Urological rehabilitation

For women and men

Patient's guide
Revision III

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Introduction

Unintentional passing of urine, issues with frequent urination or, on the contrary, difficulties when performing this basic physiological function are, at first glance, an embarrassing affair. This is an ailment we are rather hesitant to admit to, as we believe it would be best if no one knew what inelegant issue we are battling. Nothing could be further from the truth – not only should we feel no shame, but also go see a doctor as soon as possible and undergo treatment! This is because urination problems are an alarm signal. Men in particular should neither hide nor ignore this issue, as it is often a symptom of a severe and often fatal illness – prostate cancer.

Guys like facts, so let's start with numbers. According to the National Cancer Register, in 2014-2018 the number of malignant prostate cancer cases in Poland increased by 25%. During this period, the number of deaths caused by this diseases increased by 20%. One should note that this trend occurred only in our country. In other EU member states, the prostate cancer mortality is dropping. In April 2021, *Annals of Oncology*, a journal published by the European Society for Medical Oncology, printed the result of a mortality rates analysis for several types of cancer, including the prostate cancer. Since 2015, the death rate for this disease in the EU decreased by 7%. With one exception – in Poland, it increased by 18% in the same period. The COVID-19 pandemic certainly does not help the situation.

The statistics are clear – postponing treatment usually ends tragically. This almost always happens if patients see doctors too late. What does it mean: "too late" mean? That's when the cancer is highly advanced. So why do so many people decide to have a check-up when the chances of recovery are minimal or non-existent? One of the reasons is shame. But much more often it is because there are no alarming symptoms, or because some, initially minor, problems are not treated as an alarm signal. Such signals

may include the first sign of trouble with holding or releasing urine. These should never be ignored.

Even if difficulties with releasing or holding urine are not a sign of a prostate cancer, over the course of time they may hinder normal functioning. It begins with more frequent visits to the lavatory, getting up at night or soiling one's underwear, and ends with quitting one's job, abstaining from sexual activity, never leaving home, giving up one's social life and low self-esteem. For how can one function normally when finding a restroom is a must every few minutes?

The good news is this doesn't' have to, or even shouldn't be like that. Modern medicine offers numerous forms of effective treatment. There is only one condition – you have to seek it. First of all, it is worth to have a healthy lifestyle prolonged sitting, eating processed food, alcohol or cigarettes all favour the prostate cancer. But this is only the beginning. Prostate cancer can grow for years without causing any symptoms, which is why preventive screening is so important. Those over 50 should regularly have their PSA (prostate-specific antigen) level tested, and regularly see a urologist for check-ups. That's because in some cases the PSA values are not concerning, but the disease is already in progress.

If detected early, cancer is curable. Although most of us have heard this said on numerous occasions, there are many who still ignore first symptoms. But let us assume that we treated the issue responsibly and went to see a doctor after the warning signal in the form of issues with releasing or holding urine. What's next?

The next step is, of course, treatment, selected in accordance with the nature of the disease. In the case of prostate cancer, one of the treatment methods is surgery (radical prostatectomy). Urinary system issues may have various reasons. In men, these disorders usually manifest through difficulties with urination, caused by the prostate gland which grows with age and obstructs the bladder. On the other hand, urinary incontinence in men is usually related to past surgeries, pelvis injuries or side effects of radiotherapy. The percentage of complications in the form of urinary

incontinence varies (depending on the treatment facility and the method of assessing this issue) between a dozen or so and more than 40%.

This problem also affects a lot of women. In their case, stress urinary incontinence is the most common. This is one of the most frequent, chronic women's diseases. In some cases, it is one of the complications of childbirth. The estimated frequency is between 17% and 46%, and even 70% of the global female population. Only about 16-20% of the women with those symptoms see a doctor. This means that its frequency is most likely underestimated, as a lot of women hide this issue.

Urological rehabilitation is one of the forms of treating urinary incontinence. It should be noted that the aforesaid ailments can be removed, or at least significantly mitigated, using rehabilitation methods; most conditions can also be effectively treated with medication, while some require urological surgery. However, the basis for effective treatment is the correct and prompt diagnosis.

We give you the second edition of a guide concerning physio-therapy used to treat urinary tract diseases, while being fully aware that in Poland there is sadly still no modern system of a compre-hensive urological rehabilitation available as part of health insurance. We realize that as long as this service is not subsidized by the National Health Fund, it will only be available to patients in a limited capacity. In fact, those willing to undergo this type of therapy have to use commercial services. Still, we hope this will change soon. We are observing initiative and activities taken by medical associations, trade foundations and the National Chamber of Physiotherapy which seek to make urological rehabilitation part of the guaranteed benefit package. We are looking forward to this as much as you.

The role of this publication is to provide information which will help the patients notice their ailments. We created this guide to bring attention to the issue of urinary incontinence, and to make the public aware that correct and early diagnosis enables effective treatment at the early stages of the disease, when there are still no complications in the form of anatomical changes. One should also realize that lower urinary tract

dysfunctions are not uncommon. It is estimated that in Poland they affect about 4 million people. The frequency of these diseases increases with age, which would suggest that the scale of the problem grows along with the human lifespan.

I am convinced that this next edition of the guide you see before you will explain many problems, but first of all attract attention to issues which have so far been underestimated. Their earlier reco-gnition and quick treatment will ensure much better therapeutic effect. So it is worth to overcome shame and seek help, not just to save one's life, but also to ensure its best possible quality.

Prof. Romuald Zdrojowy, MD, PhD

Chapter 1

Urological rehabilitation for women and men

Urological physiotherapy, or more broadly defined urological rehabilitation, is becoming a field of growing interest from the public. This involves higher awareness of physiotherapy, as well as ailments such as urinary incontinence and other dysfunctions of the urogenital system. Urological rehabilitation should be carried out by an experienced, multidisciplinary team, consisting of a physician, a psychologist, a physiotherapist, a nurse and a dietician.

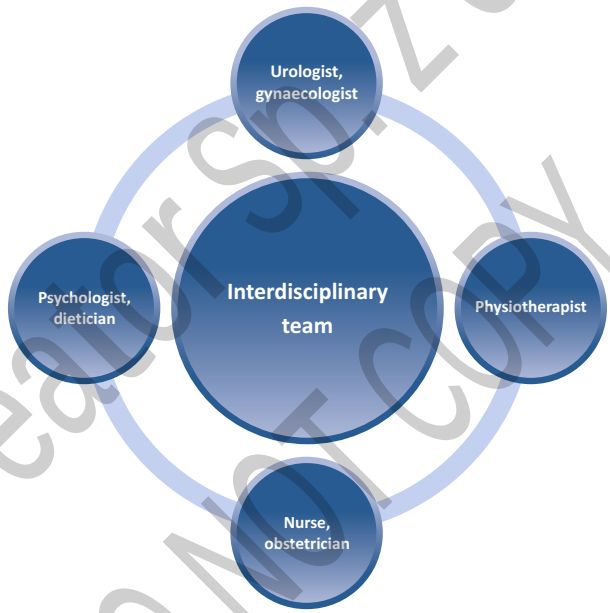

Fig. 1. **Interdisciplinary team in urological rehabilitation**

Source: own study

In urology, physiotherapy is involved in both pre- and postoperative process. It includes: exercises preventing ailments of the urinary tract, anti-clotting exercises, breathing exercises, or postoperative scar treatment. Physiotherapy is also an important part of treating urinary incontinence and other pelvic floor dysfunctions. Rehabilitation programmes for these ailments depict a certain manner of conduct which should be carried out by

an experienced therapeutic team. This study includes a brief description of the aforementioned issues. It shall also discuss various forms of activities and treatments used in the therapy of urinary incontinence and other pelvic disorders (fig. 2).

Table 1. **Urological rehabilitation for women and men – ailments treated**

Urological rehabilitation for women and men
▪ Preparation for surgical, urological and gynaecological treatment, restoring functions post-surgery
▪ Urinary incontinence
▪ Comprehensive rehabilitation after prostatectomy
▪ Pelvic organ prolapse
▪ Perinatal rehabilitation
▪ Chronic pelvic pain
▪ Sexual disorders

Source: own study

1.1. Urological conditions as contemporary modern-age diseases

Urological conditions pose a great challenge for the contemporary medicine and rehabilitation. Patients suffering from these ailments complain about deteriorating quality of life and numerous constraints on their professional and private activities. Sedentary lifestyle, poor eating habits and stress contribute to a rapid growth of the urinary tract problems.

In men, the initial symptoms of ailments regarding this system may be mild. But they should be a warning signal and make the patients see their urologists more often. These symptoms include a frequent sense of urinary urgency, abdominal pain, interrupted and weak urine stream, sense of incomplete bladder emptying, or droplet urine leaks. All these symptoms may signal milder ailments, such as urinary tract infection or a mild prostatic hypertrophy. But they may also mean a serious illness, such as prostate or bladder cancer. Unfortunately, at the early stages, many of these illnesses produce no symptoms, which is why appropriate prevention and frequent, specialist diagnostics are crucial.

In women, the symptoms of urinary incontinence or pelvic prolapse are significant contributors to reducing their daily activity level and quality of life. Gynaecological (urogynaecological) care should also be oriented towards these ailments. Rehabilitation must also be commonly available.

One should realize that the urogenital tract issues in women of different ages affect up to 70% of the population, and in men – up to 50% (depending on the patient's age and medical history). The scale is enormous, and – consequently – there is a growing demand for highly specialized, generally available care, particularly reimbursable. At specific stages of therapy, many of the aforesaid ailments require modern rehabilitation. It is a component of the therapeutic process, increasingly valued in Poland, which is still hardly accessible to many patients, due to the cost or lack of specialist laboratories. This is becoming a significant challenge for the contemporary medicine and health care system.

1.2. Diagnostic challenges in urological conditions

The stage of diagnostics (especially early diagnostics) plays a key role in the process of diagnosing and treating patients with urinary tract conditions. Due to a number of medical and social factors, the detectability of such diseases in Polish patients is relatively low, especially compared to other western European countries. The aforesaid factors may be related to insufficient knowledge of the medical staff, patients and their families regarding the necessity and possibilities of diagnosing and treating the illness. Early diagnosis is frequently made impossible by the patients' fear of seeing a doctor, especially when the issue concerns sensitive and intimate matters, such as the urinary tract ailments.

Therefore, it is vitally important to keep motivating the patients to see specialist, in order to ensure complete and efficient diagnostics. Information campaigns, various open days and happenings encouraging the public to control their own health are important.

It is crucial to develop new solutions in the scope of treatment and rehabilitation availability for patients with urinary tract conditions, which should appear in the Polish health care system. One of those solutions could be a broader, free access to specialists and personalized urological and urogynaecological rehabilitation.

1.3. Directions of rehabilitation development in urology and urogynaecology

The rapidly growing number of patients with urinary incontinence or other dysfunctions of the lower urinary tract requires medical staff and research teams to seek and develop innovative, effective therapeutic methods. It is important to personalize the approach to the patients – the therapy should take into account their subjective feelings. According to the European Association of Urology, pelvic floor disorder treatment should be primarily non-invasive, coordinated rehabilitation is a crucial component. Broadly-defined pelvic floor rehabilitation includes: change of health habits, employment of physical therapy biofeedback, manual therapy or exercises to strengthen the pelvic floor muscles.

Physical procedures in the treatment of ailments such as urinary incontinence or weak pelvic floor muscles mostly involve electrotherapy. Yet, new and more efficient methods should be researched, in order to reduce the occurrence of these symptoms. Other physical therapy methods applied in urological rehabilitation include laser therapy and magnet therapy. Nowadays, stimulation with highly inductive electromagnetic field is becoming increasingly common. Manufacturers of specialist medical equipment recommend this treatment as an effective, comprehensive, non-invasive and safe method, also for treatment of urinary incontinence and pelvic floor pain. It is emphasized that this method effects stimulation of the peripheral nervous system, stimulates the muscles, improves the collagen structures and circulation.

Urological and urogynaecological rehabilitation conducted by physicians and physiotherapists focuses on a comprehensive, individualized approach to the patient, preceded by appropriate diagnostics. It is important for the applied therapeutic procedure to take into account the nature of the problem and ensure professional approach of the interdisciplinary team, accounting for the patient's dignity and privacy.

1.4. Health care system development in the field of urological rehabilitation

It is crucial to provide the patients in Poland with general access to treatment of urological conditions. This stems from the articulated expectations of the society, increasing awareness of the patients or the need for improving their quality of life. In order for the access to these services to be universal and equal for everyone, it is necessary to provide systemic support in the form of reimbursed treatment, particularly when it comes to rehabilitation.

In 2021, the National Physiotherapy Chamber took more decisive steps regarding the need for adding reimbursed urogynaecological physiotherapy to the list of reimbursed medical services. Representatives of the National Physiotherapy Chamber emphasize that access to urogynaecological physiotherapy services is highly limited.

This stems from lack of any systemic solution implementing a comprehensive diagnostic and therapeutic procedure for certain urological and

urogynaecological conditions as part of guaranteed services. Limited access to urological rehabilitation is also related to lack of awareness among the patients, but also among medical professionals (physicians, obstetricians, physiotherapists) regarding the importance of physiotherapy in treatment of these conditions.

Currently, the physiotherapeutic care as part of such rehabilitation is insufficient and focuses mostly on services provided commercially, in private facilities. Therefore, an urgent introduction of reimbursed services concerning urological and urogynaecological rehabilitation is a very topical challenge for the health care system in Poland. It will be a response to the need of the moment.

Chapter 2

Urinary incontinence

Urinary incontinence is an ailment with a detrimental impact on all the aspects of life, by restricting the daily functioning. Both increased awareness of the patients regarding this condition and better access to diagnostics and treatment make it possible to significantly improve the quality of life of those afflicted with this condition. Physiotherapy is a significant component of non-invasive treatment and as such it should be the first-stage therapy. Comprehensive physiotherapeutic treatment relies heavily on pelvic floor muscles training, behavioural therapy and electrical stimulation. It is worth to emphasize that the effectiveness of physiotherapy, particularly pelvic floor muscle exercises, in patients with stress incontinency is observed irrespective of the age of the rehabilitees.

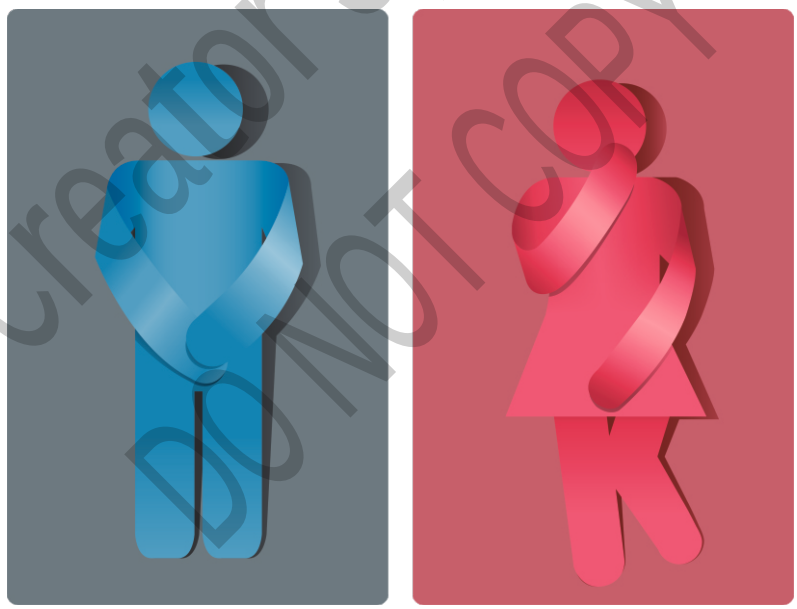

Fig. 2. **Urinary incontinence in men and women**

Source: Shutterstock Inc.

2.1. Definition of urinary incontinence

Urinary incontinence means involuntary loss of urine, diagnosed objectively, which constitutes a sanitary problem and significantly degrades the patient's quality of life. This definition was proposed by the International Continence Society, whose tasks include defining the standards for diagnosis, classification and treatment of this dysfunction. According to the Society, the following types of incontinence can be defined (general classification):

- stress (and mixed),
- urge,
- overflow,
- extrasphinteric (e.g. fistula).

2.2. Stress incontinence

The most common form is stress incontinence, classified according to advancement of the symptoms (table 1).

Table 2. **Degrees of stress incontinence**

1. Minor loss of urine during intense physical effort while standing.
2. Loss of urine occurs during the daily routine, and when the abdominal prelum is activated while coughing, sneezing, laughing, mainly while standing and when changing body position.
3. Loss of urine occurs both while standing and lying, constantly, with very little effort or no effort at all.

Source: study based on Stamey (Surg Gynecol Obstet. 1973 Apr; 136(4):547-54.)

Stress urinary incontinence occurs when the pressure inside the bladder filling with urine exceeds the force of the closed urethral sphincter. Every bit of extra pressure on the bladder (e.g. laugher or sneeze) may cause urine to leak out of the urethra. This is because the urethra cannot stay closed if the pelvic floor muscles are weak or damaged, or if the urethral sphincter (ring of muscle) which keeps the urethra closed is damaged.

These ailments may be caused by structural damage during natural childbirth, increased pressure on the bladder (e.g. due to pregnancy or obesity), damage to the bladder or the surrounding area during surgery (e.g. hysterectomy or prostatectomy), neurogenic disorders affecting the nerve function of the bladder (Parkinson's disease, multiple sclerosis). Use of certain medication may be another cause.

2.3. Urge incontinence

This type of affliction is characterized by an urgent and frequent need to urinate. It may be caused by issues with the detrusor muscle found in the wall of the bladder. The detrusor muscle remains relaxed to allow the bladder to store urine, and contracts during urination. Sometimes this muscle contracts too often, causing a sudden urge to find a restroom. This is called an overactive bladder. The reason why the detrusor muscle contracts too often may not be obvious. Possible causes include:

- drinking too much alcohol or caffeine,
- drinking too little liquids (which may cause highly concentrated urine to accumulate in the bladder, irritating it and causing symptoms of hyperactivity),
- constipations,
- conditions affecting lower urinary tract (such as urinary tract infections or bladder tumours),
- Interstitial cystitis,
- previous bladder and prostate surgeries,
- neurological conditions,
- certain medications.

2.4. Overflow incontinence

Overflow incontinence, also referred to as chronic urinary retention, is often caused by a blockage or obstruction of the bladder or urethra. The bladder may fill up normally, but – because of the obstruction – it cannot completely empty, even with effort. At the same time, the pressure inside the bladder increases, which may cause frequent, uncontrolled urine leaks. Urine outflow may be obstructed by: enlarged prostate (in men), constriction of the urethra after diagnostic and therapeutic treatment of

the urinary tract, catheterization, tumours of the pelvis, urethra, or bladder, gallstones, constipation.

This type of incontinence may also be caused by incomplete contraction of the detrusor muscle, which means that the bladder does not empty completely during urination. This muscle may not completely contract due to nerve damage (e.g. caused by intestinal surgery or spinal cord damage) and when taking certain medications.

2.5. *Risk factors*

Urinary incontinence is a social problem – according to various estimates, it may affect 20 to 60% of women and about 10% of men. Risk factors include:

- natural childbirth,
- hormonal deficiencies during the perimenopausal period,
- previous surgeries in the pelvis minor area,
- radiotherapy in the pelvis minor area,
- congenital defects.
- damaged constrictors (prostate surgeries)
- benign prostatic hyperplasia
- surgeries in the anus area

Apart from typical reasons, there are also factors which may increase the risk of urinary incontinence, but are not the cause of the issue. These include:

- family medical history – there may be a genetic connection with urinary incontinence,
- progressing age – urinary incontinence becomes more frequent in middle-aged people, and very frequent in those over 80 years old,
- existing symptoms of lower urinary tract conditions – a number of them affects the bladder and the urethra.

Certain medications may disrupt the normal process of urine accumulation and release, or increase its volume. This group includes:

- angiotensin-converting enzyme inhibitors,
- diuretics,
- certain antidepressants,
- hormonal replacement therapy,
- tranquilizers,
- medications used to treat benign prostatic hyperplasia.

2.6. Non-invasive treatment

Non-invasive therapies used to treat patients for urinary incontinence include physiotherapeutic methods, such as:

- behavioural therapy,
- pelvic floor muscle training (Kegel exercises)
- pelvic floor muscle training with biofeedback,
- bladder training,
- physical therapy (e.g. electrical stimulation).

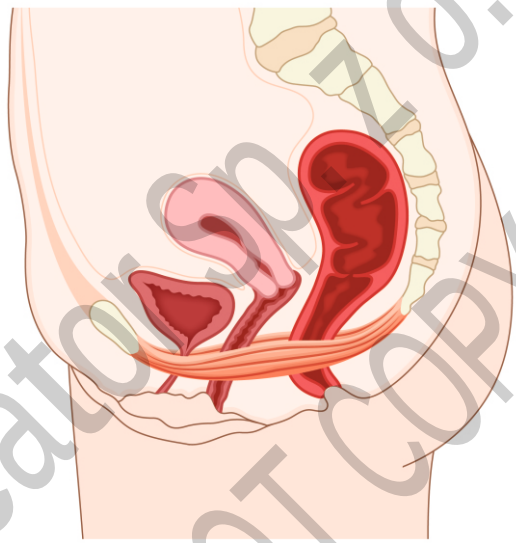

Fig. 3. **Pelvic floor muscles**

Source: Shutterstock Inc.

Physiotherapy should be used to prevent conditions such as urinary incontinence, but it can also be a method of choice in non-invasive treatment. Both in this case and in prophylaxis we should remember about comprehensive utilization of physiotherapy, taking into account: kinesiotherapy, physical therapy and behavioural therapy.

At the early stages of treatment, medical history, along with medical and physiotherapeutic diagnostics, are very important. Collecting information about the patient should include medical diagnoses and test results (e.g. urodynamic and ultrasound tests, urine analysis).

Table 3. **Urinary incontinence – questions and answers**

QUESTIONS AND ANSWERS
Question 1 How does urinary incontinence relate to age? Answer 1 Urinary incontinence should not be considered a normal effect of ageing. Patients of advanced age should basically be assessed in the same manner as everyone else. This ailment is certainly most common in older patients, but it also happens in children, young people and adults.
Question 2 Is urinary incompetence an issue present in diabetes? Answer 2 It is certainly observable in diabetics. Mismanaged and long-term diabetes may contribute to the occurrence of these symptoms. Diabetics tend to empty their bladder to a lesser extent and are slightly prone to overflow incontinence. But they may also suffer from stress incontinence, and therefore require a complete assessment before the treatment.
Question 3 What are the main causes of urinary incontinence in men and women? Answer 3 In men, prostate problems are probably the most common cause of urinary incontinence. Whereas in women, pregnancy and natural childbirth are the most likely contributors to this ailment.
Question 4 Can urinary incompetence appear and disappear? Answer 4 Yes, it may be so, depending on the cause. For instance, certain patients complain of stress incontinence only when they have a cold and cough, or during periods of strenuous activity. Patients with urinary incontinence often report increased leaks during cold spells. Sometimes it is related to dietary factors, such as excessive consumption of fluids, particularly those containing caffeine.

Source: own study

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Chapter 3

Preparation for urological and gynaecological surgery; restoring fitness post-surgery

The goal of the rehabilitation accompanying surgeries is to restore the patient to the pre-surgery level of functioning as soon as possible, and to treat post-surgery complications and functional disorders. It is equally important to prevent these complications and disorders. These goals are achieved by maintaining proper lung ventilation, ensuring proper vascular outflow from the lower limbs, early activation and verticalization, as well as general fitness exercises. The pre-surgery treatment consists of: preoperative period, surgery and postoperative period.

Fig. 4. **Pre- and postoperative rehabilitation**

Source: Shutterstock Inc.

3.1. Preoperative period

This period is very important from the perspective of rehabilitation and restoring fitness after the surgery. Before surgery, it is worth consulting an experienced physiotherapist, in order to prepare for the surgery in a proper manner. The preoperative period should include such activities as:

- preventing immobility (physical idleness),
- learning exercises to be done after the surgery,
- normalization of the cardiovascular system functional disorders

During this time, the patients should learn how to function properly after the surgery. During the preoperative period, the patients should learn how to perform:

- breathing exercises (compensatory breathing training, with emphasis in the proper length of inhalation and exhalation),
- effective coughing training (position reducing wound tension, wound stabilization),
- anti-embolic exercises,
- turning over, getting out of bed,
- general rehabilitation exercises (particularly those expanding the range of movement for the joints important for breathing and increasing the strength of the respiratory muscles),
- surgery-specific exercises

3.2. Postoperative period

In this period, the goal of the physiotherapeutic treatment is to restore the patient to their daily activities as quickly and efficiently as possible, while retaining maximum safety of the therapy.

In the early postoperative period, rehabilitation involves:

- reduction of pain
- reduction of swelling,
- preventing muscular weakness,
- minimizing the risk of blood clots,
- preventing scar hypertrophy and formation of adhesions,
- improving the range and quality of movement,
- educating the patient in the scope of proper movement habits and the correct performance of daily activities.

3.3. *Urological and gynaecological surgeries*

In the case of urology and urogynaecology, rehabilitation should be offered to those about to undergo one of the following surgeries:

- removal of kidney, bladder or prostate (nephrectomy, cystectomy, prostatectomy) due to neoplasms,
- prostate and bladder surgeries (e.g. TURB and TURP),
- hysterectomy,
- oophrectomy, myomectomy,
- surgical endometriosis treatment,
- surgical treatment of stress urinary incontinence or pelvic prolapse,
- caesarean section.

Table 4. **Pre- and postoperative period – questions and answers**

QUESTIONS AND ANSWERS

Question 1

Will my physical activity be limited after the surgery?

Answer 1

It is crucial to stay active, even during the post-surgical convalescence. Daily walks will accelerate the healing process, reduce depression and increase muscle strength. The post-surgery wound takes about 6 weeks to heal completely. During this time, one should refrain from intensive, strenuous exercises. It is also important not to climb too many stairs.

Question 2

What happens before the surgery?

Answer 2

Usually, you will be admitted to the hospital the day before the surgery. The anaesthesiological team will discuss the type of anaesthesia with you. Usually, the patients stay in hospital for 6 to 8 days. The surgery itself may take anywhere between several dozen minutes to several hours.

Question 3

What is hysterectomy?

Answer 3

It is a surgery consisting in removal of the uterus. There are 3 main types of hysterectomy:

- total - the surgeon removes the uterus and the cervix,
- subtotal - removal of the uterus, leaving the cervix in place,
- radical - complete removal of the uterus and the adjacent tissues, usually due to cancer.

Question 4

What other organs may be removed during hysterectomy?

Answer 4

It is possible to remove fallopian tubes and/or ovaries as well as the adjacent tissues, upper vagina, as well as the adjacent lymph nodes.

Source: own study

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Chapter 4

Comprehensive rehabilitation after prostatectomy

Prostate cancer is a malignant tumour of the prostate (epithelial). Indicated risk factors which may affect the development of this illness include age, genetic encumbrance, race. At the early stage of growth, prostate cancer produces no significant symptoms. But if they do appear, they resemble the symptoms of benign prostatic hyperplasia: painful urination, sense of constant urge to urinate, difficulties with starting micturition (urination), narrow urine stream, frequent, nightly trips to the bathroom, crotch and abdominal pain, and sometimes dysuria. Another early symptom of this cancer may be blood in urine or sperm (hematuria, haematospermia). Thanks to the common diagnostics of determining the prostate-specific antigen (PSA), in most cases this condition is diagnosed at the asymptomatic stage. The recommended treatment is often surgical prostate removal (radical prostatectomy). Its complications include urinary incontinence and erectile dysfunction. These ailments have predominantly negative impact on the quality of life, which is why proper diagnostics and classification of the patients in terms of symptom intensity are so important.

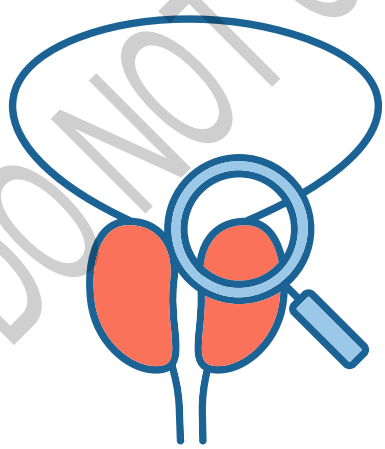

Fig. 5. **Prostate**

Source: Shutterstock Inc.

4.1. Frequency and risk factors

Prostate cancer is globally the fifth most common type of cancer. It is one of the most frequently diagnosed types of cancer in men, in Europe and North America. According to the National Cancer Register, in 2018 the prostate cancer was first in terms of incidence (19.6%) and second in terms of mortality (10.1%) among malicious cancers in Poland. It is usually diagnosed in men between 65 and 74 years of age. The average age of the patients in whom it is diagnosed is 72.3 years.

The incidence depends on the age of the men, but genetic predisposition is an important risk factor. The risk of prostate cancer in a man is 2-3 times higher if his direct relative (brother or father) had this cancer. Other significant risk factors include diet rich with saturated fatty acids and cigarette smoking. Whereas vegetarian diet, particularly soy components (such as lignans, isoflavonoids, flavonoids and lycopene) provide protection. It is also beneficial to eat more vegetables and fruit rich with pectin, vitamin E and D, selenium and beta-carotene

4.2. *Radical prostatectomy*

Patients with non-metastasized cancer have a chance of a complete recovery. In this case, it includes radical methods, such as surgery and radiotherapy. According to the recommendations of the European Urological Association, the standard surgical procedure for non-metastasized cancer is radical prostatectomy. This surgical cancer treatment involves removal of the entire prostate gland between the urethra and the bladder. This procedure can be completely successful if the entire cancerous growth is removed.

4.3. *Post-surgery complications – urinary incontinence and erectile dysfunction*

Urinary incontinence is one of the most common and unpleasant complications of radical prostatectomy. Although certain patients regain continence (the ability to hold urine), a lot of them struggle with this issue for a very long time. It restricts their daily activities, makes them feel helpless, embarrassed, and often drives them away from an active life.

The primary non-surgical treatment method after radical prostatectomy is non-invasive treatment. It is based on pelvic floor muscle exercises, biofeedback techniques and electrical stimulation. According to some of the sources, urinary incontinence occurs in almost 100% patients after prostatectomy. On the other hand, the European Association of Urology reports that the occurrence of early postoperative stress incontinence fluctuates between 0.8 and 87%, while incontinence lasting longer than 1 year after the surgery may affect less than 10% of the patients.

According to professional literature, urinary incontinence after radical prostatectomy was observed in 6-87% of the patients. Within the first 24 hours after this surgery (catheter removal), 10% of the patients are continent, within 14 days - 35%, and after 30 days, 2 months, 4 months and one year, this value is 47%, 65%, 81%, and 94%, respectively.

Urinary incontinence treatment after prostatectomy should include:

- pelvic floor muscle strength training (combined with biofeedback),
- electrical stimulation,
- behavioural therapy.

During early symptoms of urinary incontinence after radical prostatectomy, non-invasive treatment methods are the first-line treatment.

Another common complication of prostatectomy is erectile dysfunction. After introducing neurovascular bundle-sparing procedures, after 3 months 30% of the men got proper erections, after 6 months – about 40%, and about a year - 90%.

If unilateral nerve damage occurred, only about 40% of the patients were able to have an erection again. A survey conducted among patients who underwent this procedure revealed that only 9% of them have a complete erection, and 38% - partial erection. The suggested forms of diagnostics and treatment are discussed in chapter *Sexual disorders* (p. 40).

Table 5. **Surgical prostatectomy – questions and answers**

QUESTIONS AND ANSWERS
Question 1 Is it normal for the patient to feel anxious or depressed after prostatectomy? Answer 1 Yes, these are natural reactions in this situation. Still, these feelings pass with time, when the men resume their normal activities and lifestyle.

Question 2
What are the side effects of prostatectomy?
Answer 2
The two most common ones are erectile dysfunction and urinary incontinence.

Question 3
Will I still be able to exercise after being discharged?
Answer 3
For a month or two after the surgery, the body repairs the physical damage caused by the surgery, while the incision (incisions) heals. You should refrain from physical exercises which increase the intra-abdominal pressure or put stress on the abdominal and pelvic area. Your physician will tell you when it is safe to resume your regular exercise.

Question 4
Are there any exercises one can do before and after prostatectomy?
Answer 4
Apart from pelvic floor muscle exercises, they are: walking, bicycle riding and swimming, All of these are beneficial for the circulatory system and general health. Good physical condition is helpful when convalescing after prostate cancer surgery.

Source: own study

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Chapter 5

Pelvic organ prolapse

In women during menopause, but also after natural childbirth or surgeries, it is possible for the uterus, bladder and anus to prolapse, due to insufficiency and weakening of pelvic muscles. This causes a number of unpleasant ailments for the patients, including stress urinary incontinence, static disorders of the pelvis minor organs, or chronic pelvic pain. Strengthening of the pelvic floor muscles via standard exercises is a recognized method of prevention and non-invasive treatment of the aforesaid symptoms.

During perimenopause and early post-menopausal period, women undergo a number of systemic and psychological changes. It is believed that in this period, about 50% of women develop symptoms related to the urogenital system. The most common symptoms are:

- dyspareunia (pain during intercourse),
- vaginal dryness,
- difficult urination,
- urinary incontinence
- frequent urination,
- recurrent infections.

Weakening of the individual components of pelvis minor and pelvic floor may cause pathological symptoms related to disordered functions of these organs. This is why proper diagnostics and therapeutic process play a key role in preventing or limiting the extent of the aforesaid dysfunctions, particularly in women during menopause.

5.1. Symptoms and risk factors

Pelvic organ prolapse is characterized by descent of pelvic organs from their normal position. In women, this condition is usually caused by gynaecological surgery (e.g. cancer treatment), childbirth or heavy lifting. Significant prolapse occurs in about 10% of all the women. Risk factors include hysterectomy (surgical removal of the uterus), obesity, chronic cough, frequent constipations, pelvic organ tumours, or age.

Symptoms reported when taking medical history include: sensation of

a foreign body in the vagina, sensation of descended reproductive organs, difficult urination or defecation caused by a prolapsed organ.

5.2. Diagnostics

The diagnostics should start from a general medical history, including the specific number and course of childbirths, ailments during urination and defecation, therapies to date, medications taken and problems regarding sexual relations. Of particular importance is the urogyna-ecological examination, consisting in speculum examination and palpation of the pelvic floor, in order to determine the position of the reproductive organs, bladder and anus, both at rest and when pushing. Moreover, an ultrasound scan is made, to assess the directions of movement for the organs, or urine retention. It is also worth to perform a pessary test (test with a special ring, for the purposes of further diagnostics once the prolapsed organs are readjusted) and a cough test, which assesses the mobility of the urethra

Fig. **6. Pessary ring examples**

Source: Shutterstock Inc.

5.3. *Treatment*

Prolapsed reproductive organs and/or bladder and/or anus are treated depending on the advancement of the condition, as well as specific ailments. It is always necessary to take the patient's age into account. In young women after natural childbirth, premenopausal (regardless of the extent of the pelvic floor prolapse) and postmenopausal women with a small degree of prolapse of the reproductive organs and bladder or intestine, it is recommended to introduce non-invasive treatment, including physiotherapy and pessary therapy (as explained in table 6). It is always worth to refer the patients to a urogynaecological physiotherapist, for pelvic floor muscles exercise. If the reproductive organ, bladder or anus prolapse is significant, various surgical methods are used (with vaginal, laparoscopic or abdominal access).

Table 6. **Prolapsed pelvis minor organs – questions and answers**

QUESTIONS AND ANSWERS
Question 1 Is organ prolapse a serious condition? Answer 1 It may be uncomfortable, especially if after walking or standing for a while you feel pressure on the pelvic floor or organ protrusion via the vagina. The good news is, organ prolapse is usually not life-threatening, and various forms of treatment are available. For most women, the therapy method depends on the severity of the symptoms. There are numerous non-invasive treatment methods, such as change of diet, physiotherapy and pelvic floor muscle exercise. Sometimes, organ prolapse is so bothersome that women decide to undergo surgery.

Question 2

What is a pessary?

Answer 2

Pessaries are plastic objects which can help treat organ prolapse. They are used in women who are hesitant to undergo surgery. Pessaries come in various shapes and sizes. They can be fitted to help women with various degrees and types of prolapse. Pessaries are safe to use and latex-free. If you decide to give a pessary a try, it will be matched in terms of size and shape in order to reduce the prolapse, without causing you any discomfort or pain. A well-fitted pessary will moderate the prolapse, provide comfort and will make urination and defection problem-free.

Question 3

What to do with a prolapse?

Answer 3

If you suffer from pelvic prolapse, avoid any activities which can make it worse: do not lift, do not tense, do not pull. If possible, try not to stand for prolonged periods of time. Some women feel greater pressure when they stand for a long time.

Question 4

Can pelvic prolapse be treated without surgery?

Answer 4

You may be able to alleviate some of the symptoms on your own, without surgery, by doing the appropriate exercises to strengthen the pelvic muscles.

Source: own study

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Piśmiennictwo

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Chapter 6

Perinatal rehabilitation

The period of pregnancy, when the women's life changes in numerous ways, is very important to her. The physiological and anatomical changes which take place in the woman's body during these nine months, combined with other factors, may affect the woman's quality of life during puerperium. There is a lot of emphasis on teaching women how to properly take care of themselves and the child during the pregnancy, but not much is said about the issues related to puerperium.

Puerperium is the period after childbirth, lasting 6-8 weeks, during which the changes which occurred in the woman's body during pregnancy and labour gradually subside – both in the entire body and the reproductive organs. The most common health problems which may appear during puerperium are: vascular thrombosis, stress urinary incontinence, diastasis recti (abdominal separation), reduced abdominal or pelvic floor muscle tone. This may favour abdominal and pelvic prolapse, unless the muscles can regain their proper tone. In order to prevent this, an appropriate therapy should be prescribed. First exercises should be started as soon as 12 hours after labour. The outpatient treatment after childbirth tend to focus on: stress urinary incontinence, diastasis recti, pelvic prolapse, post-operative wound care, as well as proper posture.

6.1. *Diastasis recti*

Diastasis recti means an excessive separation between the two sides of the rectus abdominis muscle, accompanied by expansion and weakening of linea alba. It results from mechanical and functional disorders in the anterior abdominal wall and the entire body. Due to individual structure of linea alba, the gap may differ in different people and vary along its individual sections. If the width of the gap between the two sides of the rectus abdominis muscle exceeds 2cm, it is deemed pathological. The separation may affect women and man of any age. It is, however, the most common in pregnant and postpartum women, resulting from the changes to the body caused by pregnancy.

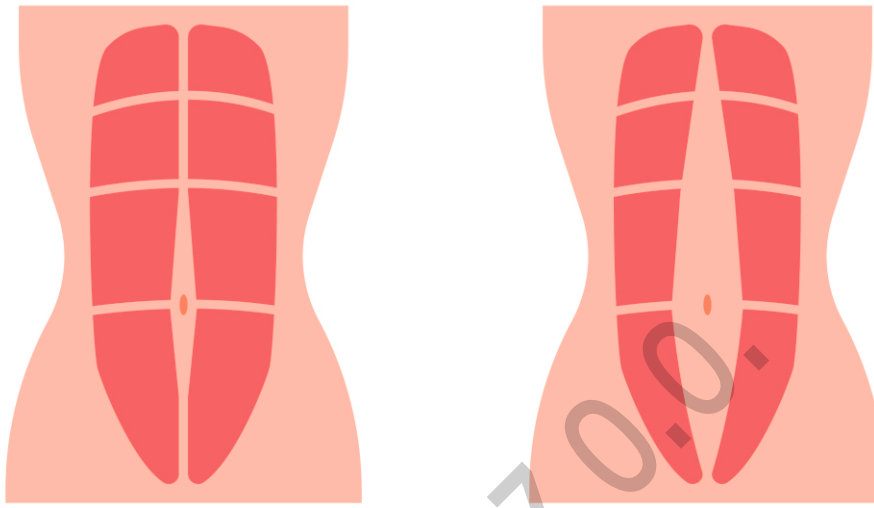

Fig. 7. **Diastasis recti**

Source: Shutterstock Inc.

Diastasis recti disturbs proper functioning of the anterior abdominal wall muscles, which has a number of consequences not only in this area, but in the entire body. Abdominal muscles serve numerous important functions, like maintaining the proper posture, breathing and body bending, as well as ensuring urinary continence. The aesthetic defect in the form of „pregnancy belly" and the possibility of a hernia are not the only problems related to diastasis recti.

This condition usually affects pregnant women – even up to 100% right after childbirth, about 60% at the end of puerperium and about 30% within 12 months after childbirth. Statistically, 50% of women require rehabilitation due to diastasis recti. The most common type of rehabilitation involves exercises strengthening these muscles, but if they are done in the wrong order, they may actually increase the problem.

The main goal of physiotherapy is to restore optimal functioning of the body, mobility and flexibility of structures such as: diaphragm, chest, pelvis, constricted muscles, while strengthening of weakened muscles is only the next stage. There is no universal training, as each case of diastasis recti is different, with different causes and consequences. Some of the patients start the exercises from weakened abdominal muscles (superficial and deep), others – from overactive abdominal muscles, others still – from pelvic floor muscle training. But each of them should strive to balance out

the muscle tone. Apart from suitable physiotherapy, it is necessary to learn and pay attention to proper daily habits. These include:

- the proper technique of getting out of bed,
- the proper technique of sneezing, coughing and using the toilet,
- the proper technique of lifting and carrying the baby,
- assuming proper posture,
- avoiding heavy lifting,
- starting the exercise from strengthening the transverse abdominal muscle.

It is best to begin the physiotherapy treatment while still in puerperium.

6.2. *Pelvic floor strengthening*

It is estimated that postnatal urinary incompetence may occur in 15% (one natural childbirth) to 33% (for more than 3 labours) of women giving natural birth. In the case of caesarean section, this value is 3%. After natural childbirth, the muscles, ligaments and connective tissues within the birth canal and pelvis minor are cut or torn, stretch, crushed, while after C-section they may be relaxed.

It was observed that after one week the pelvic floor and perineal muscles are relatively tense when unloaded. After about 2 weeks, the supporting function of the pelvic floor is restored. Sometimes the pelvis minor structures are damaged to a greater extent, which may cause stress urinary incontinence (see: *Urinary incontinence*, p. 17), or pelvic organ prolapse (see: *Pelvic organ prolapse*, p. 34).

6.3. *Handling scars and adhesions*

Scars, usually considered solely in the aesthetic aspect, may not affect the functions of the body. But complications start if the wound was deep enough to damage the fascia and the tissues underneath. A scar is an area of fibrous tissue, usually caused by damage to the normal skin and the resulting wound repair process. Both scars and the underlying adhesions may cause disorders of mobility and the internal sliding of the tissues in the subcutaneous layers, which also undergo scarring. The goal of the therapy is to eliminate the tenderness, to tone the scar, to prevent or eliminate any existing adhesions, to tend to the scar. Before the therapy, the following factors should be considered: causes of the injury and type of the wound,

the region of the body where the tissue damage occurred, time of healing, factors present during healing of the wound (wound infection, nutritional disorders). The therapy of the tissues adherent to the scar should be started once the wound heals completely. Usually, it takes 4 to 8 weeks.

Table 7. **Perinatal period – questions and answers**

QUESTIONS AND ANSWERS
Question 1 Does pregnancy result in a permanent problem with urinary incontinence? Answer 1 Certainly, not all the pregnant women are incontinent after childbirth. Yet, pregnancy may predispose you to it, especially in the case of natural childbirth.
Question 2 What is the cause of diastasis recti? Answer 2 It is cause by prolonged, strong pressure on the posteriori side of the abdomen – linea alba (connective tissue running down along the middle of the abdominal wall. It may be caused by pregnancy, chronic constipations or traditional belly exercises done incorrectly.
Question 3 How long should I rest after childbirth? Answer 3 Your recovery from childbirth will take more than a few days. A complete recovery after pregnancy and childbirth may take months. While many women feel healthy after only 6-weeks, others may need longer to feel like themselves again.
Question 4 Is it normal for my C-section scar to itch? Answer 4 Itching is normal during the healing process. It may also be caused by thpublic hair growing back.

Source: own study

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Chapter 7

Chronic pelvic pain

Chronic pelvic pain is pain in the pelvic region which lasts 6 months or longer. Chronic pain may appear and disappear, it may also be constant. Sometimes, it occurs in regular cycles. For instance, it may only appear during menstruation. It may also appear at specific moments, for instance before or after eating, during urination or sexual intercourse.

Fig. 8. **Chronic pelvic pain**

Source: Shutterstock Inc.

7.1. Symptoms

The pain symptoms are described as:

- strong and constant pain,
- recurring pain,
- dull pain,
- sharp pain or cramps,
- pressure or heaviness deep inside the pelvis.

Other reported symptoms include:

- pain during intercourse,
- pain during defecation or urination,
- pain after prolonged sitting.

The discomfort may grow worse after standing for a while, and subside after lying down. The pain may be mild or so strong it hinders work, sleep or physical activity.

7.2. Causes

Chronic pelvic pain is a complex condition which may have numerous causes. Sometimes, it is caused by a single disorder. But in other cases, it may result from several ailments. For instance, in women, it may be related to endometriosis, and in men – to prostatic hyperplasia.

Certain causes of chronic pelvic pain include:

- endometriosis – a condition in which the endometrium grows outside
  the uterus (which may cause pain and adhesions),
- musculoskeletal issues, such as increased pelvic floor muscle tone, inflammation within the pubic symphysis, or hernia
- prostatitis,
- chronic inflammation of the pelvis minor, caused by a long-term infection,
- myomas and cysts,
- irritable bowel syndrome,
- irritable bladder syndrome (chronic inflammations),
- psychological factors (depression, chronic stress).

7.3. Physiotherapy treatment

Physiotherapy is recommended for patients in whom the pain is related to the musculoskeletal and fascial system. In these patients, painful musculofascial trigger points can be found in the pelvic floor, as well as in abdominal wall, back, buttock and thigh muscles. It is believed that physiotherapy has a beneficial effect on the functional level, but also on improving the quality of life for these patients. This process should be systematic and cyclical, while the therapy should include assessment, diagnosis and prognosis, intervention and reassessment.

Table 8. **Chronic pelvic pain – questions and answers**

QUESTIONS AND ANSWERS
Question 1 What causes chronic pelvic pain? Answer 1 It may be caused by various conditions. Some of them do not involve productive organs, but rather urinary tract or intestines.
Question 2 What tests can be performed to diagnose chronic pelvic pain? Answer 2 Some of the following imaging tests are available: ultrasound, laparoscopy, cystoscopy or colonoscopy.
Question 3 When should pelvic pain be particularly concerning? Answer 3 If the symptoms last longer than 24 hours and include fever, shivers, back pain, nausea or vomiting. In these cases, it is necessary to seek medical attention immediately.
Question 4 What is chronic pelvic pain like? Answer 4 It is pain in the pelvic region (below the navel and above the hips. It is considered chronic if it lasts at least 6 months The pain may be constant or recurring, dull or sharp.

Source: own study

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Chapter 8

Sexual disorders

8.1. *Sexual disorders in men – erectile dysfunction*

Erectile dysfunction is a term used to describe persisting inability to attain/maintain erection, preventing one from having satisfactory sexual intercourse. Before starting therapy, it is necessary to determine the cause of the dysfunction. Broadly speaking, the causes can be classified as psychological, neurological, vascular, hormonal, and related to the structure and functioning of the corpora cavernosa. It may also be a complication of systemic diseases, or a side effect of pharmacotherapy. One should also consider other causes, related to sedentary lifestyle, wrong diet and substance use.

Erectile dysfunction diagnosis should include a thorough medical history, encompassing somatic and psychosexual issues related to the current and past sexual life. The necessary data include the duration of this condition, comorbidities, medications taken, substance used, past surgeries. One should also consider symptoms caused by the nervous system and lower urinary tract, as well as the type of medications taken, as they may be the cause of erectile dysfunction.

After prostatectomy, erectile dysfunction treatment should start after careful determination of its causes. Prostatectomy has a significant impact on the patients' sexual life. Nevertheless, their sexual needs and libido often remain unaffected, which is why various possibilities of treatment should be proposed.

Depending on the underlying cause, the following therapeutic options are available:

- hormonal treatment,
- pharmacological treatment,
- physiotherapy,
- injections or autoinjections into corpora cavernosa (vasoactive drugs),
- vacuum devices,
- penile prosthesis,

- vascular surgeries.

Rehabilitation of patients with erectile dysfunction employs kinesiotherapy methods (physical activity), physical therapy methods (physical medicine) and behavioural therapy (body weight reduction, diet).

Erectile dysfunction therapy including physical exercise should aim at:

- increasing the strength of the urogenital diaphragm,
- improving the vascularization and blood supply to the penis,
- body weight reduction.

Improvement may be seen if there is no significant damage to the nerves, blood vessels and corpora cavernosa. The training should put emphasis on increasing the strength of the urogenital diaphragm muscles, as they improve the function of the bulbospongiosus muscle and the ischiocavernous muscle (which assist in erections). As part of practical training, it should be explained to the patient how to tense these muscles. It is best to tell them to imagine pulling their penises inside their bodies, or tense the muscles as if trying to stop a stream of urine.

The role of physiotherapists (as integral members of the medical team) in increasing the sexual health of men with erectile dysfunction consists on using manual therapy, therapeutic exercises, magnetic stimulation and electrical stimulation with biofeedback.

8.2. Sexual disorders in women - vulvodynia

Vulvodynia is a chronic pain or discomfort, characterized by a burning, stinging or irritation feeling in female genitalia, if no infection or another dermal disease of the vulva or vagina, which could cause these symptoms, is present. It usually involves stinging pain, but the type and intensity of the symptoms vary between individuals. The pain may be constant or not, focused or spread.

As a result of chronic pain, many patients with vulvodynia develop lesions in the pelvic floor muscles – the so-called basic tension grows (the muscles are always tense) and volitional control is reduced (the women have less control over whether they tense or loosen the muscles). The causes of this disorder include: nerve damage, inflammation, nerve pressure exerted by an intervertebral disk, past surgeries, spine problems, past injuries or childbirth.

The medical history should include sexual activity, sensation during intercourse (excessively loose, tight or taut vagina), pain during intercourse, and urinary incontinence during intercourse.

The treatment includes pharmacotherapy (e.g. topical anaesthetics, antidepressant, topical hormonal therapy), physiotherapy (intended to restore proper functioning of the pelvic floor muscles), nerve blocks, diet modifications or psychological help.

Table 9. **Sexual disorders in women (vulvodynia) and men (erectile dysfunction) – questions and answers**

QUESTIONS AND ANSWERS

Question 1

What are the typical symptoms or erectile dysfunction?

Answer 1

The typical symptoms and signs of erectile dysfunction include:

- inability to maintain stable erection,
- decreased sexual desire.

Question 2

What additional methods of treating erectile dysfunction are available?

Answer 2

The method of treating erectile dysfunction will depend on the causes of this ailment. Additional treatment methods include:

- lifestyle changes,
- body weight reduction,
- exercise, giving up alcohol, drugs and smoking.

Question 3

Can stress and anxiety cause vulvodynia?

Answer 3

Yes, they may cause development of an unexplained vulval pain – a chronic condition affecting millions of women. Moreover, progressing vulvodynia may cause new or recurring mood disorders or anxiety.

Question 4

Can exercise help treat vulvodynia?

Answer 4

Pelvic floor muscle exercises may help strengthen the pelvic floor, and help you
learn how to relax these muscles if necessary.

Source: own study

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Chapter 9

Contemporary methods and modern devices in urological rehabilitation

A growing number of patients with urinary incontinence-related ailments requires medical professionals and research teams to seek and develop innovative treatment methods.

Modern methods are finding their way to urological and urogynaecological rehabilitation, including those involving telemedicine. There are methods of monitoring the progress of rehabilitation in patients using remote devices and applications, which increase the effectiveness of the process. Still, one should bear in mind that individual work with these patients is also constantly changing, and new rehabilitation methods appear all the time, including manual therapy or osteopathy methods (a method of diagnosing and treating the locomotor system dysfunctions in order to restore the homeostatic and functional balance of the body).

One of the latest, innovative methods of physiotherapeutic diagnostics, involving assessment of the pelvic floor muscles, is surface electromyography. Electromyography (EMG) is an electrodiagnostic method used in medical sciences to record and assess the bioelectric activity generated by skeletal muscles. Surface EMG is commonly used in daily physiotherapeutic practice as a tool for providing feedback from the patients' muscles (biofeedback). Scientific publications include numerous reports and evidence confirming the effectiveness of this method in the treatment of pelvic floor dysfunctions. Pelvic floor is usually diagnosed using feedback recorded via vaginal or rectal electrodes.

Currently, there are multiple EMG meters available, with electrodes of different sizes, shapes or number of surfaces for measuring myoelectric potential (fig. 9 and 10).

Fig. 9. **Example of electrode application in electromyographic muscle assessment**

Source: own study

Fig. 10. **Examples of rectal and vaginal electrodes with an EMG device**

Source: own study

There also calls for using high-inductive deep electromagnetic field (DEMF – high-inductive, deep-penetrating, pulsed electromagnetic stimulation) to treat pelvic floor ailments. Manufacturers of medical devices recommend the DEMF stimulation as an effective, comprehensive, non-invasive, safe method, also for treating, for instance, the symptoms of urinary incontinence. It is emphasized that this method effects stimulation of the peripheral nervous system, stimulates the muscles, improves the collagen structures and circulation.

The DEMF devices generate induction up to 2.5 tesla at the frequency of up to 50 Hz, which enables penetration of the patient's tissues up to 10 cm deep. This effect of the device triggers a subjective sense of mechanical vibrations and noticeable muscular contractions in the patients, and the procedure itself is non-invasive and painless. A moving, round head 16 cm in diameter ensures precise operation of the device and orientation of the induction field. The device is equipped with a special urogynaecological chair (fig. 11), which means it can be used in the treatment of urinary incontinence, acute and chronic urogynaecological pain, sexual dysfunctions, chronic prostatitis, and other urogynaecological conditions, such as irritable bladder and chronic pelvic pain.

Fig. 11. **Example of a DEMF device**

Source: www.btlnet.pl

When using a DEMF device, one should always observe the contra-indications, namely: high fever, pregnancy, intrauterine device, cancer, advanced age, cardiac conditions (especially pacemaker implant), metal implants (i.e. endoprostheses, spinal cord and bladder stimulators), past brain surgeries, brain injuries.

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Summary

Urological physiotherapy, or more broadly defined urological rehabilitation, is becoming a field of growing interest from the public. This involves increased awareness of physiotherapy, as well as ailments such as urinary incontinence and other dysfunctions of the urogenital system. Urological rehabilitation should be carried out by an experienced, multidisciplinary team, consisting of a physician, a psychologist, a physiotherapist, a nurse and a dietician.

In urology, rehabilitation is involved in both pre- and postoperative process and it is an important part of treating urinary incontinence and other pelvic floor dysfunctions, such as: issues after prostatectomy, pelvic organ prolapse, perinatal ailments (e.g. diastasis recti, weak pelvic floor muscles, sexual disorders (e.g. vulvodynia, erectile dysfunction) or chronic pelvic pain.

Most patients suffer from urinary incontinence (stress, urgency, perinatal, after surgeries, including prostatectomy or hysterectomy). Urinary incontinence is an ailment with a detrimental impact on all the aspects of life, by restricting the daily functioning. Both increased awareness of the patients regarding this condition and better access to diagnostics and treatment make it possible to significantly improve the quality of life of those afflicted with this condition. Physiotherapy is a significant component of non-invasive treatment and as such it should be the first-stage therapy. Comprehensive physiotherapeutic treatment relies heavily on pelvic floor muscles training, behavioural therapy and electrical stimulation. It should be noted that the effectiveness of physiotherapy, particularly pelvic floor muscle exercises, in patients with stress incontinency is observed irrespective of the age of the rehabilitees.

It is also worth mentioning the significant role of physiotherapy while preparing patients for urological and gynaecological surgeries, as well as for restoring function afterwards. The goal of the rehabilitation accompanying surgeries is to restore the patient to the pre-surgery level of functioning as soon as possible, and to treat post-surgery complications and functional disorders. It is equally important to prevent these complications and disorders. These goals are achieved by maintaining proper lung ventilation, ensuring proper vascular outflow from the lower limbs, early activation and verticalization, as well as general fitness exercises.

Women with pelvic prolapse form another large portion of the patients. In women during menopause, but also after natural childbirth or surgeries, it is possible for the uterus, bladder and anus to prolapse, due to

insufficiency and weakening of pelvic muscles. This causes a number of unpleasant ailments for the patients, including stress urinary incontinence, static disorders of the pelvis minor organs, or chronic pelvic pain.

The perinatal period, particularly puerperium, is a time of physiological and anatomical changes in the woman's body. The most common health problems which may occur during puerperium are: vein thrombosis, stress urinary incontinence, diastasis recti, reduced abdominal or pelvic floor muscle tone. This may favour abdominal and pelvic prolapse, unless the muscles can regain their proper tone. In order to prevent this, an appropriate therapy should be prescribed.

To summarize, urological rehabilitation for men and women (urogynaecological) is becoming an increasingly common medical service, due to a significant need for helping patients with urogenital system dysfunctions. Innovative, safe and efficient physiotherapeutic treatment methods make it possible to reduce ailments and improve the quality of life.

Abstract

Urological physiotherapy or, more broadly, urological rehabilitation, is becoming a field that enjoys increasing social interest. This is linked to greater awareness of physiotherapy as well as medical conditions such as urinary incontinence or other urogenital dysfunctions. Urological rehabilitation should be carried out by an experienced multidisciplinary team, consisting of a doctor, psychologist, physiotherapist, nurse and a dietitian.

In urology, rehabilitation is associated with pre- and postoperative management and is of great importance in the treatment of urinary incontinence and other pelvic floor dysfunctions, such as: ailments after prostate removal, lowering of the pelvic organs, perinatal ailments (e.g. rectal abdominal muscles stretch, muscle weakness pelvic floor), sexual disorders (e.g. vulvodynia, erectile dysfunction) or chronic pelvic pain.

The largest percentage of patients are people with urinary incontinence problems (stress, urgent, after surgery, including removal of the prostate or uterus, perinatal). Urinary incontinence is a condition that negatively affects all aspects of life, limiting everyday functioning. Both the greater awareness of patients about this ailment, as well as better access to diagnostics and treatment, allow to largely improve the quality of life of people suffering from this disease. Physiotherapy is a very important element of conservative treatment, so it should be the first-line therapy.

Pelvic floor muscle training, behavioral therapy and electrostimulation play a very important role in complex physiotherapy. It is worth emphasizing that the effectiveness of physical therapy, and in particular of pelvic floor muscle training, in patients with stress urinary incontinence is observed regardless of the age of the people undergoing rehabilitation.

It is also worth paying attention to the great role of physiotherapy in preparing patients for urological and gynecological surgeries and recovery after them. The aim of rehabilitation accompanying surgical procedures is to restore the patient's fitness to the state before surgery as soon as possible and to treat postoperative complications and functional disorders. It is equally important to prevent such complications and disorders. These goals are achieved by maintaining proper lung ventilation, ensuring proper venous outflow from the lower limbs, early mobilization and upright standing, and general fitness exercises.

A large proportion of patients are also women with ailments of lowering pelvic organs. In menopausal women, but also after natural childbirth or surgery, a decrease in the uterus, bladder and rectum may be observed, resulting from insufficient and weakened pelvic floor muscles. This causes a number of unpleasant ailments for the patient, including stress urinary incontinence, disturbances in the statics of the pelvic organs or chronic pelvic pain.

The perinatal period, especially puerperium, is the time of physiological and anatomical changes that take place in the woman's body. The most common health problems that may arise during the puerperium are venous thrombosis, stress urinary incontinence, white line divergence (rectus abdominal muscle stretch), reduction of abdominal muscle tone or pelvic floor muscles. This can help lower the abdominal and pelvic organs if the muscles do not regain proper tone. In order to prevent this, the therapy should be properly selected.

To sum up, urological rehabilitation of men and women (urogynecological) is becoming a more and more common medical service due to the great need to help people with dysfunctions of the genitourinary system. Innovative, safe and effective methods of physiotherapeutic treatment help to reduce symptoms and improve the quality of life.

Urological rehabilitation lab Creator Sp. z o.o., Wrocław, Poland.
Photo. *Jakub Wieczorek*

Urological rehabilitation lab with a sanitary corner. Wrocław, Poland.
Photo: *Jakub Wieczorek*

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Urological rehabilitation

Urological rehabilitation involves prophylaxis, diagnostics and treatment of dysfunctions, both in women and men.

Dysfunctions and ailments treated in our patients:

- urinary incontinence and other dysfunctions of the urinary system (irritable bladder, urinary urgency, urination disorders),
- preparation for urological and gynaecological surgery; restoring fitness post-surgery,
- comprehensive rehabilitation after prostatectomy,
- pelvis minor organ prolapse,
- perinatal rehabilitation (weak pelvic floor muscles, diastasis recti, lumbar section pain),
- pelvis minor pain (groin pain, excessive pelvic floor muscle tension, chronic pain, after groin injuries)
- sexual disorders (in women: vulvodynia, vaginismus, pain during intercourse; in men: erectile dysfunction, premature ejaculation).

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Urological rehabilitation

CREATOR Centre's offer for the Patients:

Diagnostics:

- medical history and physical examination,
- ultrasound scan,
- uroflowmetry,
- electromyographic examination.

Therapy:

- exercises for pelvic floor muscles, strengthening, relaxing, posture correction
- biofeedback EMG,
- manual therapy (including postoperative scar),
- ultrasound therapy,
- electrical stimulation
- pessary therapy, -Kinesio tape,
- massage,
- behavioural therapy and education

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Urological rehabilitation, as a modern and much needed form of treatment, is becoming an important field due to its enormous social and economic dimension. The demand for rehabilitation for the urogenital system ailments described extensively in this publication, related to the ageing of the society, is constantly growing, and undoubtedly poses a major challenge for the contemporary, comprehensive physiotherapy. Therefore, this guide is highly topical to the current need for certain standardization of the interdisciplinary, pre-and postoperative process, as well as rehabilitation of urinary incontinence or pelvic floor dysfunctions. Consequently, this guide addresses the needs of both physiotherapists and patients, by increasing the awareness regarding the necessity of early and efficient physiotherapy. I hope that this study will contribute to consolidating forms of rehabilitation treatment in broadly-defined urological rehabilitation.

National consultant on physiotherapy,
Prof. extraord. dr hab. *Jan Szczegielniak*

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