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Pelvic Floor Disorders in Females: An Overview on Diagnostics and Therapy

Isabell Link and Christian Fünfgeld

Abstract

Pelvic floor disorders have multifactorial reasons and can have a huge impact on a woman's life. They can result in descensus of bladder, uterus, vagina or rectum and are often accompanied by incontinence. Symptoms like downward pressure, pain, incontinence or bladder voiding dysfunction develop slowly and are still highly taboo. Gynecology differentiates between descensus of the anterior, central and posterior compartment. A descensus in the anterior compartment causes a cystocele, which can either present as a pulsation cystocele or a traction cystocele. A descensus of the apical compartment leads to a uterine prolapse or vaginal stump descensus, while a descensus of the posterior compartment results in a recto- or enterocele. Urinary incontinence can be divided into stress and urge incontinence. The most important tool for the diagnosis of pelvic floor disorders is the clinical examination. Regarding the therapy of pelvic floor disorders, conservative therapy measures should first be offered. If these fail, an individually optimized surgical therapy should follow. The spectrum of surgical possibilities has expanded considerably in the last three decades. In particular, implanting alloplastic meshes has improved long-term stability. Finally, preventive measures also play a central role.

Keywords: pelvic floor disorders, prolapse, cystocele, rectocele, incontinence, treatment

1. Introduction

The pelvic floor has an important holding and support function in a woman's body. If this substantial holding apparatus suffers from disorders, this can have a huge impact on a woman's quality of life, as taking part in everyday life can be considerably restricted by pelvic floor disorders. The pelvic floor consists of fasciae (endopelvic fascia, rectovaginal septum, perirectal fascia), ligaments (ligg. Sacrouterina, arcus tendineus etc.) and muscles (pelvic diaphragm, urogenital diaphragm), which are already exposed to a high load due to the upright gait. Other events in a woman's life like injuries, chronic overload or giving birth contribute to further stress on the pelvic floor and can lead to disorders. Vaginal delivery, an event most women experience at least once in their lifetime, can lead to damage to connective tissue, ligaments and muscles up to tearing of muscular

structures and stretching of pelvic nerves. Hereditary connective tissue weakness contributes further to the weakness of the pelvic floor. In summary, pelvic floor disorders have multifactorial reasons and can result in descensus of the bladder, the uterus, the vagina or the rectum as well as incontinence. In most women, symptoms occur in an advanced stage, with the woman being able to compensate the symptoms through training of the pelvic floor muscles in earlier stages. As muscle strength decreases, the level of suffering increases, while fecal and urinary incontinence may also occur at earlier stages. Women present to their gynecologist with urinary incontinence or prolapse symptoms, while anal incontinence is still highly taboo.

2. Incidence and epidemiology

The incidence of asymptomatic prolapse is high, with approximately 50% of the women after vaginal delivery having an asymptomatic descensus in gynecological examination. 8–30% of the women report symptoms of pelvic floor disorders [1]. The most common symptom of pelvic floor disorders are symptoms related to urination with up to 40% of women suffering from urinary incontinence and bladder voiding dysfunction [2]. The prevalence of pelvic floor disorders rises with age, with 9.7% of the women aged between 20 and 39 years and 49.7% of the women at the age of 80 or older reporting at least one pelvic floor disorders in an US-American study. 12.8% of women who never had given birth reported urinary incontinence, while women after one delivery experienced urinary incontinence in 18.4%. This number increases to 32.4% after three births. The frequency of pelvic floor disorders rises regardless of the mode of delivery, while instrumental delivery bears the highest risk to develop pelvic floor disorder [3]. In general, the incidence of pelvic floor disorders is higher in Eurasian females compared to African females and also higher in overweight women compared to women with normal weight. About every 9th woman will need descensus surgery in her lifetime [4], with 29% needing relapse surgery [5].

3. Etiology and pathogenesis

Pelvic floor disorders are multifactorial. Damage to the muscles, ligaments and fasciae of the pelvic floor leads to loss of function. Human's upright gait already leads to a certain stress on the pelvic floor. Furthermore, chronic overload in the context of prolonged high physical stress, obstetric trauma and hereditary connective tissue weakness can lead to prolapse. While chronic overload usually leads to overstretching of the pelvic floor's muscles and fasciae, birth trauma causes tearing of these structures. While the risk for developing a pelvic floor disorder is highest for instrumental delivery, cesarean section and pregnancy itself already increase the risk. Still, prevalence of prolapse is approximately twice as high in women after vaginal birth compared to women after cesarean section [6]. Stress urinary incontinence usually occurs after the bladder neck loses support and through urethraurethral hypermobility as well as weakness of the urinary sphincter. The pathogenesis of urgency incontinence is more complex, which makes it also more complicated to treat. Mechanism contributing to urgency incontinence are detrusor overactivity, poor detrusor compliance and bladder hypersensitivity [7]. Furthermore, neurological damage of somatic and vegetative nerves should always be considered as a reason for pelvic floor disorders. Pelvic floor prolapse usually

only become symptomatic in later stages (when reaching to the vaginal introitus) or when accompanied by anal or urinary incontinence.

4. Definition and classification

Types of Pelvic floor disorders are pelvic floor prolapse and both urinary and fecal incontinence.

4.1 Pelvic floor prolapse

Gynecology differentiates between descensus of the anterior (cystocele), central (uterine prolapse or vaginal stump descensus) and posterior (rectocele, enterocele) compartment, often affecting several compartments at the same time. In addition, a classification according to the level of the defect according to DeLancey takes place:

- Level I—Suspension of the upper third of the vagina, Parakolpium. Damage in this area is referred to as apical or central defects.
- Level II—pubocervical fascia, fixation of the vagina. Damage in this area can lead to paravaginal, lateral defects (cysto- and rectocele).
- Level III—pubourethral ligaments. Damage in this area leads to stress incontinence [8].

The classification of prolapse is based on the height of the hymenal hem (ICS/IUGA-classification). For example, a rectocele is classified according to the descent of the posterior vaginal wall. If this remains above the hymenal hem during pushing, a stage 1 is present (>1 cm proximal of the hymenal hem). If it descends to the hymenal hem, stage 2 ($\pm$ 1 cm proximal or distal the hymenal hem), and below that, stage 3 (>1 cm distal of the hymenal hem). Stage 4 describes a total prolapse of the uterus and/or the vagina. The same applies to cystocele or descensus uteri [8].

4.1.1 Descensus of the anterior compartment

A descensus in the anterior compartment causes a cystocele. The anterior vaginal wall is connected to the bladder by a layer of connective tissue (fascia endopelvina). Central overstretching results in a pulsation cystocele with passing of the rugae vaginalis and preserved longitudinal sulci (**Figure 1**). This is more often observed in older patients. In case of lateral tear off of the vagina (uni- or bilateral) from the arcus tendineus fasciae pelvis, a traction cystocele with preserved rugae is found [9]. This defect often occurs after birth trauma and is also found in younger women. Combination of both are common. This disorder can cause urinary incontinence and/or bladder voiding dysfunction. Level-III-Defects are one of the most common reasons for stress incontinence, because of the missing lateral fixation of the urethra [8].

4.1.2 Descensus of the apical compartment

A descensus of the apical compartment (defect in Level I) leads to a uterine prolapse or vaginal stump descensus (after hysterectomy, **Figure 2**). Main cause is the overstretching of the ligaments holding the uterus, in particular the sacrouterine ligament. Depending on the degree of prolapse, one speaks of partial prolapse (the cervix

Figure 1.
Pulsation cystocele, stadium 2. With kind permission of Dr. Christian Fünfgeld, all rights reserved.

Figure 2.
Vaginal stump prolapse. With kind permission of Dr. Christian Fünfgeld, all rights reserved.

protrudes up to the introitus), prolapse (the cervix protrudes to the introitus or further) or total prolapse with an inversion of the vagina (**Figure 2**). Descensus of the apical compartment is usually less problematic, as it only becomes symptomatic when the prolapse reaches to the introitus or further (**Figure 3**) [9].

4.1.3 Descensus of the posterior compartment

A descensus of the posterior compartment leads to a recto- or enterocele (**Figure 4**). A defect of the rectovaginal septum leads to a protrusion of the vaginal posterior wall. This leads to ventral displacement of the rectum, whose circumference usually increases, which, in turn, can cause defecation disorder. Especially for the diagnosis of rectocele, letting the patient squeeze is crucial. Herniation of the small intestine into the pelvis between the rectum and vagina then leads to an enterocele, which occurs more often after hysterectomy. Especially when there is a Burch colposuspension performed additionally to a hysterectomy, the risk for developing an enterocele increases [9].

Figure 3.
Uterine prolapse, stadium 3. With kind permission of Dr. Christian Fünfgeld, all rights reserved.

Figure 4.
Rectocele, stadium 4. With kind permission of Dr. Christian Fünfgeld, all rights reserved.

4.2 Urinary incontinence

Urinary incontinence can be divided into two main groups- stress incontinence and urgency incontinence. Stress incontinence occurs when the pelvic floor is exposed to stress, for example during coughing, laughing or during physical exertion. It can be further divided into degrees, depending on the situation when loss of urine occurs.

- I—loss of urine when coughing, sneezing or laughing
- II—loss of urine when moving, for example when getting up, during sports
- III—loss of urine without moving, when lying

Urgency incontinence describes the loss of urine combined with a sudden urge to urinate. A special form of urgency incontinence is the overactive bladder syndrome, which is defined as urge to urinate, which can or cannot be accompanied by urge incontinence, usually escorted by a high micturition interval and nocturia. Stress and urgency often occur together [10].

5. Symptoms

Symptoms of pelvic floor disorders usually develop gradually and slowly over time. Unfortunately, symptoms associated with pelvic floor disorders are still a taboo and women often take a long time before opening up to their gynecologist and to seek help for their condition. Problems which are then reported are primarily symptoms of prolapse (Feeling of something coming out of the vagina, downward pressure, pain), urinary or fecal incontinence or bladder voiding dysfunction. The latter often leads to recurrent UTIs. Both stress and urge incontinence can occur as common symptoms of prolapse, whilst anal incontinence is rather rare. Instead, in the context of a rectocele, defecation disorders occur more frequently, which are often interpreted by patients as constipation [9].

These symptoms have a high impact on patients' everyday life. Incontinence can lead to avoiding daily social activities, while many patients also avoid drinking enough fluids, in order to avoid the loss of urine. Using incontinence pads also means a financial burden for the women affected. Patients suffering from prolapse often avoid sexual intercourse, because of feeling ashamed, while some even experience painful intercourse. Pelvic floor disorder can have a huge impact on a woman's social, emotional, sexual, physical and financial well-being. Addressing the patient actively and asking about pelvic floor disorder symptoms can be helpful.

6. Diagnostics

At the beginning, a detailed medical history should be taken regarding the complaints, previous births with complications and previous therapy attempts or operations. This should include evaluating where the patient is most distressed and which symptoms are perceived to be the most severe. Medical history should include questions regarding urinary incontinence, bladder voiding dysfunction, anal incontinence, defecation disorders and problems regarding sexuality. Using a questionnaire for evaluating medical history can help to get a first overview on the most urgent sufferings and can help to standardize and compare different group of patients. The most important tool for the diagnosis of pelvic floor disorders is the clinical examination. During the vaginal examination with two separate specula, all three compartments can be assessed at rest, during elevation and during pressing and should be classified according to the ICS/IUGA-classification [8]. A clinical distinction can also already be made between a pulsation cystocele (rugae vaginalis passed) and a traction cystocele (rugae preserved). While protrusion of the posterior vaginal wall is mostly well visible, a distinction between a rectocele or an enterocele needs additional diagnostic measures. Uterine prolapse or vaginal stump descensus is also easy to assess in clinical examination. To assess pelvic floor contractility and width of the genital hiatus, vaginal palpation should follow after speculum examination. A rectal examination with assessment of the sphincter resting tone and contractility should also be carried out routinely. Subsequently, vaginal ultrasound to evaluate the anatomy of the urethra and the bladder, but also their position and mobility, should be carried out. It also allows direct imaging of

alloplastic implant, if present. Ultrasound can also be used to distinguish between recto- and enterocele. In addition, endoanal ultrasonography can be used to assess the sphincter ani and its damage. With these easily accessible examination technique, most patients with pelvic floor disorders can be diagnosed sufficiently [8]. For complex cases, additional examination can be carried out. These can be a dynamic MRI or a defecography for anal incontinence or urodynamic examinations for urine incontinence, including uroflowmetry, cystometrogram, pressure flow study and urethral pressure profile. A cystoscopy may be helpful for some issues and an interdisciplinary presentation of the patient involving urology, proctology, surgery, and possibly neurology may still be considered. Sometimes, patients with drastic anatomical changes do not experience as many symptoms as patients who objectively only have minor clinical findings. Here, particularly in the case of dramatically described symptoms, it can be helpful to use a drinking and micturition log or a stool diary to assess and objectify the dysfunction [8].

7. Therapy

7.1 Conservative therapy

Without wanting to diminish the suffering of patients, pelvic floor disorders are of course not life-threatening conditions. Therefore, conservative therapy measures should first be offered and tried by the patient before surgical therapy. Depending on which symptom is the most prominent, various conservative methods are available. When a patient is suffering from stress urinary incontinence, pelvic floor training can improve functionality. The pelvic floor training should be supervised by a physiotherapist specialized in this field and can be supported by biofeedback or electrostimulation. Patients suffering from an overactive bladder and urge incontinence can benefit from bladder conditioning through behavioral training (toilet training) and anticholinergic therapy [9]. Anticholinergic medication should be tried for at least 3 months and the patient should be informed about possible side effects such as dry mouth or constipation. Other pharmacotherapy options are alpha-adrenoreceptor blockers for bladder voiding dysfunction and beta3-adrenoreceptor agonists like Mirabegron for overactive bladder syndrome. A micturition diary can help to objectify whether medication is working or not. After menopause, incontinence symptoms can be improved by the use of local vaginal estrogens. All conservative measures should always be accompanied by lifestyle modifications like weight loss, nicotine abstinence and reducing caffeine intake, which can also optimize surgical outcome, if surgical therapy is planned next. Use of different types of pessaries can be useful to treat uterus prolapse and cystoceles, if tolerated by the patient, while treatment of rectoceles with a pessary is more complicated. There are different sizes and types of pessaries available, which can be individually customized. Often, sieve bowl pessaries are more effective in a cystocele and cube pessaries are better in descensus uteri or rectocele. It is necessary to try different pessaries to find which one gives the patient the most relief and holds best under movement without dislocating. The patient should be trained to change the pessary independently to lower the risk for infections and injuries. Especially in younger patients whose family planning has not yet been completed, pessary therapy should be preferred to surgical therapy. This also applies to older, multimorbid patients [8]. Regarding anal incontinence, stool thickening by appropriate nutrition or by medication (e.g. loperamide) can improve quality of life. Defecation disorder can be treated with dietary options or through laxatives. Conservative therapy should always be performed in consultation with the patient and reviewed regularly. If

necessary, a change to surgical therapy may be required if there is insufficient improvement or compliance. Moreover, there may be some patients who are not willing to try conservative therapy and immediately demand a permanent solution, which can only be achieved by surgery [9].

7.2 Surgical therapy

The therapy should be individually optimized to provide an optimal solution for each individual patient. Generally, the indication for pelvic floor surgery is elective. Therefore, the degree of suffering of the affected person is always decisive for the indication of a surgical intervention. Asymptomatic findings of descensus should not be operated on. If surgery is indicated, the goal is usually reconstruction of the anatomic situation. However, the patient desires a restitution of function and thus an elimination of symptoms. Unfortunately, even a successful anatomical reconstruction cannot always guarantee a cure of the symptoms. It is imperative to inform the patients about this. In particular, the occurrence of de novo incontinence should be mentioned. Positional changes can often be corrected effectively, in contrast to muscle or nerve damage. However, since the often weak connective tissue remains unchanged, there is a considerable risk of recurrence. This should also be discussed with the patient. In addition, it should be clarified with the patient what degree of stability she expects and needs from the operation [9].

The spectrum of surgical possibilities has expanded considerably in the last three decades. Previously, for over 100 years, vaginal hysterectomy with anterior and posterior colporrhaphy was the standard gynecologic procedure for any form of cystocele, uterine descensus, or rectocele. This usually can correct descensus satisfactorily. However, the recurrence rate is relatively high and amounts to 37% after 12 months for anterior colporrhaphy according to the current guideline for genital descensus [11]. Therefore, analogous to hernia surgery, attempts have been made to improve long-term stability by implanting alloplastic meshes and ligaments. The anatomical recurrence rate was significantly lower after implantation of alloplastic material (7%) [12]. In the subjective assessment, the difference is smaller. Due to a frequent lack of experience in surgeons and a generous use of the initially too small-pored and too heavy-weighted meshes, there have been considerable adverse events and complications, so that now, especially in Anglo-Saxon countries, alloplastic meshes and tapes are banned or can only be used under strict regulations [13]. The German Working Group for Urogynecology and Pelvic Floor Surgery (AGUB) has a more differentiated view and considers the use of these materials with an appropriate indication in the case of recurrent prolapse, very weak connective tissue or severe descensus with a high risk of recurrence in the hands of a urogynecologically specialized surgeon as justified and often necessary [9]. The complication rate could be significantly reduced with the further development of materials and the optimization of the surgical technique. In addition to the vaginal approach, the abdominal/laparoscopic approach has also gained importance in recent years. Today, hysterectomy is mostly only part of a descensus operation if there is a corresponding additional indication.

7.3 Surgical therapy: rectocele

Only after exhausting the conservative methods should surgical therapy of a rectocele be considered. In gynecology, a rectocele is usually treated with a posterior vaginoplasty. On closer inspection, this is not a consistent surgical procedure. Under this term, the posterior colporrhaphia, the pelviperineoplasty, a fascia-specific repair or a median fascia lift are summarized- in each case with or without

levatorplasty or bulbospongiosus lift, which differ considerably in the structures that are “lifted”. For stabilization, an alloplastic mesh can also be implanted. However, the results between simple posterior plastic and mesh-supported posterior plastic differ less than with the anterior plastic. Biological patches can be also used, but showed worse results [11].

A transanal or transperineal operation, a Stapled Trans Anal Rectal Resection (STARR) or a laparoscopic or open resection rectopexy are the portfolio of a coloproctological surgeon. Studies that would provide valid data comparing the different gynecological and surgical techniques are still not available. In surgical studies, the change in the stool diary is usually used as a success parameter. The gynecological studies mostly assess the anatomical success of the posterior vaginal wall without recording the improvement in quality of life.

In the current German gynecological guideline on descensor surgery, after extensive literature research on rectocele correction, the following results were found [7]:

Success rates (follow-up time > 12 months):

- posterior vaginoplasty with autologous tissue: median fascia lift: 82–93%
- posterior vaginoplasty with autologous tissue: defect-specific correction: 56–91%
- posterior vaginoplasty with autologous tissue and levator suture: 76–96%
- surgeries using non-resorbable synthetic meshes: 78–100%

Alloplastic materials are definitely indicated for recurrent rectoceles, pronounced findings, high risk of recurrence and accompanying enteroceles that are otherwise often difficult to correct. Since there is little self-tissue in the upper posterior part of the vagina to stabilize a rectocele, it can sometimes be difficult to correct the rectocele without using an alloplastic mesh and without causing dyspareunia through conventional colporrhaphy. Reconstruction of the rectovaginal septum alone to reduce the posterior vaginal wall without reducing the circumference of the rectum, which is usually too large, increases the risk of intussusception. If intussusception or rectal prolapse is more pronounced preoperatively, an interdisciplinary gynecological and coloproctological investigation should be carried out. Coloproctological surgery procedures are often more suitable here. Less pronounced intussusceptions can be treated via transanal access. If there is a posterior wall prolapse combined with a rectocele and intussusception or anal prolapse, a two-stage surgical concept can be useful [8].

First, a gynecological reconstruction is carried out and then, if the result is functionally unsatisfactory, a secondary coloproctological operation can be carried out- or vice versa. Ultimately, when planning therapy, focus should be on restoring quality of life by reducing symptoms.

7.4 Surgical therapy: enterocele

An enterocele is a challenge for surgical therapy. Since an enterocele rarely occurs isolated, correction is carried out in combination with interventions to repair a cystocele, rectocele or descent of the vaginal stump or uterus. In case of vaginal access, an opening and resection of the enterocele hernial sac with a subsequent “high peritonealization” is carried out. An alloplastic mesh can be used to stabilize the upper part of the posterior vagina, as there is usually little autologous tissue available here [8].

7.5 Surgical therapy: cystocele and descent of vaginal stump or uterus

The therapy of the cystocele is complex. Vaginal, abdominal and laparoscopic approaches are possible. The choice of the procedure ultimately also depends on the patient's wishes and on whether and which other compartments are affected by a descent.

The German Deszensus guideline confirms that anterior vaginoplasty is a good option in patients who have not previously been operated on, especially with simultaneous apical fixation [9]. According to the Cochrane Review of 2016 and other systematic reviews, mesh augmentation in the anterior compartment is superior to surgery with autologous tissue, i.e. anterior vaginoplasty [12]. A wide variety of meshes are available on the market. Which is possibly better than another cannot be described with the available data, since no comparative studies are available. However, patients did not benefit from using biological materials [11].

In the past, hysterectomy was usually a key part of a descensus-, but also often of incontinence surgery. Vaginal hysterectomy with anterior and posterior colporrhaphy was the most frequently chosen operation. If incontinence was in the foreground or a vaginal approach seemed impossible, abdominal hysterectomy with retropubic colposuspension (with several procedures as according to Marshall-Marchetti-Kranz, Hirsch, Burch, Stanton, Cowan etc.) can be considered. With the introduction of alloplastic implants and the triumph of laparoscopy, the spectrum expanded considerably. The possibility of combining the procedures in different ways makes it increasingly difficult for the surgeon to select the correct procedure [11].

For primary surgery of a cystocele, especially if there is a central defect (pulsation cystocele), conventional anterior colporrhaphy with median fascia lift is still the most suitable procedure. According to the German Deszensus guidelines, however, if there are pronounced stages of prolapse or the desire for improved stability, a primary mesh implantation can be considered. This also applies to patients with a high surgical risk who want to avoid another operation for a relapse. In the case of recurrence of the cystocele, stabilization by using a mesh is recommended. It becomes more difficult with paravaginal defects (traction cystocele). In conventional surgery, there is only the paravaginal repair according to Richardson with attachment of the endopelvic fascia to the tendon arch, which can usually be done through retropubic access, but also vaginally. However, the success rates of this procedure were not convincing. The reason for this is the lack of stabilization of the apex (level 1) and the upper third of the vagina. Still, with increasing use of sacrocolopexy, paravaginal repair is gaining in importance. The stability is achieved by fixation of the apex (cervix or vaginal end) by the mesh fixed on the sacrum/promontory. The correction of the cystocele, which is not always sufficient, can be improved by lateral fixation. This combination is more complex, but is preferable to a vaginal mesh, especially for younger patients. For older patients with a pronounced lateral defect, treatment with a vaginal mesh-supported plastic is very effective [11]. Whereas in the past the focus was on treating cystoceles and rectoceles, the focus of the descensus surgery has nowadays shifted towards stabilization in level 1. Fixing the cervix or the vaginal stump after hysterectomy brings better results, not only for level 1, but also for the cystocele. A cystocele correction with or without mesh shows fewer recurrences if the apex is fixed at the same time. Several methods are available today for this purpose. Sacrospinal fixation of the vaginal stump (several modifications according to Amreich and Richter) has become established for the vaginal access. Today, this procedure is also performed while preserving the uterus with fixation of the cervix to the sacrospinal ligament. The sacrospinal fixation in the original technique or with a band system can

be performed with the uterus in place or with a hysterectomy primarily or in the event of a relapse. It can be easily combined with conventional colporrhaphy. The abdominal or laparoscopic approach has proven to be a further approach for level 1 fixation [11].

After being informed by the surgeon, the patient has the right to participate in the choice of the surgical procedure. Some want good stability, so that a mesh can be implanted, while others do not want one for fear of alloplastic implants. Likewise, many strictly reject a hysterectomy, others wish it because of existing pathology. The indication is becoming more and more complex due to the multitude of options available. The advantage, however, is that you can offer an operation concept that is individually tailored to the patient and the present findings [11].

7.6 Surgical therapy: urinary incontinence

Surgical therapy is highly effective in stress incontinence with placement of mid-urethral slings being the first line option. Retropubic and transobturator pathways are possible. The treatment of urgency incontinence is more complex. Neuromodulation is one possibility, if pharmacotherapy is not effective for urgency incontinence. Another possible treatment option is the intravesical injection of botulinumtoxin A, which usually lasts up to 12 months and can be repeated, if necessary [10].

8. Prevention

The prevention of anorectal dysfunction, but also of descensus and urinary incontinence, begins at the latest after a woman has given birth. Training the pelvic floor muscles, weight optimization, avoiding constipation, learning a pelvic floor-friendly carrying technique and nicotine abstinence can reduce the risk for developing pelvic floor disorders. Postmenopausal, local vaginal application of estriol has proliferating effects on the vaginal, urethral and bladder epithelia and improves blood flow in the urethral area. Hereby, descensus can also be prevented or delayed [8].

Author details

Isabell Link* and Christian Fünfgeld
Department of Gynecology and Obstetrics, Clinic Tett nang, Germany

*Address all correspondence to: isabell.link@gmx.de

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