health problem

Osteoporosis is defined by the National Institutes of Health (NIH) as a "skeletal disorder characterized by compromised bone strength predisposing to an increase risk of fracture" (NIH, 2000, p.5). Micro architectural decline of bone together with low body mass increase bone fragility means that fractures can occur already after low-energy traumas (Akesson, 2003, p.658). The WHO (2003, p.1) estimated already in 2003 that osteoporosis affects more than 75 million people in the USA, Europe and Japan. In the USA and Europe alone, osteoporosis causes more than 2.3 million fractures every year.

Osteoporosis and fragility fractures are a leading global health problem, which increases dramatically as the population ages. In Finland already in 2006 there were 30 000-40 000 fractures caused by fragile bones in a year and there were about 400 000 people suffering from osteoporosis and the same amount of people on top of that who had osteopenia (Duodecim, 2006, p.2).

The latest research (Korhonen, Niemi, Parkkari, Sievänen, Palvanen and Kannus, 2012) that was carried out in Finland determined the current trend in the number and incidence (per 100 000 persons) of hip fractures among persons aged 50 years or older during 1970-2010. The results indicated that the number of hip fractures rose very quickly from 1857 hip fractures in 1970 to 7122 hip fractures in 1997. In 2010 the number of hip fractures was 7594. It is predicted that as the size of the 50-year-old or older population is likely to increase rapidly in the near future, the number of hip fractures is also going to increase between 2010-2030.

Bone density test describes if a person has normal bone density, low bone density called osteopenia or osteoporosis. In 1994, The WHO Study Group defined diagnostic criteria for osteoporosis on the basis of measurement of bone mineral density (BMD). Osteoporosis is defined with BMD value more than 2.5 standard deviations below the mean BMD of young adult women, (BMD T-score < -2.5) and osteopenia (low bone mass) is diagnosed while BMD value is between 1 and 2.5

standard deviations below the mean BMD of young adult women (-2.5 < BMD T-score < -1). (WHO, 1994, p.5.)

Lu and Jin (2005, p.211) call osteoporosis a silent disease, as the patients do not have any acute clinical symptoms, which mean that when patients develop spinal or hip fracture, they have already had the disease already for a long time. For that reason, BMD measurements and risk factors are used to predict osteoporotic fractures. The most popular techniques for measuring BMD are nowadays based on X-ray absorptiometry in bone, particularly dual-energy X-ray absorptiometry (DXA) (Kanis, Burlet, Cooper, Delmas, Reginster, Borgstrom and Rizzoli, 2008, p.401; Lu and Jin, 2005, p.211). Also in Finland all the BMD researches and measurements are made using method called Bindex that is based on DXA (Bone Index Finland Ltd, 2013). Sharma (2010, p.26) have pointed out that BMD test will not only verify the diagnosis of osteoporosis but also the improvement in bone density. It is recommended to check bone density after every six months to assess reduction of second fracture risk.

There is a developed screening criterion for dual-energy X-ray absorptiometry procedure. According to Truumees (2005, p.176) people, who have had a low energy fracture, have been diagnosed osteopenia, have diseases or take medicine that place them at risk of osteoporosis, should be screened. A low-energy fracture means that the fracture is not caused by any certain accident, but is the result of a disease, which has affected the bone strength in time (The International Society for Fracture Repair, 2013). In addition, postmenopausal older than 65 years old women, younger than 65 years with one or more risk factors, women who have had hormone replacement therapy (HRT) for prolonged periods or are considering HRT if BMD will affect decision- are in the risk group and therefore need to be screened (Truumees, 2005, p.176).

According to NIH (2000, p.6), on the basis of pattern of bone loss and fractures, we can talk about primary or secondary osteoporosis. Primary osteoporosis is the result of a normal physiological process, such as aging or menopause and it occurs in both genders. In contrast, medication or pre-existing diseases or conditions cause secondary osteoporosis.

Fractures are the most devastating outcome associated with osteoporosis. It is

predicted that the number of hip fractures worldwide because of osteoporosis is about to rise to 6.3 million by the year 2050 (WHO, 1999). "Fracture due to a fall from a height without any serious road accident should be considered as osteoporotic fracture unless proved otherwise" (Sharma, 2010, p.33). Not only does osteoporosis cause fractures to people but it also makes people become bedridden with secondary complications, which in turn can be fatal for the elderly (WHO, 2003, p.1).

The easiest, best and cheapest treatment method is avoiding the risk factors that can be changed. Already facing the problem, according to Akesson (2003, pp.657-658), the steps to take to prevent further damage from osteoporosis are the following: maximizing bone mass, preventing fractures, and rehabilitation for people who have already sustained a fracture to minimize associated complications. Also pharmacological treatments work on the bone to increase its mass and strength.

Maintenance of bone health is the overall goal for both prevention and treatment of osteoporosis. Besides medications, the change of the dietary and physical activity habits are very important to help to maximize bone mass. Therefore there is an urgent need to develop different counselling methods for elderly to prevent the disease spreading and getting worse.

2.2 Risk factors for developing osteoporosis/osteopenia

Osteoporosis can develop in many ways. A number of risk factors can increase the chance people will have osteoporosis. There are factors that can be changed, and there are factors that one cannot do anything about. Risk factors that a person can change are unhealthy dietary habits with low intake of calcium and vitamin D, cigarette smoking and tobacco use, alcohol consumption and inactive lifestyle (NIH, 2011). In the following, each risk factor is shortly discussed.

Dietary habits, vitamin D and calcium intake
A shortage of calcium and vitamin D intake in children and adults may lead to fragile bones. Calcium is the most important nutrient for attaining peak bone mass and therefore for preventing and treating osteoporosis. Vitamin D therefore is necessary for absorption of calcium from the diet. (Heaney, 2005, p.88; NIH, 2000, pp.13-14; NIH, 2011; Sharma, 2010, p.47.)

Supplementation of calcium and vitamin D is necessary in individuals who do not get recommended intake from everyday food (NIH, 2000, p.29). Milk, yoghurt, cheese, tofu, sardines, salmon, green leafy vegetables are only some of the food products that are rich source of calcium. Vitamin D is well obtained from cold salt-water fish, fortified milk, egg yolks, liver, and fish oil. It is well-known fact that vitamin D deficiency is also connected with little sunlight. (Sharma, 2010, pp.47-48, p.53.) According to the recommendations issued in Finland, elderly over 60 years old should take 20 micrograms (μg) of vitamin D and 500-1000 milligrams (mg) of calcium supplements daily all year around. (Valtion Ravitsemusneuvottelukunta, 2005, p.23; 2010, p.9, 60.)

Smoking

Smoking not only damage lungs and heart, but it also weakens bones. It has been scientifically proved that smoking is one of the leading risk factors for developing osteoporosis for men. In females smoking causes premature menopause that reduces the oestrogen level, which is the hormone that strengthens the bone. (Sharma, 2010, p.55.) Therefore smoking has indirectly negative effect on female bone health.

Meta-analysis of 29 published cross sectional studies carried out by Law and Hackshaw (1997) showed that premenopausal women bone density was similar in smokers and non-smokers, but postmenopausal bone loss was greater in current smokers than non-smokers. Therefore even if one stops smoking at higher age, it can still help limit smoking-related bone loss (NIH, 2012). Hip fracture risk among smokers is therefore greater at all ages and increases more with age: 17% greater at the age 60 to 71% at the age 80, and 108% at the age 90 (Law and Hackshaw, 1997).

Alcohol

People who drink more than 60 ml a day have a 40% increased risk of an osteoporotic fracture compared to people who do not drink at all or drink in reasonable quantities (Sharma, 2010, pp.55-56). Moreover, drinking increases the risk of falling, which can also increase risk for fractures (NIH, 2011).

Physical activity

Being physically active is a good way to prevent the age related and postmenopausal bone loss. Therefore it is important to continue physical activity exercises also while

getting older. Study carried out by De Kam, Smulders, Weerdesteyn and Smits-Engelsman (2009, p.2111) reached to the conclusion that "exercise can reduce falls, fall-related fractures, and several risk factors for falls in individuals with low BMD".

Exercises for people suffering from osteoporosis should include balance and muscle strengthening exercises to reduce fall and fracture risk. It is also suggested to do strengthening exercises minimum two times a week and also aerobic activities and strength training are good for improving BMD. (De Kam, Smulders, Weerdesteyn and Smits-Engelsman, 2009, p.2123.) It is important to keep in mind that even a small amount of movement is in favour of functional capacity and health, as long as it is regular.

A private research and consulting center UKK-instituutti has given out in Finland Weekly Exercise Pie (Liikuntapiirakka), that describes weekly recommended physical activity exercises for elderly over 65 years old (UKK-instituutti, 2013). The recommendation for physical activities for more than 65 years old is based on the physical activity recommendations published by the U.S. Department of Health in 2008. Muscle strengthening, balance and flexibility exercises (dancing, ball games, yoga etc.) are recommended to be practiced 2-3 times a week. Many of gymnastic exercises at the same time already improve these properties. It is not recommended to exercise the same muscle groups on consecutive days. Intensive physical training is recommended for a total of two hours and 30 minutes a week (bicycling, walking etc.), or strenuous physical activity for a total of one hour and 15 minutes a week (swimming, skiing etc.).

Risk factors for developing osteoporosis, which an individual cannot change, are gender, age, race, family history, and body size. Compared to men, women have lower peak bone mass and smaller bones - therefore they have a bigger chance of developing osteoporosis. Older people tend to have bigger risk of osteoporosis as bones become weaker with years. Also, it is known that, for example, Caucasian and Asian women are at the highest risk of developing the disease. Having a parent or sibling with osteoporosis, especially with a family history of fractures, is also a risk factor; therefore it is necessary to pay extra attention to your bone health, when there has been osteoporosis in your family before. (NIH, 2011.) It has been found that lower body mass index (BMI) is important risk factor for the occurrence of low BMD and

therefore linked to a higher chance of being diagnosed with osteoporosis (Fawzy, Muttappallymyalil, Sreedharan, Ahmed, Alshamsi, Ali and Balsooshi, 2011). According to National Heart, Lung, and Blood Institute (2013) BMI less than 18.5 is categorized as underweight.

2.3 Change of the living habits and intervention

2.3.1 Changing unhealthy behaviour

"Making healthy lifestyle changes affects not only our risk for disease and the way we feel today, but also our health and ability to function independently in later life" (Harvard Medical School, 2007). Healthy lifestyle habits, including adequate intake of calcium and vitamin D supplements, are important for preventing osteoporosis and also support the cure process.

Reijneveld, Westhoff and Hopman-Rock (2003) conducted a study to assess the effect of a short health education and physical exercise programme on the health and the physical activity of Turkish first generation elderly immigrants. The study showed improvement in their mental health, and in the more general mental wellbeing of those aged 55. The short health education did not show effects on knowledge and physical outcome that was explained with the short duration of the education period.

There are different theories to guide changing individual's behaviour. Theories that explain health behaviour and health behaviour change by focusing on the individual are: health belief model, theory of reasoned action, transtheoretical model and social learning theory (Davies and MacDowall, 2005, p.29). All the theories emphasize the importance of belief in your own ability to successfully change unhealthy behaviour.

According to Corcoran (2010, p.16) the person must have the confidence to make the change in their behaviour. Self-efficacy is defined as "confidence in one's ability to take action" that can be achieved by providing training and guidance in performing action (National Cancer Institute, 2005, p.14). "Self-efficacy is proposed as the most important prerequisite for behaviour change and will affect how much effort is put into a task and the outcome of that task" (Davies and MacDowall, 2005, pp.35-36).

The promotion of self-efficacy is an important task in the achievement of behaviour change.

Everyone who has been diagnosed osteoporosis/osteopenia should have good access to the knowledge to be able to follow the advice that is the best. We have to keep in mind, that even though there is nowadays a lot of information about diseases and preventive methods on Internet, not all elderly are using the Internet daily. As the target group of osteoporosis/osteopenia is mostly elderly, it is extremely important to create and organize educative meetings that are comfortable and affordable for them.

2.3.2 ASKO-project as secondary prevention of osteoporosis in Finland

Osteoporosis is a remarkably young disease for the official medical community. In Finland, The Social Insurance Institution of Finland, who looks after basic security for all Finland residents, added osteoporosis to the list of diseases that can be diagnosed and treated only in 1993. Since 2001 Suomen Osteoporoosiliitto Ry has run different projects to help and educate people who have been diagnosed osteoporosis. (Suomen Osteoporoosiliitto Ry, 2011)

In 2011-2012 Suomen Osteoporoosiliitto Ry was running in Finland the ASKO-project, and the project name comes from Finnish words "Avomuotoisen Sopeutumisvalmennustoiminnan Kehittämishanke Osteoporoosia sairastaville". The funding for this project came from Finland's Slot Machine Association (RAY). At the beginning of the project the local specialists were provided with educative materials and they in turn became the instructors, who carried out the group counselling for people who have osteoporosis/osteopenia. There were two courses in Lahti and one in Lappeenranta. All the three groups were part of a pilot program. (Suomen Osteoporoosiliitto Ry, 2010.) Lahti is located in the heart of Southern Finland and has over 100 000 residents making it the eighth largest city in Finland (City of Lahti, 2012). Lappeenranta is a city of about 72 000 inhabitants in Southeast Finland, on the border between the European Union and Russia (City of Lappeenranta, 2012).

One group met on six days during the two-month counselling session. Lahti group met during the period of 18 October 2012-5 December 2012 and Lappeenranta group during the period of 7 November 2012-17 January 2013. Every time the meeting

lasted 3-4 hours. There are planned follow up meetings also six and 12 months later from the beginning of the course. (Suomen Osteoporoosiliitto Ry, 2010.)

The course contained discussions, lecturers and trainings together with group members. Content of the course included introduction of physical activity exercises, measurements, getting familiar with Liikuntapiirakka suggestions and exercise sessions including visiting a fitness club. The participants also received knowledge on healthy eating habits and learned to keep a food diary, learned about bone health, importance of peer support, how to prevent falls and what the home accident risks are. The participants were also introduced the local association of osteoporosis and given information about social and health care services and benefits that are available for people suffering from osteoporosis/osteopenia in Finland. The wider aim of the ASKO course was to support and increase self-management skills to prevent fractures and to increase ability to look after himself/herself independently at home. (Suomen Osteoporoosiliitto Ry, 2013, p.17.)

One aim of this undertaking was also to create the handbook after these first three courses that could be a guide for specialist themselves to have more knowledge about osteoporosis/osteopenia and have similar educative group sessions also in the future when the project ends. In December 2012, it was announced that RAY has allocated funds to continue ASKO-project in 2013-2015. Focus point of the new project period is making the same style osteoporosis education part of the prevention program in Finland as whole. (Suomen Osteoporoosiliitto Ry, 2013, p.30.)

The effectiveness of group counselling often comes from the fact that group member not only gain knowledge from the course, but members of the group benefit from the feedback they get by observing others with similar concerns. Secondly, the effectiveness is not only measured with the knowledge the individuals gain, but at the same time it saves time as there can be more people educated at the same time by the same instructor.

There was little information and previous research on the effect of group counselling on people with osteoporosis. In 2011, Virginia Henderson International Nursing Library, which is committed to providing knowledge resources to help advance nurses and patient care, published an abstract of one researcher study containing information

about group vs. individual exercise and quality of life for women with osteoporosis. It was described in the abstract that thirty older women with a diagnosis of osteoporosis were randomly assigned to either group or individual exercise training. The purpose of the study was to examine the effects of two types of exercise training (group and individual) on exercise adherence and quality of life in older women with osteoporosis. (Anon, 2011.) The topic is very interesting, but unfortunately the author is unknown and further access to the results is not possible. Similar research was made with people suffering from diabetes where the studies demonstrated that group training was as effective as the individual training (Rickheim, Weaver, Flader and Kendall, 2002, p.272).

3 METHODOLOGY

3.1 Methodological considerations

This survey was a case study and responses to my questionnaire were gathered from people who have osteoporosis or osteopenia and participated in the group counselling educative course in Lahti and Lappeenranta. Together with Osteoporoosiliitto Ry it was decided to conduct survey by using a questionnaire. Because the time of the counselling sessions was limited, it was not possible to interview personally the participants or use any other methods. The participants also had to fill in other questionnaire on their first meeting and also at the end of the two-month counselling session on the sixth meeting. Those questionnaires were compulsory project feedback forms. As the target group was the elderly, it was decided to use mainly questions with multiple-choice answers, to make the questions easier to understand for the participants.

The purpose of this study was to assess the change of the living habits of the participants in the group counselling of osteoporosis/osteopenia in ASKO-project. The aim of the ASKO-project run by Suomen Osteoporoosiliitto Ry was to build up the model of a course that is suitable to educate people with osteoporosis/osteopenia. There were two courses in Lahti and one in Lappeenranta, but as there was not enough time to plan the research, it was decided to do the research with the second and the third group. The focus of the research was at the outcome of the project for these participants suffering from osteoporosis/osteopenia in two areas: Lahti and Lappeenranta.

Kymenlaakson University of Applied Sciences approved the thesis plan, and Osteoporoosiliitto Ry commissioned the Master's Thesis. Till January 2013 my thesis supervisor was Olli Lehtonen. The thesis plan, permission application (appendix 1., appendix 3.), the questionnaires (appendix 5., appendix 6.) together with the foreword was submitted to Ethical working group of South Karelia Social and Health federation of municipalities and to The City of Lahti Social and Health Services. Approval and permission to do the research from both institutions (appendix 2., appendix 4.) was obtained prior to the start of data collection.

After getting permission from Ethical working group of South Karelia Social and Health federation of municipalities it was necessary to contact the staff of the Lappeenranta town sport section that were also part of the organizing team of ASKO-project in Lappeenranta. They confirmed that permission gathered from Ethical working group of South Karelia Social and Health federation of municipalities is enough. Therefore there were no further actions required for permission to make the research in Lappeenranta.

Research questions of the thesis were:
1. What kind of impact does the group counselling have on the participants' self- assessed dietary habits?
2. What kind of impact does the group counselling have on the participants' self-assessed physical activity level?
3. How does the ASKO course impact on the level of the knowledge of the participants suffering from osteoporosis/osteopenia?
4. How does the group counselling impact participants' confidence in their ability to change their living habits?
5. How suitable is the group counselling method in the preventive work with osteoporosis/osteopenia?

3.2 Study design

It was originally planned that the first questionnaire would be sent to the participants with the same letter that Suomen Osteoporoosiliitto Ry sent three weeks before the course starts as a notification letter about the course soon to begin. Unfortunately, the permission for my research was not received by that time from Ethical working group of South Karelia Social and Health federation of municipalities and from the city of Lahti Social and Health Services. Therefore the participants were asked to fill the first questionnaire at the first meeting day.

Participants in Lahti were also able to take the questionnaires at home after the first meeting day and returned them the following day when project coordinator Pauliina Tamminen collected them. These three courses that took place in Lahti and Lappeenranta were pilot courses as there have never been similar group counselling style educative courses for people suffering from osteoporosis/osteopenia before. The

participants had to fill the questionnaires on their first meeting and also at the end of the two-month counselling session on the sixth meeting another questionnaire thats was project feedback form.

Project coordinator gave the unique code for questionnaires before giving them to the participants, and for me the answers were anonymous. The coded questionnaires that were filled were later posted to me. Together with the coded questionnaires project coordinator sent me email with file, that contained all the information about how many questionnaires were handed out and how many filled questionnaires were received (appendix 7.).

The participants were asked to fill the second questionnaire at the end of the two-month counselling session on their sixth meeting. Project coordinator gave the same unique code for questionnaires as at the first time. It took about ten to fifteen minutes to complete the questionnaire in both times.

3.3 Survey instruments

The questionnaires were specifically composed for this survey, taking into account the peculiarities of the target group and the aim of the thesis. There were two questionnaires: one that the participants filled on their first meeting and the other one that they were asked to fill out on their last sixth meeting. Several existing surveys were worked through, but unfortunately none of them were suitable to use as a whole. Many of the existing surveys like Osteoporosis Self-Efficacy Scale (OSES), Osteoporosis Health Belief Scale (OHBS) are suitable to use with people who do not have the disease yet and these surveys are designed and used to assess patients' knowledge about osteoporosis prevention methods and develop preventive programs in this field (Ford, Bass, Zhao and Bai, 2011). The aim of the thesis was to get wider understanding of the impact of ASKO course, and it was important to keep the questionnaire not very long. My Finnish language is poor, therefore at first the questionnaire was made in English, and afterwards translated into the Finnish language. The final translated version was checked and corrected by the project coordinator.

The first questionnaire consisted of six parts: background information, dietary habits,

physical activity, level of knowledge regarding osteoporosis/osteopenia, level of confidence regarding management of osteoporosis/osteopenia and finally the group counselling method suitability in the preventive work with osteoporosis/osteopenia (appendix 5.)**.** The second questionnaire that the participants filled in on their last meeting had five parts, as there was no need to fill the section on the background information again. The themes of the questionnaire and the questions remained the same, except in the last section, group counselling method suitability in the preventive work with osteoporosis/osteopenia, where the questions were worded in more appropriate way considering the fact that the course had ended for the time they fill the questionnaire (appendix 6.).

3.4 Themes of the questionnaire

Table 1. Questionnaire themes

Concept	Questionnaire theme	Question number
Participants	Background information	1 – 12
Health behaviour change	Dietary habits	13 – 26
	Physical activity	27 – 37
Self-efficacy	Knowledge regarding the disease	38 – 46
	Confidence regarding management	47 – 49
Group counselling	Group counselling methodology suitability in preventive work*	50 – 51 50 - 53

First time, when the participants filled the questionnaire before the course started, there were 2 questions about the group counselling suitability in preventive work with osteoporosis/osteopenia. Second time, when they filled the questionnaire, there were four questions about the same section.

As indicated in Table 1, the questionnaire was divided into six themes. Under the first theme, there was information gathered about the participant's background (questions 1-12), followed by the dietary habits (questions 13-26) and physical activity (questions 27-37). After that, the participants were asked to assess their level of knowledge (questions 38-46) and level of confidence (questions 47-49) regarding management of osteoporosis/osteopenia. The final section was about group counselling methodology suitability in preventive work with osteoporosis/osteopenia (questions 50-53).

3.4.1 Background information

The background information part consisted of ten questions that were relevant to find out who the participants are and in which phase is their illness. Creating the questionnaire background information part, the selection of questions was based on the theoretical facts that are important to know while analysing the changes of the people who have osteoporosis or osteopenia.

3.4.2 Dietary habits

In the dietary habits part, the aim was to understand how the participants themselves assess their eating habits, if they have done anything to improve the situation already, what their eating habits are like and also to find out the vitamin D and calcium supplements daily intake amounts. The dietary habits section consisted of 14 questions. The selection of the questions was made based on the literature, taking into account the popular everyday habits that are useful or on the contrary harmful when we are talking out bone health. The questions about alcohol consumption and detecting the amounts of alcohol participants are consuming were generated in connection with the knowledge gathered from the Alcohol Use Disorders Identification Test (AUDIT). AUDIT is a simple ten-question test to screen for persons at high risk of alcohol problems in all around the world (WHO, 2002, p.4). Information to improve the dietary habits section with correct alcohol amounts answer options was gathered from the Finnish language AUDIT test (National Institute for Health and Welfare, 2012). In Lappeenranta ASKO course, one participant was not satisfied that there was only questions about use of milk and cheese when it comes to milk products consumption under the dietary habits part. It was stated beforehand that questionnaire could not be long as the time for filling it out is limited. Therefore, only two aspects were chosen to assess the participants' eating habits.

3.4.3 Physical activity

Since 1985, The National Institute for Health and Welfare has been conducting The Health Behaviour and Health among the Finnish Elderly survey. The purpose of the survey is to gather information from 65–84-year-old citizens of Finland about their

health, health behaviour, functional ability, use of aids, domestic services and feelings of insecurity. Part of the questionnaire that consisted of six questions from The Health Behaviour and Health among the Finnish Elderly survey that was used in 2009 to assess how much participants do physical exercises weekly was decided to use (Laitalainen, Helakorpi and Uutela, 2010, p.7, 173). There was only one extra question added to measure how the participants themselves assess their physical activity level.

3.4.4 Level of knowledge regarding osteoporosis/osteopenia

Level of knowledge regarding osteoporosis/osteopenia was assessed by nine questions. The first four questions were formulated to find out how the participants themselves assess their level of knowledge regarding osteoporosis/osteopenia. The second part of this section consisted of five true, false and do not know -questions. These questions originated from The Osteoporosis Knowledge Assessment Tool (OKAT) that was created based on the Osteoporosis Australia Prevention and Self-Management course and information leaflet "Understanding Osteoporosis" (Winzenberg, Oldenburg, Frendin, and Jones, 2003). Originally there are 20 questions in OKAT. For my questionnaire, only the main ideas of five original question were used, and the wording was changed to make it easier to understand and more suitable for the target group. The changes in wording were necessary to make the final question logical to understand after translating the questions from English language into Finnish language.

3.4.5 Level of confidence of the participants' ability to change their living habits

The Osteoporosis Self-Efficacy Scale (OSES) was developed to measure the self-efficacy, or confidence in the ability to take required actions that are necessary to prevent osteoporosis. By answering the questions the participants are asked to define their confidence level. (Ford, et al., 2011.) Creating the level of confidence regarding management of osteoporosis/osteopenia questionnaire part, the information and main idea presented in original OSES format was taken into account. The access to the OSES questionnaire was through the Ellen Townsend Edmonds dissertation (2009). Originally the OSES is line scale from "not at all confident" to "very confident". Due to the possible confusing nature of this format and taking into account the target group

age, the responses in my questionnaire were modified using a 5 point Likert scale. The answering options in the questionnaire were: 1 = strongly disagree, 2 = disagree, 3 = undecided, 4 = agree, and 5 = strongly agree.

3.4.6 Group counselling methodology suitability in the preventive work with osteoporosis/osteopenia

Analysing the effectiveness of group counselling method in the preventive work with osteoporosis/osteopenia is extremely important for planning future preventive programs as well as studies in this field in Finland. We asked participants how they feel about participating in the group counselling style educative course and at the end of the two-month counselling session we wanted to find out if the group members had an impact on their positive lifestyle changes.

It is beneficial to find out what the ASKO course's effect on the participants is and what the participant's attitude towards group counselling is. When the results are positive, the same method to educate people with osteoporosis/osteopenia can be used also in the future. In the first questionnaire there were two and in the second questionnaire three questions under this section.

4 RESULTS

4.1 Data Management

There were 10 participants in Lahti ASKO course and on first meeting the completion rate was 90% as nine filled questionnaires were received. Only the background information field was filled in that one uncompleted questionnaire. On the last meeting the completion rate was 100% as 10 filled questionnaires were received. One questionnaire, that was not given back after the first meeting, was given to project coordinator when they met next time.

There were 12 participants in Lappeenranta ASKO course. The completion rate was 91.7% as 11 filled questionnaires were received from the first meeting. On the last meeting the completion rate was 100% as 12 filled questionnaires were received.

After the filled-in questionnaires were gathered, the project coordinator Pauliina Tamminen sent coded questionnaires to me by post. As the questions were not numbered in the first place, not to confuse the elderly while filling the questionnaire with too much information, before starting the work with collected data, the questions were numbered (appendix 8.). All data entry and analysis was conducted using the Data Analysis and Statistical Software Stata**,** version 12.0 for Windows. Missing data was left empty and variables were coded with a numerical code.

4.2 Background information

4.2.1 Lahti ASKO course participants

There were 10 participants in Lahti ASKO course. The average age of the participants was 71 and all of them were women. The average height of the women was 157 cm, one participant did not give answer about her height. The average weight was 61 kg.

Based on the knowledge of height and weight, BMI of all the individuals was calculated using BMI calculator on the National Heart, Lung, and Blood Institute webpage (2013). To calculate the BMI, height and weight numbers were rounded to

be full number, example: 165.5 cm = 166 cm. The mean BMI of the group was 24.7, that is according to the BMI categories as normal weight.

Nine participants out of 10 were diagnosed osteoporosis and one of them had osteopenia. Medicine against the disease had been prescribed to all of them. The diagnoses were made between the years 1993-2012, therefore the disease history length varied very much. Two participants out of 10 reported that their mother also have the same disease.

Five people in Lahti found out about the ASKO-project from the Osteoporosis organization (Osteoporoosiyhdistys), one read about the project from newspaper, one participant got information while participating in Senior Sports Day, one was invited by her friend and one marked that she got call with no specification from whom. One participant left this question unanswered.

4.2.2 Lappeenranta ASKO course participants

In Lappeenranta there were 12 participants who started ASKO course. The average age of the participants was 70 and all of them were women. The average height of the women was 161 cm, three participants did not give answer about their height and it was taken into account. The average weight was 60 kg, one participant left this question with no answer.

Based on the knowledge of height and weight, BMI of all the individuals was calculated using BMI calculator on the National Heart, Lung, and Blood Institute webpage (2013). To calculate the BMI, both height and weight numbers were rounded to be full number, example: 165.5 cm = 166 cm. The mean BMI of the Lappeenranta group was 23.4, that is according to the BMI categories as normal weight.

Nine participants out of 12 were diagnosed osteoporosis and one of them had osteopenia. Two participants left this question unanswered, but taking into account next questions and further answers, for example about when the disease was diagnosed, it was sure that they have either osteoporosis or osteopenia. 10 women had been prescribed medicine against their disease, one of them stated that she has not

been prescribed any medicine and one participant left this question unanswered. The diagnoses were made between the years 1996-2010, therefore the disease history length varied also in Lappeenranta considerably.

Seven participants reported that no-one in their family suffers from osteoporosis/osteopenia, four of the participants stated that there has been the same disease diagnosed in their families: one participant's mother and sister, one participant's mother, one participant's father and one's daughter had been diagnosed with osteoporosis/osteopenia. One participant left this question unanswered.

In Lappeenranta, participants found out about ASKO-project in many different ways: one of them got information from the local Osteoporosis organization, three participants were given information on informative day for people suffering from osteoporosis or osteopenia, one read about the project from a newspaper, three of them found out about ASKO-project while participating in some physical activity lesson (aerobics, water aerobics and physical exercise training), one heard about the project from her daughter and one from her physiotherapist. Two participants left this question unanswered.

4.2.3 Target group description

Table 2. Overview of the participant's age, height, weight and BMI who took part of the Lahti and Lappeenranta ASKO course

	Cases			Cases					
				Included		Excluded		Total	
	Mean	Minimum	Maximum	N	%	N	%	n	%
Age	70.7	61	88	21	95.5%	1	4.5%	22	100.0%
Height	159.2	147	175	18	81.8%	4	18.2%	22	100.0%
Weight	60.6	46.6	84	21	95.5%	1	4.5%	22	100.0%
BMI	24.1	19.1	32.9	18	81.8%	4	18.2%	22	100.0%

As indicated in Table 2, there were 22 participants who participated in Lahti and Lappeenranta ASKO course. The youngest participant was 61 and the oldest was 88

years old, the average age of the participants was 70.7 years. Shortest participant was 147 cm, the tallest 175 cm and average height was 159.2 cm. Four participants did not answer the height question. Weight indicators also varied a lot, minimum weight was 46.6 kg and the maximum weight was 84 kg, the average weight of the women who participated in ASKO course was 60.6 kg. One participant left age and one left the weight question unanswered. The minimum BMI of the participants was 19.1 and the maximum was 32.9. The average BMI of the participants was 24.1, that is according to the BMI categories as normal weight.

18 women who participated in ASKO course had been diagnosed osteoporosis, two of them were diagnosed osteopenia and two participants had left the question unspecified. The diagnoses were put between the years 1993-2012, therefore we can say that the disease history of the participants varied very much. Some women had lived with the diagnose almost 10 years, when at the same time there were participants, who had been diagnosed osteoporosis/osteopenia just couple of months before they joined the group counselling. The most popular answer option about how many years the participants had had osteoporosis/osteopenia was two years and 12 years, both were marked three times in Lahti and Lappeenranta. Three participants left this question unanswered. It was the first time this kind of project took place and in the future it is planned to provide counselling to the people with similar disease history and specially to the ones that have got the diagnose recently. One woman who had been diagnosed osteoporosis was not prescribed any medicine against the disease, one participant left this question unanswered, and the rest of the women stated that they had been prescribed medicine against the disease that makes 95.2% of all the participants.

Table 3. ASKO course participant's family history of osteoporosis/osteopenia

Family history of osteoporosis/osteopenia		
Who also has osteoporosis/osteopenia	N	%
No-one	15	68.2%
Mother	2	9.1%
Mother and sister	1	4.6%
Mother, sister and sisters daughter	1	4.6%
Father	1	4.6%
Daughter	1	4.6%
Did not answer	1	4.6%
Total	22	100%

Having a parent or sibling with osteoporosis, especially with a family history of fractures, is also a risk factor (NIH, 2011). As pointed out in the Table 3, 68.2% (n = 15) of the participants stated that there is not anyone in their family who has osteoporosis/osteopenia. 27.3% (n = 6) of the participants therefore had close family member suffering from the same disease: two participants reported that their mothers have the same disease, one participants had mother and sister with the same medical history, one participants had mother, sister and also sister's daughter with the same disease and one participant's father and one participant's daughter were suffering from osteoporosis/osteopenia. One of the participants left this question unanswered.

Table 4. Information source from where the participants in Lahti and Lappeenranta found out about ASKO-project

Information source from where the participants in Lahti and Lappeenranta found out about ASKO-project		
Information channel	n	%
Osteoporosis Organization	6	27.3%
Physical activity training	4	18.2%
Information day	3	13.6%
Newspaper	2	9.1%
Friend/ family	2	9.1%
Another	1	4.6%
Doctor/ specialist	1	4.6%
Did not answer	3	13.6%
Total	22	100%

As indicated in Table 4, 27.3% (n = 6) of the participants got information about the ASKO-project from their local Osteoporosis Organization, 18.2% (n = 4) found out about the project while participating in physical activity training lesson or sports day. 13.6% (n = 3) of the participants were given information on special informative day for people suffering from osteoporosis/osteopenia. 9.1% (n = 2) of the women read about the project from a newspaper, also 9.1% (n = 2) heard about it from friend or family member. 4.6% (n = 1) of the participants got information from doctor/ specialist, that was physiotherapist and also 4.6% of the participants (n = 1) reported that she got a call, and therefore we do not know anything more specific about the information's provider. 13.6% (n = 3) of the participants left this question unanswered.

4.3 Impact on the participants self-assessed dietary habits

To find out, how the participants eating habits have changed during the group counselling, inserted value "from" as binary variable was used. It was possible to compare the changes before and after the group counselling in two areas: Lahti and

Lappeenranta. For analysis Two-sample T-test with equal variances was used to find out if the changes were also statistically relevant or not. P-value was calculated individually with all the questions.

As indicated in Table 5 and 6 (appendix 9., appendix 10.), p-value calculated with Two-sample T-test showed that none of the changes were statistically relevant as the values were not smaller than 0.05. In Lahti and Lappeenranta the changes in dietary section were not statistically relevant. The biggest change took place in Lahti, where the daily amount of calcium supplement intake changed from 800 mg to 1000 mg and $p = 0.07$.
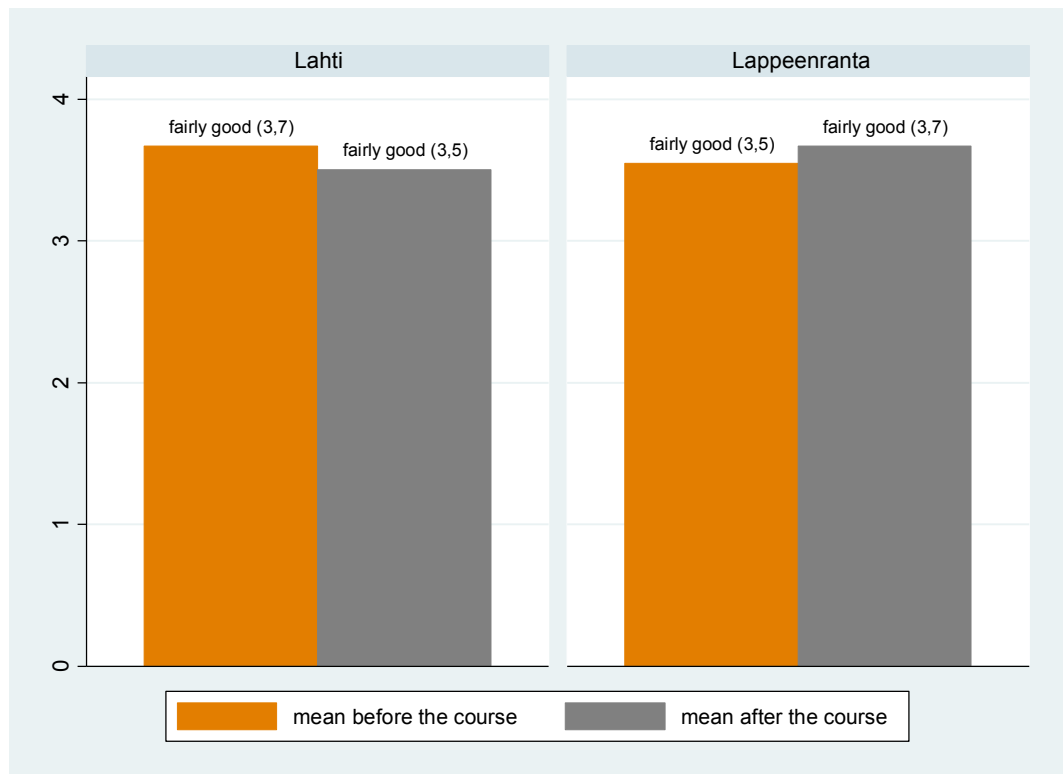
Figure 1. The participants' assessment of their eating habits before and after the group counselling

As pointed out in Figure 1, all the participants assessed their eating habits "fairly good" before starting the group counselling. Even though the average answer option remained the same, there was a minor change at the end of the two-month counselling session between Lahti and Lappeenranta group. Participants in Lahti estimated their eating habits to be slightly worse than before with the average score decreasing from

3.7 to 3.5 and in Lappeenranta slightly better with the average score changing from 3.5 to 3.7.
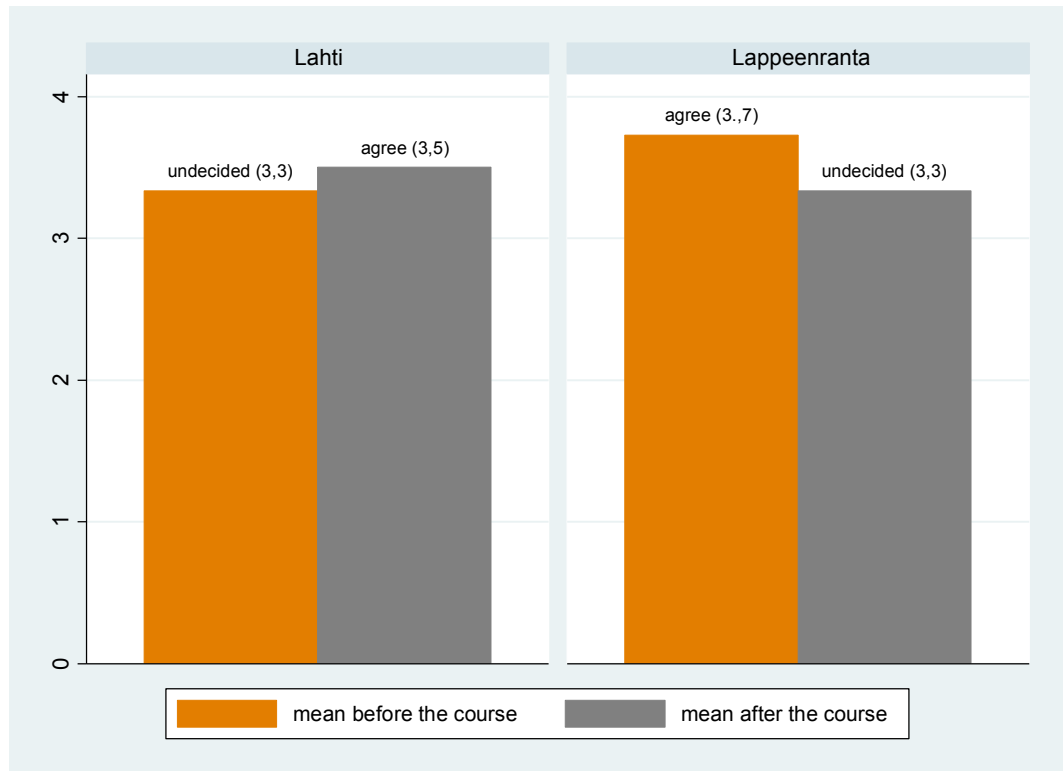
Figure 2. The participants' assessment whether they modify their eating habits because of osteoporosis/osteopenia

In Lahti the participants on average reported that they are not sure if they change their eating habits because of the disease (mean 3.3, answer option "undecided"), but at the end of the two-month counselling session they on average agreed that they do modify their dietary habits (mean 3.5). In Lappeenranta the participants on average agreed before the course that they do modify their eating habits because of the disease (mean 3.7), but post-course the mean score on this point had lowered to 3.3, leaning more toward the answer "undecided".

Milk products
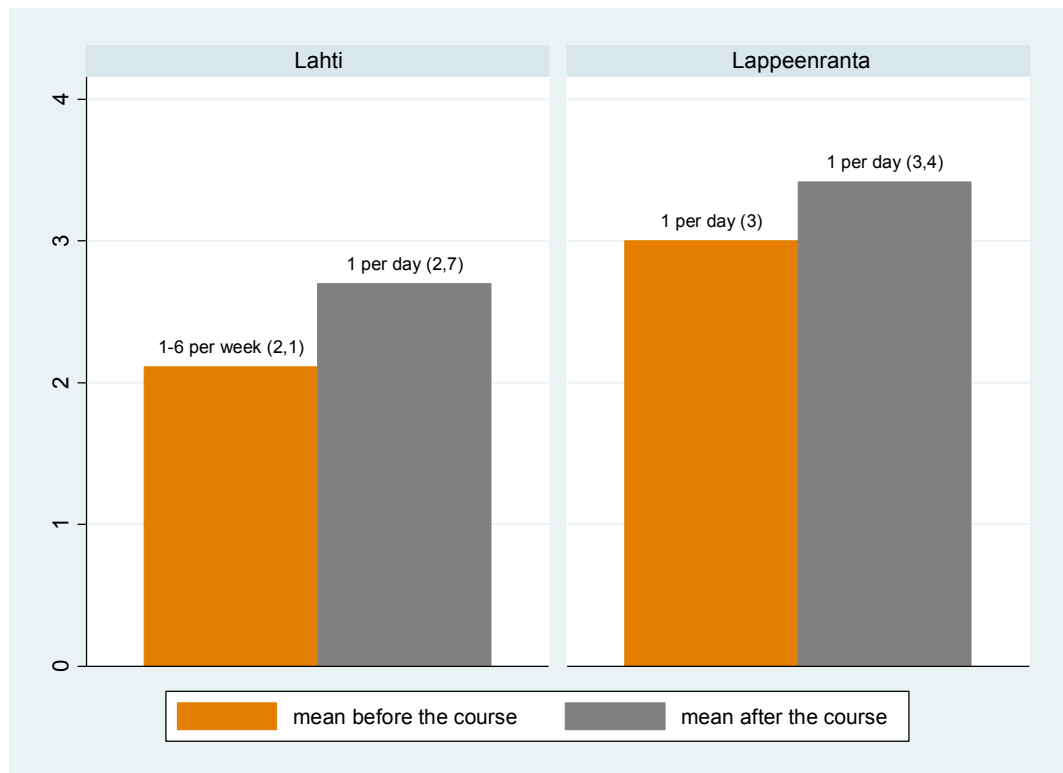
Figure 3. The number of glasses of milk the participants drink during on an average week

As indicated in Figure 3, in Lahti the participants reported that on average they drink 1-6 glasses of milk per week (mean 2.1), at the end of the two-month counselling session the amount increased and the average milk consumption had become one glass a day (mean 2.7). In Lappeenranta, the mean score of the group before the start of the course was already 3, indicating drinking one glass of milk per day. At the end of the course, the average score was slightly higher (mean 3.4).
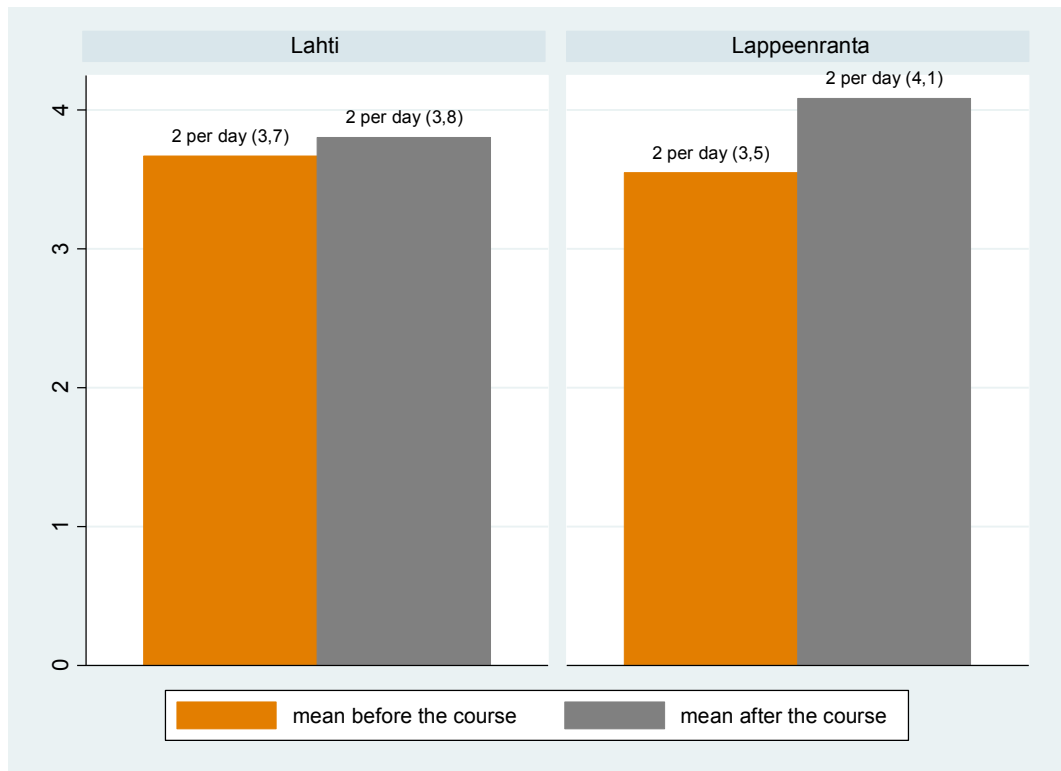
Figure 4. The number of slices of cheese the participants eat during on an average week

As we can see in Figure 4, in Lahti and Lappeenranta participants of both groups on average stated that they eat two slices of cheese per day on an average week (mean value in Lahti 3.7 and in Lappeenranta 3.5). The mean score rose in both locations to 3.8 in Lahti and 4.1 in Lappeenranta.

Alcohol
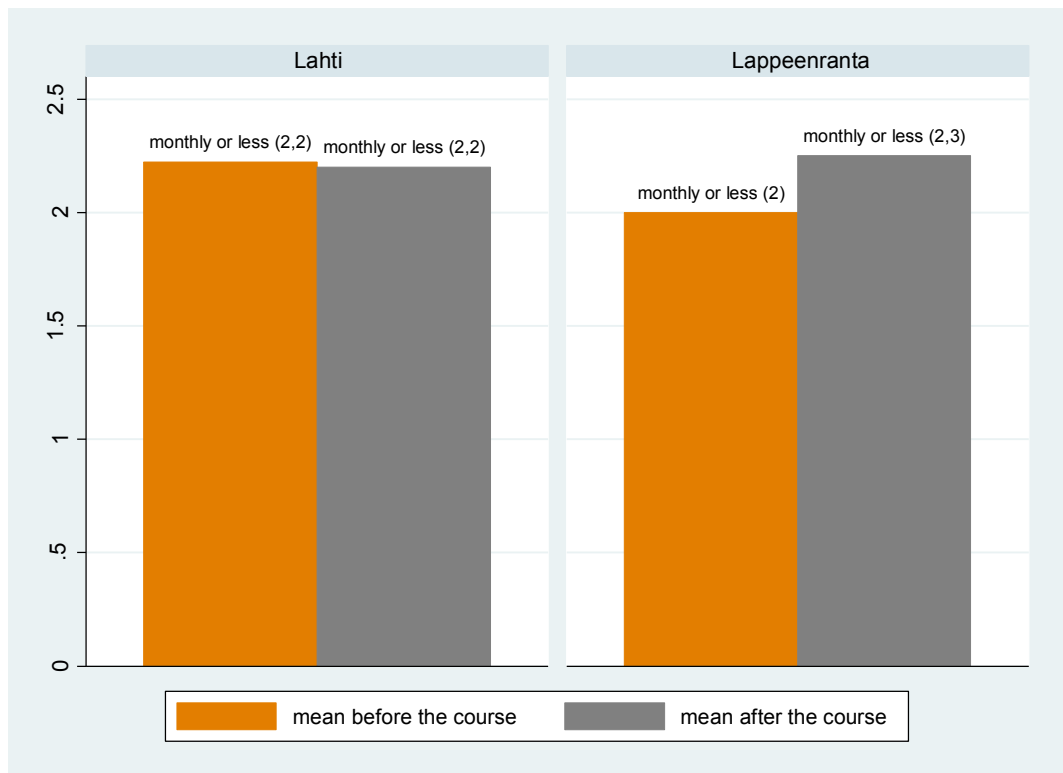
Figure 5. The frequency of the alcohol consumption

The participants were also asked, how often they have a drink that contains alcohol. As indicated in Figure 5, participants from Lahti reported on average that they drink monthly or less (mean 2.2). In Lappeenranta also the participants answered on average that they drink monthly or less (mean 2), but as seen from Figure 5, the mean score rose after the course (2.3).
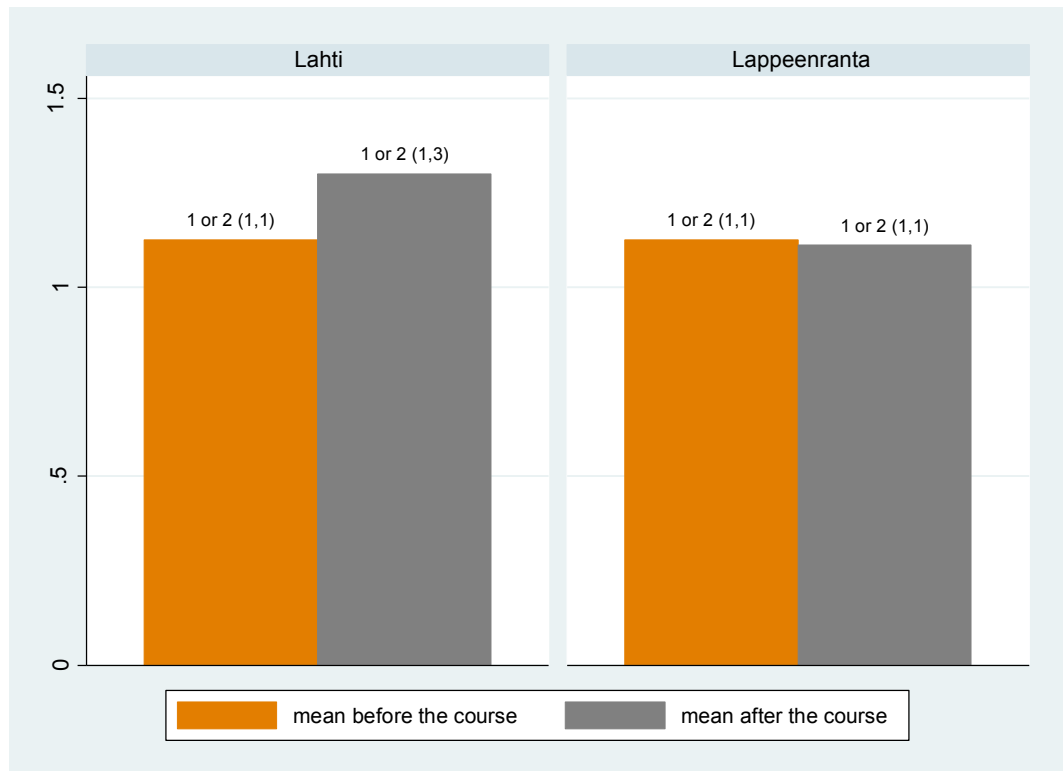
Figure 6. Number of units of alcohol the participants drink on a typical day when they are drinking

As indicated in Figure 6, the participants in Lahti and Lappeenranta both keep the limit with alcohol consumption and on a typical day when they do consume alcohol have on average one or two units of alcohol. According to the specifying information that was also mentioned in the questionnaire, one unit is either: one bottle (33 cl) of ordinary strength beer or cider, glass (12 cl) of light wine or glass (8 cl) of stronger wine or a single measure of spirit (4 cl). In Lahti the mean value rose a little from 1.1 to 1.3 and in Lappeenranta the mean value remained the same (1.1).

Coffee

According to research there is no evidence that caffeine has any negative effect on bone health and calcium absorption in individuals who consume the currently recommended daily allowances of calcium (Heaney, 2002). As the daily amount of calcium supplements the participants take daily was not known, it was necessary to find out how many cups of coffee the participants drink daily.

In Lahti there were two participants who did not drink coffee either before or after the counselling period. One woman who mentioned on the first meeting day that she drinks coffee reported at the end of the two-month counselling session that she has stopped drinking coffee. In Lappeenranta all the participants who filled in the questionnaire drank coffee before and continued also at the end of the two-month counselling session.
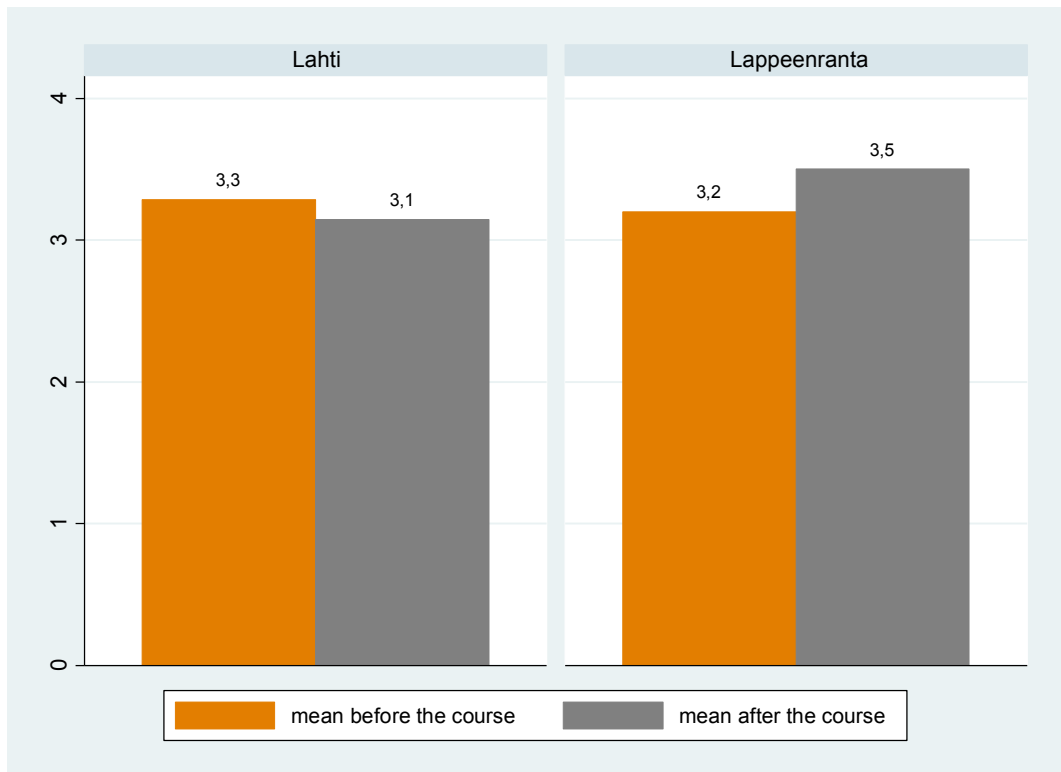
Figure 7. Number of cups of coffee the participants drink during one day

From Figure 7 we can see, that in Lahti, the average number of cups of coffee in one day before starting the group counselling was 3.3 and it decreased to 3.1. In Lappeenranta the participants consumed 3.2 cups of coffee an average and that number increased to 3.5 by the end of the course.

Cigarettes

In Lahti only two people reported that they smoke cigarettes and the average number of smokers was 0.2. In Lappeenranta group none of the participants were smokers. Two participants from Lahti group, who were daily smokers, had before the

counselling 7.5 cigarettes during one day an average, unfortunately the number increased to 8.5 cigarettes.

As the people are elderly suffering from osteoporosis/osteopenia, future studies in this field should also concentrate on the smoking habits in the past. The fact that they are not smoking at the moment may not give all the necessary information that is needed to see the relationship between this habit and the disease.

Vitamin D and calcium

All the participants in both areas stated before and after the counselling period that they take vitamin D supplement. Regarding calcium intake, there was one person in both areas who took calcium supplement before starting the counselling, but had stopped taking it. As there was no extra information obtained regarding this, the reason is unknown. The average amount of vitamin D supplement intake increased in both areas.
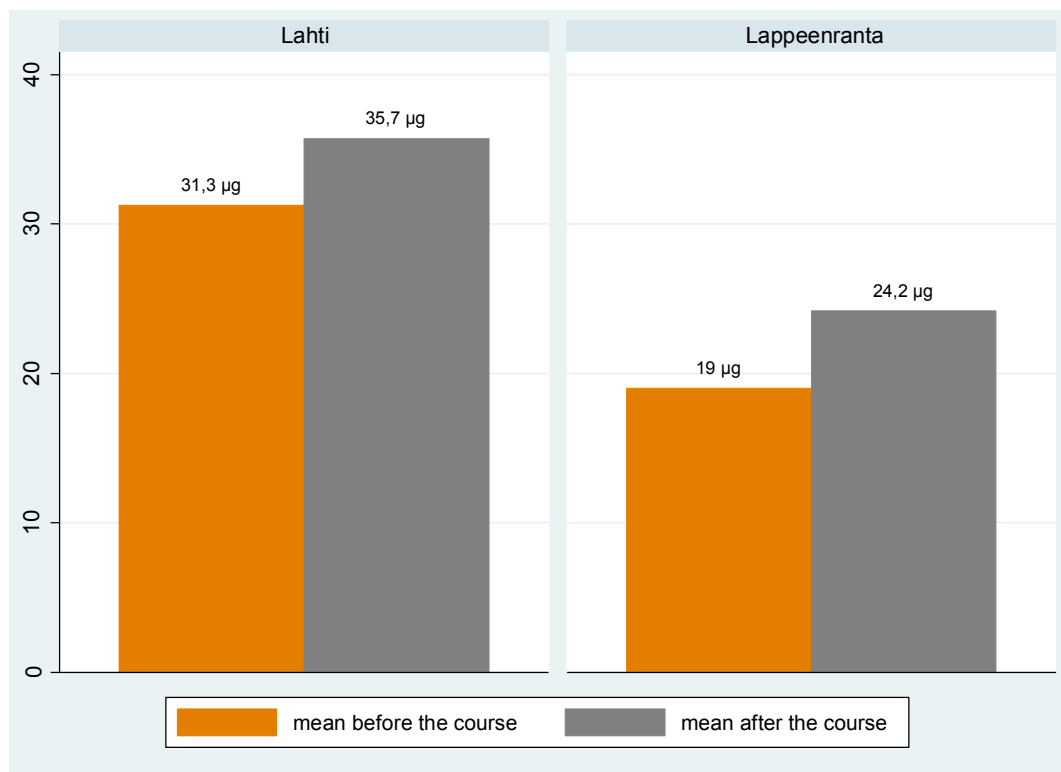
Figure 8. Daily amount of vitamin D supplement intake

As can be seen from Figure 8, at the beginning of the group counselling the average daily amount of vitamin D supplement intake in Lahti was 31.3 μg and by the end of the course the daily amount increased to 35.7 μg Quite often in literature the vitamin D amounts are described using International Units (IU), 1 microgram = 40 IU. As some of the participants had used IU, all the answers were calculated into the same style. In Lappeenranta the mean value of vitamin D supplement consumption was 19 μg and it increased to 24.2 μg.
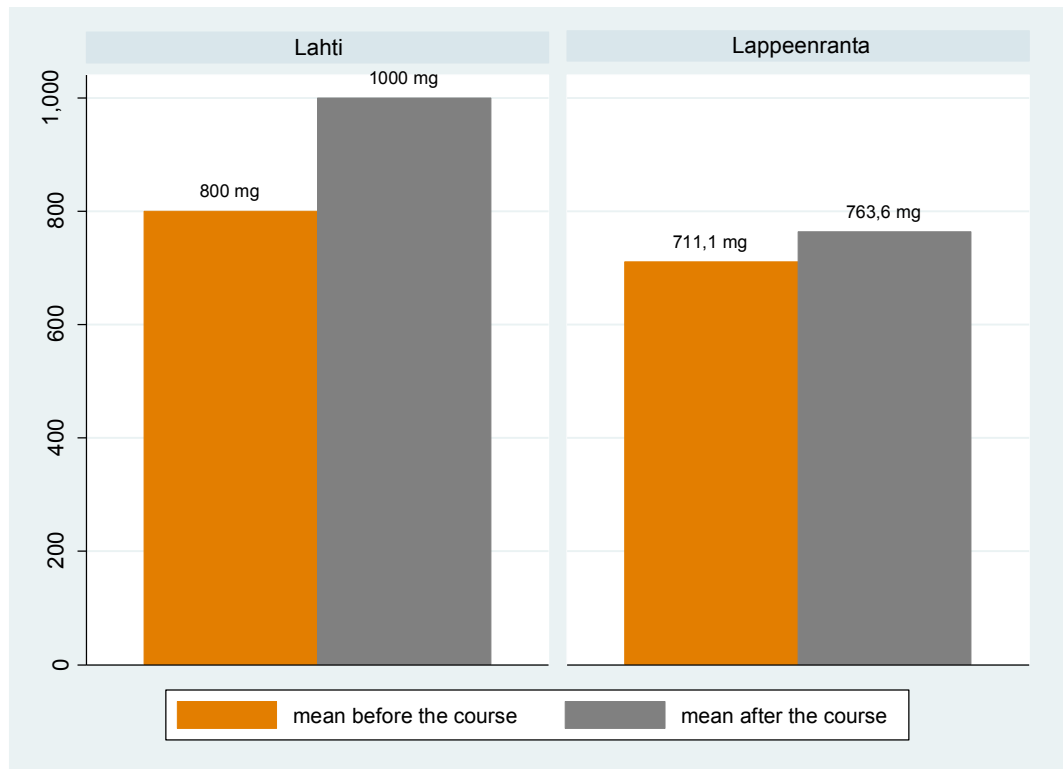
Figure 9. Daily amount of calcium supplement intake

As indicated in Figure 9, the average daily calcium supplement intake also increased in both areas. The average amount in Lahti before the course was 800 mg daily and by the end of the course 1000 mg daily. In Lappeenranta the average intake increased from 711.1 mg to 763.6 mg.

Taking into account that the average age of the participants in Lahti was 71 years and in Lappeenranta 70, then according to the information represented in literature overview, over 60 year-olds should take 20 micrograms (μg) of vitamin D and 500-1000 milligrams (mg) of calcium supplements daily all year around (Valtion

Ravitsemusneuvottelukunta, 2005, p.23; 2010, p.9, 60). In Lahti the vitamin D supplement amount exceeded the recommended daily amount and in Lappeenranta the average amount of vitamin D supplement was at the beginning of the course close to the recommended amounts but also increased. The exceeded amount of vitamin D can be explained with the fact that it is also recommended to test vitamin D level from blood. If the vitamin D level from blood is not high enough, then doctors can prescribe more vitamin D to the patients who are suffering from osteoporosis/osteopenia and that can be the reason for exceeded daily intake of vitamin D. Reported calcium supplement intake amounts in both areas were in the range of recommended amount.

In conclusion, we can say that the changes between Lahti and Lappeenranta varied a little. One minor change that occurred in both areas was under the consumption of milk products. In Lahti and Lappeenranta the participants started to drink more milk and eat more cheese weekly. As pointed out in the literature, there has been no negative effect of caffeine on bone health and calcium absorption in individuals as long as they consume the currently recommended daily allowances of calcium (Heaney, 2002). Even though the reported amounts of supplements were as recommended, still the negative impact of caffeine in the big picture needs to be pointed out in osteoporosis preventive programs as it turned out, coffee is a very popular drink.

4.4 Impact on the participants' self-assessed physical activity level

In the questionnaire, under the physical activity section, the participants were asked to circle the answer options, which applied to them. The first statement was- "I don't do any physical activity". None of the participants who answered the questionnaire in Lahti and Lappeenranta circled this answer option, which is very positive, taking into account the fact that the average age of the participants was 70.7 years.

Different physical activities were presented as statements, which the participants had to circle when they agree with it. They also had to mark after the statement the number of days and hours/ minutes all together in a week they participate in the named activity. Later the minutes and hours were calculated total into hours.

As indicated in Table 7 and 8 (appendix 11., appendix 12.), p-value calculated with Two-sample T-test showed that the changes in physical activity section in Lahti and Lappeenranta were not statistically relevant as the values were not smaller than 0,05. The biggest change took place in Lappeenranta, where under physical activity that makes their heart beat and makes them sweat a little, the average number of days the participants do the activity increased from 2.1 to 3 and p = 0.07 and also under balance training exercise the average number of days increased from 1.3 to 2 and p = 0.06.
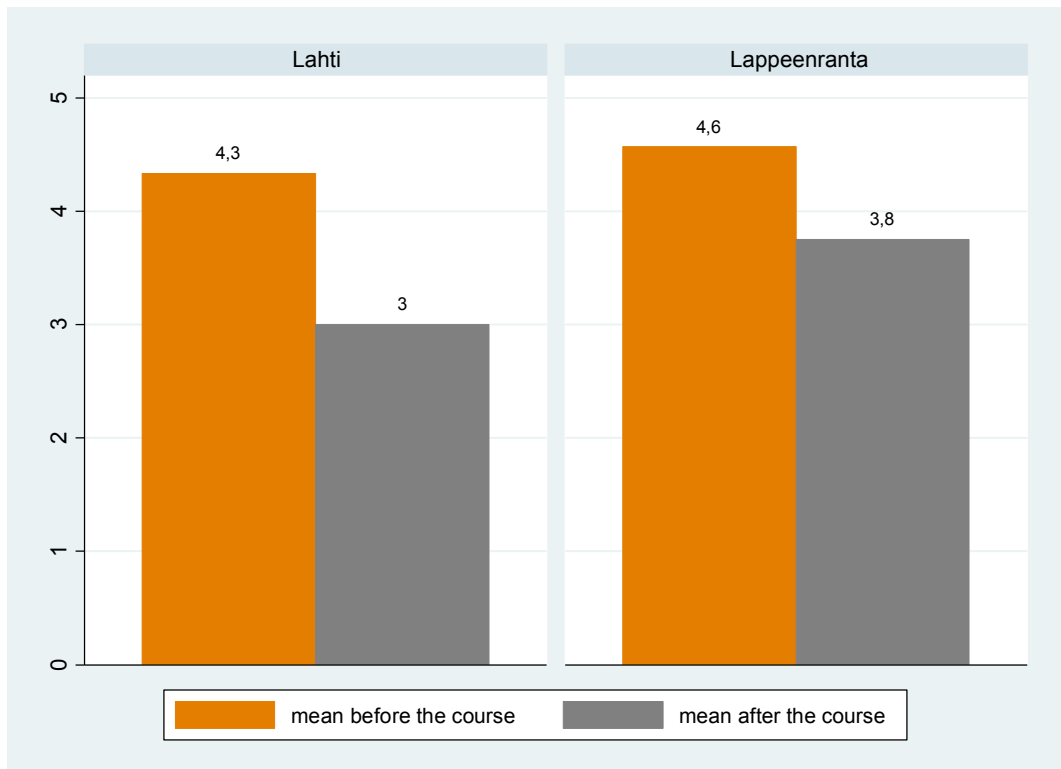
Figure 10. The number of days in a week the participants do physical activity that does not make one sweat nor one's heart beat
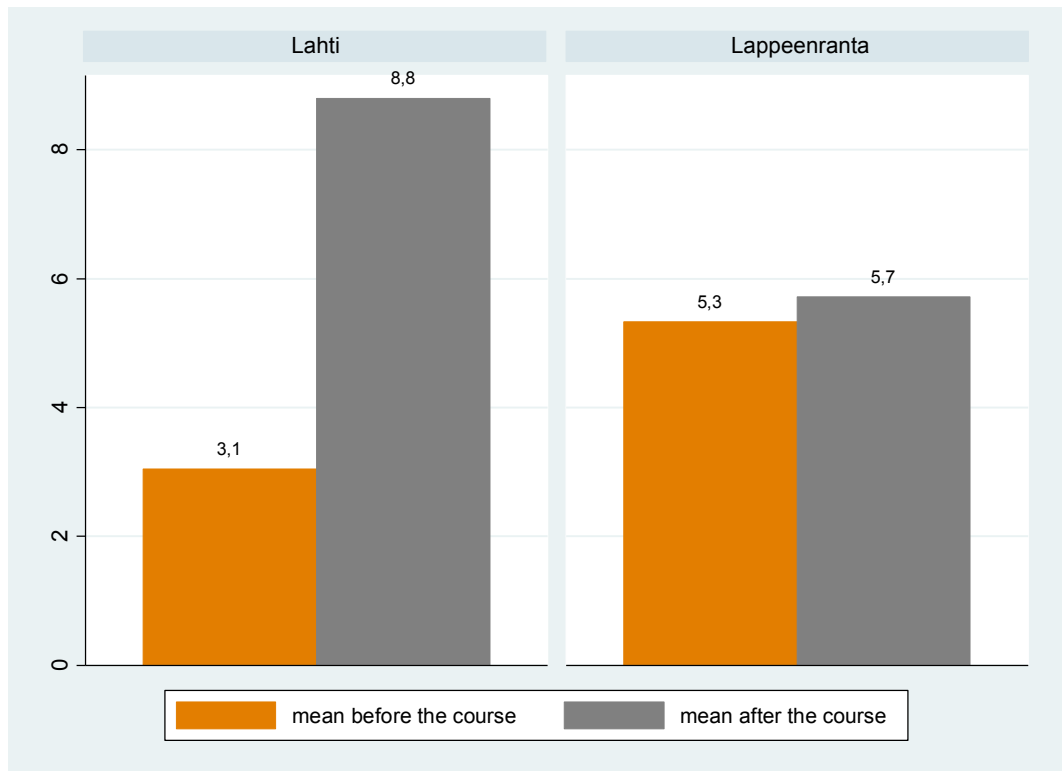
Figure 11. The number of hours in a week the participants do physical activity that does not make one sweat nor one's heart beat

As can be inferred from Figure 10 and 11, participants in Lahti reported that they do physical activity that does not make one sweat nor one's heart beat (for example walking) 4.3 days in a week totalling 3.1 hours on average. After the group counselling surprisingly the average number of days decreased in this area and participants marked that they do physical activity that does not make one sweat nor one's heart beat only on three days in a week on average (Figure 10). However, the average number of hours dedicated to such activity rose from 3.1 to 8.8 (Figure 11).

In Lappeenranta before the counselling the participants did physical activities that does not make one sweat nor one's heart beat 4.6 days in a week totalling 5.3 hours on average (Figure 10 and 11). Afterwards the average number of days in a week decreased from 4.6 to 3.8 (Figure 10), but the average amount of hours in a week increased to 5.7 hours (Figure 11). Therefore we can say that the participants started to put more attention to the length of the physical activity that does not make them sweat nor their heart beat and not so much to the fact of how many days in a week they do it.
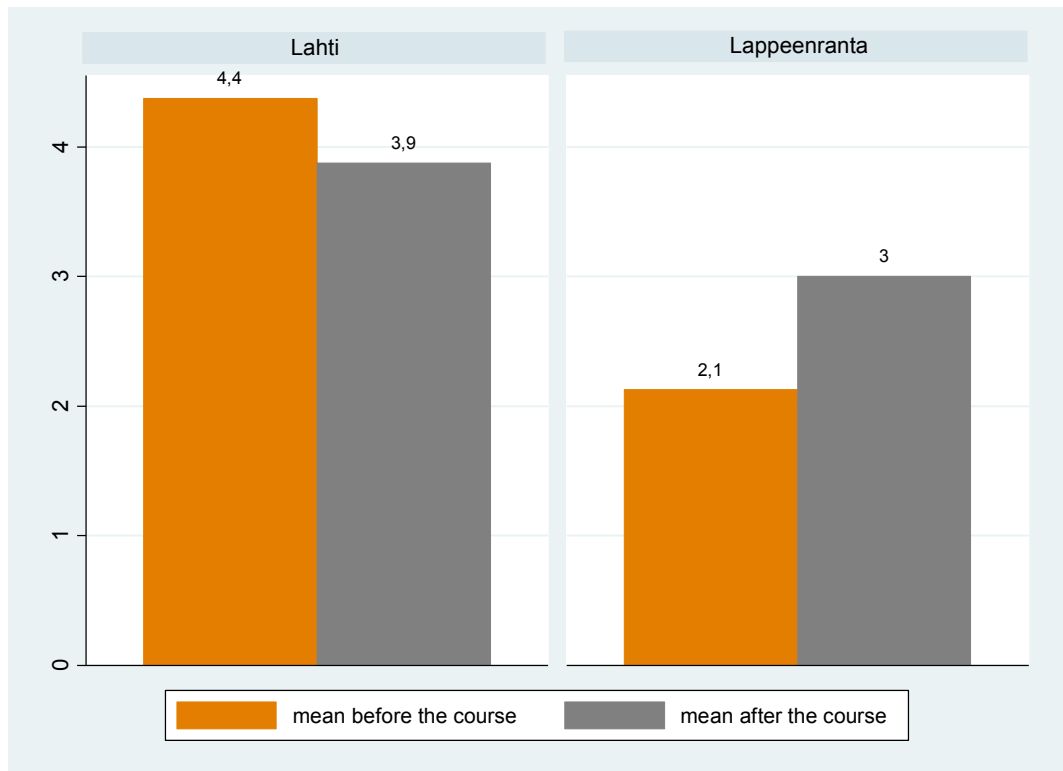
Figure 12. The number of days in a week the participants do physical activity that makes their heart beat and makes them sweat a little
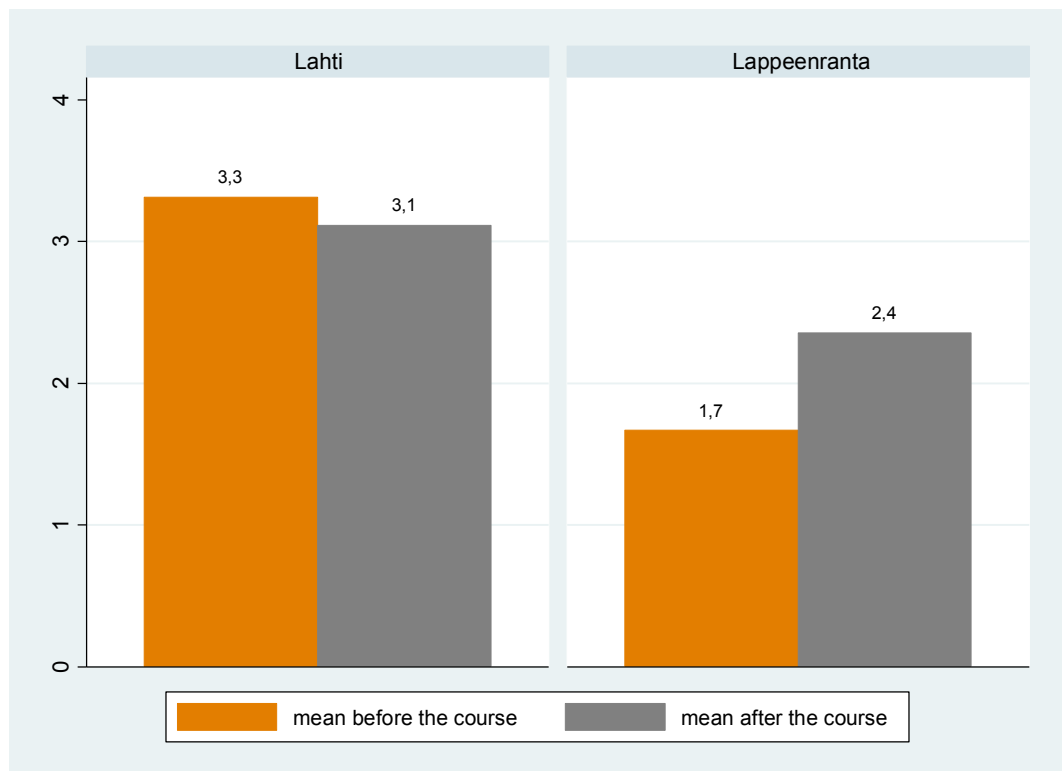
Figure 13. The number of hours in a week the participants do physical activity that makes their heart beat and makes them sweat a little

As Figure 12 and 13 show, participants from Lahti marked that they do physical activity that makes their heart beat and makes them sweat a little (for example active walking) 4.4 days in a week totalling 3.3 hours on average. Surprisingly, the average number of days and hours decreased and at the end of the two-month counselling session the participants marked that they do physical activity that makes their heart beat and makes them sweat a little only 3.9 days a week totalling 3.1 hours on average (Figure 12 and 13).

In Lappeenranta, the participants marked that they do physical activity that makes their heart beat and makes them sweat a little 2.1 days a week totalling 1.7 hours on average (Figure 12 and 13). In the end of the two-month counselling session the average number of days and hours both increased in the Lappeenranta group. Participants reported that they do physical activity on three days a week totalling 2.4 hours on average (Figure 12 and 13).
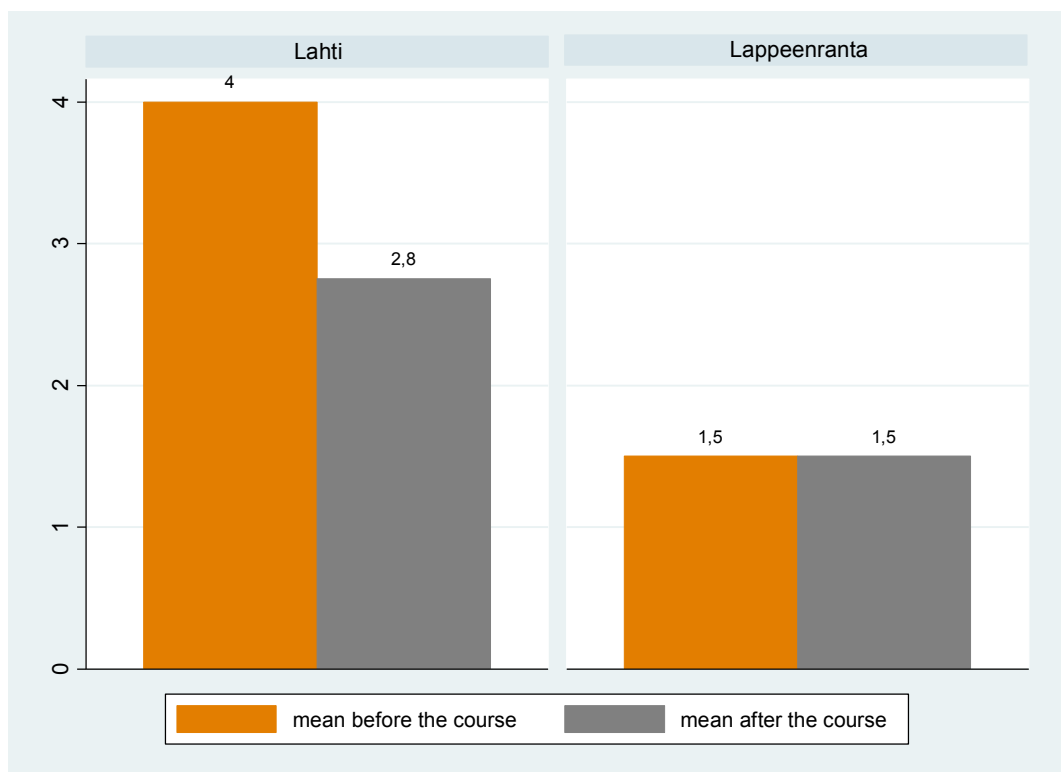
Figure 14. The number of days in a week the participants do physical activity that makes their heart beat and makes them sweat a lot

Figure 15. The number of hours in a week the participants do physical activity that makes their heart beat and makes them sweat a lot

As seen in Figure 14 and 15, in Lahti, the participants reported that they do physical activity that makes their heart beat and makes them sweat a lot (for example running) four days a week totalling 4.3 hours on average. After the counselling period surprisingly the average number of days and hours decreased again and participants marked that they do physical activity only 2.8 days in a week totalling 1.9 hours on average (Figure 14 and 15).

In Lappeenranta, only two participants marked that they do physical activity that makes their heart beat and makes them sweat a lot on 1.5 days in a week totalling 1.5 hours on average (Figure 14 and 15). After the counselling period the average number of days and hours remained the same.
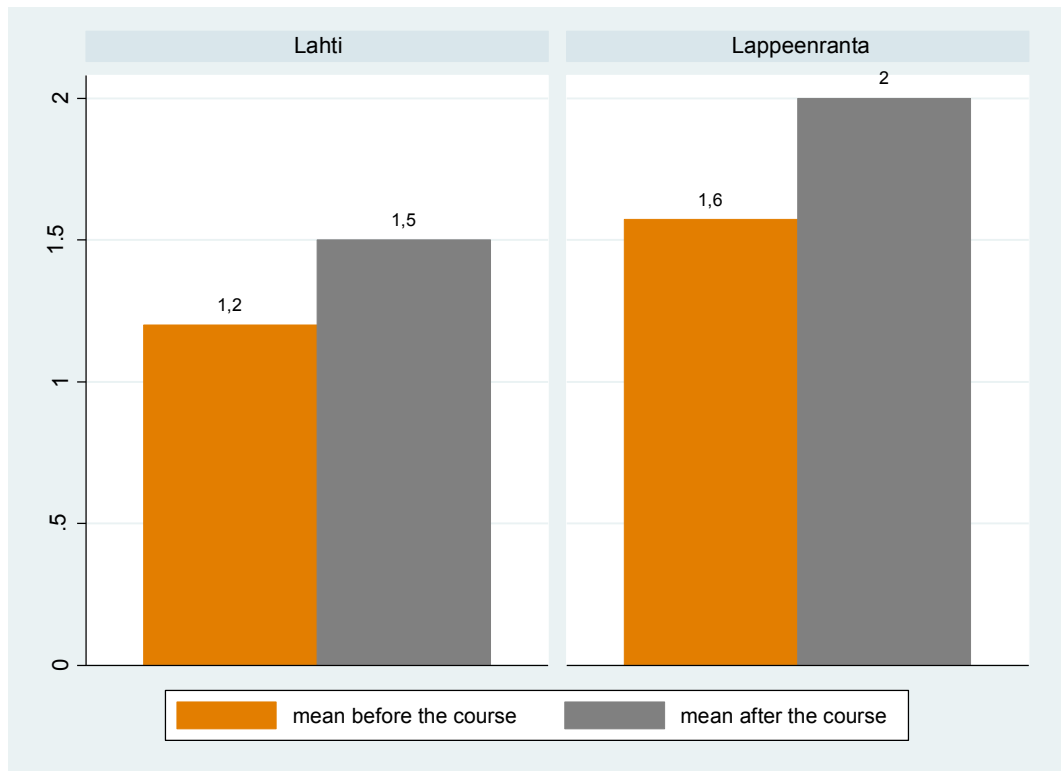
Figure 16. The number of days in a week the participants do muscle strengthening exercise
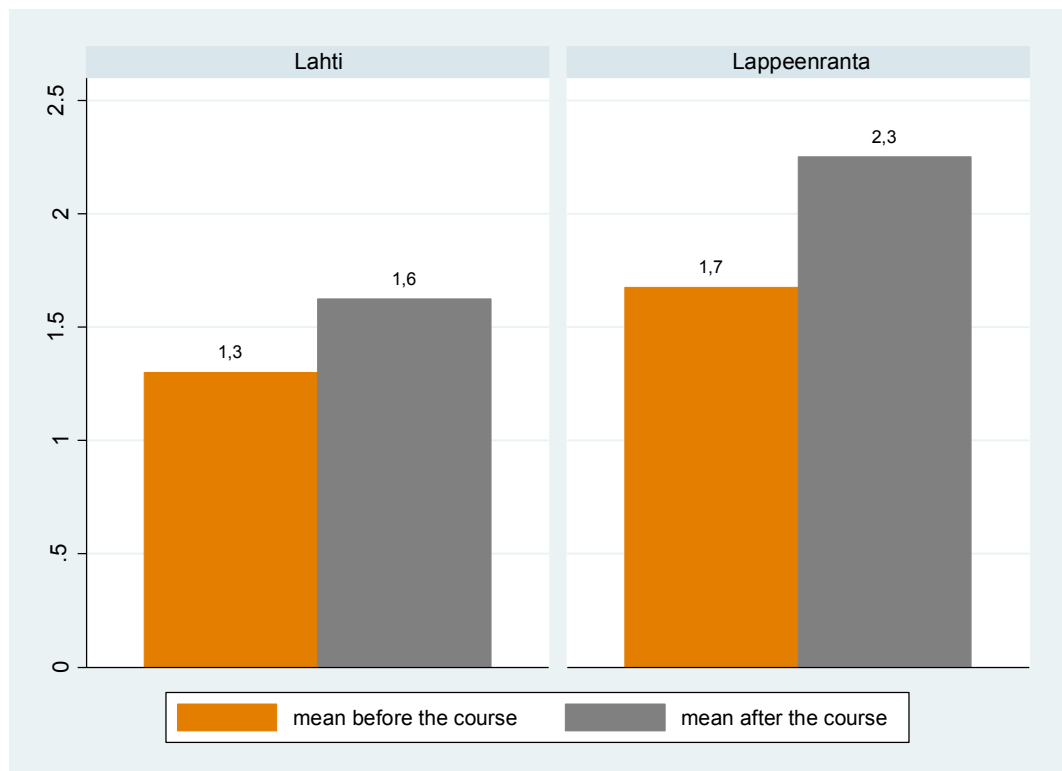
Figure 17. The number of hours in a week the participants do muscle strengthening exercise

In Lahti the participants reported that they do muscle strengthening exercise 1.2 days a week totalling 1.3 hours on average. After the counselling period the average number of days and hours both increased to 1.5 days a week totalling 1.6 hours on average (Figure 16 and 17).

In Lappeenranta, the participants marked that they do muscle strengthening exercise 1.6 days in a week totalling 1.7 hours on average (Figure 16 and 17). After the counselling period the average number of days and hours both increased also in Lappeenranta and participants marked that they do physical activity two days in a week totalling 2.3 hours on average (Figure 16 and 17). It is good to note that what comes to muscle strengthening exercises then in both areas the number of days and hours increased. It can be due to the fact that elderly were not familiar with muscle strengthening exercises that are suitable to do in their age. Therefore the information given during group counselling has played very important role in elderly muscle strengthening exercise education.
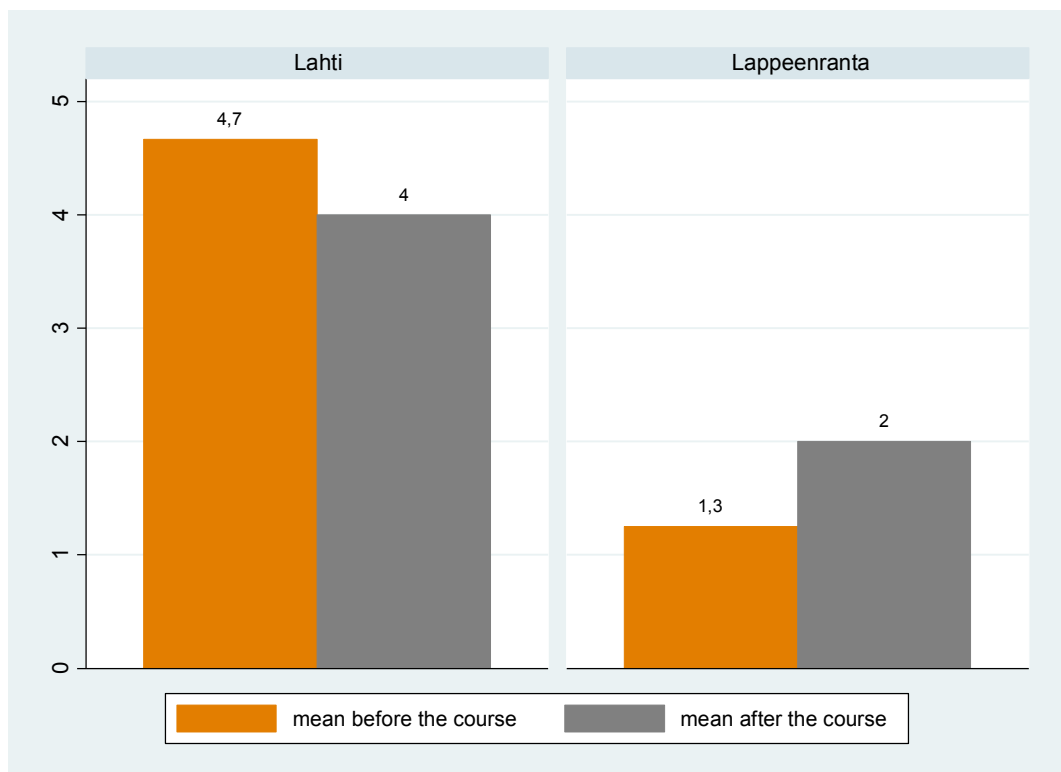
Figure 18. The number of days in a week the participants do balance training exercises
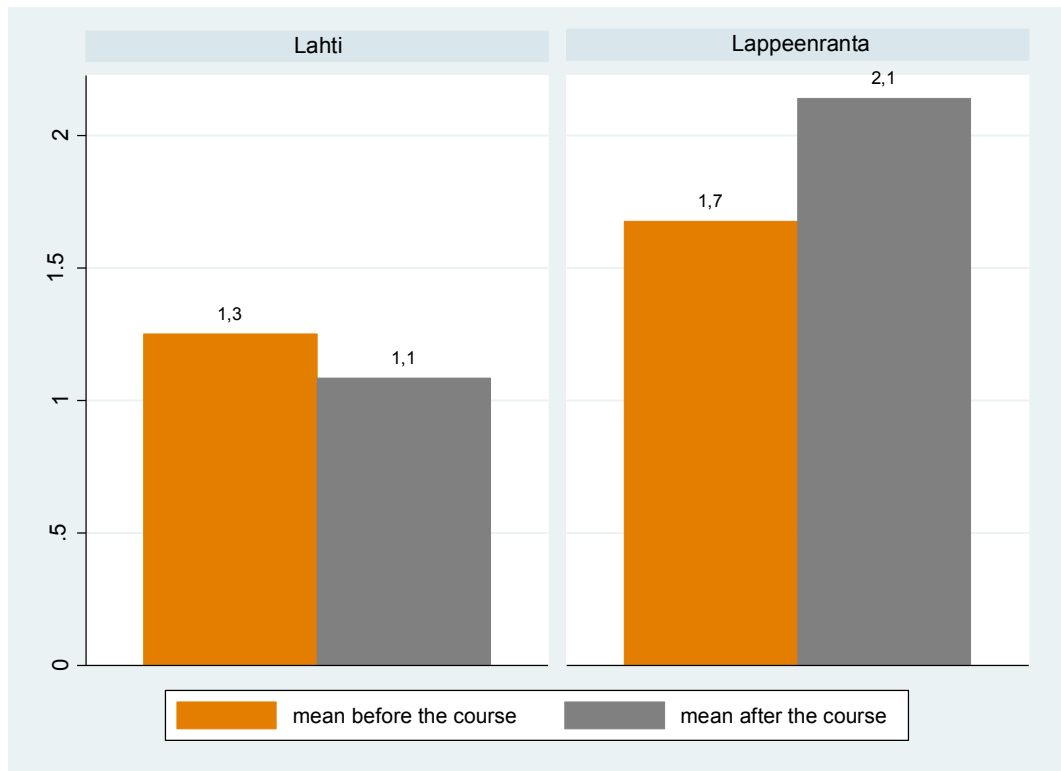
Figure 19. The number of hours in a week the participants do balance training exercises

As pointed out in Figure 18 and 19, the participants in Lahti marked that they do balance strengthening exercise (for example dancing, tai chi etc.) on 4.7 days in a week totalling 1.3 hours on average. In the end of the counselling period surprisingly the average number of days and hours decreased to four days a week totalling 1.1 hours on average (Figure 18 and 19).

In Lappeenranta, the participants reported that they do balance strengthening exercise on 1.3 days in a week totalling 1.7 hours on average (Figure 18 and 19). The average number of days and hours increased and participants marked that they do physical activity two days in a week totalling 2.1 hours on average (Figure 18 and 19). Therefore we can summarize that results in this activity section differed greatly from each other in two areas - Lahti participants started to do balance strengthening exercise in less days and hours total on average week and in Lappeenranta the number of days and hours increased.
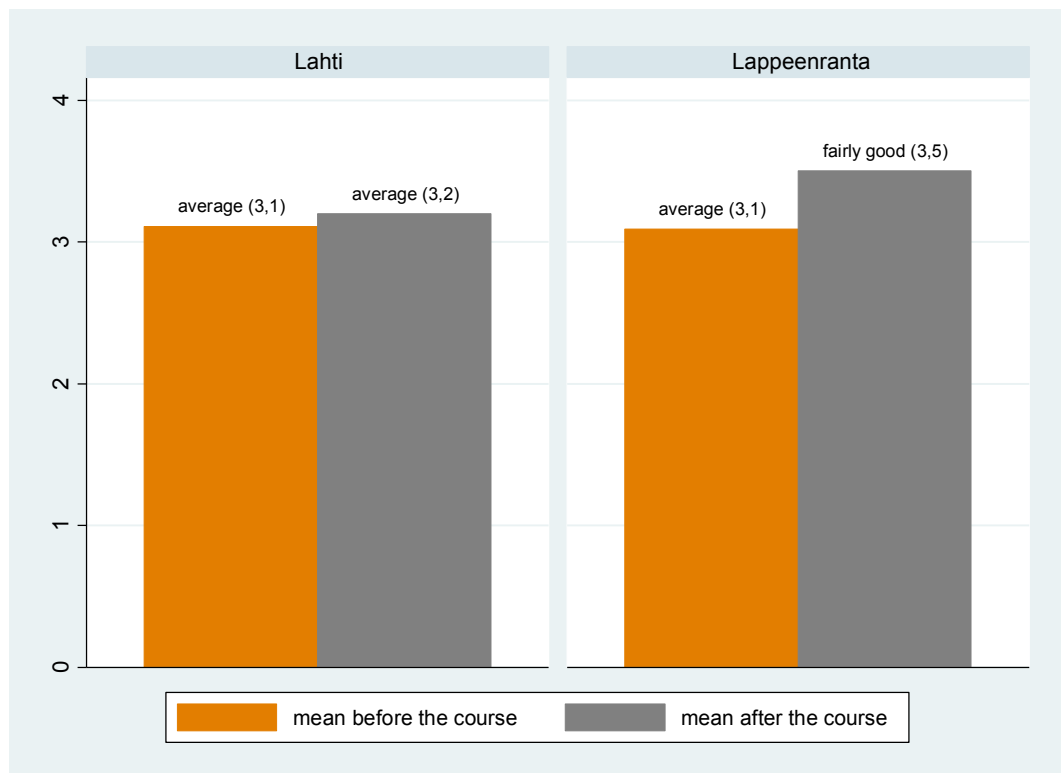
Figure 20. The participants' assessment of their physical activity level before and after the group counselling

At the end of the physical activity section, the participants were asked how they assess their physical activity level. As pointed out in Figure 20, we can see that in Lahti the participants assessed their physical activity level to "average" before and after the group counselling (mean before 3.1, mean after 3.2). In Lappeenranta the participants estimated their physical activity level also as "average" (mean 3.1), but the confidence rose with time and knowledge and the participants stated in the end of the two-month counselling session that their physical activity level is "fairly good" (mean 3.5).

According to the information gathered from the participants about their physical activity level, it was found out that during the counselling period the participants started to put more attention to the length of the physical activity that does not make them sweat nor heart beat and not so much to the fact that how many days in a week they do it in Lahti and Lappeenranta. When in Lahti participants started to do physical activity that makes their heart beat and makes them sweat a little in more days and hours total on average week, in Lappeenranta the number of days and hours dropped. The results were not very optimistic about the physical activity that makes their heart

beat and makes them sweat a lot and under balance training exercise, where the average number in Lahti decreased, and remained the same or increased a little in Lappeenranta. The best results were under muscle strengthening exercise. The number of hours and days in a week increased in both areas and this can be explained with the fact that probably elderly were not aware of the possibilities and type of muscle strengthening exercises that are suitable to do in their age.

Comparing the results with the recommendations given out in Weekly Exercise Pie (Liikuntapiirakka), then muscle strengthening, balance and flexibility exercises (dancing, ball games, yoga etc.) are recommended to practice 2-3 times a week. In Lahti the participants did muscle strengthening exercise before starting the course 1.2 days a week and in the end of the course 1.5 days a week. In Lappeenranta therefore the number of days was before the course 1.6 and in the end they reported that they do muscle strengthening exercises two days a week. What comes to balance training exercises then the Lahti participants did before the course the named activity 4.7 days in a week and after the course four days a week, in Lappeenranta the number of days was before starting the course only 1.3 days a week and increased to the end of the course to two days a week.

Therefore we can summarize that what comes to muscle strengthening exercises then Lappenranta participants achieved the recommended amount to the end of the course and Lahti participants were very active in doing balance training exercises before and after the course. Lappeenranta participants also managed to reach the recommended amount in the end of the course as they increased the number of days doing balance training exercises from 1.3 to two.

Intensive physical training is recommended to do a total of two hours and 30 minutes (2.5 hours) a week (bicycling, walking etc.). Lahti participants stated that they practice activity that makes their heart beat and makes them sweat a little (for example active walking) 3.3 hours in a week at the beginning of the course and the amount decreased little to 3.1 hours. Lappeenranta participants therefore did activity that makes their heart beat and makes them sweat a little in a week on average only 1.7 hours, but managed to decrease the hours to 2.4. Lahti participants were also active in physical activity that makes their heart beat and makes them sweat a lot (for example running),

before starting the course they ran 4.3 hours in a week on average, but the number of hours decreased to 1.9. In Lappeenranta the participants stated that they do activity that makes their heart beat and makes them sweat a lot 1.5 hours before starting the course and the amount remained the same. Therefore it can summarized that Lahti participants were following the recommendations activity that makes their heart beat and makes them sweat a little (for example active walking), but in the other hand were not very active in the end of the course in physical activity that makes their heart beat and makes them sweat a lot (for example running). In Lappeenranta the participants reached in the end of the course almost the recommended amount what comes to activity that makes their heart beat and makes them sweat a little, but in the other hand were not very active doing activity that makes their heart beat and makes them sweat a lot.

At the beginning of work process, while creating the questionnaire, it seemed to be a secure way to use one part of the questionnaire from The Health Behaviour and Health among the Finnish Elderly survey that has been used before to estimate elderly physical exercise habits weekly (Laitalainen, Helakorpi and Uutela, 2010, p.173). However, during the research process it turned out that this part of the questionnaire seemed to be the most difficult to understand for elderly and therefore I would suggest in future changing the way questions are formulated to find out about elderly physical activity habits.

4.5 Impact on the level of knowledge regarding osteoporosis/osteopenia

The participants were asked how they assess their level of knowledge regarding osteoporosis/osteopenia. As indicated in Table 9 (appendix 13.), p-value calculated with Two-sample T-test showed that all the changes that took place in Lappeenranta were statistically relevant as the values were equal to or smaller than 0.05. The biggest change took place under the question 40, where before the counselling the participants assessed their level of knowledge about where to find more information about the disease and treatment methods as "average" (mean 3,0), but at the end of the two-month counselling session the level of knowledge was assessed on average as "fairly good" (mean 3,8, p = 0,01).
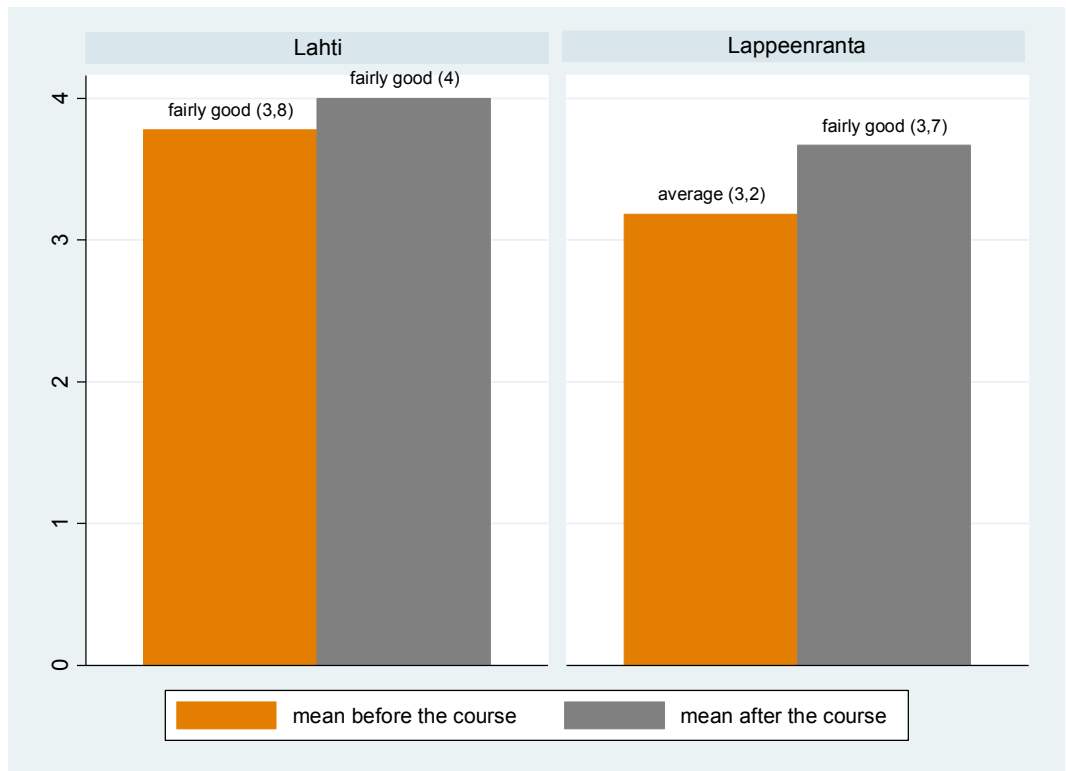
Figure 21. The participants' assessment of their level of knowledge about osteoporosis/osteopenia disease before and after the group counselling

As indicated in Figure 21, the participants' level of knowledge about osteoporosis/osteopenia disease increased in both areas. In Lahti, the participants assessed their level of knowledge before group counselling as "fairly good" (mean 3.8) and at the end of the two-month counselling session the average status remained the same, but the mean value increased to four. In Lappeenranta before starting the counselling the participants assessed their level of knowledge as "average" (mean 3.2), but after finishing the course their average self-assessed level of knowledge was already "fairly good" (mean 3.7, p = 0.04).
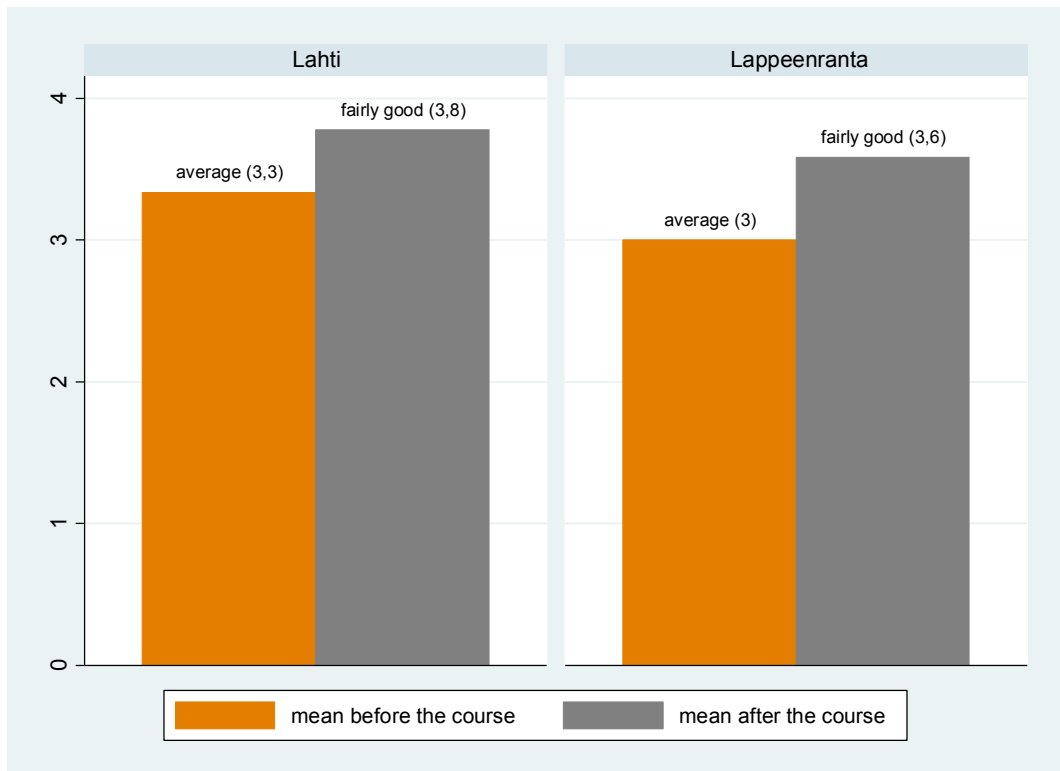
Figure 22. The participants' assessment of their level of knowledge about how to keep osteoporosis/osteopenia under control before and after the group counselling

As displayed in Figure 22, the participants' level of knowledge about how to keep osteoporosis/osteopenia under control also increased in both areas. In Lahti, the participants assessed their level of knowledge before group counselling on average as "average" (mean 3.3) and at the end of the two-month counselling session on average as "fairly good" (mean 3.8). In Lappeenranta before starting the counselling the participants also assessed their level of knowledge on average as "average" (mean 3), but after finishing the course their average self-assessed level of knowledge was already "fairly good" (mean 3.6, p = 0.05).
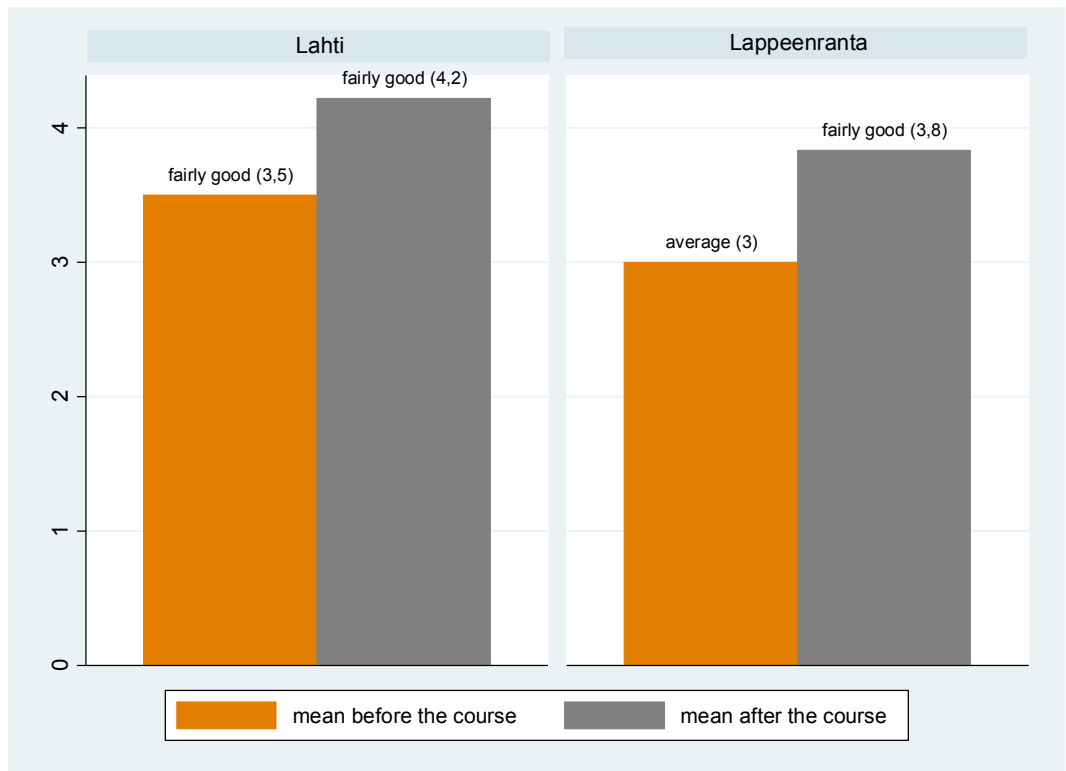
Figure 23. The participants' assessment of their level of knowledge about where to find more information about osteoporosis/osteopenia disease and treatment methods before and after the group counselling

As stated in Figure 23, the participants' level of knowledge about where to find more information about osteoporosis/osteopenia disease and treatment methods also increased in both areas. In Lahti, the participants assessed their level of knowledge before group counselling on average as "fairly good" (mean 3.5) and at the end of the two-month counselling session even though the mean value increased (mean 4.2), the status remained the same (p = 0.07). In Lappeenranta before starting the counselling the participants also assessed their level of knowledge on average as "average" (mean 3), but after finishing the course their level of knowledge was already on average assessed as "fairly good" (mean 3.8, p = 0.01).

We can say that the group counselling had positive impact on the self-assessed level of knowledge regarding osteoporosis/osteopenia in both areas. The mean values increased under the all three questions in Lahti and Lappeenranta.

Under the self-assessed level of knowledge regarding osteoporosis/osteopenia section, the participants were also asked, from where do they get the knowledge about osteoporosis/osteopenia? Eight participants did not fill the answer to this question and in four cases the answers remained exactly the same.

Table 10. Frequencies of the answer options about where the participants get knowledge about osteoporosis/osteopenia

Where the participants get knowledge about osteoporosis/osteopenia?					
Questionnaire 1	N	%	Questionnaire 2	N	%
Internet	8	36.4%	Doctors	7	31.8%
OSTEO-lehti	7	31.8%	Internet	6	27.3%
Osteoporosis Organization	5	22.7%	OSTEO-lehti	5	22.7%
Doctor	3	13.6%	Osteoporosis Organization	5	22.7%
Health Centre	2	9.1%	ASKO meetings	4	18.2%
Lectures	2	9.1%	Brochures	4	18.2%
Do not know	2	9.1%	Lectures	3	13.6%
Hopefully from ASKO	1	4.6%	Media	1	4.6%
KAAOS clinic	1	4.6%	Friends	1	4.6%
			KAAOS clinic	1	4.6%
			Ask different places	1	4.6%

From Table 10 we can see where the participants get knowledge about their disease. The percentage is calculated taking total value 100% equal to all the 22 participants who participated in Lahti and Lappeenranta course total. 36.4% (n = 8) of the participants told that they find information from Internet. The next popular sources of information were as follows: OSTEO-lehti - a magazine issued by Suomen Osteoporoosiliitto Ry four times a year (31.8%, n = 7), Osteoporosis Organization (22.7%, n = 5) and from a doctor (13.6%, n = 3). Health centre, lectures and "do not know" were mentioned two times, thus being the answer for 9.1% of all the project participants in Lahti and Lappeenranta together. One participant (4.6%) mentioned that she gets information from KAAOS clinic, the name comes from Finnish words "Kaatumis- ja osteoporoosiklinikka" which means falls and osteoporosis clinic and also one (4.6%) participant had high expectations towards the course and wrote that

"hopefully from ASKO course".

It is interesting to point out that on their last meeting 31.8% (n = 7) of all the participants stated that they get information about the disease from doctors. It can be explained with the fact that during the course the participants had positive contact with doctors with good knowledge and therefore they have now understanding that doctors can give more information about osteoporosis/osteopenia disease and treatment methods. The next popular sources of information were as follows: Internet (27.3%, n = 6), OSTEO-lehti and Osteoporosis organization (22.7%, n = 5), ASKO course and brochures (18.2%, n = 4) and lectures (13.6%, n = 3). Only once (4,6%) mentioned information sources were: media, friends, KAAOS clinic and one participant just wrote that she asks different places.

The participants who left the question empty while answering the first questionnaire, all mentioned in their second questionnaire that they get information from ASKO course. Therefore we can say that participants felt the ASKO-project was a considerable source of information on their disease especially for those participants who were not very familiar with where to get information on osteoporosis/osteopenia beforehand.

Besides the self-assessed level of knowledge regarding osteoporosis/osteopenia, the participants were also asked five theoretical questions, where they had to answer if they think that the statement is true, false or they do not know, if it is true or false. The aim was to measure their theoretical knowledge level before and after the counselling.

Table 11 (appendix 14.) provides correct answers to these questions marked together with the percentages of right answers by participants. In Lahti group in three cases the number of correct answers remained the same comparing the answers given before and after the counselling period and in two cases the number of correct answers increased maximum by two answers. In Lappeenranta one statement was given all the correct answers, in three cases the number of correct answers increased and in one case the number of correct answers given remained the same. Therefore we can summarize that the theoretical level of knowledge regarding osteoporosis/osteopenia rose in Lappeenranta more than in Lahti.

4.6 Impact on the confidence of the participants' ability to change their living habits

To measure the self-assessed level of confidence regarding management of osteoporosis/osteopenia the participants were asked three questions before and after the group counselling. As indicated in Table 12 (appendix 15.), p-value calculated with Two-sample T-test showed that the changes in confidence section in Lahti and Lappeenranta were not statistically relevant as the values were not smaller than 0.05. The biggest change took place in Lahti, where the mean value of the statement "I am able to select appropriate foods to increase my calcium intake" increased from 3.8 to 4.3 and p = 0.07. The answer options were under the statements on 5-point scale ("strongly disagree" to "strongly agree").
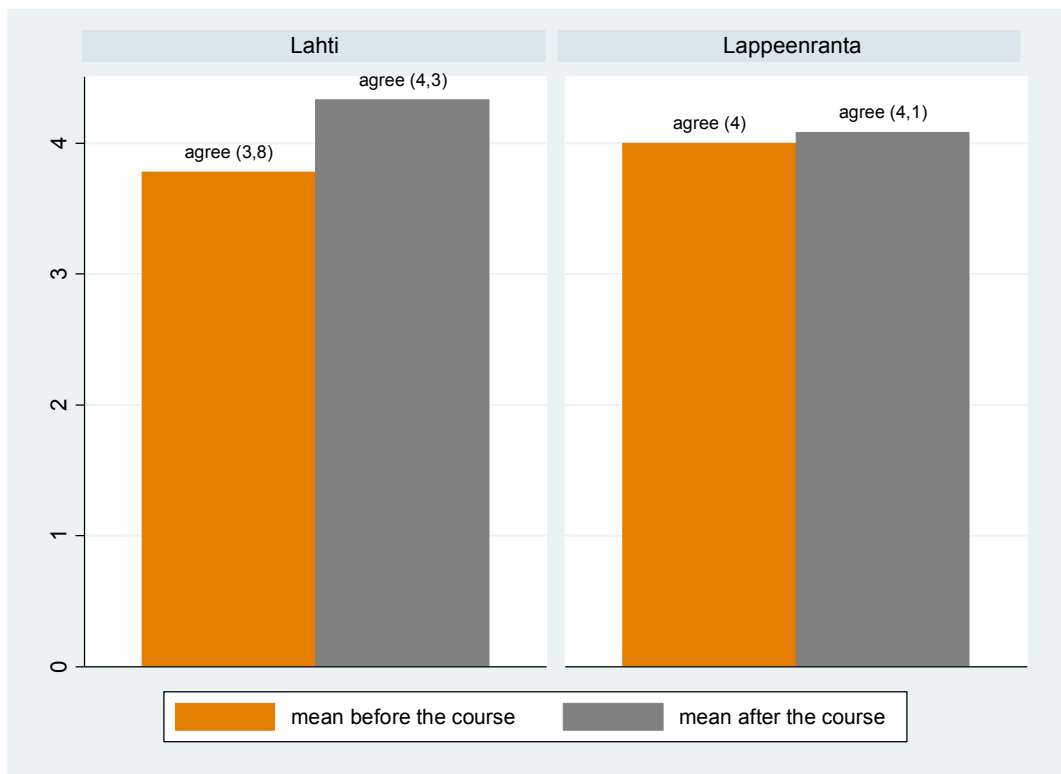
Figure 24. The participants' assessment of their ability to select appropriate foods to increase the calcium intake

As seen in Figure 24, the participants' assessment of their ability to select appropriate foods to increase the calcium intake rose in both areas. In Lahti and Lappeenranta participants on average agreed that they are able to select appropriate foods to increase their calcium intake. In Lahti the mean value increased from 3.8 to 4.3 and in

Lappeenranta from 4.0 to 4.1.
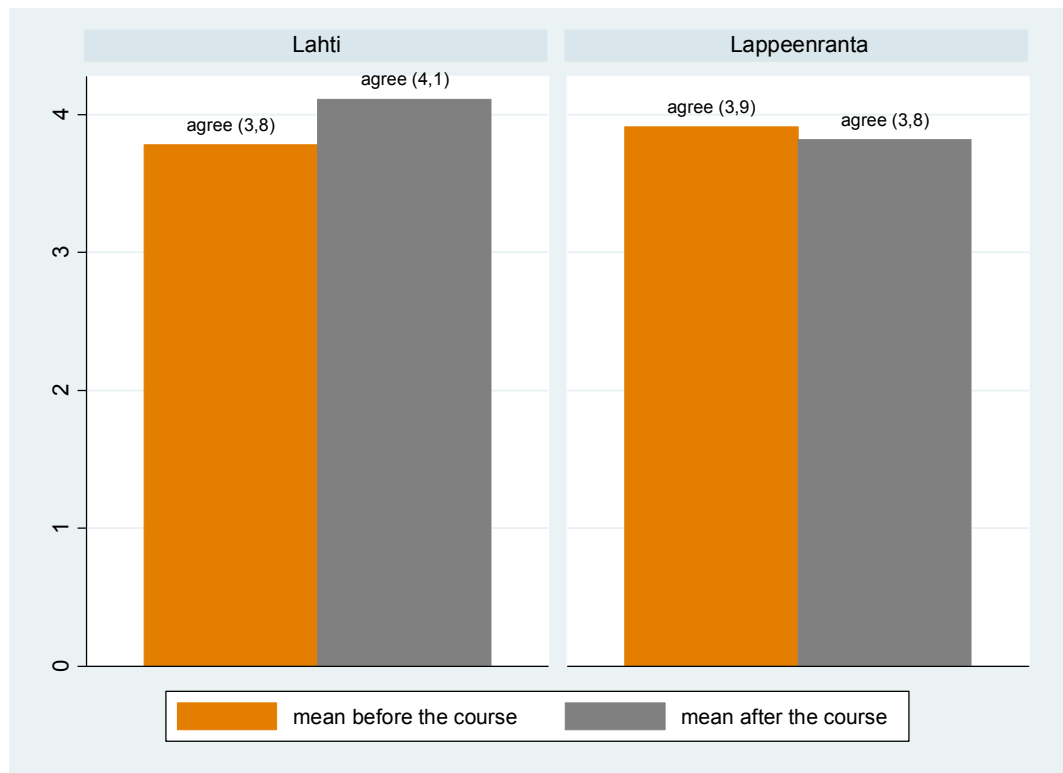
Figure 25. The participants' assessment of their ability to stick to the calcium-rich diet

As indicated in Figure 25, we can see that even though the answer option remained the same on average - the participants agreed that they could stick to a diet, which gives an adequate amount of calcium - the mean value changes varied in two areas. In Lahti the mean value increased from 3.8 to 4.1 but in Lappeenranta the mean value decreased slightly from 3.9 to 3.8.
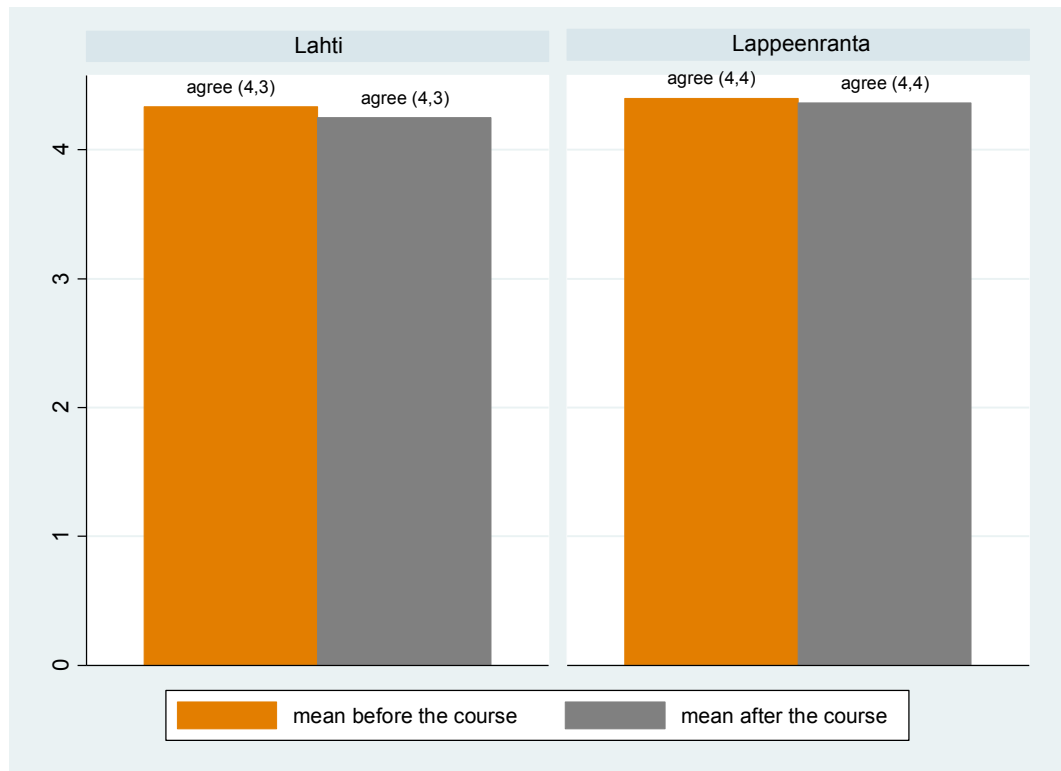
Figure 26. The participants' assessment of their ability to follow the physical activity suggestions

As seen in Figure 26, the participants' assessment of their ability to follow the physical activity suggestions that are good for person who has osteoporosis/osteopenia remained the same in both areas and the participants chose the answer option "agree" the most often. In Lahti the mean value was 4.3 and in Lappeenranta 4.4.

To sum it up we can say that the participants in Lahti and Lappeenranta were both quite confident regarding management of osteoporosis/osteopenia already before starting the course. Under all the three questions the average answer option remained the same and the participants agreed on average that they are able to: select appropriate food to increase calcium intake, stick to the diet, which gives an adequate amount of calcium and follow the physical activity suggestions that are good for person who has osteoporosis/osteopenia.

During the counselling period the self-assessed level of knowledge regarding osteoporosis/osteopenia increased in both areas (Figure 21, 22 and 23) and the confidence level of the participants changed very little as the average answer option

remained the same and the participants on average agreed with all the statements about their confidence level (Figure 24, 25 and 26). Here we cannot forget the fact that the length of course was only two months and the participants were given too much important information about their health situation.

4.7 Group counselling methodology suitability in the preventive work with osteoporosis/osteopenia

To measure the group counselling suitability in the preventive work with osteoporosis/osteopenia the participants were asked two questions before and three questions after the counselling period. Under this section the questions were not comparable, as they were different. As indicated in Table 13 (appendix 16.), the participants were asked if they feel optimistic about participating in group counselling style educative course and whether they think the group counselling method can be useful for them. The participants were very optimistic about the group counselling style educative course and its benefit for them, as they chose on average the answer option "strongly agree" (mean 4.7) under both questions before starting the counselling. In the end of the two-month counselling session the participants were asked if the group counselling style course was useful for them and there the participants also on average chose answer option "strongly agree" (mean 4.7). The participants were also asked if the group played a role in their life changes and the mean value of the answer option was 4.2 ("agree"). Trying to find out if the participants would prefer in future the educative sessions individually, the average answer was "undecided" (mean 3.4).

To summarize the results, we can say that the participants' assessment of the group counselling suitability in the preventive work with osteoporosis/osteopenia was very positive both before and after the counselling period. As there can be more people educated at the same time by same individuals, it is very important to continue the ASKO-project style educative courses with people suffering from osteoporosis/osteopenia.

DISCUSSION AND CONCLUSION

This study was conducted with 22 women who participated in Lahti and Lappeenranta ASKO course. Few changes comparing variables pre-and post-intervention proved to be statistically significant.

Many of the changes in the average variables which did not yield statistically significant results were nevertheless in the positive direction: the average consumption of milk products increased both in Lahti and Lappeenranta, the average reported vitamin D and calcium supplement intake amounts increased in both areas. The average calcium supplement intake amount increased in Lahti from 800 mg to 1000 mg and in Lappeenranta from 711.1 mg to 763.6 mg. Participants on average started to put more attention to the length of the physical activity that does not make them sweat nor their heart beat and not so much to the fact of how many days in a week they do it. Regarding muscle strengthening exercise the number of hours and days in a week such training was done on average increased in both areas as well.

Before disregarding these numbers we must consider that with such low number of participants it is difficult to get statistically significant results to begin with. The other explanation to these findings could be that it is normal for behavioural changes to occur little by little and though these changes might not be big enough and consistent enough for all people in the small group to yield statistical significance, they are still important. The course was only two months and the participants were given a lot of important information about their health situation, so perhaps there was not enough time for them to digest it all and implement all changes to the greatest possible effect. There were women in counselling who had lived with a diagnosis almost 10 years and it is not easy to make changes within two months, therefore it is important to provide help for the people as quickly as possible so they could start changing their living habits immediately. For even better quality results on the ASKO course impact same information should be gathered at follow up meetings that take place six and 12 months from the beginning of the course as well.

Also, if we look at which variables had bigger changes on average, we can see the impact of target group characteristics on the results. Regarding muscle strengthening

exercise, the average number of hours and days in a week increased in both areas, and this can be explained by the fact that probably these older women (average age of the participants was 70.7 years) were not aware of the possibilities and types of muscle strengthening exercises that are suitable to do in their age. At the same time, the not-so-radical changes in the physical activity habits can also be explained by the average age of the participants. There were no questions asked about the participants' other diseases and it is possible that there were more barriers for more active training that were not counted for.

What did, however, yield statistically significant results was participants' self-assessed level of knowledge regarding osteoporosis/osteopenia in Lappeenranta. The mean values increased under the all three questions in Lahti and Lappeenranta and the participants on average assessed their level of knowledge about the disease, how to keep the disease under control and where to find help as "fairly good" at the end of the course.

At the same time the course's impact on the participants' level of theoretical knowledge about their disease was, unfortunately, not remarkable. Here again, these not very positive changes could be explained also with the target group's average age. Perhaps for the elderly the amount of information given during the two-month course might have been too much to process at once. Probably the more practical aspects (e.g. muscle strengthening exercises) of the knowledge shared at the course were easier to acquire than the theoretical knowledge.

The participants both in Lahti and Lappeenranta were quite confident regarding management of osteoporosis/osteopenia at the beginning of the course, but the confidence level did not change during the two months. However, since the average level of confidence was already reasonable before starting the course, there is no need to worry about it. Here again, perhaps the confidence will rise in time as participants experience more their own empowerment by the new knowledge gained from the course.

The results also indicate that OSTEO-lehti - a magazine given out by Suomen Osteoporoosiliitto Ry four times a year - is very popular among the participants and 31.8% of them marked it as the second important source of information about the

disease following the Internet (36.4%). In the end of the two-month counselling session the most often mentioned information channel was doctors (31.8%) followed by Internet (27.3%) and OSTEO-lehti (22.7%) and local Osteoporosis organization (22.7%). Taking into account the average age of the participants (70.7 years), it was interesting to find out that such a big percentage of the participants found information from Internet.

Assessment of the group counselling suitability in the preventive work with osteoporosis/osteopenia was very positive before and after the counselling period. More people can be educated at the same time by the same individual. It is a good idea to continue the ASKO course style educative courses with people suffering from osteoporosis/osteopenia. It is also worth mentioning that the participation level was a remarkable 100% during the entire course, which, even considering that the group was small, speaks of the participants' positive attitude towards the course.

Interestingly some issues that were presented as risk factors in literature on osteoporosis/osteopenia were not common among participants of the ASKO course. Only two of the participants were smokers and the average BMI of the participants was 24.1, which according to the BMI categories is normal weight. Therefore it can be said that none of the participants had developed osteoporosis/osteopenia because of their low BMI, which is considered to be one risk factor for developing osteoporosis/osteopenia. Future research in Finland should also try to determine the main risk factors by analysing the past and present habits of the people suffering from osteoporosis/osteopenia in this country. The outcome could be very useful for preventing osteoporosis in Finland.

The wider aim of the ASKO course was to support and increase self-management skills of those suffering from osteoporosis/osteopenia to prevent fractures and to increase ability to look after himself/herself independently at home and looking at the results it can be said that the project's goals were met. All the health behaviour habits that did not change into positive direction can be considered when in the future planning similar educative courses.

In conclusion, the study's results suggest that even though further research (including follow-up of the participants of this study) is needed, group counselling for

individuals with osteoporosis/osteopenia seems to be a suitable way to provide patients with more theoretical and practical knowledge on how they can improve their condition.

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Etelä-Karjalan research permission application

Etelä-Karjalan sosiaali- ja terveydenhuollon kuntayhtymä Eettinen työryhmä Valto Käkelän katu 3 53130 LAPPEENRANTA	Tutkimuslupa koulutuspalveluille/ Lausuntohakemus eettiselle työryhmälle 10 / 08 2012 Päiväys

1

Ohie lomakkeen tävtos:
Klikkaa väreunassa keltaisella olevaa tekstiä: Ota muokkaus kävttöön. Tallenna lomake omiin tiedostoinisi. Lom~
tarkoitus tävttää koneel=

Opinnäytetyön/Tutkimuksen nimi:
"Osteoporoosi kuntoutujan sopeutumisvalmennus kurssin osallistujien elämäntapojen muutos ASKO-hankkeessa"

Opinnäytetyön tekijä (t) / tutkija (t): Kadri Koemets

Oppilaitos/organisaatio: Kymenlaakson Ammatikorkeakoulu

Ohjaavan opettajan nimi: Olli Lehtonen, olli.lehtonen@kyamk.fi

Opinnäytetyön/Tutkimuksen tarkoitus ja lyhyt yhteenveto tutkimussuunnitelmasta:
ASKO-hanketta "Avomuotoisen Sopeutumisvalmennustoiminnan Kehittämishanke Osteoporoosia sairastaville" hallinnoi Suomen Osteoporoosiliitto Ry vuosina 2011-2012. Hankeen päämääränä on rakentaa malli kurssille, joka olisi sopiva osteoporoosia sairastavien ihmisten kouluttamiseen sekä tarjota asiantuntijoita koulutusmateriaalinen kera; heistä tulee vuorostaan ASKO-opettaia, jotka kouluttavat osteoporoosia sairastavia ihmisiä.

Tutkimuksen päämääränä on ASKO-hankkeeseen osallistujien terveyskäyttäytymisen (liikunta, ruokavalio) muutosten analysointi, itsearvioitu osteoporoosia koskeva osaamistaso, luottamus terveystilan parantamiseen ja lopulta selvillesaaminen, miten ryhmäohjausmetodi soveltuu osteoporoosin ennaltaehkäisevään työhön.
3 vikkoa ennen ASKO-kurssin alkua Suomen Osteoporoosiliitto Ry lähettää osallitujillle ilmoituskirjeen siitä, että hanke on pian alkamassa. Samassa kirjeessä lähetetään osallistujille kysymyslomake. Kirjekuori sisältää myös ennakoon maksetun ja Suomen Osteoporoosiliitto Ry'lle osoitetun kirjekuoren, jossa on määrä palauttaa kysymyslomake.
Osallistujat pyytetään toisen kerran täyttämään kysymyslomake kurssin lopussa. Kummallakin kerralla projektipäällikkö Pauliina Tamminen antaa lomakkeille yksilöllisen koodin, joten lomakkeet ovat koodattuja ja niihin sisältyvä tieto on luottamuksellinen.

Syyskuu- Lokakuu, 2012 – Osallistujille lähetetään postitse kyselylomake.
Joulukuu, 2012 – Hanke loppuu ja osallistujat vastaavat taas lomakkeen kysymyksiin.
Huhtikuu, 2013 - Annan ensimmäisen palautteen tuloksista Suomen Osteoporoosiliitto Ry'lle.
Kesä, 2013 – Kuuden kuukauden päästä järjestetään kurssi tapaminen, joka on hyödyllinen jos osallistujilta tarvitaan lisää tietoa tutkimusta varten.
Lokakuu, 2013 – Lopetan opinnäytetyö. Annan tutkimuksen loppuraporttini myös Suomen Osteoporoosiliitto Ry'lle.

Vastaukset analysoidaan käyttämällä Statistical Package for the Social Sciences (SPSS) ja useimmista kokeista tulee Wilcoxonin allekirjoittamat tasotestit, Mann-Whitney-testit sekä Median-testit.
Tutkimuksen kysymyslomake on suomenkielinen, mutta diplomityö sekä tutkimuksen raportti tulevat olemaan englanniksi.

Kysymyslomakkeen aiheina ovat:
1. Ruokavalintotavat
2. Liikunta
3. Osteoporoosia koskeva osaamistaso
4. Osteoporoosin hallintaa koskeva luottamustaso
5. Ryhmäohjausmetodin soveltuvuus osteoporoosin ennaltaehkäisevään työhön.

Työelämän ohjaaja ja yksikkö: Pauliina Tamminen Suomen Osteoporoosiliitto Ry pauliina.tamminen@osteoporoosiliitto.fi	Työelämän ohjaajan allekirjoitus

Opinnäytetyön/Tutkimusaineiston suuruus ja kokoamistapa:
ASKO-kurssin osallistujat Lappeenrannnassa (10-20) nimetön kysymyslomake.

Opinnäytetyön/Tutkimuksen ajoitus:
Syyskuu, 2012- Lokakuu, 2013 (ks. yllä)

Haetaanko		
	☒ Tutkimuslupaa	
	☐ Eettisen työryhmän lausuntoa	
	☒ Liitteet	☒ Opinnäytetyö/Tutkimussuunnitelma ☒ Saate ☐ Suostumus ☒ Kyselylomake ☐ Haastattelurunko ☐ tai joku muu, mikä/mitkä

Opinnäytetyöntekijän/tutkimuksen tekijän yhteystiedot (postiosoite, puhelinnumero, sähköposti)
Kadri Koemets
Leikosaarentie 12 A 5, 00980 Helsinki
0445064014/ kadri.hummal@student.kyamk.fi

Opinnäytetyön/Tutkimuksen tekijän/tekijöiden allekirjoitus

KADRI KOEMETS _(signature)_   Olli Lehtonen _(signature)_

Appendix 2

Etelä-Karjalan research permission

Etelä-Karjalan sosiaali- ja terveydenhuollon kuntayhtymä
Sosiaali- ja terveyspiiri
Kehittämissuunnittelija

Viranhaltijapäätös   1

26.9.2012   Dnro 748/13.00/2012

§ 30/2012/ Tutkimuslupapäätös

Tutkimuslupa / Kadri Koemets

Päätös   Teille on myönnetty tutkimuslupa koskien tutkimustanne
                          "Osteoporoosikuntoutujan sopeutumisvalmennuskurssin osallistujien
                          elämäntapojen muutos ASKO-hankkeessa".

                          Loppuraportti tulee toimittaa sähköisenä Eksotelle, jotta se voidaan
                          mahdollisesti julkaista verkkosivuillamme.

                          Lappeenrannassa 26.9.2012

                          Minna Jokinen
                          Kehittämissuunnittelija
                          Etelä-Karjalan sosiaali- ja terveyspiiri
                          Koulutuspalvelut
                          PL 24
                          53101 Lappeenranta
                          puh. 044-7914863
                          minna.jokinen@eksote.fi

                          Tämä päätös on postitettu asianosaisille 26.9.2012

                          Hannele Lindberg
                          sihteeri

Lahden kaupunki research permission application

LAHTI

1 (3)

Lahden kaupunki
Sosiaali- ja terveystoimiala

TUTKIMUSLUPAHAKEMUS

Tutkimuksen nimi	"Osteoporoosi kuntoutujan sopeutumisvalmennus kurssin osallistujien elämäntapojen muutos ASKO-hankkeessa"		
Tutkijat (ensimmäi-seksi tutki-muksesta vastaava, jos sellainen on nimetty)	Nimi Kadri Koemets	Osoite Leikosaarentie 12 A 5, 00980 Helsinki	Puh. 044 506 4014
	Yhteyshenkilö Kadri Koemets (ks. yhteystiedot yllä) *kadri. hunnal @ student. kyamk.fi*		
Tutkimuksen luonne (opinnäyte tms., mihin tutkintoon?)	Opinnäytetyö Kadri Koemetsilta Kymenlaakson Ammatikorkeakoulu Sosiaali- ja terveysalan ylempi ammattikorkeakoulututkinto Terveyden edistäminen Neuvonantava opettaja: Olli Lehtonen/ Kymenlaakson Ammatikorkeakoulu olli.lehtonen@kyamk.fi Neuvonantaja organisaatiossa: Pauliina Tamminen/ Suomen Osteoporoosiliitto Ry/ Projektipällikkö (ASKO-hanke) pauliina.tamminen@osteoporoosiliitto.fi		
Tutkimuksen arvioitu toteutusaika	Syyskuu- Lokakuu, 2012 – Osallistujille lähetetään postitse kyselylomake. Joulukuu, 2012 – Hanke loppuu ja osallistujat vastaavat taas lomakkeen kysymyksiin. Huhtikuu, 2013 - Annan ensimmäisen palautteen tuloksista Suomen Osteoporoosiliitto Ry'lle. Kesä, 2013 – Kuuden kuukauden päästä järjestetään kurssi tapaminen, joka on hyödyllinen jos osallistujilta tarvitaan lisää tietoa tutkimusta varten. Lokakuu, 2013 – Lopetan opinäytetyö. Annan tutkimuksen loppuraporttini Suomen Osteoporoosiliitto Ry:lle ja lähetän paperilla sekä sähköisesti myös Lahden sosiaali- ja terveystoimialalle.		

LAHTI

Tutkimus-menetelmän kuvaus	3 vikkoa ennen ASKO-kurssin alkua Lahdessa Suomen Osteoporoosiliitto Ry lähettää osallitujillle ilmoituskirjeen siitä, että hanke on pian alkamassa. Samassa kirjeessä lähetetään osallistujille kysymyslomake. Kirjekuori sisältää myös ennakkoon maksetun ja Suomen Osteoporoosiliitto Ry:lle osoitetun kirjekuoren, jossa on määrä palauttaa kysymyslomake. Osallistujat pyytetään toisen kerran täyttämään kysymyslomake kurssin lopussa. Kummallakin kerralla projektipäällikkö Pauliina Tamminen antaa lomakkeille yksilöllisen koodin, joten lomakkeet ovat koodattuja ja niihin sisältyvä tieto on luottamuksellinen. Vastaukset analysoidaan käyttämällä Statistical Package for the Social Sciences (SPSS) ja useimmista kokeista tulee Wilcoxonin allekirjoittamat tasotestit, Mann-Whitney-testit sekä Median-testit. Tutkimuksen kysymyslomake on suomenkielinen, mutta diplomityö sekä tutkimuksen raportti tulevat olemaan englanniksi.
Tutkimuksen mahdollinen ulkopuolinen rahoitus	Suomen Osteoporoosiliitto Ry lähetä kyselylomakeet ja palautuskirjekuoret osallistujille. Tutkimuksen toteuttamisesta ei aiheudu muita kuluja, eikä tutkimuksella ole rahoitusta.

	Nimi	arvo/ammatti/oppilaitos/osasto/tiedekunta
Tutkimuksen ohjaajat	Olli Lehtonen	Neuvonantava opettaja Kymenlaakson Ammatikorkeakoulu
	Pauliina Tamminen	Projektipällikkö (ASKO-hanke) Suomen Osteoporoosiliitto Ry

Tutkimus-suunnitel-man lyhen-nelmä (tut-kimussuun-nitelma tulee olla liitteenä)	Tutkimuksen päämääränä on ASKO-hankkeeseen osallistujien terveyskäyttäyty-misen (liikunta, ruokavalio) muutosten analysointi, itsearvioitu osteoporoosia kos-keva osaamistaso, luottamus terveystilan parantamiseen ja lopulta selvillesaami-nen, miten ryhmäohjausmetodi soveltuu osteoporoosin ennaltaehkäisevään työ-hön. ASKO-hanketta "Avomuotoisen Sopeutumisvalmennustoiminnan Kehittämishanke Osteoporoosia sairastaville" hallinnoi Suomen Osteoporoosiliitto Ry vuosina 2011-2012. Hankeen päämääränä on rakentaa malli kurssille, joka olisi sopiva osteoporoosia sairastavien ihmisten kouluttamiseen sekä tarjota asiantuntijoita koulutusmateriaalinen kera; heistä tulee vuorostaan ASKO-opettaia, jotka kouluttavat osteoporoosia sairastavia ihmisiä.

LAHTI

	Kysymyslomakkeen aiheina ovat: 1. Ruokavalintotavat 2. Liikunta 3. Osteoporoosia koskeva osaamistaso 4. Osteoporoosin hallintaa koskeva luottamustaso 5. Ryhmäohjausmetodin soveltuvuus osteoporoosin ennaltaehkäisevään työhön.
Tutkimuksen vastaava ohjaaja	*Olli Lehtonen* --- Allekirjoitus ja nimenselvennys: Olli Lehtonen Kymenlaakson Ammattikorkeakoulu
Vastaava tutkija	*Kadri Koemets* --- Allekirjoitus ja nimenselvennys: Kadri Koemets
Tutkimusluvan lähetysosoite ja tiedustelut	Lupahakemus lähetetään osoitteella: Lahden sosiaali- ja terveystoimiala / Kirjaamo, PL 116, 15101 Lahti. Käsittelyaikataulutiedustelut: puh. (03) 818 4011 tai sähköpostitse: virasto.sotevi@lahti.fi
Tutkimuslupa on myönnetty	Päiväys ja pykälä _____._____.20__, _____ § --- Allekirjoitus ja nimenselvennys:

Lahden kaupungin sosiaali- ja terveystoimiala edellyttää, että valmistunut lopputyö toimitetaan paperiversiona osoitteeseen: Lahden sosiaali- ja terveystoimiala / Kirjaamo, PL 116, 15101 Lahti ja sähköisenä versiona osoitteeseen: virasto.sotevi@lahti.fi

Liite

☒ Tutkimussuunnitelman lyhennelmä on liitteenä.

Sote 3/2012

Lahden kaupunki research permission

LAHTI

Lahden kaupunki   **VIRANHALTIJAPÄÄTÖS**
Sosiaali- ja terveystoimiala / Vanhusten palvelut ja kuntoutus
Vanhusten palvelujen ja kuntoutuksen johtaja   04.10.2012/70 §

Asianumero	D/3746/13.00.00.00/2012
Päätöslaji	Tutkimuslupa

Otsikko   **Tutkimusluvan myöntäminen: Osteoporoosi kuntoutujan sopeutumisvalmennus kurssin osallistujien elämäntapojen muutos ASKO-hankkeessa**

Päätösperustelut   Kadri Koemets on hakenut tutkimuslupaa Osteoporoosi kuntoutujan sopeutumisvalmennus kurssin osallistujien elämäntapojen muutos ASKO-hankkeessa – opinnäytetyötä varten.

Tutkimuksen tarkoitus on ASKO-hankkeeseen osallistujien terveyskäyttäytymisen (liikunta, ruokavalio) muutosten analysointi, itsearvioitu osteoporoosia koskeva osaamistaso, luottamus terveystilan parantamiseen ja lopulta selvillesaaminen, miten ryhmäohjausmetodi soveltuu osteoporoosin ennaltaehkäisevään työhön.

Tutkimuksen arvioitu toteutusaika on syyskuu 2012 – lokakuu 2013.

Valmis opinnäytetyö toimitetaan tutkimusluvan myöntäjälle.

Päätös   Myönnän tutkimusluvan Kadri Koemetsille hakemuksensa mukaisesti.

Lisätietojen antaja   Vanhusten palvelujen ja kuntoutuksen johtaja Ismo Rautiainen, puh. 044 716 1948.

Toimivallan peruste	Sosiaali- ja terveystoimialan toimintasääntö § 11
Nähtävänäoloaika	12.10.2012
Nähtävänäolopaikka	Sosiaali- ja terveystoimialan kirjaamo, Aleksanterinkatu 24 B, 3. kerros
Muutoksenhaku	Oikaisuvaatimus
Saaja	Kadri Koemets, Leikossaarentie 12 A 5, 00980 Helsinki
Tiedoksi	Pirkko Heinonen, Iiris Salomaa
Asiakirjat	Tutkimuslupahakemus
Liitteet	

Allekirjoitus   Ismo Rautiainen
Vanhusten palvelujen ja kuntoutuksen johtaja

2 (3)

OIKAISUVAATIMUSOHJEET   **Liitetään viranhaltijan päätökseen**

Lahden kaupunki	Kunnallisasiat	
Viranomainen:	Päivämäärä:	Pykälä:
Vanhusten palvelujen ja kuntoutuksen johtaja	04.10.2012	70

Oikaisuvaatimusoikeus

Päätökseen tyytymätön voi tehdä kirjallisen oikaisuvaatimuksen.

Oikaisuvaatimuksen saa tehdä se, johon päätös on kohdistettu tai jonka oikeuteen, velvollisuuteen tai etuun päätös välittömästi vaikuttaa (asianosainen) sekä kunnan jäsen.

Muutoksenhakukielto

Oikaisuvaatimusta ei saa tehdä päätöksistä, jotka koskevat virka- tai työehtosopimuksen tulkintaa tai soveltamista (KvesL 26 §).

Oikaisuvaatimusviranomainen

Viranomainen, jolle oikaisuvaatimus tehdään ja sen yhteystiedot:

Toimielin:	**Sosiaali- ja terveyslautakunta**
Postiosoite:	**Kirjaamo, PL 116, 15101 LAHTI**
Käyntiosoite:	**Aleksanterinkatu 24 B, 3. kerros**
Puh.:	**(03) 818 11**
Faksi:	**(03) 717 3212**
Sähköpostiosoite:	**virasto.sotevi@lahti.fi**
Aukioloaika:	**8-15**

Oikaisuvaatimusaika ja sen alkaminen

Oikaisuvaatimus on tehtävä 14 päivän kuluessa päätöksen tiedoksisaannista ennen viraston aukioloajan päättymistä. Kunnan jäsenen katsotaan saaneen päätöksestä tiedon, kun pöytäkirja on asetettu yleisesti nähtäväksi. Asianosaisen katsotaan saaneen päätöksestä tiedon, jollei muuta näytetä, sähköistä tiedoksiantoa käytettäessä kolmantena päivänä viestin lähettämisestä ja muussa tapauksessa seitsemän päivän kuluttua kirjeen lähettämisestä, saantitodistuksen osoittamana aikana tai erilliseen tiedoksisaantitodistukseen merkittynä aikana. Oikaisuvaatimusaika taloudellisin ja tuotannollisin perustein tehdystä irtisanomista koskevasta päätöksestä alkaa kulua vasta irtisanomisajan päättymisestä.

Pöytäkirjan nähtäväksi asettaminen

Pvm: 12.10.2012

Kuntalain 95 §:n 1 momentin mukainen erityistiedoksianto asianosaiselle

Asianosainen: Kadri Koemets

☐ Annettu tiedoksi sähköisesti, pvm:

☒ Lähetetty tiedoksi kirjeellä, joka on annettu postin kuljettavaksi, pvm: 4.10.2012 (kuntalaki 95 §) Tiedoksiantaja: Marika Lehtinen

☐ Luovutettu asianosaiselle
Paikka ja pvm: _____
                                                  Vastaanottajan allekirjoitus
☒ Muulla tavoin, miten Tweb

Oikaisuvaatimuksen sisältö

Oikaisuvaatimuksesta on käytävä ilmi vaatimus perusteluineen sekä sen tekijä ja yhteystiedot.

Oikaisuvaatimus on toimitettava oikaisuvaatimusviranomaiselle oikaisuvaatimusajan kuluessa ennen sen viimeisen päivän virka-ajan päättymistä riippumatta tavasta, jolla se toimitetaan. Jos oikaisuvaatimusajan viimeinen päivä on pyhäpäivä, itsenäisyyspäivä, vapunpäivä, joulu- tai juhannusaatto tai arkilauantai, saa oikaisuvaatimuksen toimittaa ensimmäisenä sen jälkeisenä arkipäivänä.

Omalla vastuulla oikaisuvaatimuksen voi lähettää postitse tai lähetin välityksellä. Postiin oikaisuvaatimus on jätettävä niin ajoissa, että se ehtii perille oikaisuvaatimusajan viimeisenä päivänä ennen viraston aukioloajan päättymistä.

Questionnaire 1

Hyvä ASKO-kurssin osallistuja,

Nimeni on Kadri Koemets ja suoritan ylempää korkeakoulututkintoa Kymenlaakson ammattikorkeakoulussa. Opinnäytetyössäni tutkin ASKO-sopeutumisvalmennuskurssille osallistuvien henkilöiden elämäntapamuutoksia. Tutkimus suoritetaan kysymyskaavakkeella, johon toivoisin sinun vastaavan. Ohessa mukana olevan kaavakkeen täyttäminen vie noin 10 minuuttia. Osallistumalla autat kehittämään osteoporoosi- ja osteopeniakuntoutujien sopeutumisvalmennusta.

Kysymyskaavake käsitellään luottamuksellisesti, eikä henkilötietojasi tulla käyttämään missään vaiheessa tutkimusta. Pyydän, ettet kirjoittaisi nimeäsi mihinkään kohtaan kysymyskaavaketta. Tutkimuksen tulokset käsitellään tilastollisin menetelmin ja raportoidaan opinnäytetyön loppuraportissa.

Olkaa hyvä ja palauttakaa täytetty kysymyskaavake ensimmäisellä tapaamiskerralla Suomen Osteoporoosiliiton edustajalle Pauliina Tammiselle.

Jos sinulla on lisäkysymyksiä, älä epäröi ottaa yhteyttä minuun. Yhteystietoni ovat:
Kadri Koemets
044 506 4014
kadri.koemets@student.kyamk.fi

Suuri kiitos vaivannäöstäsi!

Ystävällisin terveisin,
Kadri Koemets

VASTAUSOHJE: Lue jokainen kysymys huolellisesti ja ympyröi tai täytä mielipidettäsi lähinnä oleva vastausvaihtoehto.

OSA 1. Taustatiedot

Ikä _____

Sukupuoli   1. Mies   2. Nainen

Pituus _____ cm   Paino _____ kg

Minulla on diagnosoitu   1. Osteoporoosi   2. Osteopenia

Lääkäri on todennut osteoporoosini/osteopeniani _____ (kuukausi/ vuosi)

Minulle on määrätty lääkitys osteoporoosin/osteopenian hoitoon?   KYLLÄ   EI

Onko kenelläkään perheenjäsenelläsi todettu osteoporoosi/osteopenia?   KYLLÄ   EI
Jos KYLLÄ, kenellä/keillä _____

Miten sait tiedon tästä ASKO-kurssista? _____

OSA 2. Ruokailutottumukset

Mielestäni omat ruokailutottumukseni ovat
1. Huonot   2. Melko huonot   3. Keskinkertaiset   4. Melko hyvät   5. Erittäin hyvät

Olen muuttanut ruokailutottumuksiani osteoporoosin/osteopenian vuoksi.
1. Täysin eri mieltä
2. Jokseenkin eri mieltä
3. En tiedä
4. Jokseenkin samaa mieltä
5. Täysin samaa mieltä

Kuinka monta lasillista maitoa juot <u>keskimäärin viikossa/päivässä</u>?

1. En yhtään

2. 1-6 lasia viikossa

3. 1 lasin päivässä

4. 2 lasia päivässä

5. 3 tai enemmän kuin 3 lasia päivässä

Kuinka monta viipaletta juustoa syöt <u>keskimäärin viikossa/päivässä</u>?

1. En yhtään

2. 1-6 viipaletta viikossa

3. 1 viipale päivässä

4. 2 viipaletta päivässä

5. 3 tai enemmän kuin 3 viipaleita päivässä

Kuinka usein juot alkoholipitoisia juomia?

1. En koskaan

2. Kerran kuukaudessa tai vähemmän

3. 2-4 kertaa kuukaudessa

4. 2-4 kertaa viikossa

5. 4 tai useammin viikossa

Kuinka monta annosta* alkoholia juot silloin kun juot alkoholipitoisia juomia?

1. 1 tai 2 annosta

2. 3 tai 4 annosta

3. 5 tai 6 annosta

4. 7 tai 9 annosta

5. 10 tai enemmän annosta

* *pullo (33cl) kolmosolutta tai siideriä = 1 annos*

lasillinen (12cl) puna- tai valkoviiniä tai (8cl) vahvempaa viiniä= 1 annos

(4cl) väkeviä= 1 annos

Juon kahvia.	KYLLÄ	EN

Jos KYLLÄ, kuinka monta kuppia päivässä keskimäärin _____

Tupakoin.	KYLLÄ	EN

Jos KYLLÄ, kuinka monta savuketta päivässä keskimäärin _____

Otan D-vitamiinia päivittäin.	KYLLÄ	EN
Jos KYLLÄ, päivittäinen D-vitamiiniannos on	_____ μg	EN TIEDÄ

Otan kalsiumia päivittäin.	KYLLÄ	EN
Jos KYLLÄ, päivittäinen kalsiumin annos on	_____ mg	EN TIEDÄ

OSA 3. Fyysinen aktiivisuus

Kuinka paljon kaikkiaan liikutte viikoittain? Ajatelkaa viimeksi kulunutta vuotta (12 kk). Ottakaa huomioon sellainen säännöllisesti viikoittain toistuva fyysinen rasitus, joka kestää vähintään 10 minuuttia kerrallaan. Ympäröikää kaikki tilannettanne vastaavat vaihtoehdot kohdista 2–6, ja merkitkää viivoille kuinka paljon kyseistä liikuntaa harrastatte (päiviä viikossa, tunteja ja minuutteja yhteensä viikossa). Jos ette juuri ollenkaan liiku säännöllisesti viikoittain, valitkaa vaihtoehto 1 ja jättäkää muut kohdat täyttämättä.

1. ei juuri mitään säännöllistä liikuntaa joka viikko

2. verkkaista ja rauhallista kestävyysliikuntaa (= ei hikoilua tai hengityksen kiihtymistä, esim. rauhallinen kävely):   __ päivänä viikossa, yhteensä __ tuntia __ minuuttia viikossa

3. ripeää ja reipasta kestävyysliikuntaa (= jonkin verran hikoilua ja/tai hengityksen kiihtymistä, esim. reipas kävely)   __ päivänä viikossa, yhteensä __ tuntia __ minuuttia viikossa

4. voimaperäistä ja rasittavaa kestävyysliikuntaa (= voimakasta hikoilua ja/tai hengityksen kiihtymistä, esim. hölkkä tai juoksu)
      __ päivänä viikossa, yhteensä __ tuntia __ minuuttia viikossa

5. lihaskuntoharjoittelua (= esim. kuntopiiri tai kuntosaliharjoittelu, jossa eri lihasryhmiin vaikuttavia liikkeitä tehdään vähintään 8–12 kertaa)

__ päivänä viikossa, yhteensä __ tuntia __ minuuttia viikossa

6. tasapainoharjoittelua (= esim. tai chi, tanssi, liikuntapelit, tasapainoharjoitukset esimerkiksi yhdellä jalalla, epätasaisella alustalla tai konttausasennossa)

__ päivänä viikossa, yhteensä __ tuntia __ minuuttia viikossa

Mielestäni fyysinen aktiivisuuteni on

1. Huono   2. Melko huono   3. Keskiverto   4. Melko hyvä   5. Erittäin hyvä

OSA 4. Tietotaso osteoporoosista/osteopeniasta

Tietämykseni osteoporoosista/osteopeniasta on

1. Huono   2. Melko huono   3. Keskiverto   4. Melko hyvä   5. Erittäin hyvä

Tietämykseni osteoporoosin/osteopenian hallinnasta on

1. Huono   2. Melko huono   3. Keskiverto   4. Melko hyvä   5. Erittäin hyvä

Tietämykseni mistä löydän tietoa osteoporoosista/osteopeniasta ja siiten hoidosta on

1. Huono   2. Melko huono   3. Keskiverto   4. Melko hyvä   5. Erittäin hyvä

Mistä löydät tietoa osteoporoosista/osteopeniasta ja siiten hoidosta? _____
_____

Fyysinen aktiivisuus vahvistaa luita.   1. Totta   2. Tarua   3. En tiedä

Tupakointi voi edistää osteoporoosin/osteopenian syntyä.   1. Totta   2. Tarua   3. En tiedä

Osteoporoosi/osteopenia on yleisempää miehillä kuin naisilla. 1. Totta   2. Tarua   3. En tiedä

Alkoholin käyttö vaikuttaa osteoporoosiin/osteopeniaan.   1. Totta   2. Tarua   3. En tiedä

Jos vanhemmallani tai sisaruksellani on osteoporoosi/osteopenia, minulla on korkeampi riski saada osteoporoosi/osteopenia. 1. Totta 2. Tarua 3. En tiedä

OSA 5. Osteoporoosin/osteopenian hallintaan liittyvä luottamus

Osaan valita oikeat ruoat kalsiumin saantini lisäämiseksi.

1. Täysin eri mieltä

2. Jokseenkin eri mieltä

3. Ei samaa eikä eri mieltä

4. Jokseenkin samaa mieltä

5. Täysin samaa mieltä

Pystyn noudattamaan ruokavaliota, josta saan tarvittavan määrän kalsiumia.

1. Täysin eri mieltä

2. Jokseenkin eri mieltä

3. Ei samaa eikä eri mieltä

4. Jokseenkin samaa mieltä

5. Täysin samaa mieltä

Pysyn harrastamaan liikuntaa osteoporoosi- ja osteopeniakuntoutujille annettujen suositusten mukaisesti.

1. Täysin eri mieltä

2. Jokseenkin eri mieltä

3. Ei samaa eikä eri mieltä

4. Jokseenkin samaa mieltä

5. Täysin samaa mieltä

OSA 6. Ryhmämuotoinen osteoporoosin/osteopenian sopeutumisvalmennuskurssi

Olen optimistinen osallistuessani ASKO- kurssille.

1. Täysin eri mieltä

2. Jokseenkin eri mieltä

3. Ei samaa eikä eri mieltä

4. Jokseenkin samaa mieltä

5. Täysin samaa mieltä

ASKO- kurssi ryhmämuotoisena on hyödyllinen minulle.

1. Täysin eri mieltä

2. Jokseenkin eri mieltä

3. Ei samaa eikä eri mieltä

4. Jokseenkin samaa mieltä

5. Täysin samaa mieltä

Kiitoksia vastauksistasi!

Questionnaire 2

Hyvä ASKO-kurssin osallistuja,

Nimeni on Kadri Koemets ja suoritan ylempää korkeakoulututkintoa Kymenlaakson ammattikorkeakoulussa. Opinnäytetyössäni tutkin ASKO-sopeutumisvalmennuskurssille osallistuvien henkilöiden elämäntapamuutoksia. Olet osallistunut tutkimukseeni ASKO-kurssin ensimmäisellä tapaamisella ja haluaisin pyytää sinua täyttämään myös oheisen kysymyskaavakkeen. Kaavakkeen täyttäminen vie noin 10 minuuttia. Osallistumalla autat kehittämään osteoporoosi- ja osteopeniakuntoutujien sopeutumisvalmennusta.

Kysymyskaavake käsitellään luottamuksellisesti, eikä henkilötietojasi tulla käyttämään missään vaiheessa tutkimusta. Pyydän, ettet kirjoittaisi nimeäsi mihinkään kohtaan kysymyskaavaketta. Tutkimuksen tulokset käsitellään tilastollisin menetelmin ja raportoidaan opinnäytetyön loppuraportissa.

Olkaa hyvä ja palauttakaa täytetty kysymyskaavake kurssin kuudennella tapaamisella Suomen Osteoporoosiliiton edustajalle Pauliina Tammiselle.

Jos sinulla on lisäkysymyksiä, älä epäröi ottaa yhteyttä minuun. Yhteystietoni ovat:
Kadri Koemets
044 506 4014
kadri.koemets@student.kyamk.fi

Suuri kiitos vaivannäöstäsi!

Ystävällisin terveisin,
Kadri Koemets

VASTAUSOHJE: Lue jokainen kysymys huolellisesti ja ympyröi tai täytä mielipidettäsi lähinnä oleva vastausvaihtoehto.

OSA 1. Ruokailutottumukset

Mielestäni omat ruokailutottumukseni ovat

1. Huonot   2. Melko huonot   3. Keskinkertaiset   4. Melko hyvät   5. Erittäin hyvät

Olen muuttanut ruokailutottumuksiani osteoporoosin/osteopenian vuoksi.

1. Täysin eri mieltä

2. Jokseenkin eri mieltä

3. En tiedä

4. Jokseenkin samaa mieltä

5. Täysin samaa mieltä

Kuinka monta lasillista maitoa juot <u>keskimäärin viikossa/päivässä</u>?

1. En yhtään

2. 1-6 lasia viikossa

3. 1 lasin päivässä

4. 2 lasia päivässä

5. 3 tai enemmän kuin 3 lasia päivässä

Kuinka monta viipaletta juustoa syöt <u>keskimäärin viikossa/päivässä</u>?

1. En yhtään

2. 1-6 viipaletta viikossa

3. 1 viipale päivässä

4. 2 viipaletta päivässä

5. 3 tai enemmän kuin 3 viipaleita päivässä

Kuinka usein juot alkoholipitoisia juomia?

1. En koskaan

2. Kerran kuukaudessa tai vähemmän

3. 2-4 kertaa kuukaudessa

4. 2-4 kertaa viikossa

5. 4 tai useammin viikossa

Kuinka monta annosta* alkoholia juot silloin kun juot alkoholipitoisia juomia?

1. 1 tai 2 annosta

2. 3 tai 4 annosta

3. 5 tai 6 annosta

4. 7 tai 9 annosta

5. 10 tai enemmän annosta

* *pullo (33cl) kolmosolutta tai siideriä = 1 annos*

  lasillinen (12cl) puna- tai valkoviiniä tai (8cl) vahvempaa viiniä= 1 annos

  (4cl) väkeviä= 1 annos

Juon kahvia.	KYLLÄ	EN
Jos KYLLÄ, kuinka monta kuppia päivässä keskimäärin _____		

Tupakoin.	KYLLÄ	EN
Jos KYLLÄ, kuinka monta savuketta päivässä keskimäärin _____		

Otan D-vitamiinia päivittäin.	KYLLÄ	EN
Jos KYLLÄ, päivittäinen D-vitamiiniannos on	_____ μg	EN TIEDÄ

Otan kalsiumia päivittäin.	KYLLÄ	EN
Jos KYLLÄ, päivittäinen kalsiumin annos on	_____ mg	EN TIEDÄ

OSA 2. Fyysinen aktiivisuus

Kuinka paljon kaikkiaan liikutte viikoittain? Ajatelkaa viimeksi kulunutta vuotta (12 kk). Ottakaa huomioon sellainen säännöllisesti viikoittain toistuva fyysinen rasitus, joka kestää vähintään 10 minuuttia kerrallaan. Ympäröikää <u>kaikki</u> tilannettanne vastaavat vaihtoehdot kohdista 2–6, ja merkitkää viivoille kuinka paljon kyseistä liikuntaa harrastatte (päiviä viikossa, tunteja ja minuutteja yhteensä viikossa). Jos ette juuri ollenkaan liiku säännöllisesti viikoittain, valitkaa vaihtoehto 1 ja jättäkää muut kohdat täyttämättä.

1. ei juuri mitään säännöllistä liikuntaa joka viikko

2. verkkaista ja rauhallista kestävyysliikuntaa (= ei hikoilua tai hengityksen kiihtymistä, esim. rauhallinen kävely): __ päivänä viikossa, yhteensä __ tuntia __ minuuttia viikossa

3. ripeää ja reipasta kestävyysliikuntaa (= jonkin verran hikoilua ja/tai hengityksen kiihtymistä, esim. reipas kävely) __ päivänä viikossa, yhteensä __ tuntia __ minuuttia viikossa

4. voimaperäistä ja rasittavaa kestävyysliikuntaa (= voimakasta hikoilua ja/tai hengityksen kiihtymistä, esim. hölkkä tai juoksu)
__ päivänä viikossa, yhteensä __ tuntia __ minuuttia viikossa

5. lihaskuntoharjoittelua (= esim. kuntopiiri tai kuntosaliharjoittelu, jossa eri lihasryhmiin vaikuttavia liikkeitä tehdään vähintään 8–12 kertaa)
__ päivänä viikossa, yhteensä __ tuntia __ minuuttia viikossa

6. tasapainoharjoittelua (= esim. tai chi, tanssi, liikuntapelit, tasapainoharjoitukset esimerkiksi yhdellä jalalla, epätasaisella alustalla tai konttausasennossa)
__ päivänä viikossa, yhteensä __ tuntia __ minuuttia viikossa

Mielestäni fyysinen aktiivisuuteni on
1. Huono   2. Melko huono   3. Keskiverto   4. Melko hyvä   5. Erittäin hyvä

OSA 3. Tietotaso osteoporoosista/osteopeniasta

Tietämykseni osteoporoosista/osteopeniasta on

1. Huono   2. Melko huono   3. Keskiverto   4. Melko hyvä   5. Erittäin hyvä

Tietämykseni osteoporoosin/osteopenian hallinnasta on

1. Huono   2. Melko huono   3. Keskiverto   4. Melko hyvä   5. Erittäin hyvä

Tietämykseni mistä löydän tietoa osteoporoosista/osteopeniasta ja siiten hoidosta on

1. Huono   2. Melko huono   3. Keskiverto   4. Melko hyvä   5. Erittäin hyvä

Mistä löydät tietoa osteoporoosista/osteopeniasta ja siiten hoidosta? _____

_____

Fyysinen aktiivisuus vahvistaa luita.	1. Totta	2. Tarua	3. En tiedä
Tupakointi voi edistää osteoporoosin/osteopenian syntyä.	1. Totta	2. Tarua	3. En tiedä
Osteoporoosi/osteopenia on yleisempää miehillä kuin naisilla.	1. Totta	2. Tarua	3. En tiedä
Alkoholin käyttö vaikuttaa osteoporoosiin/osteopeniaan.	1. Totta	2. Tarua	3. En tiedä

Jos vanhemmallani tai sisaruksellani on osteoporoosi/osteopenia, minulla on korkeampi riski saada osteoporoosi/osteopenia.   1. Totta   2. Tarua   3. En tiedä

OSA 4. Osteoporoosin/osteopenian hallintaan liittyvä luottamus

Osaan valita oikeat ruoat kalsiumin saantini lisäämiseksi.

1. Täysin eri mieltä

2. Jokseenkin eri mieltä

3. Ei samaa eikä eri mieltä

4. Jokseenkin samaa mieltä

5. Täysin samaa mieltä

Pystyn noudattamaan ruokavaliota, josta saan tarvittavan määrän kalsiumia.

1. Täysin eri mieltä

2. Jokseenkin eri mieltä

3. Ei samaa eikä eri mieltä

4. Jokseenkin samaa mieltä

5. Täysin samaa mieltä

Pysyn harrastamaan liikuntaa osteoporoosi- ja osteopeniakuntoutujille annettujen suositusten mukaisesti.

1. Täysin eri mieltä

2. Jokseenkin eri mieltä

3. Ei samaa eikä eri mieltä

4. Jokseenkin samaa mieltä

5. Täysin samaa mieltä

OSA 5. Ryhmämuotoinen osteoporoosin/osteopenian sopeutumisvalmennuskurssi

Mielestäni ASKO- kurssin ryhmänohjausmenetelmä oli höydyllinen minulle.

1. Täysin eri mieltä

2. Jokseenkin eri mieltä

3. Ei samaa eikä eri mieltä

4. Jokseenkin samaa mieltä

5. Täysin samaa mieltä

Ryhmän tuella oli suuri vaikutus elämäntapojeni muutoksessa.

1. Täysin eri mieltä

2. Jokseenkin eri mieltä

3. Ei samaa eikä eri mieltä

4. Jokseenkin samaa mieltä

5. Täysin samaa mieltä

Osallistuisin mieluummin osteoporoosin/osteopenian sopeutumisvalmennuskurssille, jossa käytettään yksilöohjausta.

1. Täysin eri mieltä

2. Jokseenkin eri mieltä

3. Ei samaa eikä eri mieltä

4. Jokseenkin samaa mieltä

5. Täysin samaa mieltä

Kiitoksia vastauksistasi!

Information about coded questionnaires from ASKO project coordinator

	LAHTI 2	**1.tapaaminen**	**6.tapaaminen**	**KOODI**
1		X	X	001
2		X	X	002
3		X	X	003
4		X	X	004
5		X	X	005
6		X	X	006
7		X	X	007
8		Palautettuun lomakkeeseen täytetty vain henkilötiedot	X	008
9		X	X	009
10		X	X	010

1. tapaaminen: 006 palautettu 16.11. ja muut 19.10.2012

6. tapaaminen: kaikki palautettu 5.12.2012

	LAPPEENRANTA 1	**1.tapaaminen**	**6.tapaaminen**	**KOODI**
1		X	X	011
2		X	X	012
3		X	X	013
4		Palautettu tyhjänä	X	014
5		X	X	015
6		X	X	016
7		X	X	017
8		X	X	018
9		X	X	019
10		X	X	020
11		X	X	021
12		X	X	022

1. tapaaminen: kaikki palautettu 8.11.2012

6. tapaaminen: kaikki palautettu 17.1.2013

Numbered questionnaire in English language used for statistical analyze

SECTION 1 (Background information)

1. Age _____

2. Gender   1. Male   2. Female

3. Height _____ cm

4. Weight _____ kg

5. Calculated Body Mass Index

6. I have been diagnosed   1. osteoporosis   2. osteopenia

7. / 8. I was diagnosed osteoporosis/osteopenia by doctor _____ (month/ year),
Used: year/how many years

9. I have been prescribed medicine against osteoporosis/osteopenia   YES NO

10. Has anyone in your family ever been diagnosed osteoporosis/osteopenia?   YES NO

11. If YES, please state relation to you _____

12. How did I come to this group? _____

SECTION 2 (Dietary habits)

13. My eating habits are
1. Poor   2. Fairly poor   3. Average   4. Fairly good   5. Very good

14. I modify my dietary habits because of osteoporosis/osteopenia.
1. Strongly disagree   2. Disagree   3. Undecided   4. Agree   5. Strongly agree

15. How many glasses of milk do you have during on average week?

1. None per week

2. 1-6 per week

3. 1 glass per day

4. 2 glasses per day

5. 3 or more than 3 per day

16. How many slices of cheese do you have during on average week?

1. None per week

2. 1-6 per week

3. 1 slices per day

4. 2 slices per day

5. 3 or more than 3 slices per day

17. How often do you have a drink that contains alcohol?

1. Never

2. Monthly or less

3. 2-4 times per month

4. 2-4 times per week

5. 4 or more times per week

18. How many units* of alcohol do you drink on a typical day when you are drinking?

1. 1 or 2

2. 3 or 4

3. 5 or 6

4. 7 to 9

5. 10 or more

*bottle (33cl) of ordinary strength beer or cider= 1 unit

glass (12cl) of light wine or glass (8cl) of stronger wine= 1 unit

(4cl) of single measure of spirit= 1 unit

19. I drink coffee   YES   NO

20. If YES, how many cups of coffee during one day _____

21. I smoke cigarettes   YES   NO

22. If YES, how many cigarettes during one day _____

23. I take vitamin D supplement daily.   YES   NO

24. If YES, what is the daily amount _____

25. I take calcium daily.   YES   NO

26. If YES, what is the daily amount _____

SECTION 3 (Physical activity)

Circle the answer option that suits you the best:

I don't do any physical activity (not inside the coded data file, as no one answered it)

27/28. I do physical activity that does not make me sweat/ heart beat   DAYS/HOURS
_____ days in a week, all together __ h___ min in a week

29/30. I do physical activity that makes my heart beat and sweat a little   DAYS/HOURS
_____ days in a week, all together __ h___ min in a week

31/32 I do physical activity that makes my heart beat and sweat a lot   DAYS/HOURS
_____ days in a week, all together __ h___ min in a week

33/34. I do muscle strengthening exercises   DAYS/HOURS
_____ days in a week, all together __ h___ min in a week

35/36. I do balance training exercises   DAYS/HOURS

_____ days in a week, all together __ h___ min in a week

37. My physical activity level is

1. Poor   2. Fairly poor   3. Average   4. Fairly good   5. Very good

SECTION 4 (Self-assessed level of knowledge regarding osteoporosis/osteopenia)

38. My knowledge about osteoporosis/osteopenia disease is

1. Poor   2. Fairly poor   3. Average   4. Fairly good   5. Very good

39. My knowledge about how to keep osteoporosis/osteopenia disease under control is

1. Poor   2. Fairly poor   3. Average   4. Fairly good   5. Very good

40. My level of knowledge about where to find more information about osteoporosis/osteopenia

disease and treatment methods if needed is

1. Poor   2. Fairly poor   3. Average   4. Fairly good   5. Very good

41. Where do you get the knowledge? _____

42. Physical activity increases bone strength.   1. True 2. False 3. Don't know

43. Cigarette smoking can promote osteoporosis/osteopenia.   1. True 2. False 3. Don't know

44. Osteoporosis/osteopenia is more common in men   1. True 2. False 3. Don't know

45. Alcohol consumption has effect on osteoporosis/osteopenia.   1. True 2. False 3. Don't know

46. Having a parent or sibling with osteoporosis/osteopenia is a risk factor for developing

osteoporosis/osteopenia.   1. True 2. False 3. Don't know

SECTION 5 (Self-assessed level of confidence regarding management of osteoporosis/

osteopenia)

47. I am able to select appropriate foods to increase my calcium intake.

1. Strongly disagree   2. Disagree   3. Undecided   4. Agree   5. Strongly agree

48. I am able to stick to a diet, which gives an adequate amount of calcium.

1. Strongly disagree   2. Disagree   3. Undecided   4. Agree   5. Strongly agree

49. I am able to follow the physical activity suggestions that are good for person who has osteoporosis/osteopenia.

1. Strongly disagree   2. Disagree   3. Undecided   4. Agree   5. Strongly agree

SECTION 6 (Group counselling suitability in preventive work with osteoporosis/osteopenia)

50. I feel optimistic about participating in group counselling style educative course.

1. Strongly disagree   2. Disagree   3. Undecided   4. Agree   5. Strongly agree

51. Group counselling method can be useful for me in ASKO course.

1. Strongly disagree   2. Disagree   3. Undecided   4. Agree   5. Strongly agree

SECTION 6 in the second questionnaire (Group counselling suitability in preventive work with osteoporosis/osteopenia)

52. Group counselling method was useful for me in ASKO course.

1. Strongly disagree   2. Disagree   3. Undecided   4. Agree   5. Strongly agree

53. The group played a role in my life changes.

1. Strongly disagree   2. Disagree   3. Undecided   4. Agree   5. Strongly agree

54. I prefer to have educative sessions about osteoporosis/osteopenia individually.

1. Strongly disagree   2. Disagree   3. Undecided   4. Agree   5. Strongly agree

55. Is the participant from Lahti or Lappeenranta group?

1. Lahti   2. Lappeenranta

Table 5. The participants' assessment of their eating habits before and after the course in Lahti

Q nr	Lahti	Timing	Obs	Mean	Std. Dev	95% CI		p-value
13	My eating habits are	before	9	3.7	0.7	3.1	4.2	
		after	10	3.5	0.7	3.0	4.0	
		combined	19	3.6	0.7	3.2	3.9	0.69
14	I modify my dietary habits habits because of osteoporosis/ Osteopenia	before	9	3.3	1.1	2.5	4.2	
		after	10	3.5	1.0	2.8	4.2	
		combined	19	3.4	1.0	2.9	3.9	0.37
15	How many glasses of milk do you have during on an average week?	before	9	2.1	1.5	0.9	3.3	
		after	10	2.7	1.6	1.6	3.8	
		combined	19	2.4	1.5	1.7	3.2	0.21
16	How many slices of cheese do you have during on an average week?	before	9	3.7	1.1	2.8	4.5	
		after	10	3.8	1.3	2.9	4.7	
		combined	19	3.7	1.2	3.2	4.3	0.41
17	How often do you have a drink that contains alcohol?	before	9	2.2	0.7	1.7	2.7	
		after	10	2.2	0.6	1.7	2.7	
		combined	19	2.2	0.6	1.9	2.5	0.53
18	How many units of alcohol do you drink on a typical day when you are drinking?	before	8	1.1	0.4	0.8	1.4	
		after	10	1.3	0.7	0.8	1.8	
		combined	18	1.2	0.5	0.9	1.5	0.26
19	I drink coffee	before	9	0.8	0.4	0.4	1.1	
		after	10	0.7	0.5	0.4	1.0	
		combined	19	0.7	0.5	0.5	1.0	0.64
20	If YES, how many cups of coffee during one day	before	7	3.3	1.1	2.3	4.3	
		after	7	3.1	1.2	2.0	4.3	
		combined	14	3.2	1.1	2.6	3.9	0.59
21	I smoke cigarettes	before	9	0.2	0.4	-0.1	0.6	
		after	10	0.2	0.4	-0.1	0.5	
		combined	19	0.2	0.4	0.01	0.4	0.54
22	If YES, how many cigarettes during one day	before	2	7.5	3.5	-24.3	39.3	
		after	2	8.5	4.9	-36.0	53.0	
		combined	4	8.0	3.6	2.3	13.7	0.42
23	I take vitamin D supplement Daily	before	9	1	0	1	1	
		after	10	1	0	1	1	
		combined	19	1	0	1	1	
24	What is the daily amount of vitamin D supplement?	before	8	31.3	12.5	20.8	41.7	
		after	7	35.7	13.7	23.1	48.4	
		combined	15	33.3	12.8	26.3	40.4	0.25
25	I take calcium supplement daily	before	9	1	0	1	1	
		after	10	0.9	0.3	0.7	1.1	
		combined	19	0.9	0.2	0.8	1.1	0.82
26	What is the daily amount of calcium supplement?	before	5	800	273.9	460.0	1140.0	
		after	5	1000	0	1000	1000	
		combined	10	900	210.8	749.2	1050.8	0.07

Table 6. The participants' assessment of their eating habits before and after the course in

Lappeenranta

Q nr	Lappeenranta	Timing	Obs	Mean	Std. Dev	95% CI		p-value
13	My eating habits are	before	11	3.5	0.7	3.1	4.0	
		after	12	3.7	0.7	3.3	4.1	
		combined	23	3.6	0.7	3.3	3.9	0.33
14	I modify my dietary habits because of osteoporosis/ Osteopenia	before	11	3.7	0.5	3.4	4.0	
		after	12	3.3	1.3	2.5	4.2	
		combined	23	3.5	1.0	3.1	4.0	0.82
15	How many glasses of milk do you have during on an average week?	before	11	3.0	1.6	1.9	4.1	
		after	12	3.4	1.4	2.5	4.3	
		combined	23	3.2	1.5	2.6	3.9	0.26
16	How many slices of cheese do you have during on an average week?	before	11	3.5	1.3	2.7	4.4	
		after	12	4.1	0.7	3.7	4.5	
		combined	23	3.8	1.0	3.4	4.3	0.11
17	How often do you have a drink that contains alcohol?	before	11	2	0.8	1.5	2.5	
		after	12	2.3	1.0	1.6	2.9	
		combined	23	2.1	0.9	1.8	2.5	0.25
18	How many units of alcohol do you drink on a typical day when you are drinking?	before	8	1.1	0.4	0.8	1.4	
		after	9	1.1	0.3	0.9	1.4	
		combined	17	1.1	0.3	0.9	1.3	0.53
19	I drink coffee	before	11	1	0	1	1	
		after	12	1	0	1	1	
		combined	23	1	0	1	1	
20	If YES, how many cups of coffee during one day	before	10	3.2	0.9	2.5	3.9	
		after	12	3.5	0.7	3.1	3.9	
		combined	22	3.4	0.8	3.0	3.7	0.19
21	I smoke cigarettes	before	10	0	0	0	0	
		after	11	0	0	0	0	
		combined	21	0	0	0	0	
22	If YES, how many cigarettes during one day	before						
		after						
		combined						
23	I take vitamin D supplement Daily	before	11	1	0	1	1	
		after	12	1	0	1	1	
		combined	23	1	0	1	1	
24	What is the daily amount of vitamin D supplement?	before	10	19.0	9.9	11.9	26.1	
		after	12	24.2	15.6	14.2	34.1	
		combined	22	21.8	13.3	15.9	27.7	0.19
25	I take calcium supplement daily	before	9	1	0	1	1	
		after	12	0.9	0.3	0.7	1.1	
		combined	21	1.0	0.2	0.9	1.1	0.80
26	What is the daily amount of calcium supplement?	before	9	711.1	275.9	499.0	923.2	
		after	11	763.6	273.0	580.2	947.1	
		combined	20	740.0	268.3	614.4	865.6	0.34

Table 7. The change of the physical activity habits while participating in Lahti ASKO course

Q nr	Lahti	Timing	Obs	Mean	Std. Dev	95% CI		p-value
27	Physical activity that does not make sweat/ heart beat DAYS	before	6	4.3	2.3	1.9	6.8	
		after	5	3	0.7	2.1	3.9	
		combined	11	3.7	1.8	2.5	5.0	0.87
28	Physical activity that does not make sweat/ heart beat HOURS	before	5	3.1	1.8	0.8	5.3	
		after	5	8.8	12.7	-7.0	24.6	
		combined	10	5.9	9.1	-0.6	12.4	0.17
29	Physical activity that makes heart beat/ sweat a little DAYS	before	8	4.4	2.7	2.1	6.7	
		after	8	3.9	1.9	2.3	5.5	
		combined	16	4.1	2.3	2.9	5.3	0.66
30	Physical activity that makes heart beat/ sweat a little HOURS	before	8	3.3	2.3	1.4	5.3	
		after	7	3.1	1.8	1.5	4.8	
		combined	15	3.2	2.0	2.1	4.3	0.57
31	Physical activity that makes heart beat/ sweat a lot DAYS	before	2	4	4.2	-34.1	42.1	
		after	4	2.8	1.7	0.03	5.5	
		combined	6	3.2	2.4	0.6	5.7	0.70
32	Physical activity that makes heart beat/ sweat a lot HOURS	before	2	4.3	3.9	-30.7	39.2	
		after	4	1.9	1.0	0.2	3.5	
		combined	6	2.7	2.3	0.3	5.1	0.87
33	Muscle strengthening exercises DAYS	before	5	1.2	0.4	0.6	1.8	
		after	6	1.5	0.8	0.6	2.4	
		combined	11	1.4	0.7	0.9	1.8	0.25
34	Muscle strengthening exercises HOURS	before	5	1.3	0.4	0.7	1.9	
		after	6	1.6	1.0	0.6	2.6	
		combined	11	1.5	0.8	1.0	2.0	0.26
35	Balance training exercises DAYS	before	3	4.7	2.5	-1.6	10.9	
		after	5	4	2.3	1.1	6.9	
		combined	8	4.3	2.3	2.4	6.1	0.64
36	Balance training exercises HOURS	before	3	1.3	0.8	-0.6	3.1	
		after	3	1.1	0.9	-1.1	3.3	
		combined	6	1.2	0.7	0.4	1.9	0.59
37	Physical activity level is	before	9	3.1	0.8	2.5	3.7	
		after	10	3.2	1.0	2.5	3.9	
		combined	19	3.2	0.9	2.7	3.6	0.42

Table 8. The change of the physical activity habits while participating in Lappeenranta ASKO course

Q nr	Lappeenranta	Timing	Obs	Mean	Std. Dev	95% CI		p-Value
27	Physical activity that does not make sweat/ heart beat DAYS	before	7	4.6	2.4	2.4	6.8	
		after	8	3.8	2.4	1.8	5.7	
		combined	15	4.1	2.3	2.8	5.4	0.74
28	Physical activity that does not make sweat/ heart beat HOURS	before	6	5.3	7.2	-2.2	12.9	
		after	7	5.7	8.1	-1.8	13.2	
		combined	13	5.5	7.4	1.1	10.0	0.47
29	Physical activity that makes heart beat/ sweat a little DAYS	before	8	2.1	0.8	1.4	2.8	
		after	7	3	1.3	1.8	4.2	
		combined	15	2.5	1.1	1.9	3.2	0.07
30	Physical activity that makes heart beat/ sweat a little HOURS	before	6	1.7	0.4	1.2	2.1	
		after	7	2.4	1.3	1.1	3.6	
		combined	13	2.0	1.0	1.4	2.7	0.12
31	Physical activity that makes heart beat/ sweat a lot DAYS	before	2	1.5	0.7	-4.9	7.9	
		after	4	1.5	1	-0.1	3.1	
		combined	6	1.5	0.8	0.6	2.4	0.50
32	Physical activity that makes heart beat/ sweat a lot HOURS	before	2	1.5	1.4	-11.2	14.2	
		after	4	1.5	1.4	-0.7	3.7	
		combined	6	1.5	1.2	0.2	2.8	0.50
33	Muscle strengthening exercises DAYS	before	7	1.6	0.8	0.8	2.3	
		after	7	2	0.8	1.2	2.8	
		combined	14	1.8	0.8	1.3	2.2	0.17
34	Muscle strengthening exercises HOURS	before	6	1.7	0.9	0.8	2.6	
		after	6	2.3	0.8	1.4	3.1	
		combined	12	2.0	0.9	1.4	2.5	0.13
35	Balance training exercises DAYS	before	4	1.3	0.5	0.5	2.0	
		after	5	2	0.7	1.1	2.9	
		combined	9	1.7	0.7	1.1	2.2	0.06
36	Balance training exercises HOURS	before	4	1.7	1.6	-0.8	4.2	
		after	5	2.1	1.9	-0.2	4.5	
		combined	9	1.9	1.7	0.7	3.2	0.35
37	Physical activity level is	before	11	3.1	0.8	2.5	3.6	
		after	12	3.5	1	2.9	4.1	
		combined	23	3.3	0.9	2.9	3.7	0.15

Table 9. Impact on the self-assessed level of knowledge regarding osteoporosis/osteopenia in Lahti and Lappeenranta

Q nr	Lahti	Timing	Obs	Mean	Std. Dev	95% CI		p-Value
38	My knowledge about osteoporosis/osteopenia disease is	before	9	3.8	1.0	3.0	4.5	
		after	9	4	0.7	3.5	4.5	
		combined	18	3.9	0.8	3.5	4.3	0.29
39	My knowledge about how to keep osteoporosis/osteopenia under control is	before	9	3.3	1.2	2.4	4.3	
		after	9	3.8	1.0	3.0	4.5	
		combined	18	3.6	1.1	3.0	4.1	0.20
40	My knowledge about where to find more information about the disease and treatment methods is	before	8	3.5	1.2	2.5	4.5	
		after	9	4.2	0.7	3.7	4.7	
		combined	17	3.9	1.0	3.4	4.4	0.07
Q nr	Lappeenranta	Timing	Obs	Mean	Std. Dev	95% CI		p-Value
38	My knowledge about osteoporosis/osteopenia disease is	before	11	3.2	0.8	2.7	3.7	
		after	12	3.7	0.5	3.4	4.0	
		combined	23	3.4	0.7	3.1	3.7	0.04
39	My knowledge about how to keep osteoporosis/osteopenia under control is	before	10	3.0	0.9	2.3	3.7	
		after	12	3.6	0.7	3.2	4.0	
		combined	22	3.3	0.8	2.9	3.7	0.05
40	My knowledge about where to find more information about the disease and treatment methods is	before	10	3.0	0.9	2.3	3.7	
		after	12	3.8	0.6	3.5	4.2	
		combined	22	3.5	0.9	3.1	3.8	0.01

Table 11. Frequency of the answer options given about the participants' theoretical level of knowledge regarding osteoporosis/osteopenia before and after the course in Lahti and Lappeenranta

Q nr	Lahti	Timing	True n / %	False n / %	Do not Know	Missing
42	Physical activity increases bone strength	before	7 (70%)	0	2	1
		after	8 (80%)	0	1	1
43	Cigarette smoking can promote osteoporosis/osteopenia	before	7 (70%)	1	1	1
		after	7 (70%)	0	2	1
44	Osteoporosis/osteopenia is more common in men	before	0	6 (60%)	3	1
		after	3	6 (60%)	0	1
45	Alcohol consumption has effect on osteoporosis/osteopenia	before	6 (60%)	1	2	1
		after	6 (60%)	1	2	1
46	Having a parent or sibling with osteoporosis/osteopenia is a risk factor for developing osteoporosis/osteopenia	before	6 (60%)	0	3	1
		after	8 (80%)	0	1	1
Q nr	Lappeenranta	Timing	True n / %	False n / %	Do not Know	Missing
42	Physical activity increases bone strength	before	11 (92%)	0	0	1
		after	12 (100%)	0	0	0
43	Cigarette smoking can promote osteoporosis/osteopenia	before	7 (58%)	0	3	2
		after	9 (75%)	1	2	0
44	Osteoporosis/osteopenia is more common in men	before	4	6 (50%)	1	1
		after	3	6 (50%)	3	0
45	Alcohol consumption has effect on osteoporosis/osteopenia	before	5 (42%)	0	5	2
		after	9 (75%)	0	3	0
46	Having a parent or sibling with osteoporosis/osteopenia is a risk factor for developing osteoporosis/osteopenia	before	8 (67%)	0	3	1
		after	9 (75%)	0	3	0

Table 12. Self-assessed level of confidence regarding management of osteoporosis/osteopenia before and after the course in Lahti and Lappeenranta

Q nr	Lahti	Timing	Obs	Mean	Std. Dev	95% CI		p-Value
47	I am able to select appropriate foods to increase my calcium intake	before	9	3.8	1.0	3.0	4.5	
		after	9	4.3	0.5	3.9	4.7	
		combined	18	4.1	0.8	3.7	4.5	0.07
48	I am able to stick to a diet, which gives an adequate amount of calcium	before	9	3.8	1.0	3.0	4.5	
		after	9	4.1	0.6	3.6	4.6	
		combined	18	3.9	0.8	3.5	4.3	0.20
49	I am able to follow the physical activity suggestions that are good for person who has osteoporosis/ osteopenia	before	9	4.3	0.5	3.9	4.7	
		after	8	4.3	1.0	3.4	5.1	
		combined	17	4.3	0.8	3.9	4.7	0.58
Q nr	Lappeenranta	Timing	Obs	Mean	Std. Dev	95% CI		p-Value
47	I am able to select appropriate foods to increase my calcium intake	before	11	4.0	1.4	3.0	5.0	
		after	12	4.1	1.0	3.5	4.7	
		combined	23	4.0	1.2	3.5	4.6	0.44
48	I am able to stick to a diet, which gives an adequate amount of calcium	before	11	3.9	1.1	3.1	47	
		after	11	3.8	1.2	3.0	4.6	
		combined	22	3.9	1.1	3.4	4.4	0.57
49	I am able to follow the physical activity suggestions that are good for person who has osteoporosis/ osteopenia	before	10	4.4	0.7	3.9	4.9	
		after	11	4.4	0.7	3.9	4.8	
		combined	21	4.4	0.7	4.1	4.7	0.55

Table 13. The participants' assessment of the group counselling suitability in the preventive work with osteoporosis/osteopenia in Lahti and Lappeenranta

Q nr	Lahti and Lappeenranta	Timing	Obs	Mean	Std. Err	95% CI	
50	I feel optimistic about participating in group counselling style educative course	before	20	4.7	0.1	4.4	5.0
51	Group counselling method can be useful for me in course	before	20	4.7	0.2	4.3	5.0
52	Group counselling method was useful for me in course	after	21	4.7	0.1	4.5	5.0
53	The group played a role in my life changes	after	20	4.2	0.2	3.7	4.6
54	I prefer to have educative sessions about osteoporosis/osteopenia individually	after	21	3.4	0.3	2.7	4.1