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URINARY INCONTINENCE IN WOMEN -  
TEACHING PACKAGE FOR AGED FINNISH WOMEN LIVING IN  
SPAIN AND FOR PHYSIOTHERAPY STUDENTS IN MÁLAGA  
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# URINARY INCONTINENCE IN WOMEN – TEACHING PACKAGE FOR FINNISH AGED WOMEN LIVING IN SPAIN AND FOR PHYSIOTHERAPY STUDENTS IN MÁLAGA UNIVERSITY

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The purpose of this bachelor's thesis was to provide two lectures of women's urinary incontinence and treatment of it. These teaching packages were divided in two parts. The aim of the first lecture was to increase knowledge of urinary incontinence and its treatment for Finnish elderly women living in the Costa del Sol area, Spain. The second lecture was aimed to increase the awareness of incontinence physiotherapy of the students of physiotherapy in Málaga University. The lectures were given in the spring 2008.

The theoretical part of the thesis explains the anatomy and physiology of the female pelvic floor as well as the risk factors of urinary incontinence in women, its prevalence, types and treatment. The emphasis of the treatment is in physiotherapy. Theoretical information is collected from literature and different databases. I also participated in a special education day in Jyväskylä University of Applied Sciences to receive newest information on the subject.

The teaching packages included theoretical and practical part. The theoretical part contained information on the risks, effects and treatment of urinary incontinence. Also the anatomy and physiology was explained. In the practical part, pelvic floor exercises were instructed and practiced. The role of physiotherapy was discussed in small groups with the physiotherapy students in Málaga University.

Urinary incontinence is a common disease especially in aged women. Despite its high prevalence, it is still considered as an embarrassing condition. It is essential that the knowledge of the risks and treatment methods is shared for women, in order to reduce prejudices on urinary incontinence. Knowledge also makes the mysteriousness and ashamedness to diminish and increases the tendency to seek for help. This makes it essential that professionals are aware of the problem. Especially physiotherapists, who often face pelvic floor dysfunction and incontinence, need to know at least some basics of the problem.

# NAISTEN VIRTSAINKONTINENSSI – OPETUSPAKETTI ESPANJASSA ASUVILLE SUOMALAISILLE NAISILLE SEKÄ MÁLAGAN YLIOPISTON FYSIOTERAPIAOPISKELIJOILLE

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Opinnäytetyön tarkoituksena oli tuottaa kaksi luentoa naisten virtsainkontinenssista ja sen hoidoista. Nämä opetuspaketit jaettiin kahteen osaan. Ensimmäisen luennon tarkoituksena oli lisätä suomalaisten Espanjassa asuvien naisten tietoisuutta virtsainkontinenssista ja sen hoidoista. Toisen luennon tarkoituksena oli lisätä Málagan yliopiston fysioterapeuttiopiskelijoiden tietoisuutta inkontinenssifysioterapiasta. Luennot pidettiin keväällä 2008.

Opinnäytetyön teoreettinen osuus selvittää naisen lantionpohjan anatomian ja fysiologian lisäksi virtsainkontinenssin riskitekijöitä naisilla, niiden esiintyvyyttä, muotoja ja hoitokeinoja. Fysioterapiaa on painotettu hoidoissa. Teoreettinen informaatio on kerätty kirjallisuudesta sekä eri tietokannoista. Lisäksi osallistuin lantionpohjan toimintahäiriöiden ajankohtaiseen koulutuspäivään Jyväskylän ammattikorkeakoulussa saadakseni uusimman tiedon aiheesta.

Opetuspaketit sisälsivät teoria- ja käytäntöosuuden. Teoriaosassa käytiin läpi mm. virtsainkontinenssin riskejä, vaikutusta sekä hoitomuotoja. Myös lantionpohjan anatomia ja fysiologia käytiin läpi. Käytännön osuudessa ohjattiin lantionpohjan lihasharjoitteita ja harjoiteltiin niiden tekemistä. Fysioterapian osuudesta keskusteltiin pienryhmissä fysioterapeuttiopiskelijoiden kanssa Málagan yliopistossa.

Virtsainkontinenssi on yleinen sairaus ikääntyneillä naisilla. Korkeasta esiintyvyydestään huolimatta se koetaan edelleen hämmentävänä vaivana. Riskeistä ja hoitokeinoista tiedottaminen naisille on tärkeää, jotta ennakkoluulot virtsainkontinenssia kohtaan hälvenisivät. Tietoisuus myös vähentää asian salaperäisyyttä ja hävettävyyttä sekä kasvattaa alttiutta hakeutua hoitoihin. Tämän vuoksi myös ammattilaisten on oltava tietoisia tästä ongelmasta. Erityisesti fysioterapeuttien, jotka usein kohtaavat lantionpohjan toimintahäiriöitä ja inkontinenssivaivoja on ymmärrettävä vähintään perusteet ongelmasta.

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## 1 INTRODUCTION

By urinary incontinence it is meant involuntary leakage of urine from the urethra, which causes social, psychological or hygienic inconvenience for a person. Urinary incontinence is a common disease especially among elderly women. In 70 year-olds or older women the prevalence has already increased to 59% from 20 % among women under 60 year-olds. (Kujansuu 2006; Duodecim 2006). Despite this fact, the silence around this subject is deafening. The concept of urinary incontinence is also separated into subtypes, on the grounds of symptoms and causes. In my bachelor's thesis, I have concentrated on four most common subtypes, which are stress-, urge-, mixed- and overflow incontinence.

The idea of creating a teaching package for Finnish elderly women living in Spain came when I was informed I would be able to go to do my three months clinical practice in Spain, in a project with Finnish, especially aged people. I have been interested in pelvic floor dysfunction and this gave a good opportunity to study more about the subject and inform others too. Since we were cooperating with Málaga University, I got the other idea of giving another type of lecture for the physiotherapy students there.

The aim of the teaching package for Finnish aged women was to increase knowledge about the facts of urinary incontinence in women, its risks, prevention and treatment. This, for one's part was to revise the attitudes towards the problem and to motivate the women to take care of themselves. The second teaching package aimed at giving a concept for Spanish physiotherapy students of what a physiotherapist can do with a client suffering from pelvic floor dysfunction.

The teaching packages were assembled from theoretical information gathered from different studies and articles but also from a special education day in Jyväskylä University of Applied Sciences. The practical parts of the teaching packages included a few pelvic floor exercises, in order to familiarize the participants with the

right way of performance. Especially for physiotherapy students this is essential in the future in order to instruct properly their clients.

The participants in both lectures were asked to fill in an evaluation form of the lecture and its contents. The answers were analyzed and according to them, the information on the lectures was found interesting and useful. Especially pelvic floor exercises awoke interest among both Finnish aged women and physiotherapy students in Málaga University.

In the future, it would be good to give similar teaching package for men as well. This of course sets some limits at least for physiotherapy students, since the bladder dysfunctions in men are often due to prostate, not because of pelvic floor problems. Therefore, this would suite for a nurse student, since the area is more complex and needs more knowledge of the urogenital anatomy and physiology. I would also strongly recommend organizing an exercise group for women with pelvic floor weakness, on the grounds of the feedback gotten from the aged women in the lecture.

## 2 PURPOSE OF THE BACHELOR'S THESIS

The purpose of this bachelor's thesis is to provide two lectures of women's urinary incontinence and treatment of it. These teaching packages are divided in two parts. The aim of the first lecture is to increase knowledge of urinary incontinence and its treatment for Finnish elderly women living in the Costa del Sol area, Spain. The aim of the second lecture is to increase the awareness of incontinence physiotherapy of the students of physiotherapy in Málaga University.

### 3 URINARY INCONTINENCE IN WOMEN

Urinary incontinence causes an important public health concern (Holroyd-Leduc & Straus 2004, 986-995). Incontinence is defined by the International Continence Society in 1976 as being involuntary loss of urine from the urethra that can be proven objectively and causes social, psychological or hygienic harm. (Abrams et al 2002, 168.) The symptoms may differ from mild dropping to severe voiding problems. Mild symptoms are naturally causing less discomfort, but in a young woman, it can also be distressing. (Heittola 1996, 7.)

The prevalence of urinary incontinence has been underestimated for a long time. Today, more than 200 million people suffer from incontinence worldwide. (Norton & Brubaker 2006, 57.) The exact number of the people with incontinence problems is impossible to say. Several studies give different values. A review by Botlero, Urquhart, Davis & Bell (2008) suggests that the prevalence in women differs between 12.8% and 46.0%. According to Finnish Käypähoito, the prevalence is 5-58%, the median value being 28%. (Duodecim 2006.) The prevalence of severe urinary incontinence is reported to be between 3 and 17%. (Hunskaar et. al. 2003.)

About 5-8% of all Finnish people suffer from incontinence. In numbers, this means over 400 000 people, of which a lot more are women than men. Its prevalence increases together with age. Even 20% of women under 60 years are suffering from incontinence, whereas even 59% of women over 70 years of age have problems with urinary functions. Even so, normal aging does not cause incontinence, but is one of the main risk factors. (Heikkilä 2007; Duodecim 2006.)

#### 3.1 Most Common Risk Factors

There are several risk factors in how to develop urinary incontinence. Gender is one of the crucial risk factors together with age. In females, urinary incontinence is 3-8

times more frequent than in males. This is because the length of the female urethra is only about 2-3 cm, while in male it is about 8-10 cm. Men also have two sphincters, while women only have one. Because of this, female urethra needs more support from the surrounding musculature. (Duodecim 2006.)

Aging does not only cause the risk of incontinence to increase but in addition, the type of incontinence often changes during aging. According to the study made in Norway by Rortweit, Hannestad & Daltveik (2001) in the age group of 20-34 years prevalence of urinary incontinence was 15% while in the group of over 70 years it was already 35%. Among younger women (25-49 years), stress incontinence is the most common form, but its prevalence decreases with age compared to urge- and mixed urinary incontinence. (Simeonova et. al. 1999, 546-51; Hannestad et. al. 2001, 1004-10.)

There is a lot of evidence from pregnancies and deliveries affecting on the prevalence of urinary incontinence. The Rortweig, Hannestad & Daltweik (2001) study applies that the biggest effects are seen in younger women. In the nulliparous women the prevalence was 14 % and right after the first delivery 22 %. The number of deliveries also seemed to have an effect; after eight or more deliveries (grand multipara), the prevalence was 34%. The effect of parity disappeared after 65 years. In this group the prevalence in nulliparous women was 28% and in grand multiparas 31%. (Rortweit et. al. 2001, 1004-10.) Section decreases the risk compared to a traditional delivery, but still increases it compared to nulliparous women. The risk seems to be 1,5 bigger in women who go through a cesarean section while in women with one delivery the risk is 1,6. (Rortweit et. al. 2003, 900-7.) The biggest risk in pregnancies and deliveries is that the connective tissue loosens because of hormonal factors, giving better circumstances for the delivery. (Schenkmanis & Ulmsten 2007, 14.)

Significantly obese women have a higher prevalence of urinary incontinence than normal weight or only mildly obese women (Frankenburg & Zanarini, 2006; Kim et. al. 2008). Obesity causes risks for urinary incontinence probably because it causes a raise in intra-abdominal pressure. If there is weakness in the pelvic floor, this clearly increases the risk of incontinence, especially stress incontinence. (Subak 2002.)



There are several risks provided by lifestyle and habits. Adhesive liquid intake is not an actual cause of incontinence, but increases the voiding density. (Gray & Krissovich 2003, 126-131.) Caffeine for one's part stimulates the urinary bladder. Its diuretic effect is not clear according to studies, even if the clinical experiences speak for that. (Rortweit et.al. 2003, 247-254.) The effect of smoking has been discussed a lot. Smoker's cough increases the risk for urinary incontinence because coughing increases the intra-abdominal pressure (Heittola 1996, 37; Schenkmanis & Ulmsten 2007, 12-13). Smoking also irritates the urinary bladder and this way causes contractions in detrusor muscle (Heittola 1996, 37). However, a research by Schmidbauer et. al. (2001) suggests that smoking has no effect on the development of incontinence. Women with type 2 diabetes also have a greater risk to get urinary incontinence (Brown et. al. 2006, 1307-12).

There is no clear evidence in the inheritance in urinary incontinence, but Ulmsten (2007, 12) suggests, that it is possible that the prevalence of urinary incontinence is higher among daughters whose mother has suffered from it. Ulmsten also proposes that inheritance plays a role in the structure of the tissues, also in the pelvic floor area. (Ulmsten 2007, 12.) Also Mushkat, Bukovsky & Langer (1996) suggest that at least the first degree relatives have a prevalence of 34,9% whereas the control groups had a prevalence of only 12,7%.

### 3.2 Other Reasons That May Cause Incontinence

Several diseases seem to have a connection to urinary incontinence. These include vascular diseases, musculoskeletal diseases, and neurological diseases, e.g. Parkinson's disease, ischemic attacks and dementia. In multiple sclerosis the prevalence is reported to be even 75% due to bladder overactivity and incomplete emptying. Also pulmonary- and intestinal diseases, depression and disabilities in hearing and seeing have effects on the prevalence of incontinence. Because of the nature of a cross-sectional study, the causes and reasons between these diseases and urinary incontinence cannot be pointed. (DuBeau 1996, 11-18; DasGupta, Fowler 2003.) Several medications also have diuretic side-effects, increasing the density of a need

to void. Blood pressure and cardiac insufficiency are often medicated by diuretics. (Laurila 2007.)

Prolonged constipation is a significant risk factor because of the same reason as obesity; it increases the intra-abdominal pressure while defecation and also predispose to the rectum prolapse in to the vagina. (Alanko & Parantainen 2004.) Also adhesive physical loading, where the intra-abdominal pressure increases suddenly and stays up for a long period of time causes a pressure to the pelvic floor as well, loading the pelvic floor muscles and connective tissues. Too heavy loading affects on the prevalence of urinary incontinence, especially on women, who have recently delivered. It would be crucial first to take care of the pelvic floor, before rushing to heavier exercises. (Heittola 1996, 36-37.)

Eliasson et. al. (2007) found out in their research that low back pain has a significant connection with urinary incontinence in women. Even 78% of the respondents reported urinary incontinence at least occasionally. Of these women, 72% reported stress incontinence, 1% urge- and 27% mixed incontinence. Among all these women, 23% of the women could be classified as having “significant urinary incontinence”. (Eliasson et. al. 2007.)

### 3.3 Changes Caused by Aging

There are many changes in a woman going through menopause that affect on the whole body function, including the pelvic floor. The blood circulation gets weaker and nervous tissue degenerates, also the production of estrogen shuts down. Changes which happen during and after menopause increase the risk of urinary incontinence. The biggest reason in menopause is the decrease of the estrogen production. This causes weakness of the mucous membranes and also affects on the closing ability of the urinary tract and vitality of the pelvic floor muscles. Often the need for urination gets denser, when the mucous membranes get thinner and dry. (Heittola 1996, 35-41.)

In addition to these changes, the bladder's ability to stretch weakens, causing the volume of the bladder to decrease. As the detrusor muscle weakens, it is also more likely that the bladder does not empty properly by voiding. These effects appear about 5-10 years after estrogen production has started to shut down. Especially in aged women urinary incontinence is also often associated with other diseases, e.g. cardiorespiratory or musculoskeletal problems. Dementia is one of the leading reasons for urinary incontinence in elderly but even depression has been shown significant effects on the development of incontinence. (Schenkmanis & Ulmsten 2007, 15; Heittola 1996, 41; Nuotio 2006.) Over half of the women also attribute themselves their urinary incontinence to aging (Locher et. al. 2002).

### 3.4 Effects on ADL

Urinary incontinence is one of the crucial factors defining the ability for independent living in the elderly (Heidrich & Wells 2004). It is also claimed that urinary incontinence would be the only reason even in 20% of the clients that seek their way to geriatric ward. This is one of the reasons for costs that are caused by urinary incontinence; it is estimated that about 25% of the working time of the nursing staff would be spent in the consequences of urinary incontinence. Incontinence is a great financial factor also for the client personally because the price of the protections and pads is quite high. (Heittola 1996, 12.)

Urinary incontinence affects greatly on the clients psychological and social wellbeing. According to a study made in older community-dwelling women, the level of subjective health, purpose in life, effect on balance and positive relations with others were reported significantly lower. Depression and lower self-esteem were reported even three times more in women suffering from urinary incontinence than in healthy women. It is claimed that urge incontinence might have more negative fluencies in psychological wellbeing than other incontinence types. (Heidrich & Wells 2004.)

Even 30% of women with urinary incontinence find their symptoms troubling their everyday life. However, 21% of them do not search any help for the problem. This

implies that women are scared and embarrassed of the problem. Some of them might also consider incontinence being part of becoming older. One of the most embarrassing factors is the odor that comes along urine and the fright of people noticing it. Embarrassment leads easily to avoiding social situations, unwillingness to leave home and even social isolation. This naturally affects leisure activities by reducing them. (Heidrich & Wells 2004; Heusala 2001, 204-205.)

Urinary incontinence causes often sleep disturbances, which easily lead to lack of energy during daytime again causing problems in the daily living. (Heidrich & Wells 2004; Heusala 2001, 204-205.) Incontinence is also a significant risk factor for developing urinary tract infections, since the chance of bacteria ending up to urinary tract is bigger in women with incontinence. Sexual functions may be affected because of symptoms of incontinence. About 24-34% of women with incontinence report leakage episodes during sexual functions. Many women are scared of leakage so much that they avoid sex because of it. Orgasm is considered the most definite cause of leakage in sexual functions. (Heusala 2001, 204-205.)

#### 4 ANATOMY AND PHYSIOLOGY OF THE PELVIC FLOOR

The pelvic floor muscle is a voluntary muscle group that consists of eight different muscles, fascia and ligaments. It is also divided into three layers. As a whole, it extends from coccyx to pubic bone, surrounding urethra, vagina and rectum. It is also one of the important muscle groups that affects postural control together with other deep muscles, m. transversus abdominis and m. multifidus. (Heittola 1996, 13; Huttunen 2008, 8.)

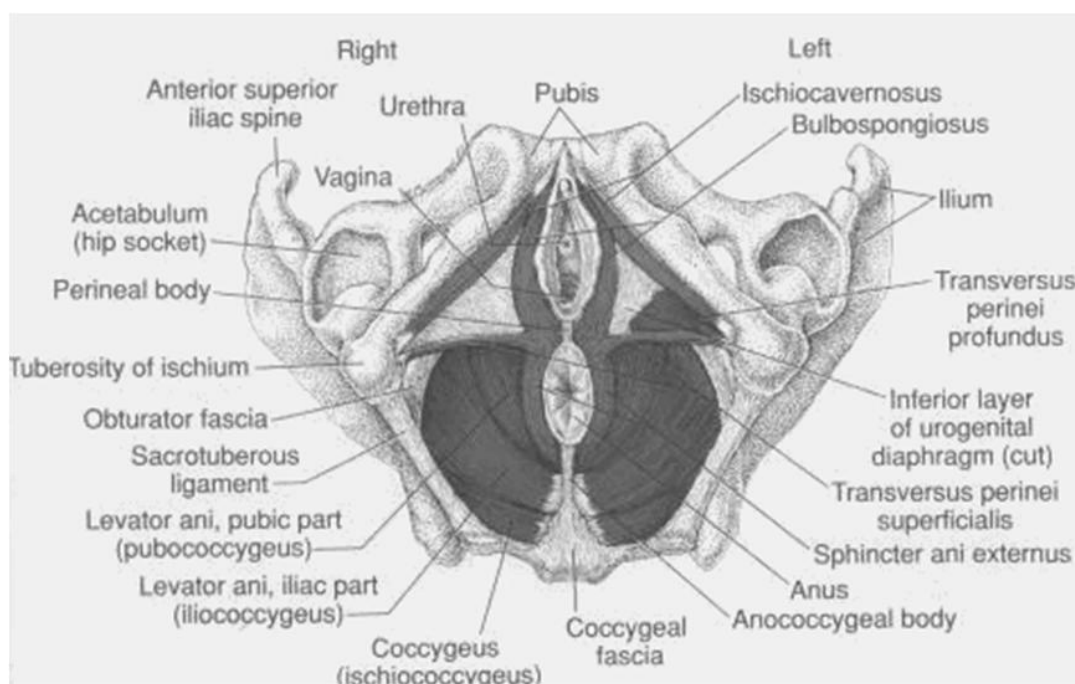


Image 1. Structure of the pelvic floor (Vulvodynia.com)

The first and deepest layer is diaphragma pelvis. It is also the biggest layer of muscles in the pelvic floor. Its function is to support and hold the internal organs in balance. The main muscle of this layer is m. levator ani, which consists of four segments: m. pubovaginalis, m. puborectalis, m. pupococcygeus and m. iliococcygeus. When m. levator ani is contracted, voiding and defecating are interrupted. It also affects sexual functions. It resists the abdominal pressure during functions, e.g. coughing, jumping and urinating and is one of the muscles that work as a sphincter at the anorectal junction, vagina and urethra. M. coccygeus is also part of the diaphragma pelvis, assisting levator ani. Its function is to support and maintain the position of the pelvic viscera as well as to resist the intra-abdominal pressure together with levator ani. (Heittola 1996, 14-15; Huttunen 2008, 6; Tortora & Derrickson 2006, 356-357.)

The middle layer of the pelvic floor is called diaphragma urogenitale or superficial perineal muscles. It consists of three muscles: m. transversus perinei superficialis, which supports the perineal part of perineum; m. bulbospongiosus (called bulbocavernosus in older texts), which expels the urine during urination, contracts vagina and assists in the erection of the clitoris. M. ischiocavernosus helps m. bulbospongiosus in the function of the clitoris by maintaining the erection of the

clitoris. Vagina goes through m. transversus perinei superficialis. (Heittola 1996, 18-19; Heusala 2001, 32-34; Huttunen 2008, 7; Tortora & Derrickson 2006, 356-357; Wikipedia, 2008.)

Between diaphragma urogenitale triangle and anal triangle there is the centrum perinei. Several perineal muscles insert into perineal body and it is also supported and strengthened by the sphincter muscles – m. sphincter urethrovaginalis which also helps in closing the urethra, and m. sphincter ani externus which keeps the anus closed. In this group of deep perineal muscles there is also the deep transverse perineal muscle, which function is to help to expel the last drops of urine from the urethra. (Heittola 1996, 18-19; Huttunen 2008, 7; Heusala 2001, 32-34; Tortora & Derrickson 2006, 356-357.)

The most significant nerve that innervates the pelvic floor is a branch of plexus lumbosacralis, nervus pudendalis. It is again branched into three parts: n. rectales inferiores, nervi perineales and nervus dorsalis clitoridis. Nervus pudendalis is innervating not only muscles of perineum, but also clitoris, labia majora and –minora and vagina. (Heittola 1996, 20-21; Huttunen 2008, 8; Tortora & Derrickson 2006, 456.) Blood supply for the area of pelvis comes mainly from the branches of common iliac artery and abdominal aorta (Tortora & Derrickson 2006, 235).

## 5 TYPES OF URINARY INCONTINENCE

There are several types of urinary incontinence. Often the types are divided into three or four subgroups. The three most common types are urge-, stress- and mixed incontinence. (Kelly, Bhaumik & Jackson 2005, 5-7.) The fourth type that is often mentioned as its own is overflow incontinence. There are also many other types of urinary incontinence, e.g. neurogenic (reflex)-, functional- and psychogenic incontinence, but they are extremely rare. (Heusala 2001, 201; Karen & Miller 2003, 242-246.)

It is important first to examine which incontinence type is present in the client. This can usually be done with a simple questionnaire and proper interview. There are even ready forms which can be used in determining the type which the client is suffering from. Also Finnish Käypähoito recommendation offers great tools to finding information on different types of incontinence. Sometimes more investigations are needed to ensure the symptoms are not a sign of some more severe problem. (Kelly, Bhaumik & Jackson 2005, 5-7; Duodecim 2006.)

### 5.1 Stress Incontinence

Stress incontinence is the most common type of incontinence in women of all age groups. In young athletic women it is often caused by too strenuous exercises that load the pelvic floor too much, leading to the structures of the pelvis to give up. (Heittola 1996, 46.) In young female top athletics the prevalence of stress symptoms is even 28% in strenuous efforts. The prevalence in gymnastics is even 67%. (Kivelä 2006.)

Stress incontinence is precipitated by physical activity or other stress factor, e.g. coughing, lifting and jumping. This is a consequence of increased intra-abdominal pressure accompanied with weak pelvic floor muscles and / or the urethral sphincter. Also the function and condition of the connective tissues, pubourethral ligament, urethra itself and the mucous membranes affect the prevalence of stress incontinence. (Heittola 1996, 43-46; Ulmsten & Schenkmanis 2007, 13-16; Heusala 2001, 202.)

Stress incontinence is a sign of a mechanical disturbance. The pressure of the bladder exceeds the pressure of the urethral sphincter and this causes the leakage. It is common that the leak may happen even from almost empty bladder if only it is more likely to happen if the bladder is full. The client does not feel a need for voiding before the leak. (Heittola 1996, 43-44; Pantazis & Freeman 2006, 345.)

There are several reasons to cause stress incontinence. One of the most significant ones is pregnancy and delivery, especially when these are traumatic. Also aging

increases the risk when the produce of estrogen decreases. This might cause the structures of the muscles and other tissues to weaken and even the urethra to lose its ability to close properly. Very weak pelvic floor muscles might even cause the urethra to sink under the muscle layer, making it impossible for muscles to help supporting it. It is important to remember that since the female urethra is short, it needs a lot support from the outside structures. (Heusala 2001, 202; Pantazis & Freeman 2006, 345; Ulmsten & Schenkmanis 2007, 14-17.)

## 5.2 Urge Incontinence

As the name of urge incontinence implies, the most significant sign of it is that the client feels a sudden urge for voiding. She may be able to hold it usually, but sometimes an involuntary leakage happens during or right after the urge. Often, if urine starts to leak, the bladder empties totally. The client has an increased need to void during daytime and often at night. The urine does not leak during stress, but after it. (Ulmsten & Schenkmanis 2007, 18-19; Norton & Brubaker 2006, 58; Heittola 1996, 59-61; Heusala 2001, 203.)

The basic reason for this type of urinary incontinence is neurogenic, overactive detrusor muscle; also the term “overactive bladder” is often used. This leads to that the bladder senses the need of voiding in too early phase. This may be simply because the client is used to go the toilet, even without a need for it. (Ulmsten & Schenkmanis 2007; Heittola 1996, 59-61; Heusala 2001, 203.)

It is important first to rule out other reasons that may cause similar symptoms. These are e.g. some neurological diseases like MS, urinary tract infections and tumors. Some medications that include diuretics cause increased density for the need to urinate. It is common that the reason that causes urge symptoms cannot be found. Even 80% of the cases remain unsolved; then it is called idiopathic urge incontinence. Urge incontinence is more common in elderly women. (Heittola 1996, 59-61; Ulmsten & Schenkmanis 2007.)



### 5.3 Mixed Incontinence

Mixed incontinence is a complex combination of symptoms of urge- and stress incontinence. The proportions of each symptom may vary a lot and this causes a problem both in diagnosis and treatment. It is essential first to find out, which symptoms cause more harm for the patient herself and plan the therapy according to that. (Ulmsten & Schenkmanis 2007, 19; Heittola 1996, 64.)

Mixed urinary incontinence is a common type of incontinence in women after menopause, as the bladder starts to decrease in volume and the weakness in pelvic floor muscles causes changes in the alignment of the bladder neck and urethra. (Heittola 1996, 64; Heusala 2001, 204.) Even 33% of all cases of incontinence in women are accounted as mixed incontinence. It is also reported as responding poorly to treatment, both pharmacologic and surgical. (Chaliha & Khullar 2004.)

### 5.4 Overflow Incontinence

In overflow incontinence, an excessive amount of urine accumulates to the bladder, but does not cause a need to urinate. An overly stretched bladder gets over filled and causes the leakage, when the pressure of the enormous amount of urine exceeds the inner pressure of the urethra. (Heittola 1996, 64; Heusala 2001, 204.) In women overflow incontinence is always caused by a disturbance of motor nerve function of the bladder, mechanical obstacle for emptying the bladder is rare. Some diuretics may be a cause for overflow incontinence, when the kidneys secrete too much urine in a short time. (Heittola 1996, 64.)

## 6 TREATMENT FOR INCONTINENCE

It is essential first to determine whether urge or stress symptoms are predominant for the client and which symptoms the client feels more disturbing. The treatment is selected according to this determination and controlled regularly in order to reach best possible results. The aims of the therapy must be agreed together with the patient to avoid misbeliefs for the effectiveness of the treatment. (Pantazis & Freeman 2006; Ulmsten & Schenkmanis 2007, 44-45.)

Before treating urge incontinence it is essential first to rule out other possible factors causing similar symptoms. After that the treatment is focused on the main reason always when it is possible to find out. The aim of this treatment is to increase the functional volume of the bladder, making the density of voiding to decrease. The treatment program must always be planned individually for the client. (Heittola 1996, 61; Ulmsten & Schenkmanis 2007, 41.)

### 6.1 Medication

Anticholinergics or antimuscarinic medication is commonly used in the treatment of urge incontinence. Its aim is to suppress bladder contractions. Some of the medications have been shown to have good evidence but due to their high costs and side-effects (e.g. dry mouth, constipation) they tend to lead to discontinuation. Also botulin injections into detrusor muscle have been tried and its effects are being investigated. Botulin might be a respectable choice of treatment in the future. (Norton & Brubaker 2006, 62.)

There is a medication, duloxetine for stress incontinence, but its effects are not much studied yet. Duloxetine is the only medication in Europe for treatment of stress incontinence. (Norton & Brubaker 2006, 63.) Cochrane study shows that duloxetine would have some effect on the treatment of difficult and semi difficult stress

incontinence. The same study shows also that phenylepropanolamine might also have a minor effect in the treatment of stress symptoms. (Ala-Nissilä 2006.)

## 6.2 Operations

If the conservative treatment seems to give no results, operation can be considered. Especially if the client suffers from difficult incontinence or has a prolapsed uterus or bladder. The operation is nowadays done minimally invasively in local anesthesia and it is called TVT, which stands for tension free vaginal tape. In the operation, a mesh is taken retropubically under the midurethra to support it. As the patient is awake, she is asked to cough to see if the mesh is suitably tight. Several studies show that TVT is effective method in the treatment of stress incontinence, about 81-85% of the women have been continent after 6-8 years follow up. (Valpas 2006; Ulmsten & Schenkmanis 2007, 36-37.)

There is also a new procedure, TOT (trans obturator tape), which has the same mechanism as TVT, only it is done via obturator foramen (Ulmsten & Schenkmanis 2007). Norton & Brubaker (2006) suggest that there is too little long term evidence about TOT available and which questions its safety and efficacy. Ulmsten & Schenkmanis (2006) consider the short term evidence proper and do not question its efficiency.

Ulmsten and Schenkmanis (2007) remind that it has to be made clear for the client that the operation for stress symptoms does not ease the urge symptoms. Yet, this yet might happen rarely, but the intention is to relieve the symptoms in stress incontinence. They also suggest that the more significant part of the symptoms is stress related, the more there are possibilities to achieve asymptomatic state by an operation. (Ulmsten & Schenkmanis 2007, 44-45)

### 6.3 Physiotherapy

Physiotherapy is used in the treatment of both urge and stress incontinence. Often, when the client gets a diagnosis of urinary incontinence she will receive a referral to a physiotherapist or urotherapist. Often a physiotherapist works as a part of a multiprofessional team, especially if the client has also other diseases that affect the problem. (Ulmsten & Schenkmanis 2007; Airaksinen 2008.)

#### 6.3.1 Pelvic Floor Exercises

The effects of pelvic floor exercises have been researched in all types of urinary incontinence and there is strong proof that it is an effective treatment at least in short term follow-up. According to studies, younger women benefit from pelvic floor exercises even more than older women. The exercises are especially beneficial after child birth. (Airaksinen 2008; Parantainen 2007, 57-58.)

Pelvic muscle exercises are also important to link to the bladder training to improve possibilities to overcome the urge. Pelvic muscle exercises can also decrease bladder overactivity via inhibitory reflexes in the pelvic floor. Pelvic floor contraction seems to have an effect on producing a decline in detrusor muscle and an increase in the pressure of the urethra. (Pantazis & Freeman 2006.)

The aim in the conservative treatment of stress incontinence is to increase the pressure in the urethra. This can be achieved in many ways, but the most significant way in both treatment and prevention of stress incontinence is the pelvic floor exercising. There is strong evidence about exercises helping to achieve continence and even WHO recommends them. Electrotherapy and biofeedback can be used in order to find the right muscle contraction. (Holma & Slotte-Jana 2006; Heittola 1996, 47-53; Norton & Brubaker 2006, 62.)

As the contraction of the pelvic floor muscles cannot be seen in women, EMG can be used to measure the activity. A client herself puts a special vaginal or anal electrode

on its place so that the examination itself does not feel too intimate. EMG is usually measured both in rest and in activity to see the individual changes in the muscle tone. The client can see the change in the activity through a monitor, which makes the recognition of the right muscle work easier. This is meant by the term biofeedback in the pelvic floor physiotherapy. (Kurunsaari & Åkerman 2007.)

It is possible to use special balls that are meant for exercising pelvic floor muscles. There are balls that are bigger and therefore easier to use in the beginning or smaller balls that give more challenge. The balls are placed into the vagina and the aim is to contract pelvic floor muscles and prevent the balls from dropping out. If there is a string attached to the balls, it is also possible to pull gently from it and again prevent the balls from coming out. Hygiene must be taken into consideration when using special equipment. (Rosenberg, Skott & Keränen 2000, 57-59.)

### 6.3.2 Electrotherapy

In this thesis, by electrotherapy it is meant the use of electrical energy in the treatment of different conditions of abnormal functioning and impairments of health. Some of the most common stimulation types in physiotherapy are NMES, which stands for neuromuscular electro-stimulation and TENS, which means transcutaneous electrical nerve stimulation and interferential currents, IF. (Wikipedia 2008.)

Electrotherapy is often used to relax an overactive bladder but it is used also in the treatment of stress symptoms, even if there is not clear evidence on its effects. Nevertheless, electric stimulation has been proven to be significantly more effective in the treatment of overactive bladder than pelvic floor muscle exercises and biofeedback. (Airaksinen 2006.) A low electric stimulation (under 12 Hz) is stimulating the nervus pudendus, causing reflectors to decrease contractions of the overactive bladder. This is called neuromodulation. Also normal TNS can be given in pelvic floor dysfunctions. (Heittola 1996, 63-64; Karen & Miller 2003.) Vaginal or anal electrodes are often used but especially when calming the bladder, also through tibialis adjustment from ankle or sacral adjustment from low back. The equipment

can be given for the client to use at home as well to reach the best possible result. Over 50% of the women who received electrical stimulation for their urge or stress symptoms benefitted from the treatment both subjectively and objectively. (Parantainen 2006.)

There are some conflicting researches on the effects of electrical stimulation in treatment of stress incontinence. Yamanashi and Yasuda (1998) claim in their review article that cure and improvement ranges with electrical stimulation vary between 6 and 90% depending on a research. Frequencies of 20-50 Hz with a pulse ratio of 1-5 ms have been reported to have an effect on urethral closure. Short-term electrical stimulation with non-implantable electrodes is recommended because its safety and ease to use. (Yamanashi and Yasuda 1998.)

Another review by Jeyaseelan and Oldham (2000) suggests that there are no conclusions on the positive effects of electrical stimulation in stress incontinence. Also Airaksinen thinks that the effect of electrical stimulation can be seen only when combined in finding the right muscle contraction. Otherwise electrical stimulation might have some short-term effects but to achieve long-term effects another series of treatment within six months period is recommended. Electrical stimulation may harm mucous membranes. About 9% of the clients who receive electrical stimulation get inconvenient side effects. (Airaksinen 2006.)

#### 6.4 Other Treatment Methods

Urinary diary helps in the assessment of the density of voiding times. It also shows the amount of liquid the client takes in during the day. This information is essential in the treatment and the diary helps the client also to notice possible improvement in her toilet behavior. The idea of the urinary diary is to record the amount of liquid intake, voiding and possible leakages. The liquid management is often very helpful only by itself. Also the possible diuretics should be checked, e.g. caffeine and medication. (Norton & Brubaker 2006, 62; Heittola 1996, 61.)

The urinary diary is also a tool for bladder training, which is the most significant treatment for urge incontinence. Its aims are to correct voiding patterns, improve the ability to overcome urge and this way to improve continence. Even 80% of women seem to reach a reduction in detrusor overactivity by bladder training in short term. In long term results, more than 50% of them show relapse (Pantazis & Freeman 2006).

Different types of urinary incontinence are treated differently, and it is important first to find out what type of incontinence the client is suffering from. There are some means that are worth trying in every type. If the client is overweight, weight loss is helpful. Even a loss of five kilograms decreases the pressure for the pelvic floor significantly and this way affects on the continence. Quitting smoking affects continence also by improving the blood circulation and helping for cough because of smoking. (Duodecim 2006; Ulmsten & Schenkmanis 2007, 29.)

It is important to remember to ensure the bladder empties properly in the toilet. This means that the toilet visit should be done unhurried. Also shuffles in the toilet seat are useful to help the bladder emptying. Toilet visits should be made only when needed, not to be on the safe side because this, in part trains the bladder in a way the client feels when the bladder is full. (Invalidiliitto 2008.)

As a complementary treatment, local vaginal estrogens especially in aged clients can be used to improve the vascularity in the vagina, bladder and urethra. This usually relieves the urge symptoms. (Heittola 1996, 61; Pantazis & Freeman 2006, 349.) Local vaginal estrogens can be used to treat the mucous membranes and achieve at least subjective relief. It has been studied that 20-70% of women find a help to stress symptoms only because of estrogen. (Heittola 1996, 56.) There is also a study by Moehrer, Hextall & Jackson (2003) that suggests that there is no objective evidence of the use of estrogens in stress incontinence. (Duodecim 2006).

## 7 TEACHING AND LEARNING

A person develops, learns and changes throughout the whole life, being a process that lasts for a lifetime. Motivation is needed for a person to reach a state of mind where learning can happen. Both teaching and learning can be reviewed from several different points of views, depending on the method that is used. Recently, especially health education has been considered comprehensively, taking also environment into account. (Kovero & Tamminen-Peter 1997, 223-224.)

### 7.1 Teaching

Teaching requires planned guidance which aims at affecting the learners' attitudes and behavior and also at learning new information and skills. Planning requires careful familiarization to the principles of learning and teaching. The impression of a learner and his/her ability to learn and develop affects what is emphasized in the teaching process. The general aims of an individual lecture can be set by thinking the purpose of the lecture and to whom and why it is given. The aims have to be realistic, e.g. increasing knowledge of the subject, awaking interest or starting exercises. (Kovero & Tamminen-Peter 1997, 224-225.)

The method of the teaching is influenced by different factors, e.g. the age of the participants, their health status, previous knowledge, needs and expectations. The subject and content and available resources naturally affect as well. Among the elderly, teaching tempo cannot be as fast as in younger learners, since the perceptual and language comprehension of the elderly might be slower even if the lexical access usually remains unaffected. (Giaquinto, Ranghi & Butler 2001.) Also the learner's situation in life together with social environment are crucial factors that have to be taken into account in teaching. (Kovero & Tamminen-Peter 1997, 224-225.)



The teacher's responsibility is to awaken the interest of the learner towards new information and operation models by giving positive examples. If an opportunity is given to choose from different options, it increases the chance of a learner to make choices suitable for him/her. The clear image of the forthcoming content helps in the internalizing the material as well. As the new information is proportioned to the needs, expectations and older information of an individual, interest of the learner is wakes up. Activation and interest are maintained by varied methods, e.g. conversations, small groups, questionnaires and lectures. In couples or small group workshops the participants are activated to elicit critical opinions and questions. (Kovero & Tamminen-Peter 1997, 224-225.)

The appearance and personality of the teacher have a strong effect on how the message is interpreted. The attitude towards others can be seen in the person's eyes and gestures. Body language reveals easily uncertainty or carelessness. Conflicts between body language and actual speech take credibility away from the message. The use of voice affects on the message as well. Slow tempo facilitates interpretation and consideration of new information. (Kovero & Tamminen-Peter 1997, 226-227.)

## 7.2 Learning

Learning as a term means that there is a respectively permanent change in the function or behavior. Short-term changes are not considered as learning. (Talvitie, Karppi & Mansikkamäki 2006, 67.) In the beginning of a learning process, the inner motivation of the learner awakes when he/she notices a conflict between old and new action strategy. (Kovero & Tamminen-Peter 1997, 229.) Useful, important and valuable aim is important to find in the beginning as well. Motivation is a crucial factor in order to increase the capacity of the learner striving towards the aim and it can be found individually from different aspects. (Talvitie, Karppi & Mansikkamäki 2006, 85-86.)

It is often noticed that a person does not want a change to happen. He/she aims at idealizing the old information and objecting the new one. Learning new skills always requires the ability to give up familiar habits, a consenting uncertainty and feelings

of inability. Also the teacher has to be able to give space for the resistance of change by ensuring a safe, open and trustful atmosphere. Different processes that can be separated in a behavioral change are the fear and anxiety in the beginning, followed by denial of a change and frustration. After these stages starts the actual growth process which consists of giving up old attitudes and behavioral models and testing new method, leading finally to the internalizing the new behavior. (Kovero & Tamminen-Peter 1997, 228.)

### 7.3 Motor Learning

Motor learning is affected by observations and cognitive- and movement functions. Information received from these functions is memorized and decisions and strategies with the help of memory and thinking. Motor system, on the contrary, guides the acquired muscle work. Motor learning should still be separated from a performance, since a change in a performance is not always the same as learning a skill. (Talvitie, Karppi & Mansikkamäki 2006, 67-68.)

A learner has to find his/her own method to perform any specific action where he/she can reconcile observations and motor functions. The information received by observation helps to understand the aims and movements required for the task. (Talvitie, Karppi & Mansikkamäki 2006, 68-69.) A new behavior model requires long-term teaching, support, feedback and follow-ups. (Kovero & Tamminen-Peter 1997, 224-225.)

Nervous system learns and regulates movements with two ways. Intrinsic feedback arises from the sensory nerves of oneself, whereas extrinsic feedback stands for the feedback coming from outside source. Feedback by a physiotherapist is often given verbally or manually and given during the performance or right after it. The timing and amount of feedback should be thought carefully. It is reported, that individuals who receive feedback only from every other performance or even rarer, perform better from learning's point of view than those who receive feedback right after every performance. Thus, it has been shown that in the end of the session, summarized feedback facilitates motor learning. (Shumway-Cook 2001, 40.) Also

biofeedback is considered as a good way to improve successfulness of a performance. (Talvitie, Karppi & Mansikkamäki 2006, 83-85.)

## 8 THE PROCESS OF THE BACHELOR'S THESIS

The idea of giving a lecture for Finnish aged women living in Spain came to me when I found out that I would be going to do three months' clinical practice in Torremolinos, Málaga. There are over 25 000 Finnish people living only in the area of Costa del Sol and they have a few own associations there to socialize. My teaching package was carried out in the Asociación Finlandesa Costa del Sol, which is also known as Kymppipaikka. As we had also some cooperation with Málaga University, I was suggested to give my lecture for physiotherapy students studying there as well.

The lectures were constructed in a similar pattern, yet taken into account the needs and the existing information of the groups. The lecture for the Finnish women was given in Finnish, concentrating more on the ways how to recognize symptoms, where to consult more information and what kind of treatment is nowadays available. Also the fact that urinary incontinence is common especially among aged women and a significant factor defining the quality of life were emphasized in these first lectures. The lecture in Málaga University concentrated more on the role of physiotherapy in prevention and treatment of female urinary incontinence.

I studied the theory of pelvic floor dysfunctions and especially urinary incontinence on my own, using different databases, e.g. Medline, Sciencedirect and Terveystieto and by reading several books and articles from the subject. I also attended a special education day about current studies and treatment methods in the area of pelvic floor physiotherapy. There is a lot of material available on the subject but there are also a lot of conflicts between different researchers.

Table 1. Schedule of the Process

Date	Stage of the process	Additional notes
November 2007	Idea of a lecture of urinary incontinence for aged Finnish women living in Costa del Sol	Searching literature
January 2008	Idea of a lecture for physiotherapy students in Málaga University	Searching literature and planning the structure of the lectures
January 21 <sup>st</sup> 2008	The education on pelvic floor functions and treatment for dysfunction in Jyväskylä University of Applied Sciences	
February 21 <sup>st</sup> 2008	Arriving in Spain	
February-March 2008	Planning the lecture material, advertising in the Asociación Finlandesa Costa del Sol	
March 19 <sup>th</sup> 2008	1 <sup>st</sup> lecture for women in Asociación Finlandesa Costa del Sol	1,5h lecture
April 2 <sup>nd</sup> 2008	2 <sup>nd</sup> lecture for women in Asociación Finlandesa Costa del Sol	1,5h lecture
April 19 <sup>th</sup> 2008	Lecture for physiotherapy students in Málaga University	1h lecture
May 29 <sup>th</sup> 2008	Arriving back to Finland	
May-September 2008	Literature search and planning the structure of the bachelor's thesis	
October-December 2008	Writing the thesis	
January 2009	Presentation of the Bachelor's thesis	

### 8.1 Implementation of the Teaching Package in Asociación Finlandesa Costa del Sol

The lecture was given in two different dates in order to reach more audience, if one of the dates was not suitable. The first date was more of a success than the second. This was probably because even if the lectures were marketed with a posture on a wall (Appendix 1) and announces in Asociación Finlandesa Costa del Sol, the first date was also marketed in the aquatic exercise session earlier on the same day. The lectures in the Asociación Finlandesa Costa del Sol were given in Finnish, since the audience was all Finnish as well. Both of the sessions were organized on Wednesday afternoon, since it was necessary to fit them into the program of the association. This turned out to be quite difficult, since there were many different leisure activities organized in the same facility. It might have been better to have another date organized in the afternoon and the other in the morning.

Both of the lectures had identical content. There was 1,5 hours time reserved for the lecture. This seemed to be short enough time to engage the attention but also long enough to have the necessary information brought out. Half of the time was spent with the theoretical part, leaving some free time for discussion and for women to ask if they had any questions concerning urinary incontinence or any other questions arose during the lecture.

The theoretical part of the lecture was given verbally, consisting information of pelvic floor anatomy, urinary incontinence in women, its risk factors, types and treatment methods. A handout (Appendix 2), which had the same content was given to all participants to facilitate visual learning and following the lecture, but also to remind about the facts at home as well. At the end of the lecture, there was a practical part, where everyone had a possibility to try how to exercise pelvic floor muscles. The instructions for the exercises were given verbally, but a written instruction was given as well to take home (Appendix 3).



Photograph 1. The theoretical part of the lecture in Asociación Finlandesa Costa del Sol.

Incontinence related material was available to view before or after the lecture. Some equipment; an anal electrode and exercise balls were at hand if anyone was interested to know about their function. It was also possible to familiarize with a urinary diary through an example that was available (Appendix 4) and to check what kinds of questions are asked in the forms that are filled in context of an examination. There were some brochures and examples of incontinence pads from Tena for participants to take home for testing. Men had their own brochures and pads as well, if women wanted to take information and material home for them too.



Photograph 2. Discussion and possibility to view the material.

The participants in the lectures could be divided into women between 50-80 (later on referred as aged) and 20-25 (young). This makes the interpretation of the results easier, even if the needs of the young and aged seemed to be quite similar according to the feedback forms (Appendix 5). There were altogether 14 women participated in the lectures, 7 of which were aged, 50-80 year-olds and 7 young, 20-25 year-olds women. All of the young participants were students of social services and health care. More specific age distribution is described in Table 2.

Table 2. Age distribution of the participants

Age (years)	Number of participants
20-29	7
30-39	0
40-49	0
50-59	2
60-69	3
70-79	2

All of the participants were asked to fill out an evaluation form after the lecture to find out how important they considered its content. The form was previewed by three students of physiotherapy, but when reviewing the feedback, it was noticed that it would have been good to preview the form also by someone else. This might have predicted a false evaluation in the question of how likely it is that the participant will do pelvic floor exercises in the future. The language of the form was Finnish. Age and the date of participation were asked in the beginning in order to see if there was any distinction between young and aged women's answers. The questionnaire included three closed questions, which were evaluated on the scale of 1-10. One closed question concerning interest towards a special exercise group for women suffering from pelvic floor dysfunctions was evaluated yes or no. There were also three open questions to be answered.

The importance and usefulness of the lecture was evaluated in the scale of 1 – 10, one being the least and ten the most useful. The lecture was valued among the aged participants as 8,4, which was exactly the same as the younger participants thought. The most important part of the lecture was asked in an open question. The information of the importance of the pelvic floor muscle exercises was valued the most. Knowledge of the types of incontinence was also considered useful. Details of the answers are presented in Figure 1.

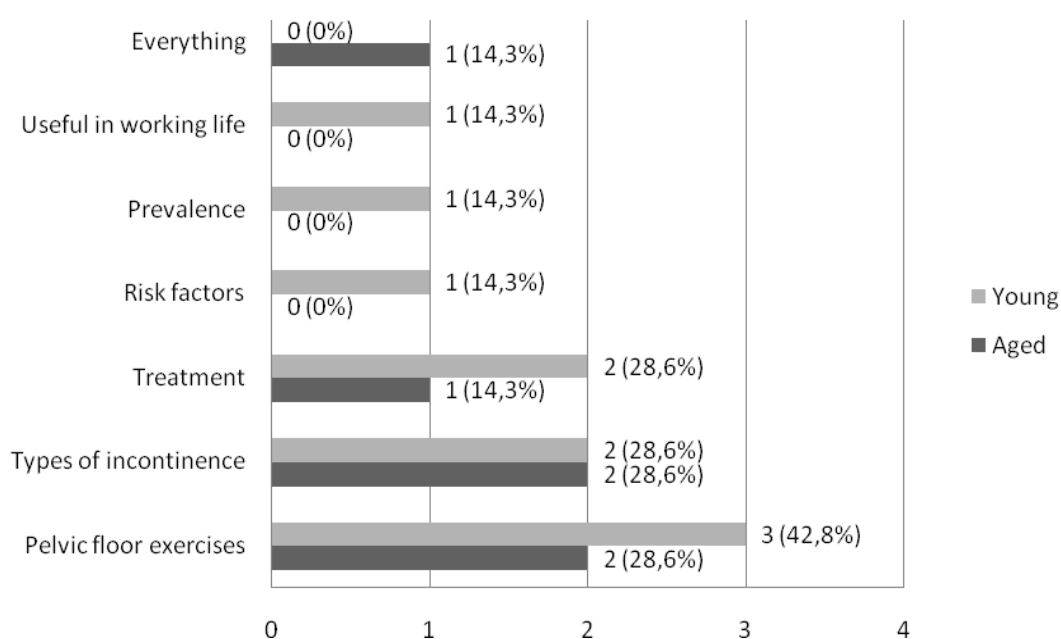


Figure 1. Most important information from the lecture

In the scale of 1-10, one being the most likely and ten not likely at all, of how probable the participants thought they would exercise their pelvic muscles after hearing its importance, the young women evaluated 2,7. The evaluations of the aged women cannot be interpreted properly, since it was clear from the answers that due to the error on the evaluation form, 28,6% (2) of the participants were misguided. From the 72,4% (5) of the evaluations that were marked correctly, the likelihood to exercise was considered 2,0. Prevention of urinary incontinence was mentioned as the most significant factor to exercise in both aged and young women. All the reasons mentioned are reviewed in Figure 2.



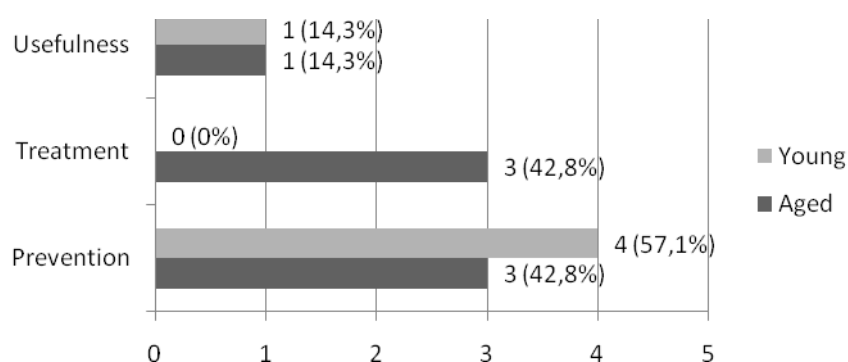


Figure 2. Reasons to exercise pelvic floor muscles in aged and young participants.

The timing of the lecture was also evaluated in the scale of 1-10, one being the worst and ten the best possible, among aged women 9,0 and among younger women 7,9. One reason why younger women considered the timing worse might have been that there had been a lot of work to be done already before the lecture that day, whereas the most of the older women had had more leisure time.

When asked if there was something that could have been left out from the lecture, all of the participants answered that there was nothing that should have been left without attention. In one of the papers it was even mentioned that it would have been nice to have even more exercises. Unfortunately, the time for the session was limited. In addition, there are not many different exercises to guide in the first session, but they can be modified by exercising during different functions.

The participants were asked about their interest towards an exercise group for women with pelvic floor dysfunctions. Of aged women 71,4% (5) and 28,6% (2) of the young women expressed their interest into this kind of activity. Due to this information from the aged women, the group was organized a couple of weeks later, but it did not function as well as the results would have predicted; there was only one client there. At least two reasons can be seen for this. The first reason is the timing of the group. It was organized on Monday morning at 9 o'clock, which is early in Spain. The other reason might be that the clients did not get the information about the new group, since it was only marketed on the bulletin board of the association. The timing generally was not the best because many of the potential clients had already travelled back to Finland.

## 8.2 Implementation of the Teaching Package in Málaga University

The lecture in Málaga University was given for a group of 50 physiotherapy students and a couple of their teachers. This lecture was planned and given in English. The language brought some challenge to the lecture, since many of the Spanish students are not fluent in English. There were also five Finnish physiotherapy students to assist during the lecture. I expected that the time reserved for the lecture would have been 1,5 hours, but for unknown reason it was reduced to only one hour, which made the schedule somewhat more intensive.

The lecture was divided into three parts. The first part was the verbal introduction, giving basic information on pelvic floor anatomy and urinary incontinence in women. The content of this theoretical part was more profound than the one with Finnish women, since the profession of physiotherapists requires deeper knowledge on the subject to ensure proper treatment. Written material was given for the group (Appendix 6) to make it easier to follow the lecture. The theory part also offered a possibility for the students to internalize information before continuing to the more practical parts.



Photograph 3. Theoretical part in Málaga University.

The first practical part concerned about pelvic floor exercises. The students were introduced on how to verbally guide a client to contract the pelvic floor muscle and

how to take the contraction into consideration in other exercises. They also tried the exercises themselves in order to recognize and how the contraction should feel. In the last part of the session the students were divided into four small groups to discuss about their possibilities as physiotherapists to help a client with urinary incontinence. One or two Finnish physiotherapists were present in every small group to guide the discussion and to give some guidelines. After discussing in the groups for 15 minutes, the ideas were brought out with the whole group. The answers to the questions were also given in written form for the group (Appendix 7).



Photograph 4. Working in small groups.

The group was asked to fill up a similar evaluation form (Appendix 8), as the Finnish women concerning the lecture and its aims. Only the questions of timing, likelihood of performing pelvic floor exercises in the future and interest towards an incontinence exercise group were not included in this form, because of their irrelevance. There were two closed questions with an evaluation scale 1-10 and three open questions. Also the age and gender of the respondent were asked for distribution. From the 50 participants on the lecture, 22 returned the evaluation form filled. The reason for such a small amount might have been that many of the students had difficulties in expressing themselves in English. Of the respondents, 13,6% (3) were men and 86,4% (19) women. Ages varied between 20-33 years.

The usefulness of the lecture was rated in the scale of 1-10, one being not important and ten extremely important, to be 7,86. The degree of interest was also evaluated in the scale of 1-10, one being not interesting at all and ten extremely interesting, the result of the evaluations was 8,82. In the open questions, it was asked about what especially provoke interest. Information of different types of urinary incontinence was mentioned in almost half of the papers, but also pelvic floor exercises and treatment were considered interesting according to the answers. The focuses of interest are presented in Figure 3.

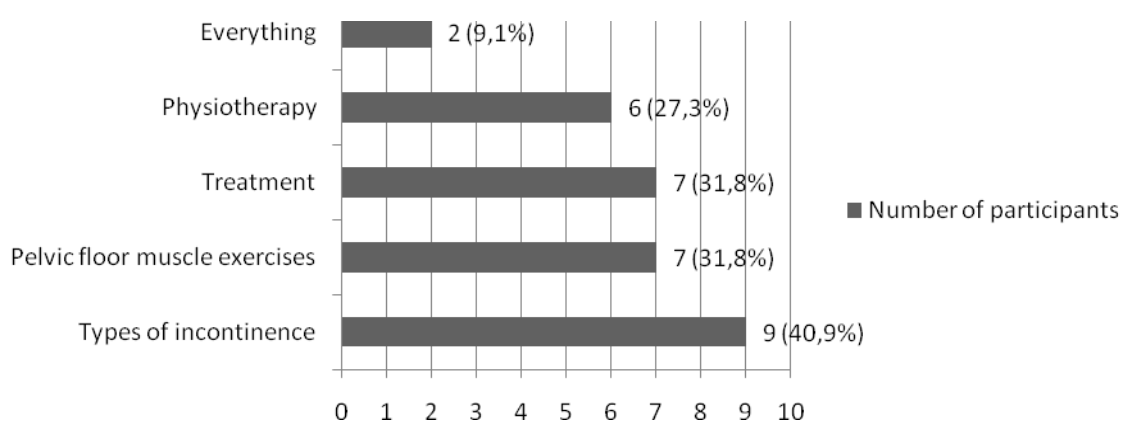


Figure 3. Most interesting part of the lecture.

Nearly half of all respondents would have liked to hear even more about the pelvic floor exercises. In one of the questionnaires it was even wished to have received photos from the exercises. This made me wonder if the respondent had understood correctly the idea of pelvic floor exercises, because the movement cannot be seen outside the body. The distribution of the answers of what the students would have liked to hear more of, are presented in Figure 4.

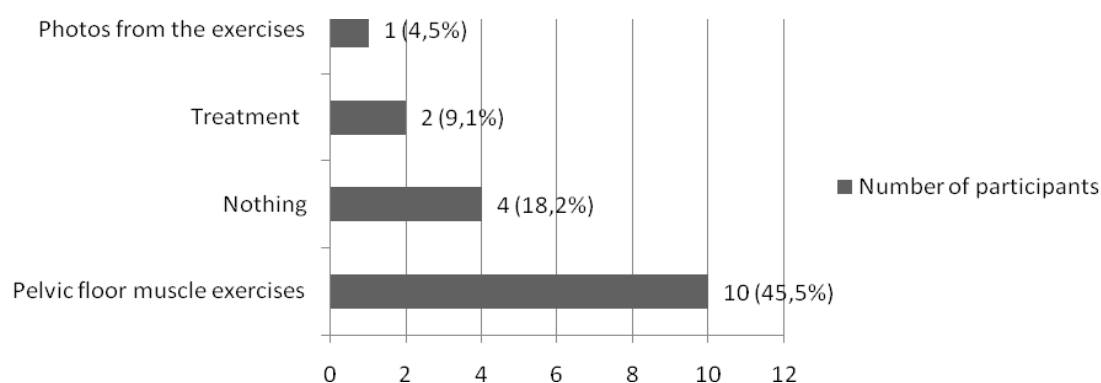


Figure 4. What the participants would have liked to hear more of.

As asked of what should have been left out, all 22 respondents replied that there was nothing that should have been left without attention. On the contrary, 9,1% (2) responded the lecture being “*complete*”. Also 9,1% (2) were sorry for the shortage of time reserved. Despite the shortness of time, It was possible to give a “*good abstract*” of the subject for the group, as 4,5% (1) respondent answered.

### 8.3 The Outcome of the Teaching Packages

As the results from the evaluation forms in both Finnish aged women and in physiotherapy students in Málaga University reveal, teaching packages were found useful. This implies that there is clearly a need for this kind of education in both groups. The information received from these evaluation forms was essential in considering the advantages of the teaching packages and possible future plans with the project.

## 9 DISCUSSION

The idea for making teaching packages for Finnish elderly women and physiotherapy students in Málaga University came to me as I got to know that I was going to do my clinical practice in a project of Satakunta University of Applied Sciences in Asociación Finlandesa Costa del Sol in Spain. We also had some cooperation with Málaga University, which made the idea of giving a lecture for the future physiotherapists natural as well, and that way to familiarize them with the basics of pelvic floor physiotherapy.

Since there were two different target groups, the needs of both of the groups had to be considered carefully in order to give both groups essential information for their needs. With the Finnish women, it was also necessary to pay attention to the language, as it had to be understandable and not too professional. On the other hand, in the teaching package for the physiotherapy students, professional language was preferable.

Theoretical information about urinary incontinence in women was quite easy to find, rather there was more articles and information that was needed for this thesis. At some points it was even difficult to decide what information was of concern and what was redundant. In my thesis I attempted to reach the level of adequate depth without focusing on details. I feel that the aim succeeded. This is definitely one of the strong points of this thesis.

Urinary incontinence is a common problem among aged women. The statistics do not show any clear distribution between nationalities, so this gives a hint of the problem being similar in Finland and in Spain. As the population in Finland is becoming older, the importance of the treatment and prevention of incontinence should be emphasized in the health care system. Since urinary incontinence is a major factor in determining the ability for independent living, its importance as a significant item of expenditure for both for society and the client herself cannot be denied.

Even though the problem is common, it is often brushed aside because of its nature. People suffering from incontinence tend not to open up without asking. This is a reason why especially aged women should be asked about possible problems with bladder function in order to interfere before the problem gets worse. As in any dysfunctions, also urinary incontinence is often easier to treat when it is not yet chronic and regular.

For the aged women it is important to understand that getting older does not automatically bring urinary incontinence along. There are several different occupational groups, which are easily approachable and who can help in these kinds of problems. As the women realize they are not alone with the symptoms, it might be easier to search for help. For most women, gynecologist is the first to approach in any intimate problems and often the best one to start with the examination in the beginning by closing possible pathological changes and to find a best alternative for further treatment as well.

Physiotherapists, who treat clients with pelvic floor dysfunctions, are often specialized in the area. It is yet necessary for also an unspecialized physiotherapist to understand at least the basics of the function of the pelvic floor in order to be able to instruct the client how to start the rehabilitation. Mothers who have just given birth are in a high risk to get problems with pelvic floor as well as aged women, who are going or already gone through menopause or even young, extremely athletic women – all because of different reasons. Hopefully this teaching package for Spanish physiotherapy students increased the knowledge about the problem.

The interest of the physiotherapy students was remarkable, at least according to the results from the questionnaire and the atmosphere reigned in the situation. This lecture hopefully gave the students some ideas of what can be done with a client with urinary incontinence. However, since the language of the lecture was English, it probably hindered many of them to learn, because the level of appreciation of English language is not as high in Spanish education system as it is in Finland. Also the level of physiotherapy education is advanced, so it cannot be guaranteed that everything was understood by the students in the way that was meant to. Even though, at least many of the students understood majority of the information

discussed during the lecture, and it is likely that they will inform the others later on. Also working in small groups was a new method for the students and it gave them more potential in combining new information to the already existing knowledge.

It was good that the teaching packages were presented so that the lectures in Finnish were before the English version for physiotherapists. Since it was easier for me to give the lecture in Finnish, this gave me time first to adjust in the thought of performing in front of a bigger group and speaking English. Also the idea of having two separated dates for Finnish women was good, although the idea suffered from the lack of available times in the facility.

The piloting of the evaluation form of the lecture for Finnish aged women was the weak point of the thesis. It should have been piloted also with some potential participant for the lecture. Because of this fault, one evaluation on the questionnaire was not noticed to be false and this way hindered a proper evaluation of how likely it was that the women would start exercising their pelvic floor muscles in the future. This would have been substantial information in order to find out if the aim of the lecture was achieved and the importance of self treatment was realized. Some conclusions could be made from the question, but the reliability suffered from this error.

The information received from the evaluation forms implies that the interest towards urinary incontinence is on the increase and attitudes are getting more natural. Despite this, there is still noticeable diffidence which reflected e.g. in the amount of participants on the lectures or to the exercise group. It is assumable that there would have been more potential clients, but the fear of stamping hindered many women from participating. One reason for this anxiety is probably that the facility where all the lectures and activities were given was the same where many Finnish people came to spend time and meet friends. Perhaps the fear of being seen in this kind of situation felt too inconvenient. In the future it is possible to take this information into account when planning this kind of exercise group. Possibly the facility and timing should be different to reach more clients. Also the manner of marketing has to be discreet enough, emphasizing prevention and other facts than leaking problems, to avoid feeling of shame and embarrassment.



Important information in thesis is also received between the lines. Because of the participation in the lecture of aged women it was easy to realize that this subject is still considered as a taboo, even if the information is nowadays easily available and urinary incontinence is a lot more discussed among women than before. Perhaps it is still difficult to admit the problem because it's intimate nature and even more difficult to admit it for a stranger by participating this kind of lecture. It is now easier to see that the marketing of the lecture should have emphasized more on the prevention.

The process of writing the bachelor's thesis was expected to be difficult, long and time consuming. As I got the teaching package ready and the lectures were given, the most difficult and time consuming part for me was to start the actual writing of the thesis. I had a clear image of what the theory part should include already when I started to plan the teaching packages but yet combining the theory from the lectures and finding proper references took a lot of time and effort. I started the writing process with the theory of facts of urinary incontinence. This part took most of the time that was needed in writing. For me, it was easier to write about the actual work of mine than from the references.

Looking back now, there are yet some parts in the process that I would have done differently. First of all, the marketing of the lectures in Asociación Finlandesa Costa del Sol should have begun even earlier and perhaps even more channels for the marketing should have been used. It would have been good to e.g. tell for the clients in other groups about the lectures and their content and to encourage women to participate in them. Of course it would have been also wise to start the writing the thesis right after giving lectures, but as I was working during the summer, it felt easier to start in the autumn. This was actually found out a good way, because during autumn I started to feel a lot more motivated with writing.

In the future, I would recommend a similar teaching package given also for men. This sets a great challenge, since the problems of men are often due to prostate. Nonetheless, information about men's problems would be of great benefit in order to reduce unnecessary embarrassment and other inappropriate attitude towards urinary

incontinence. Also the idea of an exercise group for women might affect on the attitudes, giving a picture of pelvic floor exercises being equally important to any other strength exercises and not being anything exceptional or mystic.

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APPENDIX 4: An example of a urinary diary

APPENDIX 5: Questionnaire from the lecture at Kymppipaikka

APPENDIX 6: The lecture material from Málaga University

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APPENDIX 8: Questionnaire from the lecture at Málaga University



# TEEMAPÄIVÄ NAISTEN INKONTINENSISTA ELI VIRTSANKARKAILUSTA

Tervetuloa mukaan keskiviikkona 2.4.  
klo 15.30 (kesto noin 1,5h)

Teemapäivässä saat tietoa inkontinenssista, sen eri muodoista ja hoitokeinoista, sekä hyviä käytännön vinkkejä. Luennon loppuksi käydään läpi helppoja lantionpohjan harjoituksia, jotka ehkäisevät ja helpottavat inkontinenssin oireita.

Teemapäivän järjestävät Satakunnan ammattikorkeakoulun opiskelijat.

Teemapäivä naisten  
inkontinenssista 2.4.2008

Anna Sarpio – Satakunnan ammattikorkeakoulu

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Päivän sisältö

- › Mitä inkontinenssi on?
- › Kenelle inkontinenssi tulee?
- › Millaisissa muodoissa inkontinenssi voi esiintyä?
- › Inkontinenssin vaikutukset jokapäiväiseen elämään
- › Eri muotojen hoitokeinot
- › Fysioterapian rooli inkontinenssin hoidossa
- › Lantionpohjan toiminta
- › Lantionpohjan harjoitukset

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Mitä inkontinenssi on?

- › Tahatonta virtsankarkailua, joka aiheuttaa sosiaalista, psyykkistä tai hygieenistä haittaa.
- › 5-7 kertaa päivässä ja kerran yöllä virtsalla käynti on "normaalia"

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### Kenelle inkontinenssi tulee?

- ▶ Noin 5-8% väestöstä kärsii virtsankarkailusta – 400 000 suomalaista
- ▶ Yleisempi naisilla kuin miehillä
- ▶ Yleisyys lisääntyy iän myötä: >60 vuotiailla 20 %, >70 vuotiailla 59%
- ▶ Normaali ikääntyminen ei aiheuta inkontinenssia!

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### Riskitekijät

- ▶ Sukupuoli: naisilla 3-8 kertainen riski
- ▶ Ikä
- ▶ Perimä
- ▶ Raskaudet ja synnytykset
- ▶ Ylipaino
- ▶ Tyypin 2 diabetes
- ▶ Elintavat: tupakointi, runsas nesteiden käyttö, kahvi
- ▶ Raju fyysinen rasitus
- ▶ Hormonaaliset tekijät

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### Ikääntymisen aiheuttamat muutokset

- ▶ Estrogeenin erittyminen vähenee rajusti vaihdevuosien jälkeen
  - ▶ Limakalvot ohenevat
    - ▶ Tihentynyt virtsaamisen tarve
- ▶ Side- ja lihaskudoksien heikkeneminen
  - ▶ Kohdun ja virtsarakon laskeumat

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### Ikääntymisen aiheuttamat muutokset

- ▶ Virtsarakon venymiskyky heikkenee ja tilavuus vähenee
- ▶ Hermokudos rappeutuu
- ▶ Rakkolihasen supistuskapasiteetti heikkenee
- ▶ Rakko ei tyhjene täysin virtsatessa
  - ▶ Apukeinoja: oikea asento, kaksoisvirtsaus

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### Mistä muusta inkontinenssi voi johtua?

- ▶ Muut sairaudet, esim. neurologiset
- ▶ Pitkään jatkunut ummetus
- ▶ Liian raju liikunta
- ▶ Lääkitys

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### Inkontinenssin vaikutukset jokapäiväiseen elämään

- ▶ Vaikuttaa ratkaisevasti ikääntyneiden itsenäiseen elämiseen
- ▶ Ei uskalla lähteä kotoa
  - ▶ Harrastustoiminnan rajoittuminen
  - ▶ Sosiaalisten tilanteiden karttaminen
- ▶ Alentunut henkinen hyvinvointi, masennus ja heikentynyt itsetunto kolme kertaa yleisempää kuin terveillä
- ▶ Pakkoinkontinenssilla negatiivisemmat vaikutukset henkiseen hyvinvointiin

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### Inkontinenssin vaikutukset jokapäiväiseen elämään

- ▶ Taloudelliset kustannukset
- ▶ Hajuhaitat
- ▶ Unihäiriöt
- ▶ Virtsatieinfektiot

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### Lantionpohjan toiminta

- ▶ **Tahdonalainen**, kolmikerroksinen, häntäluusta häpyluuhun ulottuva "lihasmatto", joka ympäröi virtsaputkea, emätintä ja peräsuolta
- ▶ Tukee sisäelimiä
- ▶ Säätelee virtsaamis- ja ulostamistoimintoja
- ▶ Vaikuttaa seksuaalitoimintoihin
- ▶ Vaikuttaa ryhtiin ja vartalon hallintaan

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### Inkontinenssimuodot

- ▶ Inkontinenssi luokitellaan neljään eri muotoon:
  - ▶ Pakkoinkontinenssi
  - ▶ Ponnistusinkontinenssi
  - ▶ Sekamuotoinen inkontinenssi
  - ▶ Ylivuotoinkontinenssi

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### Pakkoinkontinenssi

- ▶ Tahaton virtsan karkaaminen äkillisen virtsaamispakon yhteydessä tai välittömästi sen jälkeen
- ▶ Muut syyt suljettava ensin pois
- ▶ Useimmiten pystyy pidättelemään, mutta jos ei, rakko tyhjenee usein kokonaan
- ▶ Häiriö virtsarakon lihaksistossa – ”yliaktiivinen rakko”
- ▶ Virtsarakon kaulassa ja virtsaputken sisäpinnalla liian paljon tuntohermoja?
- ▶ Lisääntyy iän myötä

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### Ponnistusinkontinenssi

- ▶ Tahaton virtsan karkaaminen fyysisen rasituksen tai ponnistuksen yhteydessä. Myös yskäisy tai aivastus voivat aiheuttaa virtsan karkaamisen
- ▶ Alavatsan tavallista suurempi paine kohdistuu virtsarakkoon erityisesti rakon ollessa täysi
- ▶ Joskus virtsa voi karata myös melko tyhjältä rakosta
- ▶ Ei virtsaamisen tarpeen tunnetta ennen
- ▶ Naisella lyhyt virtsaputki, jonka lihakset tarvitsevat lisätukea sulkeutuakseen kunnolla
- ▶ Heikentyneet lantionpohjan lihakset voivat aiheuttaa virtsaputken vajoamisen lantionpohjan alle

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### Sekamuotoinen inkontinenssi

- ▶ Pakko- ja ponnistusinkontinenssin esiintyminen yhdessä
- ▶ Kummasta ongelmia ilmenee enemmän?

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### Ylivuotoinkontinenssi

- ▶ Virtsan karkaaminen johtuu rakon ylitäytymisestä – johtuu naisilla aina motorisen hermotuksen häiriöstä
- ▶ Virtsarakkoon kertyy hyvin suuri määrä virtsaa, joka ei kuitenkaan aiheuta virtsaamisen tarvetta
- ▶ Suuren virtsamäärän aiheuttama paine ylittää virtsaputken sisäisen paineen, joka aiheuttaa ylivuodon

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### Hoitokeinoja kaikkiin tyypeihin

- ▶ Painon pudotus ylipainoisella – virtsaputkeen kohdistuva paine pienenee ja virtsaputken sulkumekanismi toimii paremmin
- ▶ Tupakoinnin lopettaminen
- ▶ Lantionpohjan lihasten harjoittelu
- ▶ 2. tyyppin diabeteksen hoito

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### Pakkoinkontinenssin hoitokeinoja

- ▶ "Nestesaneeraus"
- ▶ Rakkokoulutus virtsaamispäiväkirjaa apuna käyttäen
- ▶ Lantionpohjan lihasten harjoittelu
- ▶ Rakkolihasta rauhoittava sähköhoito
- ▶ Lääkehoito
- ▶ Estrogeenihoito vaihdevuosi-ien ylittäneillä
- ▶ Muiden lääkkeiden tarkistus

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### Ponnistusinkontinenssin hoitokeinoja

- ▶ **Lantionpohjan lihasten harjoittelu**
- ▶ Lihaksia aktivoiva sähköhoito
- ▶ Lääkehoito (vähäinen merkitys)
- ▶ Estrogeenihoito muun hoidon täydentäjänä – paikallinen tai koko kehoon vaikuttava
- ▶ Leikkaus, jos muu ei auta
- ▶ Ruiskehoidot (harvoin)

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### Sekamuotoisen inkontinenssin hoitokeinoja

- ▶ Hoito määräytyy sen mukaan, kumpi muoto; pakko- vai ponnistusinkontinenssi aiheuttaa suurempia ongelmia
- ▶ Pakkoinkontinenssiin usein lääkehoito
- ▶ Ponnistusinkontinenssiin leikkaus – parantaa joskus myös hieman pakkoinkontinenssin oireita

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### Fysioterapian rooli inkontinenssin hoidossa

- ▶ **Lantionpohjan lihasharjoitteet**
  - ▶ Biopalaute
- ▶ **Sähköhoito**
  - ▶ Rakkoa rauhoittava
  - ▶ Lihaksia stimuloiva
- ▶ **Syvien vatsalihasten harjoittelu**

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### Pidätystekniikoita

- ▶ Pysy rauhallisena
- ▶ Seiso paikallaan, jalat ristissä
- ▶ Supista lantionpohjan lihakset
- ▶ "Rukoile"
- ▶ Odota 10-20 sekuntia ennen kuin jatkat matkaa

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### Lantionpohjan harjoitukset

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## LANTIONPOHJAN LIHASTEN HARJOITTELU

### Tunnistamisharjoitus

- Supista lantionpohjan lihaksia kevyesti. Pidä jännitys pari sekuntia. Toista useita kertoja. Huomaa, että jännitys tulee nimenomaan lantionpohjasta, pyri pitämään vatsa- ja pakaralihakset täysin rentoina.

### Kestävyysvoima

- Supista lantionpohjan lihaksia vähitellen aste asteelta niin, että lopussa jännität lihaksia niin lujaa kuin pystyt. Pidä jännitys noin 5 sekuntia ja pidä 10 sekunnin tauko ennen uutta jännitystä. Toista tämä 20-30 kertaa tai väsymykseen asti.

### Nopeusvoima

- Jännitä lihakset niin nopeasti ja voimakkaasti kuin pystyt, pidä pari sekuntia ja rentouta 5 sekuntia. Toista 10-12 kertaa.

### Ohjeita harjoitteluun

- Harjoittele 2-3 kertaa päivässä
- Aloita tekemällä tunnistamisharjoituksia parin viikon ajan. Näin totuttele lantionpohjan lihasten tunnistamiseen ja opit jännittämään lihaksia oikein.
- Voit kokeilla lantionpohjan lihasten tunnistamista eri asennoissa. Usein on helpointa aloittaa selinmakuulla, jalkapohjat lattiassa, mutta voit kokeilla myös konttausasentoa, jolloin joudut jännittämään lihaksia painovoimaa vastaan. Jännitä lihakset samalla tavalla, kuin virtsaa ja ulostetta pidättäessä.
- Koska lantionpohjan lihasten supistaminen ei näy päällepäin, harjoituksia on hyvä tehdä myös päivittäisten askareiden yhteydessä, kun olet ensin "löytänyt" lihasten supistuksen
- Kun perusharjoitukset sujuvat hyvin, voit yhdistää lantionpohjan lihasten harjoittelua muihin tilanteisiin, mm. kävelyyn, hyppelyyn ja nosteluun sekä tilanteisiin, joissa virtsa karkaa. Toiminnallisista harjoituksista saat suurimman hyödyn jokapäiväiseen elämään.
- Tutkimusten mukaan 2-6 kuukauden harjoittelu vaikuttaa virtsankarkailun vähenemiseen ja seksuaalielämän paranemiseen.



## TEEMAPÄIVÄN PALAUTE

Ikä \_\_\_\_\_

Milloin osallistuit teemapäivään? \_\_\_\_\_

Miten hyödylliseksi koit teemapäivästä saamasi tiedon?

ei lainkaan hyödyllinen

erittäin hyödyllinen

1      2      3      4      5      6      7      8      9      10

Miten sopiva ajankohta oli?

ei lainkaan sopiva

erittäin sopiva

1      2      3      4      5      6      7      8      9      10

Minkä koit teemapäivässä hyödyllisimmäksi itsellesi?

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Minkä olisi voinut jättää pois?

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Aiotko tehdä jatkossa teemapäivässä opeteltuja harjoitteita?

aivan varmasti

en varmasti

1      2      3      4      5      6      7      8      9      10

Jos aiot harjoitella, miksi? \_\_\_\_\_

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Jos et, mikset? \_\_\_\_\_

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Olisitko kiinnostunut osallistumaan ”inkontinenssijumppaan”

Kymppipaikassa?

*kyllä*

*en*

**Physiotherapy for Urinary Incontinence in Elderly Women**

Anna Sarpio - Satakunta University of Applied Sciences

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**The Structure of the Lecture**

- ▶ What is incontinence?
- ▶ Who is more likely to get incontinence?
- ▶ Function of the pelvic floor
- ▶ In what forms can urinary incontinence appear?
- ▶ Effects on ADL
- ▶ Treatment for different forms
- ▶ Small groups – Physiotherapist's role in treating incontinence
- ▶ Exercises for pelvic floor muscles

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**What is Incontinence?**

- ▶ International Continence Society, 1976: Urinary incontinence means the involuntary loss of urine from the urethra, that can be proven objectively and causes social, psychological or hygienic harm.
- ▶ Added to International Classification of Diseases (ICD) by WHO in 1998
- ▶ Urinating 5-7 times per day and once in a night is considered normal

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### Who is more likely to get incontinence?

- ▶ 5-8% of all population
- ▶ More common in females
- ▶ Prevalence increases together with age: >60 years 20 %, >70 years 59% (in female)
- ▶ Normal aging does not cause incontinence!
- ▶ Low back pain in women – 78% suffers from incontinence (Eliasson K, Elfving B, Nordgren B, Mattsson E. 2006)

Nuoto M, Jyväskylä M, Luukkaala T, Tammela TL: 2003

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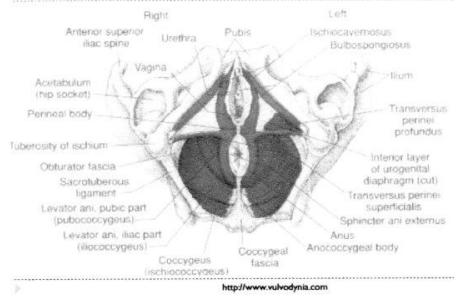
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### Function of the Pelvic Floor



<http://www.vuhodynia.com>

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### Function of the Pelvic Floor

- ▶ **Voluntary** muscle group consists of 8 muscles that form two skeletal muscles (diaphragma pelvis and diaphragma urogenitalis), fascia and ligaments
- ▶ Extends from coccyx to pubic bone, surrounding urethra, vagina and rectum
- ▶ Supports internal organs
- ▶ Controls urination and defecation
- ▶ Affects on sexual functions
- ▶ One of the muscles controlling posture and body control

Heitola, S. 1996

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### Riskfactors

- ▶ Sex: female 3-8x more likely
- ▶ Age
- ▶ Heredity
- ▶ Pregnances and confinements
- ▶ Overweight
- ▶ Type 2 diabetes
- ▶ Way of life: smoking, excessive liquid intake, coffee
- ▶ Heavy exercising
- ▶ Hormonal factors – menopause

<http://www.terveysportti.fi>

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### Changes Caused by Aging

- ▶ The secretion of estrogen decreases significantly after menopause
  - ▶ Mucous membranes get thinner
  - ▶ The need to urinate becomes denser
- ▶ Weakening of connective- and muscle tissue
  - ▶ Uterus and ja bladder prolapses

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### Changes Caused by Aging

- ▶ Bladder's ability to stretch weakens and the volume decreases
- ▶ Nervous tissue degenerates
- ▶ Bladder muscle's ability to contract gets weaker
  - ▶ Bladder does not get empty by urinating
  - ▶ What might help: the position on the toilet seat, "double urinating"

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**What Other Reasons Can Cause Incontinence?**

- ▶ Other diseases, e.g. neurological
- ▶ Prolonged constipation
- ▶ Heavy exercising
- ▶ Medication, e.g. diuretics

<http://www.terveysportti.fi>

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**Effects on ADL**

- ▶ Crucial factor defining the ability for independent living in elderly
- ▶ Leaving home is more difficult and scary
  - ▶ Leisure activities reduce
  - ▶ Avoiding social situations
- ▶ Lower psychological well-being, depression and lower self esteem 3x more usual than in healthy people
- ▶ Urge incontinence has more negative influences in psychological well-being

Heidrich S, Wells T. 2004

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**Effects on ADL**

- ▶ Financial factors
- ▶ Odours
- ▶ Sleep disturbances
- ▶ Urinary tract infections

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### Forms of Urinary Incontinence

- ▶ Classified usually in four forms:
  - ▶ Urge incontinence
  - ▶ Stress incontinence
  - ▶ Mixed incontinence
  - ▶ Overflow incontinence

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### Urge incontinence

- ▶ Involuntary leakage of urine in context of sudden urge of urination or immediately after it
- ▶ Other reasons have to be ruled out first
- ▶ The patient is often able to hold the urine, but if it leaks, the bladder empties totally
- ▶ Disturbance in the muscles of the bladder – over active bladder
- ▶ Too much tactile nerves in the neck of the bladder and inside the urethra?
- ▶ More common in elderly women

<http://www.serveyports.nl>

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### Stress Incontinence

- ▶ Involuntary leakage of urine in physical stress or exertion. Also cough or sneeze may cause leakage
- ▶ Very weak pelvic floor muscles may cause the urethra to "sink" under the pelvic floor
- ▶ The abdominal pressure focuses on the bladder especially when the bladder is full
- ▶ Urine may leak sometimes from almost empty bladder
- ▶ No need to urinate before the leak
- ▶ Women have shorter urethra – muscles need more support to close the urethra properly

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### Mixed Incontinence

- ▶ Urge and stress incontinence occur together
- ▶ Which causes more problems for the patient herself?

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### Overflow Incontinence

- ▶ The leakage of urine is caused by over filled bladder – in women it always means a disturbance of motor nerve function
- ▶ An excessive amount of urine accumulates to the bladder, but does not cause a need to urinate
- ▶ The pressure caused by the huge amount of urine exceeds the inner pressure of the urethra and causes the leak

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### Treatment for All Forms of Incontinence

- ▶ Weight loss in overweight patient – the pressure focused on the urethra decreases and the blockage of the urethra works better
- ▶ Quitting smoking
- ▶ Exercises for pelvic floor muscles

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### Treatment for Urge Incontinence

- ▶ Checking the liquid intake
- ▶ Medication
- ▶ Estrogens as complementary treatment
- ▶ Checking other medication

Schenkmanis U, Ulmsten U 2007

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### Treatment for Stress Incontinence

- ▶ Estrogens as complementary treatment
- ▶ Operation if nothing else helps (TVT, TOT)
- ▶ Medication
- ▶ Injections

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### Treatment for Mixed Incontinence

- ▶ Medication is often given for urge incontinence
- ▶ Stress incontinence may be operated – might sometimes help also urge symptoms

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### Holding Techniques

- ▶ Stay calm
- ▶ Stay still, legs crossed
- ▶ Contract pelvic floor muscles
- ▶ "Pray"
- ▶ Wait for 10-20 seconds before continuing walking

Hoppen S. 2007

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### Small groups – Physiotherapist's role in treating incontinence

- ▶ Explanations – Why would you do what you do?

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### Pelvic Floor Exercises

- ▶ Recognizing the right muscle contraction – gluteal and abdominal muscles are relaxed!
- ▶ Speed / maximum strength
- ▶ Endurance strength
- ▶ Different positions
- ▶ Functional exercises
- ▶ Results in 2-6 months

Hutchins S. 1996

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## WHAT A PHYSIOTHERAPIST CAN DO WITH A PATIENT WITH A CERTAIN KIND OF URINARY INCONTINENCE?

**Only the things that are practiced can be learned!**

### Urge Incontinence

- pelvic floor exercises – biofeedback helps to find the right muscles (Special course in Jyväskylä University, 2008.)
- TNS- calming the bladder. under 12 Hz – stimulates the nerve. Some proves (Holroyd-Leduc, Strauss. 2004.)
- always local estrogen when giving TNS – mucous membranes do not bear the treatment without extra estrogen (Special course in Jyväskylä University, 2008.)
- A physiotherapist can also guide how to use the urination diary and bladder training

### Stress Incontinence

- pelvic floor exercises – biofeedback helps to find the right muscles
  - exercises have been strongly proven to help in mixed and stress incontinence (Dumoulin, Hay-Smith. 2006.)
- TNS- muscle activation – not as strong evidence as in urge. May help when trying to find the muscle contraction.
- always local estrogen when giving TNS (mucous membranes)

### Mixed Incontinence

- Treating the problem that causes more problems for the client (Choose between urge and stress)

### Overflow Incontinence

- Nothing proven to help, pelvic floor exercises can be tried

### TO CONCLUDE:

- Pelvic floor exercises can be used in every incontinence form!
- Also exercising transversus abdominis often helps
- **ALWAYS REMEMBER TO GUIDE THE CORRECT EXERCISES FOR THE CLIENT!**

## FEEDBACK FROM THE LECTURE

Age: \_\_\_\_\_

Sex:            male            female

How useful do you think the lecture was?

not at all useful										extremely useful
1	2	3	4	5	6	7	8	9	10	

How interesting do you consider the physiotherapy of the pelvic floor?

not interesting at all										extremely interesting
1	2	3	4	5	6	7	8	9	10	

What do you consider as the most important information from the lecture for you as a physiotherapist?

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Was there something that you would have liked to hear more about?

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What could have been left out?

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