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THE EFFECTS OF HEALTH ENHANCING PHYSICAL ACTIVITY ON WORK ABILITY IN HEALTH CARE WORKERS: A LECTURE FOR NURSING STAFF IN RUSKATALOT

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The purpose of this thesis was to search the literature for information on the effects of health enhancing physical activity on work ability in health care workers, and to provide a lecture for nursing staff working in Ruskatalojen palveluyhdistys ry based on the literature. The aim of the lecture was to provide the client group with theoretical knowledge about the concepts and promotion of work ability, concepts and recommendations of health enhancing physical activity, and the relationship between work ability and physical activity specifically in physically demanding work with a predominantly female work force.

The theoretical part of the thesis begins with a section on the concept of work ability, including defining work ability, factors affecting work ability, how work ability is measured, and how it is promoted. After that, health enhancing physical activity is discussed, with recommendations for the amount of physical activity, information on different forms of physical activity, and the health effects of physical activity. Finally, the effects of physical activity on work ability are discussed. The lecture followed the structure of the thesis.

TABLE OF CONTENTS

1 INTRODUCTION

Promoting work ability is constantly becoming more important as the working population grows older and the age of retirement is increasing. The natural deterioration of physical capacity due to ageing means that ageing workers are less capable of coping with the physical loads of work, which leads to decreased work ability. Work ability promotion seeks to maintain and improve the work ability of individual workers as well as the work community as a whole. Different methods of promoting work ability are used, including ergonomics interventions, attempts to improve the working environment and community, and promoting physical activity. Nurses were chosen as the main target group for the lecture due to the workforce being female dominated and for the physical demands of the work. Those who would benefit the most from physical activity are ageing workers, women, and those working in physically loading jobs (Pohjonen & Töyry, 246).

There is apparently a great deal of trust placed on the work ability improving effects of physical activity. Physical activity is supported in 87% of Finnish workplaces (Henkilöstöliikuntabarometri 2015, 7). Workers participating in exercise projects have appreciated the increased mental acuity, work satisfaction, and ability to cope with their workload due to physical activity. However, studies have shown that only a fraction of the workforce is reached by these efforts, and many of those reached drop out within the first months. (Pohjonen & Töyry 2001, 246, 248.) Those workers who already lead physically active lifestyles report far fewer long sickness absences than physically inactive individuals (Holopainen, Lahti, Rahkonen, Lahelma & Laaksonen 2012, 1159), giving credence to the belief that physical activity is a major factor in maintaining and improving work ability.

Ruskatalojen palveluyhdistys ry provides nursing, living, and meal services as wells as recreational activities for elderly clients of different levels of dependence in an environment planned for accessibility. The services are provided in several different units. Their values are respecting the elderly, safety, openness, reliability, and quality. (Website of Ruskatalojen palveluyhdistys ry)

2 THE PURPOSE OF THE THESIS

The purpose of this thesis was to search the literature for information on the effects of health enhancing physical activity on work ability in health care workers, and to provide a lecture for nursing staff working in Ruskatalojen palveluyhdistys ry based on the literature. The clients will be given theoretical knowledge on the concepts of work ability, and on health enhancing physical activity and its effects on work ability. The purpose of the implementation is to provide the clients with knowledge of different forms and recommended doses of physical activity, and the necessary information to engage in health enhancing physical activity in their free time.

3 WORK ABILITY

Defining work ability is complicated due to the need to find a common definition accepted by different practitioners, such as health care, workers, employers, researchers, pension and rehabilitation institutes, and legislators. This multidisciplinary scientific interest in work ability creates some difficulty in generating a universal definition for the concept. Furthermore, the concept of work ability changes and becomes more complicated as it is studied further, making it more challenging to evaluate, control, and promote work ability. (Ilmarinen, Gould, Järvikoski & Järvisalo 2008, 14.)

Various models of work ability have been used in the scientific study of work ability. Traditionally, individual factors have been the focal point in the study of work ability; work ability models concentrated on the individual worker's health and functional capacity, or on the balance between an individual's resources and the demands of the work. More recently, multidimensional models of work ability have been developed. These models integrate a wider variety of factors, both internal and external to the individual worker, that are seen as contributing to overall work ability. (Ilmarinen, et al. 2008, 14.) In this thesis, emphasis will be placed on the more modern multidimensional models of work ability.

The balance model of work ability has its premise in a stress-strain model. Work-related stress is thought to generate strain within the worker. This strain is dependent on the resources of the individual, and thus it is necessary to find a balance of strain that protects the individual's health and work ability. The balance model of work ability gives prominence to the individual differences between workers. (Ilmarinen, et al. 2008, 15-16.)

The holistic image of work ability, developed by the Finnish Institute of Occupational Health, incorporates individual resources as well as aspects of work and working, and the external environment into a multidimensional work ability model. This model of work ability has been illustrated as a work ability house and its environment (fig. 1.). The first three floors are formed by the individual resources of the worker: health, functional capacity, competence, and values, attitudes and motivation. The fourth floor consists of factors related to work: work itself, work community, and leadership. The work ability house is surrounded by factors external to work: family, social environment, and external environment. (Ilmarinen, et al. 2008, 18-19.)

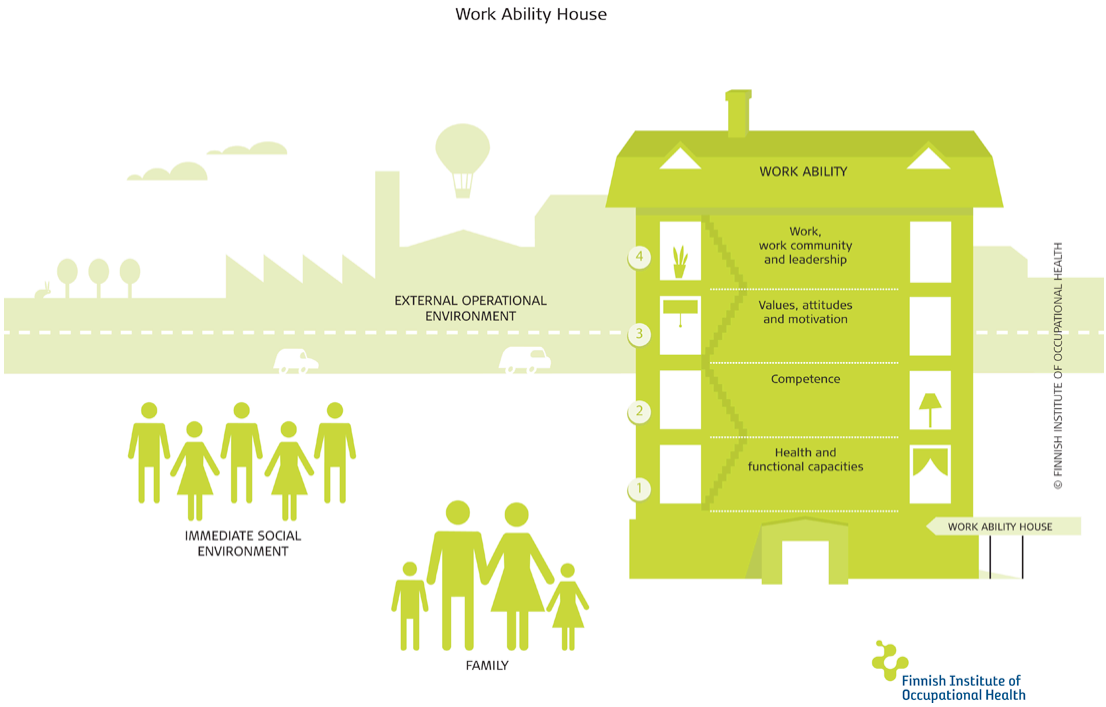

Figure 1. The work ability house (Website of the Finnish institute of occupational health).

3.1 Factors affecting work ability

Functional capacity is a person's ability to cope with the requirements of everyday life at home and work, and during leisure time. Work ability is a part of functional capacity. Functional capacity can be measured in physical, mental, and social capacities, all of which affect each other. Physical capacity can be divided into aerobic and anaerobic endurance, muscular fitness, and motor skills. (Nevala-Puranen 2001, 46-47.) Problems with mobility, vision and hearing, and cognitive and social function are predictors of poorer work ability (Sainio, Koskinen, Martelin & Gould 2008, 81-84).

According to Koskinen, Martelin, Sainio & Gould (2008, 65), a crucial component of good work ability is good health. Work ability is negatively affected by all common chronic diseases; work ability is most affected by mental disorders and coronary artery disease. Depression, back and neck problems, and hypertension have the largest effect on work ability in the population, due to their prevalence. (Koskinen, Martelin, Sainio & Gould 2008, 65.) Back pain is the most common musculoskeletal cause of decreased work ability in Finland (Suni 2001b, 91).

Competence is a factor in work ability Workers who felt their coping at work was negatively affected by their lack of expertise or training rated their work ability as being lower than those who felt the opposite. This association between expertise and work ability was strongest in the young and in the highest educated. (Gould & Polvinen 2008, 93-94.)

Work is the second most important factor influencing work ability, after functional capacity. Work ability is negatively affected by the physical and mental demands of work, inability to make independent decisions and affect one's work, inability to develop skills and learn new things, and lack of support from the work community. (Seitsamo, Tuomi, Ilmarinen & Gould 2008, 99-103.)

3.2 Measures of work ability

Measuring work ability is made challenging by the complicated nature of work ability. Work ability can be evaluated based on the worker's subjective views, on an evaluation by professionals or other experts, or on the evaluation of work ability in practical situations by the management. (Ilmarinen, et al. 2008, 22.) Only one instrument cannot be used to objectively measure work ability; work ability assessment should be based on several different sources of data (Tuomi, Ilmarinen, Jahkola, Katajarinne & Tulkki 1998, 3).

The work ability index is a questionnaire developed by the Finnish institute of occupational health to be used for a worker's subjective evaluation of their work ability in occupational health care settings. The questionnaire is scored from 7 to 49 points, with scores of 44-49 indicating excellent work ability, 37-43 indicating good workability, 28-36 indicating moderate work ability, and 7-27 indicating poor work ability. (Tuomi, et al. … 1998, 3, 5.) The work ability index is a reliable method for evaluating the work ability of an individual (de Zwart, Frings-Dresen & van Duivenbooden 2002, 179). The work ability index has been found to have low sensitivity, but high specificity in identifying workers with an increased risk for extended sickness absence, making it a useful tool when used in addition to other methods in finding out at-risk workers (Reeuwijk, et al. 2015, 1-2, 13).

Measuring a worker's physical capacity is used often in occupational health care to estimate the worker's work ability, although evidence for the validity of simple physical tests used in occupational health care to anticipate work ability is lacking (Suni 2001a, 79). However, in a study on home care workers, physical fitness tests and overweight seemed to predict work ability well. The highest risk for reduced work ability was associated with obesity, and poor results on sit-up, balance, and weight-lifting tests. In addition, a high risk for reduced work ability was associated with poor results on a squatting test, poor knee extension strength, average results for trunk side-bending, and maximal oxygen uptake. (Pohjonen 2001a, 723, 728.)

3.3 Promoting work ability

Work ability promotion seeks to promote the work ability of both the individual worker and the workplace by using methods aimed at addressing the health, functional capacity and competence of the worker, and the demands, environment, organisation, and community in the workplace. The most important factors for improving the work ability of ageing workers are improving the attitudes of superiors, reducing the amount of repetitive movements, and increasing the amount of physical activity. (Tuomi, Huuhtanen, Nykyri & Ilmarinen 2001, 318.)

As previously mentioned, physical activity is promoted at almost all Finnish workplaces. However, the effectiveness of workplace physical activity interventions has been seen as questionable, due to studies that show that these interventions only reach a fraction of the workforce, of whom the majority drops out during the first months. The workers who continue with the interventions have generally been more physically fit, healthier, and younger than average. (Pohjonen & Töyry 2001, 246.) However, in an intervention aimed at home care workers, the level of participation was considerably high, owing to the low participation threshold, long-term supervised exercise at convenient times and location, and motivating environment (Pohjonen 2001b, 58).

4 HEALTH ENHANCING PHYSICAL ACTIVITY

MacArdle, Katch & Katch (2015, 842) define physical activity as "body movement produced by muscle action that increases energy expenditure." Health fitness consists of factors of physical fitness that relate to health and physical capacity, including aerobic fitness, muscular strength and endurance, bone strength, movement control and balance, and joint mobility, as well as general health and appropriate weight and waist circumference. Health enhancing physical activity includes all physical activity that improves or maintains a person's health fitness in an efficient and safe manner. (Fogelholm & Oja 2011, 73.)

4.1 Recommendations for health enhancing physical activity

The 2008 Physical Activity Guidelines for Americans gives specific doses for health enhancing physical activity for adults (aged 18-64). For substantial health benefits, adults should participate in 150 minutes of moderate-intensity aerobic physical activity, such as walking, every week. Increasing the amount of aerobic physical activity to 300 minutes a week yields additional benefits, such as reduced risk of colon and breast cancer. Further increasing the time spent being active continues to increase the benefits; no upper limit for increasing health benefits has been identified. A person can also perform vigorous intensity activities, such as jogging, instead for the same health benefits with half as much time spent being active. Aerobic activity should be performed several times a week for at least 10 minutes at a time. In addition, one should perform muscle-strengthening activities at least twice a week. Some of the health benefits of muscle strengthening activity are not provided by aerobic activity. (2008 Physical activity guidelines for Americans, 22-24.) The Finnish health enhancing physical activity recommendations, developed by the UKK institute, are based on the 2008 physical activity guidelines for Americans (Website of the UKK Institute 2015).

4.2 Aerobic activity

Aerobic physical activity, also called endurance or cardio activity, is the rhythmic movement of the body's large muscle groups for a sustained period of time. There are three components of aerobic activity: intensity, frequency, and duration. (ACSM physical activity guidelines for Americans, 8.) The aim of aerobic activity is to overload oxygen transport and utilisation systems in the body through adequately intense cardiovascular demands in order to bring about adaptations in the cardiovascular system, and in the local circulation and metabolism of muscles (McArdle, et al. 2015, 487).

Aerobic activity can be broadly categorised into three zones, based on duration and intensity: long slow distance; moderate-duration high-intensity; and short-duration very high-intensity activity. Long slow distance activity is done at a moderate inten-

sity of approximately 60-70% of maximum oxygen uptake, enabling a long duration of continuous activity. Moderate duration high-intensity activity is performed close to the person's lactate threshold, which causes fatigue and thus is performed for shorter durations than long slow distance activity. Short duration very high intensity activity, also called high intensity interval training, is performed above a person's maximal oxygen uptake level in short intervals of 30 seconds to several minutes, with rest intervals of 15-120 seconds. (Shave & Franco 2006, 66-67.)

Aerobic activity causes several different adaptations in the body, depending on the type of activity performed. Long slow distance activity causes increased blood volume, due to increases in plasma volume and red blood cell amount; increases in the heart's stroke volume; increased density and size of mitochondria; increased fat mobilisation and oxidation; and improved thermoregulation. Moderate duration high intensity activity increases a person's lactate threshold through decreased lactate production or increased lactate removal, allowing them to exercise at higher intensities before fatigue sets in. (Shave & Franco 2006, 68-73.) Short duration very high intensity activity can bring about substantial improvements in maximal oxygen uptake and glycolytic and oxidative energy systems in sedentary and active persons. (Laursen & Jenkins 2002, 55-58).

4.3 Resistance training

"Resistance exercise is any form of active exercise in which dynamic or static muscle contraction is resisted by an outside force applied manually or mechanically." (Kisner & Colby 2012, 158). Three different types of strength can be identified: maximum strength, velocity strength, and endurance strength. In maximum strength the level of muscle contraction is near maximal and the duration of force production is thus relatively long. Velocity strength has a very short force production time with a high force production speed in an isometric contraction, or force produced at a high contraction speed in concentric and eccentric contractions. Endurance strength is the relatively long maintenance of a specific level of force, or the repetition of a specific level of force for several times with relatively short recovery times. (Häkkinen 1990, 41.)

Three types of muscle contraction can be identified: isometric, concentric, and eccentric. Isometric contraction means that the externally measured length of the muscle does not change. In concentric contraction, the muscle shortens during the contraction, thereby causing movement. In eccentric contraction, the muscle lengthens while contracting, due to a force exerted by either an antagonistic muscle or an external load. (Häkkinen 1990, 22.)

In order to strengthen a muscle, it needs to be trained close to its maximal force-generating capacity. This can be accomplished through the use of a variety of equipment, including standard weight-lifting equipment, pulleys, and resistance bands. (McArdle, et al. 2015, 509.) Overloading a muscle, i.e. providing it with a load that is higher than that which the muscle is used to in normal daily activity, causes a muscle to adapt to the stimulus by becoming stronger. Progressive overload is required for continued increases in strength, as the impact of a training stimulus decreases as the muscle adapts. (Ingham 2006, 146, 153.)

Strength can increase through a number of mechanisms. Changes in neural control in response to training allow the recruitment of more motor units and possibly increase the rate of neural firing of an individual motor unit, thus increasing force production capability through neural adaptation. (Ingham 2006, 143.) The neural adaptation in resistance training is partly due to motor learning, as well as actual improvement in the ability of the central nervous system to activate the trained muscles (Häkkinen 1990, 56). Training an agonist muscle also inhibits the neural activation of the antagonist muscle, thus reducing the opposing force generated by the antagonist muscle during movement (Ingham 2006, 144). Inhibition of the agonist muscle's Golgi tendon organ is another adaptation caused by training the muscle, which decreases the level of reflex inhibition in the agonist muscle (McArdle, et al. 2015, 528). Hypertrophy, i.e. an increase in the size of muscle fibers, requires increased protein synthesis and satellite cell proliferation; these two adaptations occur in the beginning of a resistance training program. Changes in the internal structure of the muscle occur before there is an increase in muscle cross-sectional area. (McArdle, et al. 2015, 531.)

Due to the high amount of energy needed for maintaining muscle tissue, there is a resistance to increasing muscle protein synthesis until there is a regular demand on the muscle to grow in size. Therefore, the early strength improvements seen in untrained individuals are due to adaptation in the neuromuscular system, and not muscular hypertrophy. Hypertrophy causes subsequent increases in strength. (Ingham 2006, 145.)

4.4 Bone-strengthening activity

The beneficial effects of physical activity on bone strength are specific to the bones and bony parts that are subjected to loads during physical activity; therefore the whole skeleton should be targeted during physical activity (Kannus 2011, 157). Bone strength is affected most effectively by physical activity that provides impacts, as well as fast rotations, twists, jolts, and vibrations. For the young and the middle-aged, good activities to increase bone strength include different ball games, strength activities, aerobics, gymnastics, and other sports that require jumping and fast changes in direction. Bone strengthening activities should be performed twice a week at minimum. (Kannus 2011, 157-158.) Muscular strength and bone mineral density have a positive relationship; those individuals who partake in regular resistance training have equal or greater bone mass than endurance athletes (McArdle, et al. 2015, 536).

4.5 Balance training

Balance, also called postural stability, describes the dynamic process to maintain the body in equilibrium (Kloos & Givens 2012, 260). In static balance the body position is maintained against gravity. In dynamic balance the body position is maintained against sudden movements (Tortora & Derrickson 2011, 665).

Control of balance is dependent on the interplay between the musculoskeletal system, the nervous system, and contextual effects. The musculoskeletal system contributes to balance control through postural alignment, flexibility, integrity of joints,

muscle strength and performance, and sensation. The nervous system contributes to balance control through processing of sensory input, linking sensory input to motor responses and adaptive and anticipatory postural control, and by providing motor strategies for balance responses. Contextual effects affecting balance control are the environment, surface, lighting, gravity and inertia, and the characteristics of the task. (Kloos & Givens 2012, 261.)

The sensory systems involved in balance control are the visual, vestibular, and somatosensory systems. The visual system contributes information on the relative position of the head in the environment and speed and direction of head movement, the vestibular system gives information regarding the movement of the head with reference to inertial forces and gravity, and the somatosensory system contributes positional and movement information concerning the body and body parts with reference to each other and the surface. (Kloos & Givens 2012, 262.)

Balance can be improved through all training that challenges postural control of an upright or otherwise challenging position, for example any exercises done while standing on one foot. Balance training can be made more challenging through the use of various pieces of equipment, such as balance boards, gym balls, or narrow surfaces. Balance can be trained and improved at any age. (Rinne 2012, 122.)

4.6 Flexibility training

"Flexibility is the ability to move a single joint or series of joints smoothly and easily through an unrestricted, pain-free range of motion." (Kisner & Colby 2012, 73). Flexibility is affected by a combination of muscle length, joint integrity, and extensibility of periarticular soft tissues (Kisner & Colby 2012, 73). Fluent movement requires a certain amount of flexibility; activities of daily living and many sports and other activities require physiologically normal range of motion (Suni 2012, 133).

Flexibility can be improved through stretching. When performed regularly, stretching increases static flexibility. Dynamic flexibility can be improved through activities that require active movement through a large range of motion. The tissues targeted

during stretching should be the muscles and tendons; stretching of ligaments or joint capsules should be avoided, so as not to compromise the stability of a healthy joint. (Suni 2011, 208.)

4.7 Health effects of physical activity

Regular moderate-intensity physical activity (e.g. walking) has many health benefits. It has been shown to decrease the risk of coronary artery disease, hypertension, obesity, stroke, peripheral vascular disease, cancer (colon, breast, prostate, and lung), type II diabetes mellitus, and osteoporosis, as well as reducing mortality of all causes. (McArdle, et al. 2015, 860-861.) Other benefits include reduced depression, improved health-related fitness, and weight loss (ACSM 2008 Physical activity guidelines for Americans, 9).

There is good evidence that physical fitness has a positive effect on mental health. Better cardiorespiratory and musculoskeletal fitness is associated with improved mental health. (Häkkinen, Rinne, Vasankari, Santtila, Häkkinen & Kyröläinen 2010, 5.) Better cardiorespiratory fitness has been associated with fewer symptoms of burnout and an increased ability to handle stress (Gerber, Lindwall, Lindegård, Börjesson & Jonsdottir 2013, 146).

Resistance training has many health benefits: it has a beneficial effect on body composition, it can cause slight reductions in blood pressure and positive changes in blood lipoprotein concentrations and insulin resistance, it can maintain and improve bone mass, and help in managing low back pain. (Kraemer, Ratamess & French 2002, 166-168.)

5 EFFECTS OF HEALTH ENHANCING PHYSICAL ACTIVITY ON WORK ABILITY

The effects of physical activity directly on work ability are difficult to estimate, due to the diversity of work ability and a lack of measuring tools. The work ability index

has been used in several studies, but due to its lack of sensitivity in the short-term it is not useful in measuring changes brought about by short-term interventions targeting the individual. (Pohjonen & Töyry 2001, 249.)

In a study examining the effects of a tailored physical activity program on health care workers with self-reported work-related musculoskeletal pain, it was found that physical activity reduced the subjects' pain intensity, increased their work ability, and decreased their kinesiophobia (fear of movement) related to pain compared to a reference group. The subjects participated in three 50-minute physical activity sessions a week for three months. The sessions consisted of a combination of aerobic and strength training. The physical activity sessions were individually tailored and supervised by physiotherapists. (Andersen, et al. … 2015, 1-5.)

A 12-month physical activity intervention had a positive effect on work ability compared to a control group: at 12-months, the physical activity group's mean work ability index had increased from 41.4 to 42.8, and remained at 42.0 12 months after the intervention, while the control group's work ability index had decreased from 42.5 to 40.7 during 24 months. An increase in maximal oxygen uptake, measured by bicycle ergometer, correlated lightly with the increase in work ability index scores. The improvements were most noticeable in subjects with a poor or moderate work ability index score at the beginning of the intervention. (Kettunen, Vuorimaa & Vasankari 2014, 3860-3861, 3864-3865.)

In home care workers, a workplace physical activity intervention "prevented the deterioration of physical and mental work ability." (Pohjonen 2001b, 57). The intervention targeted both aerobic and muscular fitness. Cardiorespiratory capacity was improved in the long-term particularly in workers over the age of 45. The intervention, which was carried out during work hours and consisted of one hour of supervised exercise twice a week for nine months, had a high level of participation with none of the participants dropping out without a good reason. (Pohjonen 2001b, 33, 58.) The physical factors tested that appeared to predict work ability well were muscular fitness, obesity, balance, trunk range of motion, and maximal oxygen consumption (Pohjonen 2001a, 723, 728).

It has been shown that physical activity can prevent long sick-leaves. Those workers who are physically active in their leisure time spend less time on sick leaves caused by musculoskeletal, mental, and other issues, than physically inactive ones. The higher the intensity of physical activity, the lower the rate of sickness absences. These results support the promotion of physical activity as a way to maintain and improve work ability in the working population. (Holopainen, et al. 2012, 1158-1159.)

6 IMPLEMENTATION

The practical implementation was planned to be a 90 minute long lecture aimed at nurses working at Ruskatalojen palveluyhdistys ry. The lecture consisted of a simplified look at the theory gathered in this thesis, with a consideration for the target audience. The purpose of the lecture was to provide the clients with practical and useful information regarding the relationship between physical activity and work ability, and on different types of health-enhancing physical activity as well as official recommendations on the amount of health enhancing physical activity adults should perform weekly. There were 22 members of staff present at the lecture, most of them being nurses.

The lecture followed the structure of the thesis. The lecture began with a section on work ability, followed by a section on health enhancing physical activity, and finally a section on the relationship between the two. The attendees were encouraged to take part in discussing the subject matter, and to ask questions, give comments and express their opinions.

The work ability part of the lecture was divided into defining work ability, the factors affecting work ability, measuring work ability, and promoting work ability. The section concerning health enhancing physical activity followed, divided into defining health enhancing physical activity, recommendations for health enhancing physical activity, different forms of health enhancing physical activity, and health effects of physical activity. The final part of the lecture dealt with the effects of health enhanc-

ing physical activity on work ability. All information presented during the lecture can be found in this thesis.

In between the three major sections, there were short breaks during which active discussion of the topic was encouraged. Some of the participants were quite active in discussing the topic, with questions and comments concerning, for example, exercising when suffering from musculoskeletal problems, different opinions on physical activity promotion efforts in the workplace, the reduced physical work ability of young nursing students and staff, finding the time to exercise while doing shift-work, and where to get personalised advice for beginning physical activity.

6.1 Methodology

This thesis is a practical thesis. A practical thesis aims to instruct, guide, organise, or rationalise practical activity in a professional field. A practical thesis can be, for example, a guide directed towards professional practice. Depending on the target demographic, a practical thesis can also be the organisation of an event. Of importance in a practical thesis is the combination of a practical implementation and the reporting of the thesis using methods of research communication. (Vilkka & Airaksinen 2003, 9)

6.2 Thesis process

The idea for this thesis came during my clinical practice in occupational physiotherapy. There, I gave a mostly pre-prepared lecture on work ability and exercise to a client group, which seemed like a good idea to be developed further with more of an emphasis on scientific evidence and catering to the needs of a specific group. I had already in mind the idea of doing my thesis in the field of occupational physiotherapy. The thesis supervisor had earlier suggested Ruskatalojen palveluyhdistys ry as a potential client for an occupational physiotherapy –related thesis. Thus, Ruskatalojen palveluyhdistys ry was contacted, and a meeting was agreed upon.

In May 2015, the preliminary work began on the preparations for the thesis, and with a client in mind, it was only a matter of securing the contract with the client in order to be able to truly begin the thesis process. In June 2015, after a meeting with the client and reaching an agreement upon the nature of the thesis and signing the contracts, the process of researching and writing the theory could begin. The theoretical part was mostly finished during July-August 2015, and in August the planning for the lecture began. The practical implementation was carried out in the end of October 2015. The thesis was finalised in October-November 2015 and presented in November 2015. (Table 1.)

Table 1. Thesis process schedule.

May 2015	Thesis topic was decided upon and potential client was contacted.
June 2015	Contracts were signed, and work begun on theoretical part.
July 2015	Working on theoretical part of thesis.
August 2015	Working on theoretical part and beginning to plan the implementation.
September 2015	Planning the implementation.
October 2015	Practical implementation and finalising the thesis.
November 2015	Finishing and presenting the thesis.

7 DISCUSSION

Personal interest in occupational physiotherapy and physical activity were the prime motivators for choosing my thesis topic. My reasoning for the topic was that I could find out facts supporting the promotion of physical activity as a means of maintaining and improving work ability as well as deepening my understanding of work ability as a concept, knowledge that might well prove useful in my future career.

From the beginning I had a clear idea for the topic of my thesis and how it should turn out. During the process of writing and researching the topic, I found a scarcity of

studies concentrating on effects of physical activity on work ability in health care workers in particular. However, after some doubts as to the plausibility of my topic, I went ahead with the process. Writing the theoretical part of the thesis was surprisingly painless for me, in spite of my distaste for academic writing. Working on the thesis during the summer was a great choice for me, as it allowed me to invest my resources into the thesis process with no other pressing schoolwork to attend to.

The lecture itself came together quite effortlessly through familiarity with the subject matter and great cooperation from the client. There were 22 members of staff present at the lecture, mostly nurses and all female, some of whom participated quite actively in discussion during and after the lecture. Giving a lecture was also a great learning experience for myself, as I consider myself in need of more experience in public speaking. In my opinion, most of the audience seemed interested in the topic, although many of them were not active in discussion. I could have prepared more questions for the audience before the lecture. The only one who gave direct feedback on the lecture itself was the physiotherapist who had been my contact person on behalf of the client; her feedback was positive, mentioning the logical structure of the lecture and the straightforward manner of presenting the information.

While the thesis process was relatively painless, I had made a few choices that made working on the thesis more difficult than it should have been. First, I chose my topic and started writing the thesis before researching the topic properly. This made it more difficult to see where the thesis was going during the process. Second, I started my thesis process quite at the last minute, which meant that I did not have enough time to really think through the choice of topic. This meant that I did not have a very clear idea of the direction of the thesis in the beginning of the process. On the other hand, I made some choices that made it easier for me to work on the thesis. Planning the thesis schedule before beginning work on the thesis and following that plan to the end allowed me to finish my thesis on time. Also, while writing the theoretical part I took two breaks of several weeks from writing the thesis, and this allowed me to see the written text more objectively.

While researching the topic I found that while physical activity is promoted at almost all Finnish workplaces, the effectiveness of these actions is questionable at best. One

interesting topic for further research could be to find out how to effectively promote physical activity in the workplace in order to reach those workers who are at high risk of reduced work ability. Another topic could be concerning promotion of physical activity and work ability in young people entering the field of nursing.

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