

POSTPARTUM

Definition :

Urgent recommendations on postnatal gymnastics after childbirth are usually associated with weight loss and necessary tightening of tissues. Of course, it is important for self-acceptance and self-confidence to return to the old as soon as possible. Only the real problem of birth lies less in figurative aesthetics than in the profound changes in female pelvic physiology. A childbirth process is always "natural brutality", because the emergence of a new life does not pay attention to the health of the woman giving birth.

Thus, natural births due to enormous deformation and shear forces associated with a significant risk of injury, the severity of complications is always proportional to the extent of the injury [1] , [2] . Possible consequential damage such as incontinence and genital prolapse must therefore be neutralized as soon as possible by appropriate measures.

Epidemiology and prevalence :

2017 was released in Germany over 785,000 times [3] . Although the proportion of caesarean deliveries is again slightly decreasing, 31.6% of all births are still sector [4] . According to a systematic review [5] , 85% of all women suffer from damage to the perineum, including skin damage. According to the Royal College of Obstetricians and Gynecologists, the rate is expected to be as high as 90% [6] . Above all, there are fears of third degree or third degree ages (OASIS = Obstetric Anal Sphincter Injuries) ranging from 0.6 to 10.2% depending on the source, definition and protection of the mother [7] , [8] , [9] , [10] , [11] .

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Dam rupture / prolapse

If one relies not only on the usual manual inspection, ultrasound gives rise to a questionable picture: in a retrospective analysis (6 weeks postpartum) in women who have given birth for the first time (primiparous), anal ultrasound was 26.9. % of birth defects of the anal sphincter, of which almost a third were symptomatic [12] .

_____ It is therefore reasonable to assume that so far a large part of all OASIS have remained unknown [13] . This is confirmed in another study with 27.9% of OASIS lesions detected by ultrasound [14]. . _____ In England, based on a

large cohort study (more than a million women), she even warned of the "dangers" of natural childbirth, as it carries a risk of later uterine prolapse 10% in 20 year olds and 20 year old % - expected to increase [15] , [16] . _____ _____

By

For the sake of completeness, it should be mentioned that the official incidences for an OASIS (manual inspection) are 11% [17].

Avulsion / POP

Although perineal tearing and associated damage to the OASIS (dam, vagina and anus) has long been considered the most important cause of postpartum problems, new imaging techniques (MRI / 3-D / 4 -D Ultrasound shows that in 20% of all women, an avulsion (traumatic erosion or tearing of the levator muscle/pubis tear) has occurred after vaginal delivery [18].

For example, 36% of women who delivered vaginally three months ago had levator ani avulsion, which is also associated with stress incontinence [19]. In another avulsion study, 14% of women had given birth vaginally and for the first time [20].

It is therefore estimated that 10–40% of all vaginal deliveries result in levator ani lesions (LAM) [21], [22], [23], [24], [25]. About 30% of primiparous mothers are diagnosed [26]. Associated with this, 83% of women with avulsions also had pelvic organ prolapse (POP) [27]. Although avulsion has been reluctant to enter urogynecology textbooks, it has already emerged that it may be the most important factor in the pathogenesis of prolapse symptoms [28].

Stress Incontinence (SUI) / Anal Incontinence

While the prevalence of SUI during pregnancy is said to be between 23 and 67%, after delivery it is expected to be between 6 and 29% [29]. According to other sources, urinary incontinence occurs in 49% of women who give birth [30].

In the North Trondelag Country Incontinence Study, the prevalence was 10.1% for urinary incontinence (Nulliparous), 15.9% for caesarean section and vaginal discharge in women, at 21.0% [31]. In another study, postpartum urinary incontinence has a prevalence of 0.3% to 44% [32]. The incidence of urinary incontinence continues to increase with the number of births [33]. Compared to childless women, first-time mothers are three times more likely to develop urinary incontinence [34]. This also applies to prolapse, which increases linearly with the number of births [35]. SUI is expected to persist in just under 28% of primiparae [36]. According to another source, however, incontinence had not receded in 56% of cases, even after 12 years [37].

Retrospectively, 60% of incontinent women develop pelvic floor weakness associated with their first pregnancy and childbirth [38].

The risk is also threefold for anal incontinence [39]. According to studies, the frequency of anal sphincter damage is estimated at 1.5-9.0%. If OASIS is present, the prevalence is 15–61% [40], [41], [42].

Postpartum pain

After childbirth, after 18 months, 24% of women still experience pain during intercourse [43]. In another publication, 77% of first-time mothers reported constant back pain one year after giving birth. Surprisingly, not only vaginal deliveries (40% [44]), but also caesarean sections are affected by postpartum pelvic pain syndrome (PPS). This may be the reason why there is no

difference in prevalence between vaginal and surgical delivery for PPS 6–11 years postpartum [45].

Physiology :

Tearing of the perineum

A perineal tear is a soft tissue injury in the perineal region, that is, in the area between the vulva and the anus, with a tear in the vaginal mucosa. Although grade 1 and 2 external sphincter remains intact, grade 3 causes deep lesion of the MSAE or partial or even complete transection. At grade 4, the anterior rectal wall is additionally injured. Big 3 and 4 are also called OASIS (Obstetric Anal Sphincter Injuries). A violation of the internal anal sphincter (IAS) also plays a major role here. Therefore, episiotomy is considered the most important preventive measure during the excrement phase of childhood. However, sometimes it can have the opposite effect. Surgical treatment of a perineal tear is the most common operation among women in Germany [46].

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OASIS Consequence

Possible consequences of OASIS are faecal incontinence and symptoms of flatulence and anal pressure. In a large prospective study in which OASIS patients were interviewed for 3 years after primary care, 18% reported anal urgency, 15.1% flat incontinence, and 10.5% faecal incontinence [47]. Remarkably, the symptoms decreased during the investigation period despite a persistent anal sphincter defect. Of course, this highlights the importance of adequate primary care [48]. after affecting the possibilities of physiotherapeutic rehabilitation.

LAM injuries

LAM injuries are always caused by an irreversible overflow of the "levator gate" (Hiatus levatorius). The hiatus levatorius is a portal in the pelvis of the diaphragm, through which pass the rectum, urethra, and vagina. The diaphragm itself is an inner muscular layer of the pelvic floor consisting of the levatorani muscle (LAM), which in turn is made up of M. puborectalis, M. pubococcygeus, M. iliococcygeus and M. coccygeus. The particular orgasmic importance of M. coccygeus is described elsewhere (see "rPMS in Anorgamsia"). Its average area is 15 cm², through which the child's head with a minimum area of 60-70 cm²,
² must pass through [49].

While LAM should only be increased by 25% for a woman, it is 245% for others. This means that the muscle fibers must stretch 1.25 to 3.45 times in the event of a strong expulsion. This is actually contrary to basic muscle physiology, according to which a skeletal muscle can only stretch about 150% of its normal length.

Despite all the physiological laws, it looks good for about two-thirds of women.

This is probably due to the hormonal influences of pregnancy. For example, the hormone relaxin influences the structure of collagen [50].

Complete tearing (avulsion) of part of the LAM, namely the puborectalis, occurs preferentially in the ejection phase of the child's head. The older a woman is, the greater the risk of avulsion.

Consequences of an LAM trauma

The damage caused by LAM has, in part, far-reaching consequences, based on massive changes in the architecture of the pelvic floor. First mothers experience prolonged weakening of the pelvic floor muscles with a corresponding symptom of SUI. Both types of injury (demolition and overflow of the LAM) are predestined for a pelvic organ incident (uterine prolapse), with the anatomical and functional integrity of the LAM being paramount for the support of the pelvic organs [51], [52].

As a result, AML damage is more or less a missing link for the epidemiological link between childbirth and pelvic organ prolapse [53]. Unlike OASIS, LAM-related trauma does not affect the development of anal incontinence [54].

Neurogenic consequences

Of course, in addition to the described mechanical damage, neurogenic causes must also be taken into account. Behind this is an injury to the pudendal nerve, which passes superficially through the birth canal and supplies both the anal sphincter and the external anal sphincter and also affects the nerve supply to the clitoris [55] (see also "Anorgasmia"). Injuries result from stretching of the vagina and compression of the nerve and affect – at least seemingly temporarily – 38-42% of all vaginal deliveries [56] or require longer rehabilitation in severe cases [57]. Pudendal lesions have a particular effect on the aniexternus sphincter or on the onset of anal incontinence [58].

PelviCenter rPMS QRS effect :

According to the results of active pelvic floor training and the working principle of an rPMS, it seems obvious to use magnetic stimulation also for the treatment of pregnancy and childbirth. Especially when it comes to anal stress and incontinence, genital prolapse, pelvic syndrome and dyspareunia. Besides the influence on the muscular situation of the pelvic floor, the rehabilitation of the pudendal nerve is particularly important here. This is derived from new findings from postpartum electrical stimulation that birth regulation of a regenerative cytokine BDNF (brain-derived neurotrophic factor) plays a particular role or stimulates axonal nerve outgrowth [59], [60], [61]. Although electro-stimulation of the pelvic nerve is a promising method of treatment [62], it is doubtful that this very painful intra-anal use can also be observed in patients.

Regarding rMSP after vaginal delivery, only one study is listed, which does not address the effects of urinary or faecal incontinence or other

complications, but only pelvic floor muscle strength [62] . It also suffers from considerable methodological weaknesses by not examining women with birth defects or pelvic floor weakness, but only mothers who are in their first birth six weeks postpartum. Women with childbirth consequences will surely be treated - but mainly women who overcome the consequences of childbirth through natural recovery processes. The finding that there was no significant increase in muscle strength compared to sham treatment is therefore in stark contrast to the extensive study of an rMSP in weak pelvic floor and SUI.

The extent to which three other studies [64], [65], [66] on rPMS in anal incontinence can be used to assess postpartum treatment of rPMS is also questionable, since it is true anal incontinence. showed the most significant results only in the intact anal sphincter.

Treatment scope and treatment period :

Pudendal Nerve Rehabilitation

For pudendal nerve stimulation or related growth factor BDNF, early use of rPMS is recommended (mean frequency/daily treatment over 10 days).

SUI and organ prolapse

Only then should a treatment with rPMS follow, based on the stress incontinence treatment procedure and - depending on the symptoms - includes 12 to 18 training units within 5 to 8 weeks . For muscle coordination reasons, pelvic floor training may be required on non-rMSP days.

Anal incontinence / symptoms of anal flatulence

In the event of proven pudendal damage, an application according to the above protocol is carried out. Otherwise, or after this "prior therapy", the treatment procedure will be the same as for SUI ("weak pelvic floor").

In general

It is advisable to determine the respective symptoms of the symptoms 6 weeks after delivery with the ICIQ-SF questionnaire, and then again 1 week (3 months / 6 months) after the application of the rPMS.

Expectation of success :

The success of an rPMS is essentially less goal oriented after absolute "dryness" of postpartum urinary incontinence, recovery from anal or POP symptoms, or freedom from pain after 18 workouts at the latest . 6 months postpartum results are significantly higher than conventional pelvic floor training or prevent symptoms of incontinence or subsequent prolapse. Based on systematic reviews of electrical stimulation of SUI (17 randomized RCT + 7 non-RCT studies), in which symptom relief or marked improvement in symptoms can be achieved in 73-97% of women [67] or in anal incontinence (19 RCT studies) with a success rate (continence) in 40 to 50% of patients after 6 months [68] , the results of rPMS are probably slightly better than the results of electrical stimulation.

Place of study :

Pelvic floor training in postpartum urinary and fecal incontinence

Three months after childbirth, 20-30% of all women suffer from urinary incontinence [69] and 3 to 5% [70] . Only studies in which pelvic floor formation was not initiated before birth are listed below. The presentation of the study situation for the active training of the pelvic floor is made for the reason that a much more intensive effective training should be compared.

Study 1

Randomized, controlled study in women who still had urinary or faecal incontinence three months after delivery [71] . Although the control group also did occasional home exercises, they were not guided by the physiotherapist as an intervention group or were occasionally visited at home.

Result:

After 12 months of training, only slightly more than 70% of the women were available, which is probably due to the long duration of the training. The intervention (IG) group had a significantly lower rate of incontinence (59.9% vs 69.0%) than the control group. In high grade incontinence this was 19.7% compared to 31.8%. The few women with faecal incontinence also improved (4.4% vs. 10.5%). After 12 months, 79% of IG participants still had training, in CG it was 48%.

Study 2

Based on Study 1, follow-up was performed at 6 years. 69% of women were still available [72] .

Result:

The significant improvement at that time could no longer be maintained in the follow-up examination after 6 years, i.e. 76% for urinary incontinence and 12% versus 13% increased in faecal incontinence. After 6 years, however, only 50% had difficulty in both groups with occasional pelvic floor exercises.

Study 3

For Study 1, a follow-up was performed after 12 years, in which 63.1% of the then participating women participated [73]. Half of them were born to 2 children.

Result:

Result: After 12 years, the results of the group were now adjusted (urinary incontinence in 3/4 of all patients), also with regard to symptoms of prolapse. The authors conclude that new therapeutic strategies need to be developed after conservative pelvic floor training has not lasted long.

Study 4

Randomized and controlled study of postnatal urinary incontinence (3 months) [74]. Both intervention groups (IG) received four individual instructions (physiotherapist / 3, 4, 6 and 9 months postpartum). IG1 performed pelvic floor training "after Richard Millard". Exercise intensity was increased after each individual instruction. To improve the perception of the pelvic floor, a perinometer was used. The IG2 program involved the introduction of nine different vaginal cones (20-100g) which were to be held in the vagina twice a day for 15 minutes. The weight was increased slowly. The control group (CG) received instruction on pelvic floor exercises only before and during the hospital stay, and it was up to them to decide whether to use them at home.

Result after one year:

High excretion rate in all groups (22% versus 52%). Significant improvement in active group vs control group (50 vs 76%). There was no difference between normal pelvic floor training and vaginal restraint. For follow-up (24 to 44 months after birth), only 89 women could be interviewed. Here it shows that independent practice does not bring any additional profit.

Electrostimulation study 5

The intervention group received electrostimulation (35 to 50 Hz / 35 mA with an increase of up to 100 mA) for 6 weeks with feedback support

organic (30 minutes per session, twice a week [75]). Practicing at home (3 times a day / 3 short cycles of strong contraction followed by relaxation with 50-60 repetitions), they were checked once a week by telephone verification to see if the instructions were correct and the group witness (24 women) para.

Result:

After 12 weeks, the development of maximal and average strength in the GI increased significantly compared to the control group. Likewise the length of contraction. Subjectively, symptoms of urinary incontinence also decreased significantly compared to CG.

Study 6

This study focuses on urinary and fecal incontinence problems caused by a third or fourth degree rupture [76]. ____ In particular, the perineal tear is one of the most important reasons for postpartum incontinence. The aim of this prospective randomized study was to compare the symptoms of postpartum incontinence during intensive pelvic floor training versus conventional pelvic floor training as part of back gymnastics.

STUDY DESIGN: Of 97 women with subpartu DR III/IV, 38.5% had symptoms of incontinence and 41% had faecal incontinence. Of these, 58 women (control group) underwent standard regression 6 weeks postpartum and 49 women (IG) received intensive pelvic floor training under biofeedback control or electrical stimulation (vaginal or rectal probe).

Result:

After 6 months of intensive pelvic floor training, 25.6% suffered from urinary incontinence. In normal recovery, gymnastics was 43.1%, that is, urinary incontinence even worsened. Faecal incontinence improved from 41% to 23.1%, while it increased to 44.8% in the rehabilitation group. LAM contractions in biofeedback women averaged 1.05 at baseline and 2.56 at 6 months.

Comment: This means that patients with high-grade perineal injuries should receive intensive pelvic floor training as soon as possible. Regular recovery gymnastics seem unnecessary.

Systematic review

This is an update of a 2012 Cochrane review (22 studies, 8485 patients), which concluded that there was insufficient evidence for a lasting effect of prophylactic BBT longer than one year. [77] Also, the number of women performing the exercises over time decreases over time [78]. The current review includes 38 studies of pregnant women who gave birth in the last three months. Women reported unwanted loss of urine, stool, urine and stool, or no loss. They were randomized to perform pelvic floor training or no exercise to compare the effect of the two arrangements.

Results:

Group 1:

Pregnant women without urinary incontinence, who performed pelvic floor exercises as prophylactic treatment before and during pregnancy, reported less urine loss 3 and 6 months postpartum.

Group 2:

Women with urinary incontinence who performed pelvic floor training during pregnancy or after birth: in this case, it remains unclear whether the exercises helped the unwanted loss of urine.

Group 3:

Women with or without urinary incontinence (mixed group) with pelvic floor training during pregnancy or after birth. Bottom line: Training started during pregnancy is less likely to cause unwanted loss of urine during pregnancy and up to six months postpartum. However, it is still unknown if this effect lasts a year after birth. Even among women who started exercising postpartum one year after birth, the effect on unwanted urine loss was unclear.

Faecal incontinence:

Here only 6 studies provided evidence. In women who started the practice postpartum, a year after birth, it was unclear whether it helped reduce unwanted stool loss. It is also unclear whether women with or without faecal incontinence (mixed group) who started pelvic floor exercises during pregnancy were less likely to have unwanted bowel movements at a later stage or up to one year later. the birth.

Overall, the studies had important weaknesses. Thus, pelvic floor exercises, which differ according to individual studies, were often insufficiently described. Also, it was not possible to perform blinding.

Conclusion :

Although approximately 85% of all deliveries are associated with perineal injury, the rate of serious injury is ultimately lower. After all, the incidence of 3rd or 4th degree rupture (OASIS) of about 27%, or rupture/rupture or overflow of the levator ani (avulsion) at 30-40%, is not the result of a simple addition of this potential damage. but is based on the resulting morbidity rate - until the deadline (3 months postpartum) has not already done by natural healing processes on its own.

The rate of consequential damage is not easy to determine, since the basic risk of subsequent urinary and pediatric incontinence is increased threefold and that of genital prolapse is increased twofold. It is estimated that approximately 28% of all pregnancies and maternal urinary incontinence do not regress. In any event, 60% of all later incontinent women associate the onset of pelvic floor weakness with the first pregnancy and childbirth.

Even subsequent genital prolapse correlates with pelvic floor injury and scarring. Here, the number of cases should be around 20-30%. With regard to anal sphincter symptoms (urgency, flatulence, incontinence), the incidence of anal sphincter damage is estimated at 1.5 to 9.0%. If OASIS is present, its prevalence for anal incontinence is 15-61%

This is a more general urogynecological consensus (guidelines) that after a congenital anomaly and especially in cases of incontinence, guided pelvic floor training including electrical stimulation is already useful 6 weeks after birth.

Although many patients' symptoms are often less than 3 months postpartum, this should not be a reason to prevent women from exercising. If stress or mixed incontinence persists for 6 months after birth, the risk is very high that it will subsequently become even more difficult or impossible to improve.

In the passive procedure of an rPMS, which does not depend on the motivation and perseverance of women, there is no proof of this proof. The results of active pelvic floor training with or without biofeedback control or electrical stimulation, however, seem sufficient to propagate rMSP as an ideal treatment for postpartum urinary and anal incontinence as well as pelvic organ prolapse. This is mainly due to the fact that active pelvic floor training often requires a training period of 6-12 months, while training with rPMS lasts a maximum of 2 months. The new findings of direct electrical stimulation of the pelvic nerve, which can be used to stimulate axonal nerve outgrowth in neural birth defects by activating BDNF, open up an important area of pain application and anal application of rPMS electrostimulation.

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