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BETTER ABILITY TO COPE AT OFFICE: MORE ATTENTION TO WORKING POSITION AND OWN WELLBEING – MORE EFFECTIVE WORK

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A BETTER ABILITY TO COPE AT WORK: MORE ATTENTION TO WORKING POSITION AND OWN WELLBEING – MORE EFFECTIVE WORK

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Aim of this thesis was to promote better wellbeing in offices, provide information and give tools for the workers to affect their own physical and mental wellbeing in work. The purpose of this thesis was to find out according to literature how office worker can affect on his wellbeing in work, add workers knowledge about how they can improve ergonomic in their working place, give information about pause exercises, discuss about sedentary works risks and affects, and most of all, why this topic is important, why it is important to pay attention to own working habits and ergonomic. As a result of this thesis project was created informative package for the local company.

This bachelor thesis was performed as an operational project. The needed information was gathered by reading literature; articles and books related to the subject. The project has been started August 2013 and the purpose was to end it during spring 2014. The topics in the informative package were health promotion for working aged, wellbeing in office, physical and mental ergonomics, and methods to maintain own ergonomics. This package also included pause exercises program for office worker. The purpose of this informative product was to provide facts about sedentary works effects, to encourage and give tools for workers observe their own wellbeing and habits in offices.

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CONTENTS

1 INTRODUCTION

Nowadays working life demands a lot from a worker. Work is challenging information work, where is needed better co-operation and communication skills. Work related changes appear a fierce pace and uncertainty which is stigmatizing working life has become part of the labor markets. (Nummelin 2008, 15)

With increasing amount of people who use computer in their work, sitting has become a main part of most working environments. Nevala & Choi 2013, 25)
In Finland, around 66% of workers use computer regularly in their work, and an average working time spend with computer in a week is 5-20 hours. Same time, when information technology has progressed rapidly, working tools and spaces, especially in the offices, have remained externally quite same. (Ketola, et al. 2007, 3)

Musculoskeletal disorders are a major health problem in the industrialized world, causing significant problems for individuals and considerable health care and invalidity costs to society. (Kaila-Kangas 2009, 7) Musculoskeletal disorders are work-related, when the work activities and work conditions significantly contribute to their development or exacerbation but are not necessarily the sole determinant of causation. (Website of Science Direct)

Musculoskeletal disorders (MSDs), illnesses and injuries cause more high-quality-life years lost and costs than any other disease category. (Kaila-Kangas 2009, 25) These conditions result in pain and functional impairment and may affect, besides others, the neck, shoulders, elbows, forearms, wrists and hands. (Website of Science Direct)

More than a million Finns have a long-term musculoskeletal disease. In addition, another Finnish million suffer from temporary back and joint pains, which will improve time, but still a substantial burden on health care, labour and social insurance. (Kaila-Kangas 2009, 25) Work-related musculoskeletal disorders describe a wide range of inflammatory and degenerative diseases and disorders. (Website of Science Direct)

The cheapest and the most effective treatment for the symptoms is to prevent them, before symptoms have a chance to become chronic, difficult to treat future diseases. (Website of Suomen Reumaliitto) In Finland, still around 50% of office workers suffer from recurring neck and shoulder symptoms, and lumbar spine pain is present for every fifth worker. Right upper limb symptoms are almost as prevalent as neck and shoulder symptoms. (Ketola, et al. 2007, 121) For these symptoms, getting better and avoiding them, we can affect with our own action. By paying attention more to the ergonomic and chancing habits.

Job satisfaction has suffered from inflation during whole 2000s. (Nummelin 2008, 15) Working life has become more demanding. Therefore it is important to focus the sources; how we can ourselves increase our wellbeing, physical condition, health and work ability.

The prevalence of the work related musculoskeletal disorders and other discomforts in office were the biggest reasons why I chose ergonomic and wellbeing in office for my subject. Office work sector I selected because I have myself worked a lot in offices during my summer holidays and because sedentary work is quite common.

The aim of this thesis was to promote better wellbeing in offices, add office workers awareness about the possible risks and effects of sedentary work, provide information, give tools to the workers to affect their own physical and mental wellbeing in work, and grow the self monitoring of factors which workers can affect themselves. The purpose of this thesis is to find out how office worker can affect on his own wellbeing and effectiveness in office through observing and modifying own working ergonomics and habits, to find the ideal one for the office worker.

The method for collecting the data was reading literature; articles and books related to the subject. Based on the theory, I made an informative PowerPoint presentation for the office worker. The presentation included facts about physical ergonomics, possible causes of long-lasting static working position and which part of the body are commonly affected and how it affects; generally about working aged people's health promotion and wellbeing in offices; mental ergonomics, what is stress, its risk fac-

tors, how it affects and how to manage it, information about methods to maintain ergonomics, physical condition affecting work ability; I provided solutions and alternatives for reaching and learning more ergonomic habits and thereby add wellbeing and effectiveness in every day working life.

2 HEALTH PROMOTION FOR WORKING AGED PEOPLE

Health itself means, according to World Health Organization (WHO), a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity. (Website of World Health Organization) Health promotion in personal level is attempting to affect human and his actions. Speaking on behalf of health is one of the essential actions of health promotion which can be implemented for example by influencing communities. A health care professional has the main responsibility to act behalf of health on all the society levels. (Savola & Koskinen-Ollonqvist 2005, 27)

With working aged people the aim of the health promotion is to increase health and functioning ability, decrease the possibility to fall sick later on and decrease health risks of living habits and living conditions (Aromaa, Miilunpalo & Eskola, 2003, 790). Health communication is goal oriented action for example to increase work societies health awareness, in order that the state of health of individuals and society could be improved. Communications fundamental is that specific attention should be given for target group and seek to modify message based on situation. (Savola & Koskinen-Ollonqvist 2005, 30)

2.1 Work ability and ergonomics

Work ability is workers as well as employers one of most important capital. But it is not foregone conclusion. (Aalto 2006, 3) Work ability means the relation between workers job description and functional ability. Effecting factors are hereditary, edu-

cation, working experience, as well as mental, physical and social sources. (Aalto 2006, 13)

Ergonomics (or human factors) is the scientific discipline concerned with the understanding of the interactions among humans and other elements of a system, and the profession that applies theoretical principles, data and methods to design in order to optimize human wellbeing and overall system performance. (Website of International Ergonomics Association) Ergonomic is to improve human safety, health and welfare systems, as well as the smooth and efficient operation. (Website of Työterveyslaitos) Ergonomics can be divided in different domains. Working place ergonomics affects workability many ways. Works fluency and sensibility, experiences and skills; right kind of invocation increases workers motivation. (Launis & Lehtelä 2011, 329)

2.2 Wellbeing in office work

Wellbeing experienced in working places is in clear positive connection with work's quality and effectiveness and inverse proportion towards sick leaves. (Aalto 2006, 13) Regardless of the content of the work, office work means for most of the workers, sedentary work with computer screen and keyboard. (Ketola, et al. 2007, 121) The computer used to work for more than 70% of the employees of whom more than 80% use a computer for more than 4 hours a day. (Website of Työterveyslaitos)
By planning offices, is created for worker the working space, which gives possibility for the data processing, modifying, and for producing new information. It also supports work's effectiveness and workers health. (Ketola, et al. 2007, 4)

Work ability and wellbeing are created by community based development. The interaction between human and work is possible to be developed by that the worker can feel to be able to manage their own work. Organization culture which supports personnel's wellbeing and mental occupational safety create base for a good superior work and working workplace standards. Management of work is continuous development, changing and learning. Work or human do not need fixing, but the relation between work and human is worth of developing. Well organized work produces

wellbeing and good results. (Nummelin 2008, 16-17) Factors which have been experienced to affect positively wellbeing in the work are fair management culture, workers' experience of possibility to affect decisions concerning their own work, workmanship and efforts done maintaining it. (Aalto 2006, 13)

3 PHYSICAL ERGONOMICS IN THE OFFICE WORK

Although the office work is physically light and mostly clean interior work, still many sedentary workers experience discomfort and stress during the days. Some of the disorders are transient, but they can also remain in continuity. Eye itching, and fatigue, neck, shoulders and arms pain and strain are common in the display screen is the author of ailments. (Website of Työterveyslaitos)

Office work's physical loading is affected by, how the work is arranged, with what kind of equipments it is done, how much worker gets support from the boss and colleagues, and how well the employer takes care of re-education and guidance of new programmes and systems. (Ketola, et al. 2007, 121) Human's physical action is many muscles and other body structures co-operation. Physical action is not just movement and work but also keeping the position and controlling the balance. (Launis & Lehtelä 2011, 69) Too much load is bad for the body but too less loading is also harmful. (Launis & Lehtelä 2011, 70)

Over loading causes fatigue and slows down recovery after the action. It can cause damage in the muscles and other structures and lead to musculoskeletal diseases.
Too small load does not offer enough challenge for the body, and because of that structures get weaker. Optimal loading decreases the risks of damages and strengthens body and adapts it to be ready for the demands of work and environment. (Launis & Lehtelä 2011, 70)

In the background of many musculoskeletal disorders of the body, can be found often one thing in common; a long-term sitting. This applies to all age groups, from chil-

dren to seniors. Also, more time spent on sitting, increases the risk of metabolic syndrome. (Website of UKK-Instituutti)

3.1 Static loading

Muscles static loading can be very harmful if it continues long. (Launis & Lehtelä 2011, 73) When working in static position, person's muscles' blood – and lymph circulation become more difficult. (Ahonen, et al. 1998, 94) Cause of that muscles have to work largely anaerobic, thus produce energy used for working, without oxygen. (Ahonen, et al. 1998, 94)

This causes that static loading muscle is contracted but without a movement. The blood is not circulating sufficiently to this contracted muscle, because there is pressure and it makes blood flow difficult. This leads nutrition and oxygen lack in the muscle. (Launis & Lehtelä 2011. 73)

Herein muscle cells' metabolism occur lactic acids. Because of the bad fluid flow, lactic acid exits slowly from the muscle cells and the whole muscle. Retention of lactic acids in the muscle cells decrease their pH values, so increase acidity. As a result is muscle's pain receptors irritation. (Ahonen, et al. 1998, 94)

Static work is typically related to office work. For example slightly forwarded sitting posture includes trunks, shoulders, and necks muscles static contractions. Hand movement's accuracy requirements, movements several repetitions rapidly and visual acuity requirements, adds normally the contractions. Static contractions are as well affected by personal working habits, rush, cold and noise. (Launis & Lehtelä 2011, 76–77)

Static position can cause discomfort especially back, neck and shoulder area; being immobile can be linked to stomach malfunctions and swelling of the feet as well. When sitting on a bended position, tidal volume is also decreased. Monotonous work in completely relax sitting position, can make maintaining alertness difficult. The best solution would be to change position according to the situation and alternate be-

tween sitting and standing. (Launis & Lehtelä & Työterveyslaitos 2011, 174) Sit-stand workstations offer one possibility of decreasing sedentary behavior and varying work postures during work day. Workers can select low-sitting, high-sitting, and standing postures according to their needs and tasks and adjust the work station height easily. (Nevala & Choi 2013, 22)

3.2 Posture

When examining from the lateral side, spine has a shape of gentle double S. Head, thorax and pelvis form three 'baskets'. Their position and movements are depending of the position and movement of the whole spine. (Ahonen et al. 1998, 286) Fig. 1 is picture about spine in its natural position.

Lower part of the back, when sitting, should be by choice almost as equivalent as when standing. In which case, spine has its natural curve. In this lumbar spine position vertebrae settle against each other's, so that the pressure is divided even to the flexible disc, and vertebra back part's joints participate sharing the load, and stabilizes back's movements. (Launis & Lehtelä 2011, 175)

In lumbar spine's stooped position, the pressure is focused more on disc's front part, and strives to push disc towards spinal canal and the nerve roots. As a result of this kind of pressure can be protrusion (spinal disc herniation), which can present itself by Ischia's nerve symptom. A good back and hip's equilibrium position arises while standing itself, when upper body's weight is directed vertically towards the hip joint. (Launis & Lehtelä 2011, 175–176)

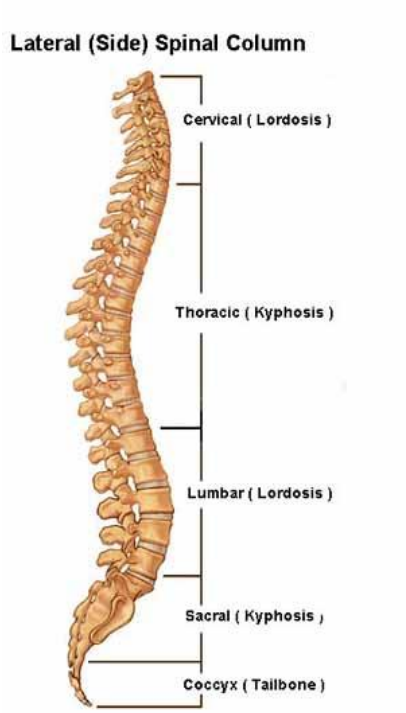

Figure 1, Website of Spineuniverse

3.2.1 Good sitting position

Sitting is physically inactive. When sitting, most of the muscles are in the resting state though, such as office work sitting is often associated with some of the muscle tension. Sitting uses energy just slightly more than lying down. Sitting endangers our health than is generally known. Harmfulness of sitting on the prevalence and continuity, as well as the disease can increase the risk impact. (Website of UKK-Instituutti) Any activity that decreases inactivity time, like sitting, may benefit health. (Nevala & Choi 2013, 25)

Fulcrum is the ischial tuberositys in sitting position, and upper body's weight is directed behind these, this tilts the hips backwards (pelvic tilting motion). Without back rest, maintaining upright position requires contracting back muscles, and when relaxed, back bends strongly backwards. (Launis & Lehtelä 2011, 176) When sitting in right-angled position (90°), buttocks and hamstring muscles stretching makes this pelvic tilting motion even stronger (Fig.2). (Launis & Lehtelä 2011, 176)

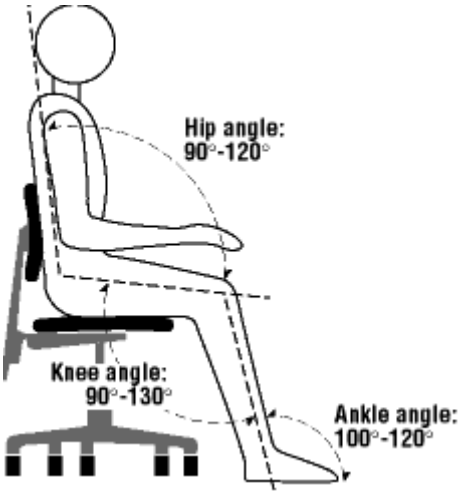

Figure 2, Website of Canadian Centre for Occupational health and Safety

The way how quadriceps and hamstring muscles are attached to the knee and leg, that when knee is flexed the pelvis tilts forward, and when knee is extended the pelvis tilts backwards. (Launis & Lehtelä 2011, 176) Maintaining spine's good position, upright or tilted forward, helps that the legs are strongly flexed under the chair. (Launis & Lehtelä 2011, 176) Good sitting posture can be achieved also by "opening" the corner between thighs and body (pelvic angle) bigger than 90° angle, always up for 130°, when back tries to naturally curve normally.

This can be implemented with really different kind of seating solutions, for example with well shaped backward tilted rest seat or saddle type seat (Fig. 3), in which case thighs reclines downwards and body is upright. (Launis & Lehtelä 2011, 177) Work where needs to move a lot, twisting the body, leaning forward and backwards (reaching, working equipments and materials handling), is the right-angled (90°) with low back rest chair normally the best. Low and narrow back rest allows upper body's free moving. (Launis & Lehtelä 2011, 177)

Figure 3, Website of Backdesigns

In addition, to good and right supported sitting position is free changing of position essential. (Launis & Lehtelä 2011, 178) Completely immobile sitting can be tolerable just during approximately 20 minutes. Musculoskeletal function (e.g. blood circulation and tissue fluids movements) requires moving as the working tasks allow possibilities. (Launis & Lehtelä 2011, 178)

Immobility is assumed to increase the risk of premature disc degenerative changes. By increasing discs' metabolism these harmful changes can be avoid. (Launis & Lehtelä 2011, 178) Disc's metabolism is based on compression pressure's changes, which are affected by position and using strength. When pressure increases (upright position, minor back support, using strength) tissue's fluids flow away from discs, and when pressure decreases (relaxed, backwards leaning position) flowing direction is back to discs. Changing the position, when pressure is changing suitably is desirable. (Launis & Lehtelä 2011, 178) Traditional right-angled sitting position has not been kept good for the back's position, but in the other hand it allows versatile moving and changing position from backwards bending, upright to forward leaning position. Varied adjusting possibilities in a chair and suitable flexible structures (e.g. spring, flexible back rest) are additional tools for further moving. (Launis & Lehtelä 2011, 178)

3.3 Loading of the upper body

A relationship between the performance of work and the occurrence of neck and upper limb musculoskeletal disorders is evident. (Website of Science Direct) Holding arms statically burdens neck and shoulder area. Depending how far arms are from sides, how less or no support wrists and forearms get, it is heavier and loads more neck and shoulder area. (Ketola, et al. 2007, 123)

3.3.1 Upper limbs symptoms risk factors

Prober support for forearms, decreases neck, shoulder, upper limbs, and even lumbar spine's loading. (Ketola, et al. 2007, 123) Deflection of desirable motion models can mean over loading to the upper limb's structures. Motion's essential risk factors are considered to be following:

1. Using a great force (also lesser use of static force),
2. Long lasting repetition of similar movements,
3. Joint's end of range positions and disadvantageous motion directions.

Damaging risk is the highest when these factors are present same time. Risk is minor if only one of these is present and moderate. (Launis & Lehtelä 2011, 195)

3.3.2 Loading of the hands and fingers

Using mouse requires accuracy. It is moved precisely, pushed and pressed to the surface, and same time fingers are using switches (continuous pressing, clicking, double clicking). Some of the movements are not natural hand's movements, and finger muscles which are using switches are contracted to avoid fail press. Finger's muscles continuous small static tension does not lift always during pauses, but stays as a permanent tension. Over the time, state of tension causes more permanent changes in muscles and hands normal functions are prevented. (Launis & Lehtelä 2011, 203) Too catching and strong grip from a mouse is loading for the hand. Mouse should be handled lightly and sparing the strength. (Ketola, et al. 2007, 123)

Muscle tension has, among the other things, from proportion of mouse use in a task, use's continuous duration, accuracy requirements and hurry, mouse's fault adjustments, sticky movement, bad surface, or inappropriate furniture. State of tension can be present also in entire upper body area, particularly if furniture are not suitable and fore arm is not able to be sufficiently supported on working surface or on arm rest.

Mouse is efficient working tool regardless of arm and hand symptom risks. With properly adjusted mouse worker can same time move cursor widely and fast and allocate it to the small area. For the hand symptoms are many kinds of solutions available. Such as, different kind of mice (hand shape options), different types of pointer devices (touch screen, roll pointers, ball pointers, pen pointers…) Different kind of working habit trial with the already existent equipments (e.g. wider keyboard control or changing the mouse using hand), paying more attention to the own working habits, pausing, and doing relaxing stretching movements enough often. (Launis & Lehtelä 2011, 203) If despite chancing mouse using habits more ergonomic, still worker experiences symptoms, it is not beneficial to continue. Worker could use more keyboards command buttons, move the mouse on the other side of the keyboard, or ask to have a narrower keyboard for being able to have mouse more in the middle. (Ketola, et al. 2007, 123)

4 MENTAL ERGONOMICS IN THE OFFICE WORK

A word stress has in colloquial language many uses. When talking about stress, meaning can be causes of stress, effects of it, or experiences which these two causes. (Toppinen-Tanner, Ahola 2012, 11) In the book written by Toppinen-Tanner and Ahola is mentioned that Walter Canon (1932) describes perceived stress be caused by demands of environment, which interrupt individuals natural balance. According to him, stress is a surviving reaction, which starts when environment causes certain degree of stress for individual. (Toppinen-Tanner, Ahola 2012, 22)

Stress is always reciprocal process between individual and environment. Body is tuned to react on challenge in situation where normal action is not enough. (Toppinen-Tanner, Ahola 2012, 11)Stressing situation becomes harmful if human himself does not believe surviving from the situation. (Toppinen-Tanner, Ahola 2012, 14)

Creations of stress and human's wellbeing are affected by working conditions, life situation, and individual features. (Toppinen-Tanner, Ahola 2012, 35) Stress management is essential working life skill in the level of individual as well as organization. (Nummelin .2008, 16) Adaptation to the situation demands effort, but mostly stress situation ends after a period of time. (Toppinen-Tanner, Ahola 2012,36)

4.1 Causes and effects of stress

A human's life has many factors which cause stress, even if just work related load is often referred to stress. A sudden stressful situation can be for example family member's or your own serious illness, unemployment, or child moving out. (Toppinen-Tanner, Ahola 2012, 34) Challenges and stress factors can be internal, individual's personal aims and internal incentives, as well as external, objectives set by others or caused by factors met in the environment. (Toppinen-Tanner, Ahola 2012, 11) Also too low stimulus or not challenging environment creates stress, because being passive is not good for bodily functions or development. For the performance, it is the best if the amount of the load is suitable based on the human's prerequisites: not too low or too high. (Toppinen-Tanner, Ahola 2012, 14) Human is experiencing stress in

every human activity area. Symptoms are manifested as feelings, thinking as well as at the body level and can vary individually. (Toppinen-Tanner, Ahola 2012, 11)

When human faces stress, the state of alertness rises. Heart rate raises, blood pressure increases, breathing accelerates and muscles tension increases. (Toppinen-Tanner, Ahola 2012, 12) Psychological stress factors, as excessive stress, burn-out and depression, inhibit especially in tasks which requires creativity, concentration, remembering, adopting new information, rapid decision-making and social skills. (Nummelin 2008, 75)

When discussing about work related stress, it is often meant working in that kind of working conditions which are known to be harmful for well being and health. (Toppinen-Tanner, Ahola 2012, 11) Also worker's free time life stressors and resources can affect on how loading the work is experienced. (Toppinen-Tanner, Ahola 2012, 35) Stress in body or in the mind as triggering reactions can aid individual to overcome challenges but prolonged or very strong it mutates dangerous. Then stress can cause harm for the health and affect on behavior and performance. (Toppinen-Tanner, Ahola 2012, 11)

Work related pressures can appear as a harmful work stress or escalated interpersonal problems. In case if work related overload situation continues long, it can cause burnout and depression symptom together with weakening the ability to work. (Nummelin 2008, 15-16) If work's requirements exceed workers resources, continuous over load leads to burn out or often also depression. (Aalto 2006, 30)

In the working places burn-out should be seen like warning sign in health and work ability's point of view as a harmful workload. Loading of the work can be regularly evaluated by workplace survey or in the health examination. In order to prevent burn-out and maintain work ability, it is important to pay attention to working conditions if needed. (Aromaa & Koskinen 2010, 20)

Prolonged stress's symptoms tells about that all human's resources are deployed for surviving, and other actions outside of this aim are secondary, and there is not enough energy for them. Because the body is in alerted state as well, many can feel

the symptoms: on the chest can feel weight, shortness of breath, difficult to relax, and stomach pain. Falling asleep is difficult and sleep is intermittent or short. Human does not always notice symptoms, because is too focused on the aim. (Toppinen-Tanner, Ahola 2012, 13)

Working life is typical factor of chronic stress. Often load in one of the life parts affects on the other life parts as well. (Toppinen-Tanner, Ahola 2012, 37) In the book written by Toppinen-Tanner and Ahola is mentioned how Pearl (1999) divided chronic stress factors:

1. based on social status (status strain)
2. based social roles (role strain)
3. based on context (contextual strain)

Social status is individuals place in social hierarchy. For example, profession, income, ethnical background. Weak social status can cause economical stress and stress related low respect. Social role related stress can arise for example from different role conflicts. Stress can be caused also by roles which have been received with reluctance, for example taking care of severely ill family member, unemployment, or incapacity for work. Contextual stress means in certain environment or community generated, for example stress caused by living place, school or working society. Childhood's stressing environment's extremity is maltreatment. (Toppinen-Tanner, Ahola 2012, 36)

4.2 Stress management

Managing stress (coping) means all human's attempts, level of action as well as level of thinking to survive from internal or external demands which are over the resources and withstand pressure caused by demands. (Toppinen-Tanner, Ahola 2012, 69) In the book written by Toppinen-Tanner and Ahola is mentioned that Pearlin & Schooler (1978) suggested that stress management can be divided into three groups:

1. Attempts to change stress situation, decrease the discrepancy between the demands and possibilities or erase the stress factor completely,

2. Attempts to modify own view about the situation, its importance, own coping skills,
3. Attempts to alleviate symptoms experienced by stress situation and improve own general resources.

(Toppinen-Tanner, Ahola 2012, 69)

There is not just one stress coping way guaranteed. What is helpful and what is possible to do, changes according to the situation. In short term (for example two weeks) improving the focus away from the problem can be beneficial for the result, but for the longer time directing focus on problem's cause produces better results. Own attitude towards the problem, has been stated to be essential from view of wellbeing. This is based on that the attitude has an effect on our action. (Toppinen-Tanner, Ahola 2012, 70)

In the working places stress is intended to decrease primary by developing and repairing organization's approaches and structures, work, working environments and working societies and leadership. The guiding principle is to plan work and activities in the organization so that they give possibility for good work performance, support worker's development and do not cause harm for the person. Many possible stress factors in work or work society can be prevented by planning well and having well being centered organization culture. (Toppinen-Tanner, Ahola 2012, 91) Possibility for the individual a flexible working time can decrease stress generated by the working hours. Sometimes the worker does not notice to regulate the working time; even there would be possibility for it. (Nummelin 2008, 23)

5 METHODS TO MAINTAIN ERGONOMICS

Just 36% of working aged Finnish people is enough physically active in health point of view. (Aalto 2006, 38)In the office ergonomics, the time can be affected by ergonomics (length of the working period and pauses). (Launis & Lehtelä 2011, 70) Like mentioned earlier, even if office work looks to be mostly sedentary, keeping that static working position, for example while typing with keyboard is quite loading for the body. That is why good physical condition is essential for the office worker as well.

Work ability does not remain good, unless it is uphold. (Aalto 2006, 3) Especially decreased physical activity or lack of it, together with loading work are the most common factors for musculoskeletal symptoms and disorders. (Bäckman & Vuori 2010, 9) When talking about physical condition, it is often perceived meaning sport or fitness performance. However physical condition means having sufficient physical condition level to survive from work, every day household tasks, social communication and hobbies. (Aalto 2006, 40) Immobility is harmful to health, when exercise is properly implemented; there are only few health hazards. Sitting (sedentary lifestyle) adverse effects on cardiovascular and metabolic diseases is increasingly epidemiological evidence. (Website of Käypähoito)

5.1 Importance of the pauses

Even if sitting is for most of the muscles almost perfect rest state, such as an office work includes increasing some muscle tension. This is due to individual differences caused by the load. While sitting, the metabolism slows down and burden increases on the back’s structures - particularly the discs. (Website of Selkäliitto)

Taking pauses while working is important for preventing muscle and joint problems. In an intensive work a few minutes pause at least once an hour to improve the efficiency and well-being more than a longer period of time once a day. Pausing also reduces eyestrain and rests your idea action. (Website of Työterveyslaitos)

When sitting, it is beneficial time to dangle legs, and change the weight from buttock to another. The load can also be reduced by leaning against a back rest, holding arms on armrests or on your thighs, as well as avoiding leaning the upper body forward. Most of all, you reduce the load on your back, when you get up from a chair once an hour - even if only for a short period of time. (Website of Selkäliitto) Pauses will increase the metabolism of the muscles, but also your brain, so after a break, also thought often runs better. (Website of Selkäliitto)

5.1.1 Stretching and pause exercises

Pause exercises aim is to prevent muscle tension and fatigue caused by one-sided working position during routines. Essential is muscle workout's pumping movement. After contraction comes always relaxation. Thus, increase muscle's blood circulation, in which case muscle gets more oxygen and waste materials exit more effective. (Aalto 2006, 75) This is called muscles metabolism.

Pause exercises do not take lots of time, but save from many discomforts and it is easy to carry out for example during the coffee break. (Aalto 2006, 76) Stretching contracted muscles increases body's muscle balance and posture and promotes whole body's wellbeing. Stretching, as well as in any pause exercises, regularity is important. (Aalto 2006, 102) Stretching can be link to some routine, for example getting up from a working seat. (Aalto 2006, 102)

5.2 Physical activity

Physical activity affects positively health condition and health, and lack of physical activity negatively. When person has sufficient health condition, he will survive every day activities without getting too tired. Poor physical condition predisposes to diseases and restriction in actions. (Website of UKK-Instituutti)

Even if nowadays includes free time more than before and adults exercises more than ever, the total activity is decreasing. (Aalto 2006, 39) Being physically active is a

cheap medicine, that's why promoting active lifestyle is significant for whole population and for all stages of life. (Bäckman & Vuori 2010, 9)

5.2.1 Recommendations

In Finland, UKK-Instituutti has 2009 published remodeled recommendation for health-enhancing physical activity for 18-64 years old adults. This weekly physical activity pie gives examples of amounts and exercises which can be done. Recommendation is to improve or maintain aerobic fitness by being active several days a week for a total at least 2hours and 30min of moderate activity or 1hour 15min vigorous activity. In addition, increase, maintain muscular strength and balance at least two times a week.

Moderate activity, based on physical activity pie, is berry picking, hunting, walking, heavy house and yard work etc. Vigorous activity could mean cycling, running, cross country skiing, running ball games etc. For strength and balance training, in the physical activity pie, was mentioned for example strength training, stretching, skating, and dancing.

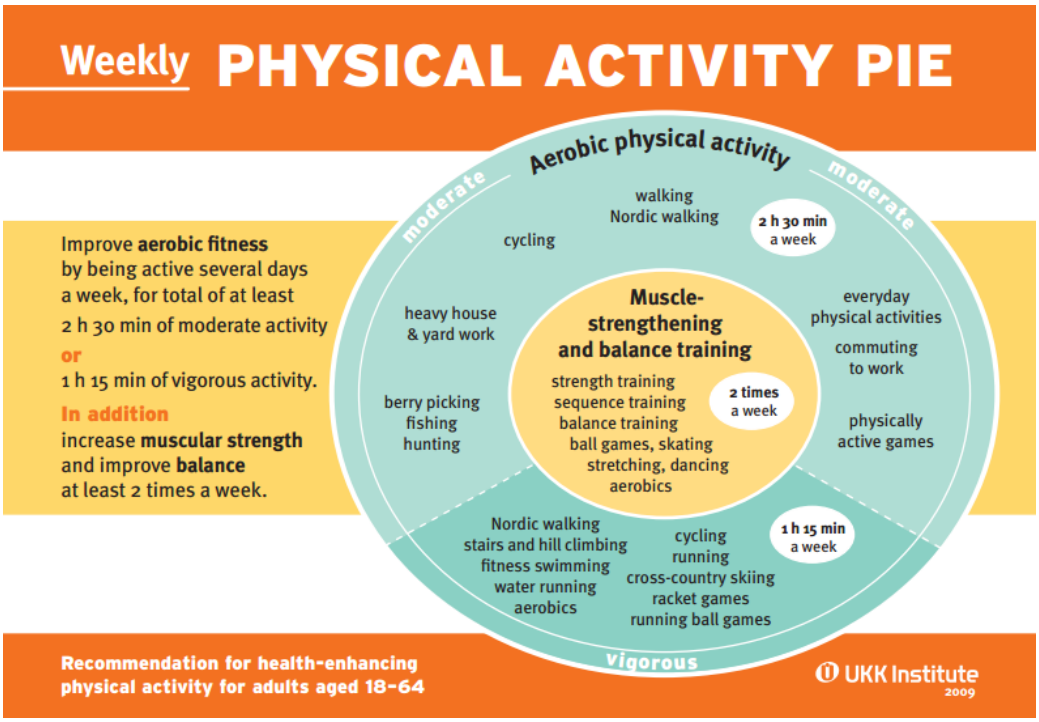

Figure 4 Website of UKK-Instituutti 2009

6 THESIS PROCESS

This process started with planning already during the autumn 2012, but the actual actions started august 2013. The author was concerned about poor working ergonomics and overall wellbeing, especially in the offices and offered this kind of co-operation for the specific company which agreed. Plan was first to make ergonomic check up for the working stations, which finally changed to concentrate more to workers wellbeing in work and how the worker himself could affect on it.

Timetable itself did not look like tight, but in actual fact it was. Whole project was wished to be ready during spring 2014. August-December 2013, action plan was done, theory was written and PowerPoint presentation was started. April 2014, PowerPoint presentation ready, and the presentation day kept.

Action plan in thesis project with operational aspects is made mostly that idea and aims of the thesis needs to be considered and justified. Action plan answers the questions, what to do, how to do, and why to do. Action plans essential significance that the author structures for herself what is going to be do. (Vilkka & Airaksinen 2003, 26)

Action plan is good to begin by defining the baseline. (Vilkka & Airaksinen 2003, 27) The subject for the thesis had been chosen already during the autumn 2012, and the same time it was discussed with the co-operating company. Due to the rush from other school related tasks, the actual action started autumn 2013, when the subject had also changed form a bit, but still carried out with the same co-operation partner company. Planning of the final product, presentation, has developed all a long when thinking and writing the thesis. Actual making of it started when the theory was almost done. Goal was to get the project ready during spring 2014, and keep as well the report seminar during the spring term.

Autumn 2012	Planning the subject, discussing and agreeing with the company
August 2013	Changing subject decision a bit, collecting and writing theory. Planning the informative package.
November- December 2013	Starting to make the informative package (PowerPoint presentation)
March 2014	Keeping the presentation and giving the information package for the company
April 2014	Thesis report seminar

My aim was to provide for the co-operating company informative package, PowerPoint presentation. In this presentation was provided information about wellbeing in office work, what it is, what affects on it, which tools worker could use to reach it and why it is important. The author promised to print copies about presentation as well if wished.

6.1 Purpose and Aims

Aim of this thesis was to promote better wellbeing in offices, provide information and give tools for the workers to affect their own physical and mental wellbeing in work. Dispatch of this thesis was that by affecting on his working ergonomic and habits, office worker can affect on his wellbeing as well. Purposes of thesis, hence was to find out according to literature how office worker can affect on his wellbeing, add workers knowledge how they can improve ergonomic in their working place and most of all, to give reasons why this topic is important, why it is important to pay attention to own working habits and ergonomic.

6.2 Methods

This thesis project has operational aspects. Thesis with operational aspects is an option for university of applied science's thesis with research aspects. (Vilkka & Airaksinen 2003, 9) Thesis project with operational aspects pursues in professional field by guidance, rationalize and organize the actions. It can be depending of field, for example guidance which is directed to professional practice or guide. It can be also implementing a happening. (Vilkka & Airaksinen 2003, 9) In addition, besides the report seminar, thesis with operational aspects pertains also product, which is often written. Product itself has different demands than the thesis report seminar: when in report seminar have to explain process and learning, in the products text is addressed to the target group. (Vilkka & Airaksinen 2003, 65)

This thesis product was an informative package made for the local company. It was targeted for the office workers. Methods used to gather information for it, were reading literature, books, articles, internet pages etc.

7 INFORMATION PACKAGE

Thesis with operational aspects has always as a final output some concrete product (Vilkka & Airaksinen 2003, 51) like in this case information package as a Power-Point presentation. Therefore, also the thesis report has to consider a concrete product's resources which have been used to reach the outcome. (Vilkka & Airaksinen 2003, 51) Products target group was office workers in co-operating company. This chapters purpose is to present practically what kind of the thesis projects outcome, informative PowerPoint presentation became.

This operational project's outcome, PowerPoint presentation was in a way as well summary of this thesis. It presented same things I studied for the actual thesis, but had them in 'a nutshell'. The package was carried out in Finnish language because the main target group uses Finnish as a mother tongue.

As this thesis work, the PowerPoint presentation was as well presenting first theory related to workers wellbeing in the office. They were same than in the actual thesis, which added the uniformity. The presentation included 26 slides.

Content of the presentation:

Introduction	Purpose was to evoke audience's interest towards this issue
Health promotion for working aged	Mostly clarified what is the aim of this presentation
Physical and Mental ergonomics in office	Provided information about what kind of effects the office work has, what are the risk factors
Methods to maintain ergonomics	Provided information about what kind of qualities would be beneficial to have/maintain to be able to manage

Pause exercise	Few exercises and stretchings presented with pictures and explanations, targeted for office worker
References	In the end of the presentation, references were presented

The whole information package is attached in the end of this thesis work on appendix pages.

8 DISCUSSION

Starting the thesis process was really difficult for me. Deciding the topic was pretty clear in my head, but how to make it simple and clear that others would also understand. Consequently, I needed to learn a lot, if not everything, about making a study.

Finally, after I had already gathered theory around the subject, I got a vice advice from my tutor, do a mind map. This cleared my thoughts, and I was able to define simply my thesis. By affecting on his working ergonomic and habits, office worker can affect on his own wellbeing as well.

In my opinion my aim was realistic and clear. However, office worker to be able to achieve wellbeing in physical and mental level at work, essential key element is worker's own motivation towards it. The human's own desire is the prime mover, in every action. Likewise as in any change process. Can this presentation and I create motivation, which would give reasons for workers to re-evaluate their own working habits and ergonomics, to create better wellbeing in office?

Important is, when presenting the final product to the audience, to be convincing, expert-like and be truly interested about the presented subject. These factors have, in my opinion, as well huge impact on evoking the audience. How they will take the information, how useful they will keep it and most of all, will it switch on also the motivation to do some changes in the entire working place.

If this thesis and presentation will be able to motivate someone to make needed changes or provide information for someone to re-think and re-evaluate own working habits and ergonomics, it is big success for me and I could say this work has been useful. It will not be useful, for example, if no-one from targeted workers would not want a copy of the exercise program what was made for this project.
About my studying methods, I gathered theory by reading books, articles, studies etc. If something did not work as I planned, I kept a pause, sometimes asked somebody else's point of view and went back to my original plan. Process of making thesis was

not simple.

In my opinion I have put a lot effort on this thesis. I have been reading a lot of literature, not all of them is used in this work. This process has been on my mind all the year really strongly. I feel also that this is one my strengths, when I felt finally that I have the plan of the thesis clear in my head; I have been working really diligently.

I have learned from others that I should not be always so thorough. Not to read all the materials from the beginning to the end, and to limit the amount of the information I want to deliver. Weakest point of my thesis process was probably the time management and that because of my working habits.

From myself I have learned that I am not that poor writer and I have the needed ability of concentration for this kind of longer literature studies. In the beginning it felt difficult to start this kind of big literature work. It was solved just by loaning from the library the first few books related to my subject, starting read them and writing notes.

Easiest was to find the time to do the thesis during autumn 2013, because we did not have a lot of lectures or tasks to do in the autumn anymore. Most difficult was to gather all the information for the thesis template or finding reliable sources for some theory which I wanted to present in the thesis. In the end, difficult was also to decide about ending this project. All the time I felt I still needed to add, change or delete something.

Probably it would have been beneficial if I would have set for myself some certain hours when I should work on my thesis. Or decide every day to write, for example two hours. Or set some certain deadline for the whole project. In the beginning, I did write when I had planned what needs to be done, or when I had some new idea and I had so called “flow state”, and I could write several hours.

For me needs to be really clear what do I have to do. That is probably also the reason why I had difficulties in the beginning. I did not immediately define the subject simply or make clear content list what do I want to include and present in my thesis.

When I did those, I was able to immediately see where I am going at the moment and what needs to be still done.

The most important, after the fact that my thesis is able to support the dispatch, is that I learned a lot about doing study just by myself, about critical reading of possible sources and writing a credible scientific text. If I would begin now to do thesis, I would do some certain things differently. I would immediately define the subject simply and gather a list of things which in my opinion belongs to the table of content. I would go bolder forward and believe more in my skills to do a scientific study.

In my thesis I concentrated only to the physical and mental wellbeing in office work, but concentrating in wellbeing of some other professional field could be also an interesting topic for thesis. Or continue this thesis content by making some follow up later on, has some of this office's worker changed the habits and does this person feel it has had an impact on his wellbeing, in other words, has this project's final product been useful.

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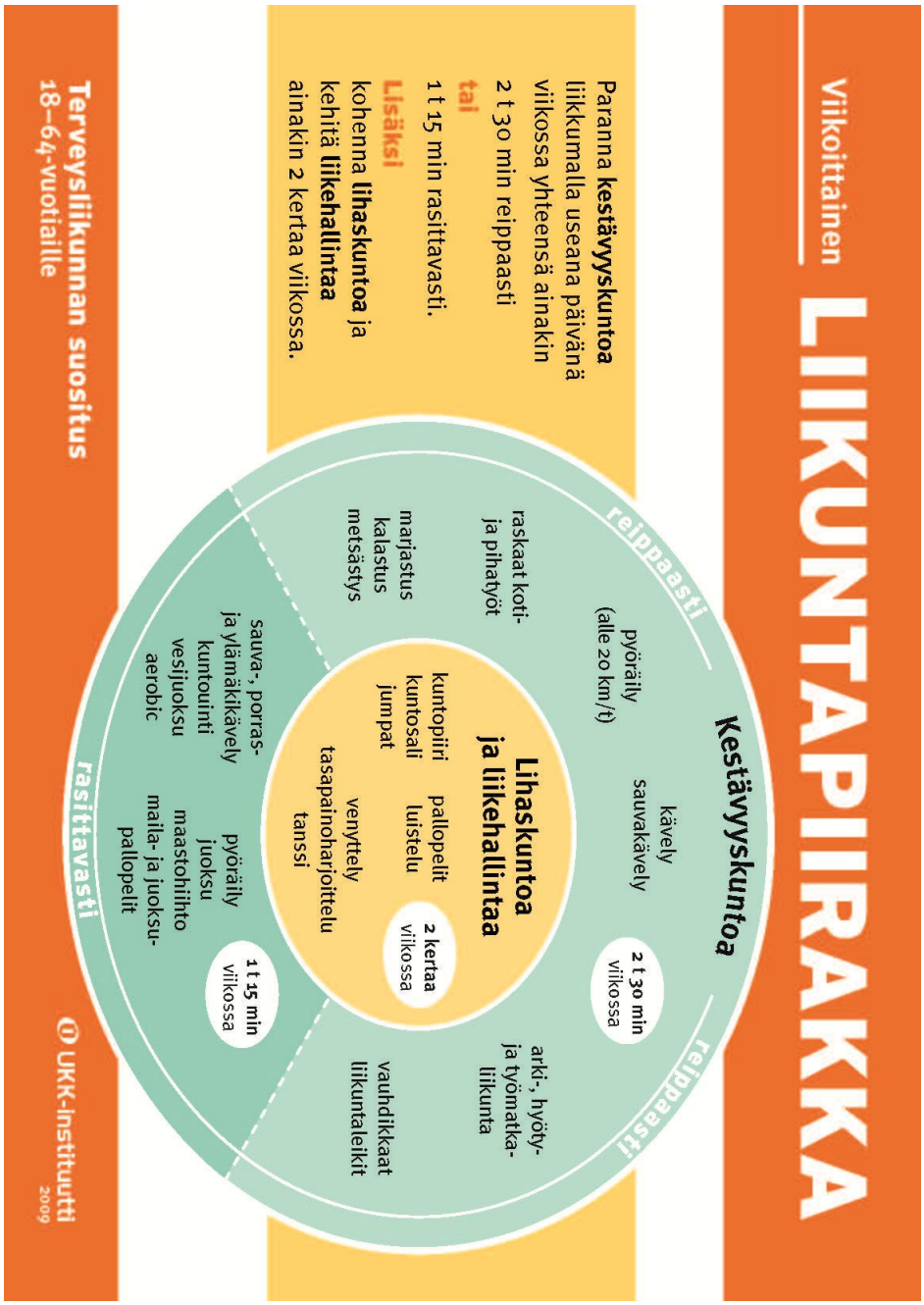
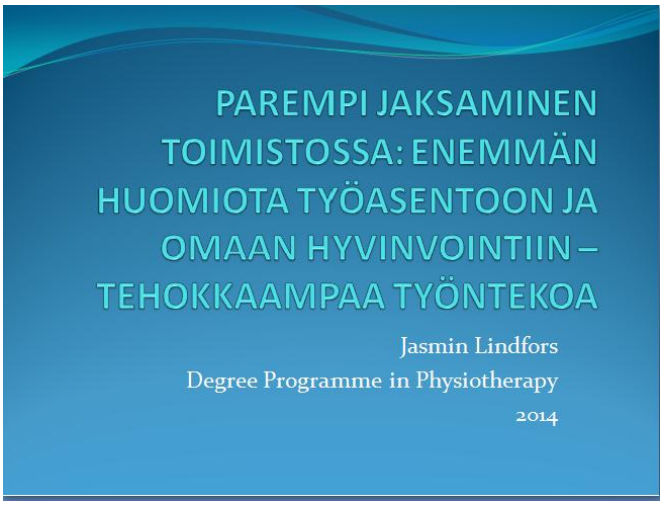
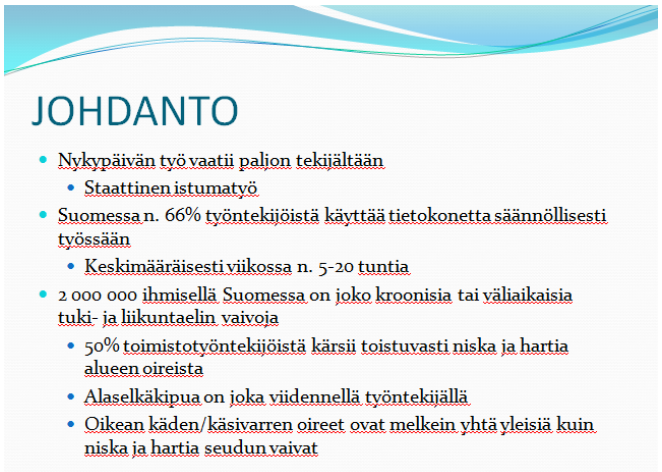
APPENDIX 1



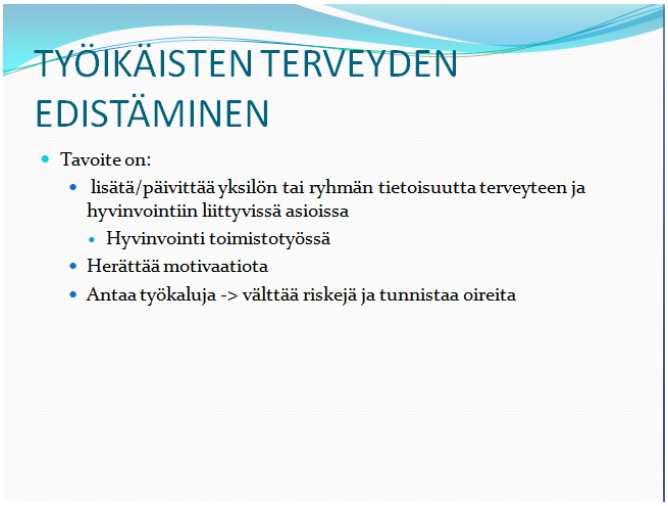
Website of Ukk-Instituutti

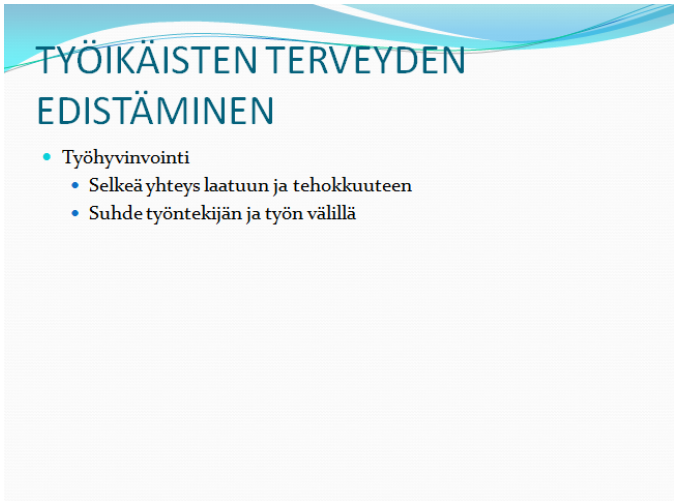

PAREMPI JAKSAMINEN TOIMISTOSSA: ENEMMÄN HUOMIOTA TYÖASENTOON JA OMAAN HYVINVOINTIIN – TEHOKKAAMPAA TYÖNTEKOA
Jasmin Lindfors
Degree Programme in Physiotherapy
2014


SISÄLTÖ
Johdanto
Työikäisten terveyden edistäminen
Työhyvinvointi
Ergonomia
Fyysinen ergonomia
Selkä
Yläraajat, niska – ja hartiaseutu
Psyykkinen ergonomia
Riskitekijät ja Seuraukset
Hallinta
Keinoja vaikuttaa omaan ergonomiaan
Taukojumppa
Lähteet


JOHDANTO
Nykypäivän työ vaatii paljon tekijältään
Staattinen istumatyö
Suomessa n. 66% työntekijöistä käyttää tietokonetta säännöllisesti työssään
Keskimääräisesti viikossa n. 5-20 tuntia
2 000 000 ihmisellä Suomessa on joko kroonisia tai väliaikaisia tuki- ja liikuntaelin vaivoja
50% toimistotyöntekijöistä kärsii toistuvasti niska ja hartia alueen oireista
Alaselkäkipua on joka viidennellä työntekijällä
Oikean käden/käsivarren oireet ovat melkein yhtä yleisiä kuin niska ja hartia seudun vaivat


JOHDANTO
Arki töissä ja vapaa-ajalla ovat myös muuttunut
Älylaitteet
Liikunta


TYÖIKÄISTEN TERVEYDEN EDISTÄMINEN
Tavoite on:
lisätä/päivittää yksilön tai ryhmän tietoisuutta terveyteen ja hyvinvointiin liittyvissä asioissa
Hyvinvointi toimistotyössä
Herättää motivaatiota
Antaa työkaluja -> välttää riskejä ja tunnistaa oireita


TYÖIKÄISTEN TERVEYDEN EDISTÄMINEN
Työhyvinvointi
Selkeä yhteys laatuun ja tehokkuuteen
Suhde työntekijän ja työn välillä

TYÖIKÄISTEN TERVEYDEN EDISTÄMINEN

- Ergonomia
  - Ergonomia on ihmisen ja toimintajärjestelmän vuorovaikutuksen tutkimista ja kehittämistä ihmisen hyvinvoinnin ja järjestelmän suorituskyvyn parantamiseksi
  - Kiinnitän erikoishuomiota tässä esityksessä sekä opinnäytetyössäni ergonomian kahteen eri osaan, fyysiseen ja psyykkiseen, sekä esittelen keinoja millä jokainen voi omaa ergonomiaansa kohentaa tai ylläpitää

FYYSINEN ERGONOMIA

- Toimistotyö mielletään usein helpoksi ja kevyeksi
- Fyysisen rasitus kuitenkin korkea
  - Staattista
- Tyypillisimpiä vaivoja istumatyötä tekevien keskuudessa ovat selän, niska- ja hartiaseudun sekä kyynärvarren ja ranteen vaivat

FYYSINEN ERGONOMIA

- Selkärangan olisi hyvä olla aina mahdollisimman luonnollisessa asennossa (Fig.1 & Fig. 4)
  - Silloin paino/paine jakautuu tasaisesti kuten tarkoitettu
    - Vältetään paremmin kireyksiä ja kipuja
- Etukumarassa asennossa paine kohdistuu enimmäkseen levyjen etupuolelle ja pää on kallistunut vartalon etupuolella (Fig.2 & Fig. 3)

APPENDIX 5

FYYSINEN ERGONOMIA

Figure 1

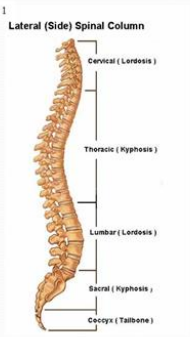
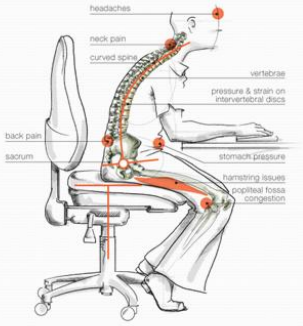


Figure 2



FYYSINEN ERGONOMIA

Figure 3

Figure 4

FYYSINEN ERGONOMIA

- Käsien/käsivarsien staattinen asento kuormittaa niska- ja hartiaseudun aluetta (Fig.5)
  - Tähän kuormitukseen vaikuttavat myös, käsivarsien etäisyys kyljistä sekä kuinka ranteille ja käsivarsille on tukea tarjolla

Figure 5

APPENDIX 6

PSYYKKINEN ERGONOMIA

- Vuorovaikutteista ympäristön kanssa
- Positiivista/Negatiivista
  - Stressi laukaisee ihmisessä reaktioita, jotka auttavat haasteiden yli pääsemisessä
  - Stressaava tilanne muuttuu haitalliseksi vain jos ihminen itse ei usko enää omaan selviytymiseensä

PSYYKKINEN ERGONOMIA

- Riskitekijät
  - Voivat olla sekä sisäisiä, että ulkoisia
  - Usein elämänmuutokset, esimerkiksi oma tai läheisen henkilön sairaus, työttömyys, lapsen kotoa pois muutto

PSYYKKINEN ERGONOMIA

- Seuraukset
  - Fysiologisia muutoksia: sydämen syke kohoaa, verenpaine nousee, hengitys tihenee ja lihas kireys lisääntyy
  - Jos stressaava tilanne jatkuu hyvin pitkään lopputuloksena voi olla uupuminen tai masennus

APPENDIX 7

PSYYKKINEN ERGONOMIA

- Hallinta (coping)
  - Tarkoittaa kaikkia ihmisen yrityksiä, niin toiminnan kuin ajatuksen tasolla, selviytyä voimavarat ylittävistä sisäisistä tai ulkoisista vaatimuksista ja kestää vaatimusten aiheuttamaa painetta
  - Voidaan luokitella kolmeen ryhmään
    - Yritykset muuttaa stressitilannetta
    - Yritykset muokata omaa näkemystä tilanteesta
    - Yritykset lievittää stressitilanteessa koettuja oireita ja kohentaa omia yleisiä voimavaroja

KEINOJA VAIKUTTAA OMAAN ERGONOMIAAN

- Vain 36% työikäisistä suomalaisista liikkuu terveytensä kannalta riittävästi
- Huonontunut fyysinen kunto tai sen puute + kuormittava työ = erittäin suuri riskitekijä tuki- ja liikuntaelin oireille ja sairauksille
- Istuminen usein mielletään vallan lepotilaksi, mutta esim. Toimistotyössä aiheutuu lihas kireyttä, aineenvaihdunta hidastuu ja selkä kuormittuu
- Ihanteellista olisi ottaa muutaman minuutin tauko kerran tunnissa
  - Parempi vaihtoehto kuin 10 minuuttia tai enemmän 2-3tunnin välein

TAUKOJUMPPA

- Helppoja ja tehokkaita harjoitteita edellämainittujen vaivojen kuntouttamiseen ja ennaltaehkäisyyn
- Kohdistettu erityisesti toimistotyöntekijöille

TAUKOJUMPPA

- Niska- ja hartiaseutu
  - Pään pyöritykset (5x puoli)
  - Hartiat ylös alas (10sek ylh. Jännitys, x 5)

TAUKOJUMPPA

- Kädet ja käsivarret
  - Ranteiden pyörittely (10x suunta, 2set)
  - Sormet auki, kiinni (x10, 2set)

TAUKOJUMPPA

- Keskivartalo
  - Tuolilla istuen, rinnan avaus-sulku (x10)


TAUKOJUMPPA

- Alavartalo
  - Kyykky + ylös varpaille (x10)
  - Nilkkojen pumppaus ja pyöritys (x10 molemmat liikkeet, 2set)



TAUKOJUMPPA

- Venytykset:
  - Pään taivutukset (30-60sek puoli)
  - Rintakehä (30-60sek puoli)


TAUKOJUMPPA

- Venytykset
  - Selkä, eteenpäin ojennus (30-60sek)
  - Pohkeet (30-60sek puoli)

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