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HEADS UP! - ERGONOMICAL GUIDE FOR MASSAGE
STUDENTS

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ERGONOMICAL GUIDE FOR MASSAGE STUDENTS

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The purpose of this thesis was to provide an ergonomical guidebook for massage students about the ergonomics of a masseur. The aim of the guidebook is to inspire students to put notice on their own ergonomics already at the beginning of their professional career. In the thesis, there is also information about the loading factors of masseur's work and the most common work related diseases of a masseur. In the guide book, the main focus is in the neck and shoulder area.

TABLE OF CONTENTS

1	INTRODUCTION.....	4
2	THE AIM OF THE THESIS.....	5
3	MESSAGE AS A PROFESSION.....	6
	3.1 Physical loads for a masseur.....	8
	3.2 Work related diseases of a masseur.....	9
	3.3 Risk factors for work well being.....	10
4	ERGONOMICS.....	11
	4.1 Legislation.....	12
	4.2 Physical ergonomics of a masseur.....	12
5	INTERVIEWS AND OBSERVATION.....	13
	5.1 Observation.....	14
	5.2 Interview with a massage teacher.....	15
	5.3 Interview with a massage student.....	16
	5.4 Personal experience.....	16
6	MOTOR LEARNING.....	18
7	THE PRODUCT OF THE THESIS.....	18
8	THESIS PROCESS.....	19
9	DISCUSSION.....	20
	REFERENCES.....	23
	THE QUESTIONNAIRE FOR THE MESSAGE TEACHER:.....	24

1 INTRODUCTION

Ergonomics is a study which concentrates on the relationship between a human being and his/her work. It studies the problems that worker faces in one's work and tries to find usable solutions to them. The main goal of ergonomics is to increase understanding of the interaction of a man and the environment and the different elements of the environment. It tries to maximize the work well-being and to optimize the worker's actions during the work day. In addition, ergonomics is used in planning and building working environments. To achieve these goals, ergonomics is using different theories, knowledge and methods. (Hänninen et al. 2005, 11.)

Many work related diseases are because of bad ergonomics. It can also be the biggest reason or at least one of the reasons for the problems caused by the equipment that is used in the work and the problems caused by the working environment. (Hänninen et al. 2005, 17.)

Ergonomics is used to enhance the safety and the well-being in the work. It has a big role in the efficient and problem-free functioning of the systems related to the work. With the help of ergonomics the worker's features and needs are adapted to the work, work equipment and working environment. (Finnish Institute of Occupational Health, 2013)

My thesis will be about the ergonomics of masseurs. I have planned to do an instructional guide for masseur students especially. Focus on the guide will be on the neck and shoulder area. In addition, I have planned to do some research about the most common work related diseases of masseurs and physiotherapists. I will also do an ergonomic workplace assessment of a masseur.

The reason why I picked up this subject is that I am a masseur myself and during my own studies in massage school we did not have any written instructions about ergonomics. Therefore I started to wonder that it would be nice to somehow help other students in their own studies. And of course I am concerned about my own ergonomics and this is a good way of putting more attention to that.

The client who ordered this thesis from me is The Sportmassage Institute of Tampere. Ergonomics is a huge area of issues and therefore I will ask their opinion of what elements I should focus on my instructional guide. After I am finished with my thesis I will offer the guide for their students.

I noticed that it might be pretty difficult to find concrete studies done about work related diseases of masseurs. That is the reason why I decided to add also the work related diseases of physiotherapists. The work of a physiotherapist can be very similar to masseur's work. Both of the professions have elements where the professional is in very close contact of the client.

2 THE AIM OF THE THESIS

The purpose of the thesis is to provide an ergonomical guidebook for massage students about the ergonomics of a masseur. The aim of the guidebook is to inspire students to put notice on their own ergonomics already at the beginning of their professional career. Moreover, the main focus of the guidebook is to give students valuable information about ergonomics of the neck and shoulder area. The students need to understand that ergonomics is not only about working positions and postures. It includes also the working environment i.e. lighting, temperature, floor and wall surfaces, equipment etc. This information they will be able use throughout their studies and career.

With the help of the guidebook we are able to highlight some of the most important elements and aspects of the ergonomics of a masseur. Therefore the guidebook helps students to acknowledge the risk factors and gives instructions on how to minimize their effects. Attention of the thesis is in the neck and shoulder area. The guidebook and the thesis will give both theoretical and practical advice about the ergonomics of that area. This information will base not only theoretical studies and books but also on interviews of experienced teachers and professionals.

3 MASSAGE AS A PROFESSION

The biggest part of the work of a masseur is manually performed therapy for the client. Masseur treats the client with versatile manual grips. The treatments need to be anatomically and physiologically justifiable and effective. Masseur needs to know how to perform the different types of grips and treatments. Therefore it is essential for the masseur to familiarize thoroughly the theory and practise of massage. The theory includes not only massage but anatomy, physiology, pathology, ergonomics, first-aid and communication skills. Qualified masseur works in a multi-professional environment and he/she needs to know when to guide the client to meet an other health professional. Most of the masseurs work as an entrepreneur but there are still some rehabilitation centers, spas and sport centers that hire masseurs. (Ammattinetti, 2014)

To be allowed to use the professional title of a qualified masseur one is obliged to be graduated for the profession. The Finnish National Board of Education is the instance that sets the requirements for the graduation. Requirements are supervised by a board of experts. The board includes a representant from four different fields. These representants are an employer, an employee, a teacher and an entrepreneur. An entrepreneur representant is needed because most of the masseurs will be working as entrepreneurs. The student is graduated when he/she fulfills all the pre-set requirements. The requirements that need to be fulfilled include different theoretical and practical elements that are essential for the profession in question. (Website of the Opetushallitus, 2011.)

The requirements for the profession of a qualified masseur consist from three obligatory subjects. The first subject handles about how to work as a masseur in a theoretical level. In this part the student for example needs to show that he/she knows how to use different sources of information wisely. In addition, the student has to prove the board with sufficient skills in multi-professional co-operation, customer service, organizing the massage room, palpation and examining the client, planning and performing the massage, health promotion and first aid. The second subject is massage as a treatment situation. It is more practical and includes a part where the

student needs to do a long term treatment plan and massage different types of real clients. In addition, in this part the student has to show that he/she knows how to set a treatment room/space in versatile environments. Moreover, student needs to show skills in multiprofessional co-operation, practical health promotion/guidance, thermal treatments and doing the client reports. Both of these subjects include a part where the student is obliged to think of how to improve and develop the well-being of both personal and work community. Big part of this is naturally ergonomics. The third and last subject is how to work as an entrepreneur. In this subject the student needs to make a realistic business plan for the health sector and analyze it thoroughly. (Opetushallitus, 2011.)

One of the schools that provide studies to become a qualified masseur is The Sportmassage Institute of Tampere. It has organised courses since 1987 and is concentrated on sports massage. The course lasts for 10 months and the main goal is to fulfill the requirements to become a qualified masseur at end of the studies. In addition of getting the possibility for a profession the school offers close look and lot of work experience of the area of sports. Big part of the school is practical work with real clients. These clients are mainly regular people but many of them are professional sportsmen and -women. (Website of The Sportmassage Institute of Tampere, 2014.)

3.1 Physical loads for a masseur

Work load: LINDSTRÖM ET AL 2002, A Simplified loading model

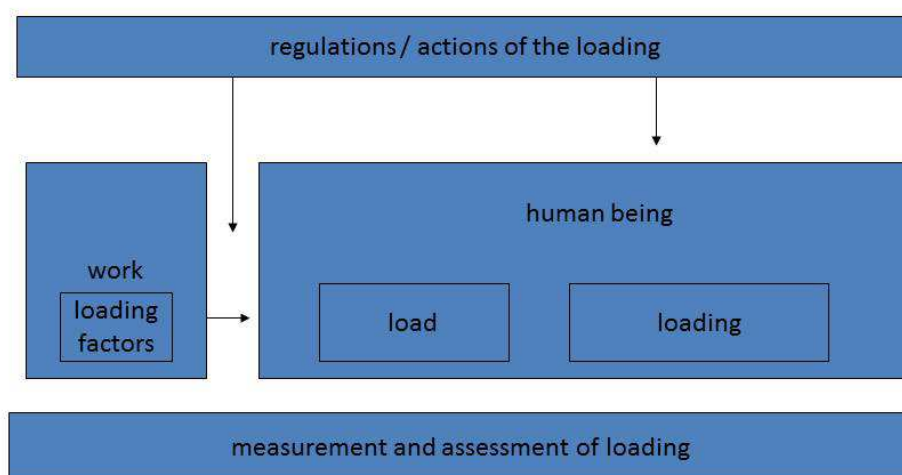


Figure 1. Simplified loading model of the work load (Lindström et al 2002)

There are certain regulations and actions that regulate the work load. These are usually mentioned in the legislation and they cannot be overlooked. When defining the work load one must think of the use of both the physical and psychological actions and features of a human being during the work and work processes. The simplified loading model of the work by Lindström et al, shows that the work itself has certain loading factors that affect a human being. These factors are the same for every worker and they put the same measurable load on the worker. However, there is also the human factor of how the workers feel about and handle the load. Even though the loading factors of the work are the same for every one, the workers can feel that they are loaded differently. Some people can feel that the work is loading them extremely while some people feel the same work is still easily managed.

Massages can be given in different positions. Often used equipment are massage chair and massage table. A study done in Canada in 2007 aimed to determine

differences in muscular and postural demands of performing manual therapy using a massage chair and a massage table. The results of the study revealed that both the chair and table massages resulted in nonneutral trunk flexion postures for greater than 30% of the massage time. This significantly increases the risk of low back injury. The table massages required a significantly longer percentage of time (~50%) in a nonneutral posture and consequently a larger injury risk. Both the chair and table massages resulted in severe wrist postures for greater than 80% of the massage time, which places the wrist at risk of injury. These results suggest that manual therapist training needs to include education on good body posture and muscular fatigue as a means of self-care and injury avoidance. (Buck et al. 2007, 363.)

3.2 Work related diseases of a masseur

In 2007 there was a survey done in Canada. The aim of the survey was to determine the prevalence of musculoskeletal pain and discomfort. The majority of the respondents indicated that they had received proper training in therapy postures and selfcare. However, there was a high prevalence of pain reporting to all areas of the upper extremity. Wrist and thumb were the areas where most pain was reported, followed by the low back, neck and shoulders, respectively. The results of this survey indicate a high prevalence of musculoskeletal pain and discomfort associated with delivering massage therapy treatments. Therapists must focus on proper technique posture and adhere to a regime of self-care to reduce the risks of pain and injury. (Albert, Currie-Jackson & Duncan 2008, 86.)

The work of a physiotherapist is on certain parts relatively similar to the work of a masseur. A study made in Great Britain stated that physiotherapists are at high risk of developing work-related musculoskeletal disorders. More precisely, the recently qualified staff is particularly vulnerable. One reason for the fact that physiotherapists are getting work-related musculoskeletal disorders is that they think they are immune to serious work-related musculoskeletal disorders. Even though physiotherapists would know how to prevent these disorders, many factors pose barriers to their use in practice. These factors are for example insufficient time, big load of patients and physical handling of patients. Especially newly qualified physiotherapists seem to

require more supervision, support and health surveillance than is currently being provided. (Graham & Gray 2005, 306.)

In 2007, there was a study done among The American Physical Therapy Association (APTA) about work related musculo-skeletal disorders. According to the study there are three main body parts where American physical therapists are having problems with. These body parts are low back, wrist and hand and neck and shoulders. Most incident cases of musculoskeletal disorders was reported in low back, followed by wrist and hand, neck, and shoulder. Factors that increased the risk for work-related musculoskeletal disorders included mostly situations where the therapist is in a close encounter with the patient. More detailed, these situations included patient transfers, patient repositioning, bent or twisted postures, joint mobilization, soft tissue work, and job strain. (Campo 2008, 612.)

The Finnish Institute of Occupational Health (FIOH) compiles statistics considering the occupational diseases. Occupational disease is a disease that can be assumed to be caused by the physical, chemical or biological factors of one's work. The FIOH does not have a statistic for masseurs but for physiotherapists they do. In the year 2010 there were 11 occupational diseases considering the work of a physiotherapist. Three of the diseases were because of strenuous work. Four of the diseases were related to the respiration and the rest four diseases were related to skin diseases. However, the statistics do not include the common musculo-skeletal diseases like back pain, arthrosis or neck and shoulder pain syndromes. This is because with those diseases the relation with the work/occupation is difficult to prove on an individual level. (Website of The Finnish Institute of Occupational Health 2013.)

3.3 Risk factors for work well being

In general level big risk factors for neck and shoulder pain area are smoking, age and being overweight. According to the studies main work related risk factors are strength requiring dynamic work, static muscle work on the neck and shoulder area and positions in the widest range of motion. In addition, neck and shoulder pain is

increased by the psychosocial load and the psychological pressure of the work. (Hänninen, 27)

As well as lower back pain, neck and shoulder pain can be caused by all the structures that have nerve endings, in other words nociceptors. In a tissue level, pain can origin from many different structures, for example muscles, intervertebral discs, ligaments, nerves and facet joints. The head weighs approximately 8% of the whole body weight. Therefore the muscles in the neck and shoulder area have an extremely big work if the work requires lot of support or holding up for the head. Moreover, holding the head in hanging position stretches the passive structures that support the neck. The muscles in the neck and shoulder area are relatively small and if they need to do plenty of static work they will be tired and painful. (Hänninen 2005, 28.)

4 ERGONOMICS

The word ergonomics comes from two words in Greek language. The words are ergo (=work) and nomos (=laws of the nature). Ergonomics is studying and developing the interaction of human and the surrounding structures. The goal of ergonomics is to improve the well-being of humans and the capacity of the surrounding structures. (Launis, 2011)

Ergonomics can be divided in three different sectors. One sector is physical ergonomics which concentrates on planning the physical working environment, different tools, working methods and workstation. In other words, it deals with the human factor in the work, i.e. working postures, repetitive movements and musculoskeletal illnesses. Another sector is cognitive ergonomics which concentrates on the mental processes. These processes can be such as memory and perception. In addition, cognitive ergonomics concerns planning structures and systems and the user interface of those on a psychological level. It also concentrates on how to display the gathered information. Third sector of ergonomics is organizational

ergonomics which concentrates on planning the work as a whole, including for example processes, personnel, resources, policies and working time. In addition, organizational ergonomics concentrates on developing the production, quality and co-operation. (International Ergonomics Association, 2014)

Because ergonomics is such a wide concept, this thesis will have elements from all sectors mentioned earlier. However, most of the concentration will be in the physical and cognitive ergonomics. The goal is to give valuable information and teach new students about the correct ergonomics. The learning process starts on the cognitive level but rather soon the students will try the actual work of a masseur. When doing the actual work, the students are learning on a physical level.

4.1 Legislation

Occupational Health Care Act was revised at beginning of the year 2002. The Act stresses the co-operation and the importance of it between the different factors of the working environment. These factors are the employer, employees and the occupational health service. The purpose of the Act is to prevent harm to health that the working conditions and the work itself could cause. Another purpose of the Act is to promote the people's health and the work ability. Occupational Safety and Health Act was revised in 2003. It's purpose is to secure and maintain the working ability of the employees by improving the working environment and conditions.

4.2 Physical ergonomics of a masseur

What comes to the work of a masseur, special attention to correct working postures should be acknowledged already during the studies. The working habits that follow proper ergonomics decrease remarkably the physical loads of the work. Having a plinth that allows the adjustments of the height is the most suitable for the use. It enables to have a correct posture during massages that last longer time. When the masseur is able to use his/her own body weight as extra help means that the height of the plinth is correct. (Arponen 2001, 68.)

The meaning of the lubricant that is used in massage, is to reduce the friction between the masseur's hand and the client's skin. Most common lubricants are lotion, oil and powder. The lubricant should be as neutral as possible what comes to the scent. (Arponen 2001, 67.)

5 INTERVIEWS AND OBSERVATION

When gathering information, one needs to choose the correct gathering method for the purpose. The flexibility of an interview makes it suitable for several research purposes. Therefore; it is one of the most used methods of research. What differs interview from other research methods is that during an interview one is in direct interactive contact with the research subject. This enables the interviewer to direct the situation deeper into the topic/subject. (Hirsjärvi 2008, 34.)

The interview that is used in this thesis is theme interview which is very close to semi-structured interview. Theme interview means that the person that is interviewed knows the the topic and has personal experience of it. In a theme interview there are no pre-set questions or answers for everyone. The questions can differ little bit depending on the subject. Moreover the subjects can use their own words when answering the questions. (Hirsjärvi 2008, 47)

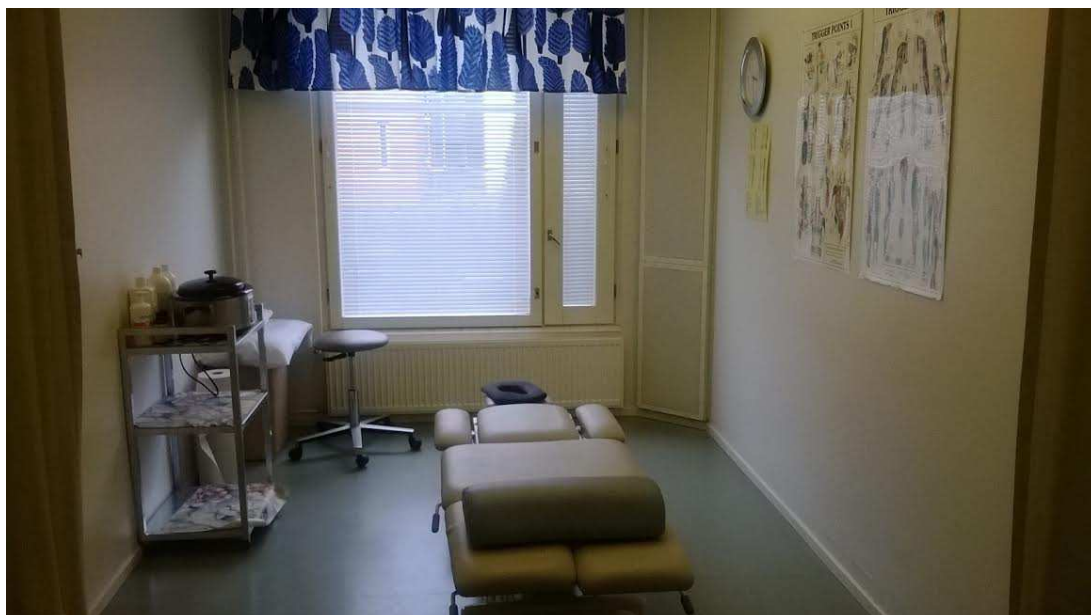
Interview and observation were used as a way of gathering information and doing research in this thesis. Research method was qualitative. I interviewed a massage teacher and massage student. The answers and information that was received were summarized and put to the thesis. The questions in the interview were open and dealt with ergonomics of a masseur. The questions of the interview can be found more detailed in the appendices of the thesis.

For the thesis I observed a professional massage therapist at her work. The massage therapist under observation has been working in her profession for over thirty years.

She graduated in her profession in the beginning of 1980s'. The purpose of the observation was to find out the biggest physical loads of a masseur. The observation was executed in the Kankaanpää Rehabilitation Center.

5.1 Observation

During the observation the massage therapist had two clients who both wanted a back massage. The duration of the massages were 45 minutes each which included about 30 minutes of the actual massage. The rest of the time included the preparation of the client for the massage (interview, undressing, dressing up) and the documentation of the massage.



The room where the therapist was doing the massage included the electrically operated plinth, chair for the client, a desk and a stool for the therapist.

I noticed that the massage therapist was changing the height of the table quite often to get a better position for herself. Especially when she changed from lower back to upper back she changed the height. Even though the massage therapist was very experienced she was still looking down to the client relatively often. This led to a situation where the head of hers was hanging in an uncomfortable position.

5.2 Interview with a massage teacher

For the thesis I interviewed a 50-year-old massageteacher and the head of the school. I used an open theme interview as a method (Appendix 1.) From his original education the teacher is sportsphysiotherapist. He has been running the school since 1987. As the most important factors in masseur's ergonomics he brings up the well-being of hands and wrists that are facing lot of stress in a long run. In addition, in his opinion the neck and shoulder area should be taken in to serious consideration. He mentions especially the incorrect positions of the head and shoulders that increase hugely the load on those areas.

As the masseur's own possibilities to effect on their own ergonomics he highlights the correct postures and working positions. In addition to that the effective use of the massage table is in a big role. Adjusting the height of the table will help on finding the most comfortable body position. And, according to the teacher, the masseur needs to be in good physical condition since massaging is rather physical work. The shape of the antagonist muscles need to be good to avoid muscle balance and other problems related to that in the concerned area. As one important factor the teacher mentioned sufficient energy intake during the day. As said earlier, massaging is physical work and requires lot of energy. To meet these needs it essential to eat and drink enough during the whole day.

"The masseur needs to use "game-sense" what comes to the treatments. Sometimes one has to be able to take a breath during the massage. This means that the masseur has to change the technique every now and then."

One more thing that was brought up in the interview was the positioning of the client. The teacher highlighted that with good instructions the client is possible to comfortably position so that the working posture would be the most suitable for the masseur. About the use of assistive aids/devices during the massage the teacher mentioned that if possible it would be handy to use a chair and massage from a sitting position. This enables the change of working position and puts the biggest stress on different areas on masseur's body than when working from standing position.

5.3 Interview with a massage student

For the thesis I also interviewed a massage student. The student that I interviewed is 23 years old and she has not worked in the health sector before. She has been studying to become a masseur for one month now. The method of interview was open and the questions that were used were the same than in the teacher's interview. (Appendix 1) The student sees ergonomics as a big part of one's work well being. It decreases the risk of facing work related illnesses. As the most important factor of ergonomics for a masseur, she mentions the working positions and the loading of hands. About the masseur's own possibilities to affect on the ergonomics she highlights the decisions that occur during the actual work. One of these decisions is for example the working positions.

According to the student the biggest risks that a masseur faces in his/her profession are related to the hands and the lower back. More precicely, the masseur's fingers face the biggest work load. In addition to that, the student mentions the work load in general. Massaging can be heavy physical work and the duration of a working day can be long, which means that it puts the masseur under a heavy work load.

The student tells that an ergonomical guide could be a useful tool to support the studies. The ergonomics is a big part of the studies already but still there is not much of written and simplified guides for the students to use. The student hopes that the guide would be as practical as possible and that it would include pictures also. The pictures would give a visual example of the written information.

5.4 Personal experience

My professional career as a masseur started at 2008 when I entered Finland's Sportmassage School in Tampere. The education lasted eight months. After school I started my own business and have been working as a masseur since that. I have been working as an entrepreneur but also in other private practices and a rehabilitation center.

As I am a masseur myself I have noticed several factors that need to be acknowledged when dealing with proper ergonomics. Personally, I see ergonomics as a whole that includes practically everything that a masseur does during the working hours. For example the condition in the room where the actual work is being done has its own effect on the ergonomics. These conditions include for example the temperature, floor surfaces, lighting, sounds/noise etc. In addition, masseur uses plenty of different types of chemicals (lotions, oils etc) which of course have to be healthy and safe for not only the client but the masseur too.

The work of a masseur is mainly physical and requires a lot from the physical condition of the masseur. Therefore the masseur need to be in a good shape considering the physical ability and endurance. Regular exercising on the free time helps to handle the physical demands of the work. Especially the core of the body needs special attention since it effects on the control of the lower back.

Type of muscle work during the actual work is important to notice. One needs to avoid static movements and grips and prefer the dynamic ones. This helps in having the blood circulation running and slowing down the fatigue. In addition, the use of the plinth cannot be overestimated. Correct height of the plinth provides better posture for the body and therefore puts less load on masseur. By using the strength of the whole body and not only arms and hands the masseur can reduce the stress for the mentioned areas. Quite usual mistake for masseur is to look down during the work. This position gives a remarkable stress and load for the neck and shoulder area which would be easy to avoid by keeping the head up.

A typical working day for a masseur lasts approximately eight hours. During those hours the masseur usually has 6 to 8 clients. As mentioned earlier, the work of a masseur is physically very loading. Therefore, having short breaks between the clients is extremely important for the masseur's well-being. The break does not necessarily need to be total rest but it can include different ways of recovering methods i.e. stretching.

6 MOTOR LEARNING

Practicing provides increased proficiency in the task that is being done. Learning is a process that consist of couple of stages/phases. One view of categorizing these stages is so called three-stage view of learning. In this view the stages are: cognitive, fixation and autonomous. Cognitive stage is the first stage. Basic idea of the cognitive stage is that it is a problem solving process. It's main goal is to find a solution of what needs to be done in order to achieve the goal of the task.

The second stage is the fixation stage. In this stage the learner has decided what is in his/her opinion the most effective way of doing the task and what adjustments needs to be done for the actual performance of the skill. Improvements in the performance happen step by step and by time the movements and skills become more and more consistent. The duration of the fixation stage is relatively long. It can last even several years.

The third stage is the autonomous stage. Entering this stage happens after several months or years of practise. As the name of the stage states, the skill that has been learned has evolved in an autonomous action/behaviour. The performer has adapted the skill so well that he/she can do it without paying attention on the technique. (Schmidt & Lee 2011, 429.)

7 THE PRODUCT OF THE THESIS

The guide book that I came up with included four main chapters/parts. First part is the prologue/introduction, second is the warm-up, third part is the actual tips about the ergonomics and the fourth part is the summary. In the introduction I tell about ergonomics in general level. In addition, the introduction highlights some of the reasons for musculo-skeletal diseases, especially work-related reasons. Most importantly, the introductions brings up the biggest work load factors that consider the profession of a masseur. The warm-up includes six basic exercises that can be

easily done and do not need any big investments. As an assistive device I chose to use a rubber band. This is because a rubber band is extremely versatile and does not require big space to exercise with. Moreover, a rubber band is cheap and it can be bought practically from every sport shop. There are different strengths of rubber bands which offers the possibility to choose a suitable band for one's needs. The third part of the guide includes practical advices considering the massage work itself. These advices concentrate not only on the working positions that affect on the neck and shoulder area but also on the working environment. In addition, in the third part the students are given information about the anatomy of the neck and shoulder area, especially about the muscles in the area. The fourth and last part of the guide is the summary of the previous parts. The summary highlights one more time the most crucial details about the ergonomics of a masseur.

8 THESIS PROCESS

I got the idea for the thesis already in 2009 when I was studying in the Sportmassage Institute. It was obligatory to do a thesis about an issue that one is interested in. I planned to do an ergonomical guide for masseurs but it included way too much work considering what was required. Therefore I decided to postpone the plan about the guide and changed my subject of the thesis.

During the third year of the physiotherapy studies it was time start thinking about the thesis. I had couple of ideas of what pick up as a subject. I decided to the ergonomical guide because it had stayed in my mind since the massage school. My tutoring teacher also liked the idea and gave her approval on my plan. During the next weeks I produced a rough plan for the thesis. At this point my plan was to create an ergonomical guide for masseurs in general.

During the spring of 2013 I started to develop my idea about the guide. I wondered if it would be a good idea of targeting the guide for massage students. I had a meeting with my tutoring teacher and she agreed with me. So I decided to produce an

ergonomical guide of which the group is massage students. In addition, at that time I planned to ask if my previous school (The Sportmassage Institute in Tampere) would be interested of doing some co-operation with me.

The actual writing part of my thesis lasted for almost two years which is much longer than I had planned. The reason for the delay was mainly the lack of motivation and energy. I was working full time at same time and it was difficult for me to find enough energy for writing the thesis during evenings. However, in autumn 2014 I got back to my thesis and finally had it finished. I had the thesis presentation in September 22th 2014.

9 DISCUSSION

As I was trying to find an interesting topic for my thesis, I had an open mind for different kind of possibilities. However, I decided to execute the idea that I had had in my mind for years already. An ergonomical guide considering massage has been on my to do -list since my own sport massage studies. When I was studying to become a masseur I noticed that it would be nice to have some sort of written guidelines about the ergonomics of a masseur. And as I was working as a masseur I noticed that ergonomics has a huge effect on masseur's well-being and working ability. At first I did not want to restrict the content of the guide book too much but let it evolve during the process. This way I would have a wide perspective on the topic and I would have the opportunity to grab on the issues that rise up.

As a method of interview I decided to choose a theme interview. Reason for this decision was that the theme interview offered me some the possibility The interview that is used in this thesis is theme interview which is very close to semi-structured interview. Theme interview means that the person that is interviewed knows the the topic and has personal experience of it. In a theme interview there are no pre-set questions or answers for everyone. The questions can differ little bit depending on

the subject. Moreover the subjects can use their own words when answering the questions.

As a form of the guide I chose a booklet. I wanted that the students could have a concrete piece of work in their hands when needed. The information in the booklet is intentionally kept really simple. This is because I think that simple things stay in ones mind much easier than complex and detailed information. In addition, there are pictures in the the booklet that clarify the written theory. The pictures include an example of both the incorrect and correct working postures. And positions. Moreover, I have included pictures of a basic massage booth and the anatomy parts of the body that are dealt about in the booklet. The pictures help the students in memorizing the information, especially those students whose memory relies on visual aspects.

I was disappointed that due to unsuitable timetables I was not able to observate the massage students in their work. Observation of the students in work would have given me valuable and interesting information about their current working habits and postures. Moreover, observation would have given me a nice overview of their knowledge about ergonomics in general. However, observing a qualified massage therapist in her work helped me understanding the most important aspects of the ergonomics of a masseur. I wondered if it would be necessary to record the work of the massage therapist with a video camera. However, I decided not use the video camera because of the privacy of the client. I did not want to make the client feel himself uncomfortable.

As a whole, my feelings about the thesis and the ergonomical guide vary a little bit. I am pleased that I managed to produce an ergonomical guide for massage students because the topic is extremely important for me. But on the other hand, I feel that I could have done much more. The research that I did for the guide could have been much more thorough. Especially the interviews and observations could have been more versatile. I definitely should have observed a student in his/her work.

During the process of writing the thesis, I was at the same time working full time in a rehabilitation center. I was surprised how difficult it was for me to combine the thesis

project and my day job. The most difficult part was to find enough time and energy to write the thesis after a long and heavy work day.

My thesis handles about the ergonomics of a masseur from the neck and shoulder point of view. As a suggestion for further studies the topic could be broadened so that the low back area would be included to the guide book. That is, because low back faces big work loads during massage therapist's career. For example, massage therapist's work includes client transfers that need to be done with proper technique. In addition, an interesting point of view for ergonomics could be the client's ergonomics and how the accessibility issues are taken into consideration.

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APPENDIX 1

THE QUESTIONNAIRE FOR THE MASSAGE TEACHER:

1. What is ergonomics in general in your opinion?
2. How is ergonomics related to masseurs' work?
3. What are masseurs' own possibilities to effect on ergonomics?
4. What are the most important factors/greatest risks of ergonomics for a masseur?
5. How does the working environment/space effect on ergonomics?
6. Is there a need for an ergonomical guide?
7. If there is a need for the guide, how broad should it be?
8. If there is a need for the guide, what should the ratio between text and pictures be?