

Blogs

PELVIC NEWS CHANNEL- SELECTION

2020



MEN

Prostatectomy
Size penis
Sexual dysfunction
Peyronie's disease

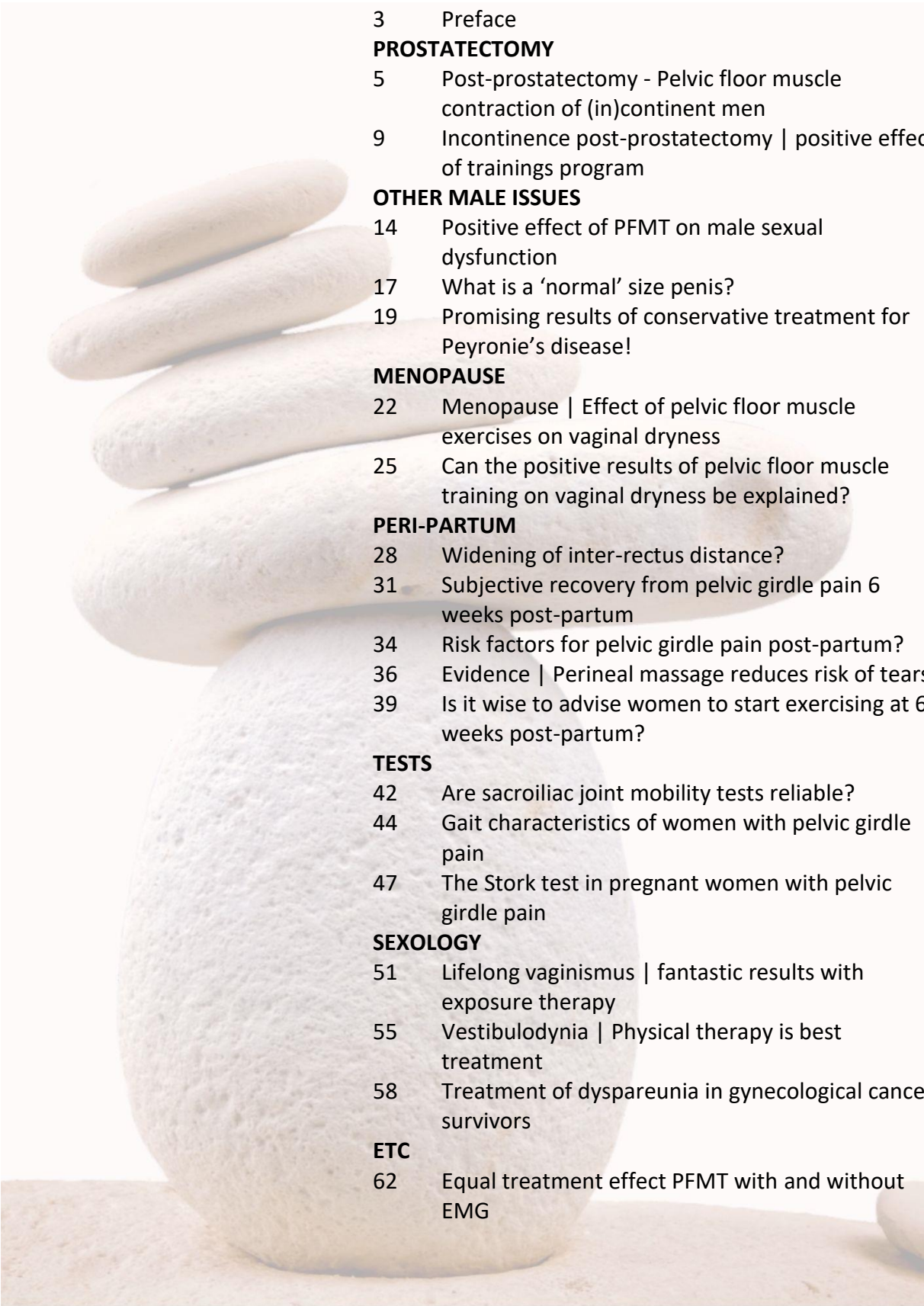
WOMEN

Menopause
Peri-partum
Sexology

OTHER

Test
EMG
Etc.

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Dear subscriber,

Thank you for subscribing to 'Pelvic News Channel'! I'm happy to see that the interest in my blog is growing and I'm very grateful to have required all those new contacts in 2020. As a celebration for my first full year of publishing blogs on a variety of topics, I have made a selection of the 2020 blogs and bundled them in an E-book for you.

One of the objectives of Pelvic News Channel is to keep you up to date regarding scientific research on the pelvic region. Pelvic News Channel is growing and I would really appreciate it if you help me by telling your colleagues about the blogs.

Best wishes,

Heidi





POST-PROSTATECTOMY

Pelvic floor muscle contraction of (in)continent men

Urinary incontinence is a common complaint after radical prostatectomy. When the prostate is removed so is a lot of the urethral smooth muscle. The urethral smooth muscle helps to compress the urethra. Therefore the striated muscles gain in importance after radical prostatectomy for compressing the urethra.

There are three muscles involved:

- Striated urethral sphincter
- Bulbocavernosus
- Puborectalis

A way to investigate the function of these three muscles is by transperineal ultrasound.

Pelvic physiotherapy is often given in case of incontinence. However, the results are mixed. Some research shows a beneficiary results and others don't. If we have more knowledge on

what pelvic floor function is needed to gain continence, this might help us improve our treatment strategy.

The research in this blog is all about this important question. It investigates the difference between continent and incontinent men post prostatectomy and an age-matched control group.

The study has the following aims:

- To see if there is a difference in striated pelvic floor muscle contraction between the groups
- To see if there is a difference in amplitude of contraction between the groups (Table 1. Groups)

Table 1: groups

Group	Incontinent post prostatectomy (PPI)	Continent post prostatectomy (PPC)	Control group (CC)
N=	N= 20	N= 23	N= 20
Inclusion criteria	>4/24 on International Continence Society Male Short Form(ICS-male SF)		
Exclusion criteria	– pre surgical urinary incontinence – pelvic surgery – pelvic radiation		– Urinary incontinence – prostate cancer – prior LUTS – pelvic surgery
No difference in age, height, weight, and PPI and PPC groups time after prostatectomy			

The ultrasound transducer was placed in the sagittal plane on the perineum. The urethra, anorectal junction, penile bulb, and pubic symphysis (landmarks) were visible and measured in that way.

The participants sat semireclined and were asked to: (Table 2)

Table 2. instruction of task

1	shorten the penis	maximal voluntary contraction (MVC)-30 sec
2	shorten the penis a 3 on a 10 point scale	submaximal contraction
3	bear down as if you are emptying your bowel or pass a wind, 8 on a 10 point scale	
4	cough	provoked with medication

Changes were measured of the different landmarks during the tasks asked (please read the full article if you want to know the exact

way how this was measured and how statistical analysis was performed).

Results:

Task	Displacement of	Significant difference	No difference
Maximum voluntary contraction	Mid-urethra/ Striated urethral sphincter	PPC > PPI PPI < CC	PPC=CC
	Bulb of penis/ Bulbocavernosus	PPC > PPI	PPI =CC
	Anorectal junction/ puborectalis muscle	PPC > PPI PPI < CC	
	Observation of descent*		
	Urethra-vesical junction (descent=lengthening of puborectalis muscle)	10/20 PPI (50%)	2/23 PPC (9%) 0/20 CC
Task	Displacement of	Significant difference	No difference
Submaximal pelvic floor muscle contraction	Mid-urethra/ Striated urethral sphincter	PPC > PPI PPI < CC	PPC=CC
	Bulb of penis/ Bulbocavernosus	PPC > PPI PPI < CC	PPC=CC
	Anorectal junction/	PPC > PPI	PPC=CC

	puborectalis muscle	PPI < CC	
	Urethra-vesical junction (descent=lengthening of puborectalis muscle)	PPI < CC	PPC = PPI PPC=CC
		NO descent	NO descent

Task	Displacement of	Significant difference	No difference
Bear down	Mid-urethra/ Striated urethral sphincter		All groups
	Bulb of penis/ Bulbocavernosus		All groups
	Anorectal junction/ puborectalis muscle		All groups
	Urethra-vesical junction (descent-caudal posterior direction)	CC > PPI	PPC = CC

Task	Displacement of	Significant difference	No difference
Evoked coughing (pelvic floor reaction- contraction=shortening)	Mid-urethra/ Striated urethral sphincter	PPC > PPI PPI < CC	PPC = CC
	Bulb of penis/ Bulbocavernosus	PPC > PPI PPC > CC	
Lengthening	Anorectal junction/ puborectalis muscle	PPI < CC PPC < CC	PPC = PPI
	Urethra-vesical junction	PPC < PPI PPC < CC	

How to differentiate pelvic floor control between the continent and incontinent group

The receiver operating characteristics (ROC) showed specificity of 85% and sensitivity of 78%, when the striated urethral sphincter had a displacement of ≥ 4.1 mm and the urethra-vesical junction one of ≥ 2.4 mm.

These results show that continent men after prostatectomy;

1. Can shorten their muscles (striated urethral sphincter, bulbocavernosus muscle, puborectalis muscle) better than incontinent men during maximal and submaximal contraction.

2. Can prevent bladder neck descent better than healthy controls
3. Are able to shorten the bulbocavernosus muscle better than the healthy controls

If you compare the continent and control men there is no significant difference during maximal and submaximal voluntary contraction. It seems that the continent men are able to activate the pelvic floor muscles at least as good as the control men.

*Another interesting outcome is that during maximum voluntary contraction 50% of the incontinent men had a lengthening of the puborectalis muscle compared to 9% of the continent men. The authors hypothesise that this might be explained by an increased intra-abdominal pressure (this wasn't measured).

The intra-abdominal pressure can be increased because of abdominal muscle contraction or underperforming puborectalis muscles.

What do these results mean for the pelvic physiotherapist?

- Continent men after a prostatectomy can shorten the striated urethral sphincter 4.1mm and the puborectalis muscle 2.4mm. So if we use perineal ultrasound we can use these numbers.
- We should check if the abdominal muscles are activated during maximum pelvic floor muscle contraction. If the abdominal muscles are contracted we can teach our patients to relax them at that moment. So instruct a proper pelvic floor muscle contraction.

In this research it wasn't recorded if the men had had pelvic floor muscle exercises. So it is not known if the muscle function was due to a trainings program.

In this blog I haven't discussed all outcomes and it I want to recommend studying the full original article. It is full of very valuable information on for instance the relation between anatomy and continence as well.

Reference:

Comparison of dynamic features of pelvic floor muscle contraction between men with and without incontinence after prostatectomy and men with no history of prostate cancer. Stafford RE, Coughlin G, Hodges PW, Neurourol Urodyn 2019 nov 13. doi: 10.1002/nau.24213. [Epub ahead of print]



Incontinence post-prostatectomy

Positive effect of trainings program!

In the previous blog I discussed very interesting research which showed that continent men post-prostatectomy had an equal or even better pelvic floor function than healthy continent men. The question that rises with this knowledge is; are our training programs adequate to reach this level of an even better pelvic floor muscle function?

A randomized controlled trial in which the effect of two training protocols on urinary incontinence post-prostatectomy are compared shows that **an intensive training program** started pre-surgery had a positive effect on post-prostatectomy incontinence.

Method

Inclusion criteria:

- preoperative radical prostatectomy
- open or robotic assisted approach
- age > 18 years
- continent

Exclusion criteria:

- acute illness
- current smokers
- diabetes; type 1 or 2
- alcohol consumption > 21 units/week
- impaired mental status
- prior prostate surgery
- undergoing or prior radiation therapy
- undergoing or prior androgen deprivation therapy (anti-hormone therapy)

Patients with all types of surgical approach were included.

Treatment protocol

Five weeks before the prostatectomy, participants were randomly allocated to either the 'usual care' or the 'high intensity pelvic floor muscle training' group (table 1). The treatment was given in one physiotherapy clinic.

Table 1. Pelvic floor muscle training program

PELVIC FLOOR MUSCLE EXERCISES	USUAL CARE GROUP (CURRENT PRACTICE)	HIGH INTENSITY GROUP
Number of sets per day	- 3	- 6
Number of contractions	- 10	- 10 fast - 10 slow
Duration of contraction and rest	- 10 seconds with 10 seconds rest	- fast: 1 second - slow: 10 seconds - equal rest time between contractions
Total number of contractions per day	- 30	- 60 fast and 60 slow - 120 in total
Position	- in supine, sitting, standing	- standing
Target	- no specific target on fast and slow-twitch muscle function	- target on fast and slow twitch muscles

Both groups got advice on:

- Bladder training (at least 2 hours between voids if possible)
- Caffeine intake max 1 serve/day
- Avoid alcohol consumption until continent
- Encouraged to walk 30 minutes, 5 days per week

In the first session five weeks pre-prostatectomy all patients got instruction on how to contract the pelvic floor muscles in writing and verbally. The contraction of the pelvic floor muscles was checked with ultrasound. Use of abdominal muscles and proper use of the breath was also instructed and checked with real time ultrasound (RTUS). In total they got two sessions of pelvic physiotherapy.

Post-operative, the men started training after removal of the catheter. The training protocols remained the same for a 12 week period.

Outcome measures:

Measured at 2, 6 and 12 weeks post-prostatectomy.

- Primary outcome:
Incontinence: 24 hours bladder diary including pad weight
- Secondary outcome:
QoL: International Prostate Symptom Score (IPSS), expanded Prostate Cancer Index Composite for Clinical Practice (EPIC-CP/impact on QoL)
- RTUS on pelvic floor muscle function

Results

In total, 97 men (with a mean age of 63 and BMI of 25.40, Gleason 7) completed the study. In the usual care group were 47 and in the intervention group 50 men. Table 2 shows that the men in the intensive training program were significantly more dry compared to the usual care training program.

Table 2. reported dry

Post-prostatectomy	Intervention group (%)	Usual care (%)
2 weeks	14	4
6 weeks	32	11
12 weeks	74	43

The pad weight of the intervention group also showed a significant improvement compared to usual care.

The IPPS scores showed a significant difference at 6 and 12 weeks in favour of the intervention group. The EPIC-CP, the intervention group scored significantly better at 2 weeks. However, at 6 and 12 weeks there was no difference between groups.

RTUS outcome intervention group post-prostatectomy (significant) at all time points:

- faster repeated muscle contraction
- longer sustained contraction

My opinion

This is really interesting research as it compares different treatment protocols. The research of Stafford, discussed in the previous blog, showed that continent men post-prostatectomy had a pelvic floor muscle function which was at least as good or maybe even better as healthy controls. The research of today is the first of its kind that shows that a more intensive training protocol targeting slow- and fast twitch fibres has a significantly better outcome than the protocol which is used in general.

The [Cochrane systematic review](#) on conservative management (pelvic floor muscle training) for men with urinary incontinence after prostate surgery is not conclusive on the

effect of conservative treatment pre- and or post-operative. Guidelines are often based on systematic reviews or multiple comparable studies. Therefore more well designed randomized controlled trials regarding the effect of intensive training programs on urinary incontinence post-prostatectomy are needed!

There are some things regarding the protocol of this study I have some thoughts about:

This research has a follow up of three months and we know that at one year post-prostatectomy there is no significant difference between men who do pelvic floor muscle training and those who don't. I wonder what the results of intensive pelvic floor muscle training are at one year post-prostatectomy. Is there still a significant difference between groups? It would also be very interesting to know if intensive training has a significant better outcome than no intervention.

The intensive training protocol remains the same over time and if we consider the principle of overload this is a debatable choice. It will be interesting to see if a protocol with overload will result in an even better outcome.

In this protocol the men start the supervised (two sessions) training pre-prostatectomy. They learn how to conduct a proper pelvic floor contraction, not hold the breath during contraction and, not to contract the

abdominal muscles. The men didn't get any therapy session post-prostatectomy. However, men who loose urine might start holding their breath and contract the abdominal muscles. Why not check post-prostatectomy if they are still performing the exercises in the right way? And start functional training to ensure that the pelvic muscles contract at the right time during activity (coordination).

Conclusion

An intensive pelvic floor muscle training program started pre-prostatectomy has a

positive effect on post-prostatectomy incontinence.

Reference:

Milios JE, Ackland TR, Green DJ. [Pelvic floor muscle training in radical prostatectomy: a randomized controlled trial of the impacts on pelvic floor muscle function and urinary incontinence.](#) BMC Urol. 2019 Nov 15;19(1):116. doi: 10.1186/s12894-019-0546-5.





POSITIVE EFFECT OF PFMT ON MALE SEXUAL DYSFUNCTION

Do you know that there is an indication that pelvic floor muscle training (PFMT) has a positive effect on male sexual dysfunction (erectile dysfunction and premature ejaculation)?

Years ago I read the book 'pelvic floor exercises for erectile dysfunction' by Grace Dorey. This book describes besides the prevalence, risk factors, anatomy and physiology of normal erectile function, the role of the pelvic floor muscles and a the trial that was performed.

As sound evidence is not based on one trial I was really happy to see that a systematic review on erectile dysfunctions and on premature ejaculation was published recently. So I would like to share the results and implications of this [systematic review](#) with you.

Both [erectile dysfunction](#) (complaint of inability to achieve and sustain an erection firm enough for satisfactory sexual performance) and [premature ejaculation](#)

(Complaint of a persistent or recurrent pattern of too rapid achievement of ejaculation during partnered sexual activity, i.e. before the individual wishes it) are highly prevalent symptoms in men.

There are many risk factors that can contribute to these complaints like: vascular, hormonal, neurological and psychological problems. It is also a well-known complication of diabetes mellitus and the use of certain drugs.

The treatment regime generally consists of:

- ✓ Lifestyle modifications
- ✓ Vacuum devices
- ✓ Psychotherapy
- ✓ Medication

However, the pelvic floor muscles might also play an important part. The ischiocavernosus muscles help to increase the intracavernous pressure and therefor influence penile rigidity. The bulbocavernosus muscle and levator ani muscles help to propel the semen through the

urethra and thus ejaculation by rhythmic contractions.

So if there is an underlying pelvic floor dysfunction, pelvic floor muscle training might be a treatment option.

Method of the systematic review:

Inclusion criteria:

- Quantitative studies up to January 2018
- Reporting on 'erectile dysfunction' or 'premature ejaculation' with pelvic floor muscle training as treatment
- ≥18 years

Exclusion criteria:

- Neurological conditions
- Previous pelvic or urological surgeries

Main outcome measures were: change in erectile function using the [International Index of Erectile Function \(IIEF\)](#) or a self-reported change in erectile function. Premature ejaculation was measured with the [Intravaginal Ejaculatory Latency Time \(IELT\)](#).

Results:

Of the initial 254 studies found, 10 were included in the review. In total 668 participants with a mean age ranging from 30 to 59 years. Five were on erectile dysfunction and five on premature ejaculation. To study effects of an intervention a randomized controlled trial (RCT) has the highest level of evidence. There was one RCT on erectile dysfunction and one on premature ejaculation. Other study designs were for instance; pre-post studies and a retrospective study.

All but one study on erectile dysfunctions used patient reported outcomes (complete

response, partial response, failure/nil response) and only one the IIEF. Change in intracavernous pressure and maximum anal pressure were also measured. For measuring premature ejaculation three studies used the IELT and four patient reported response (cured; improvement, failure/nil response).

The studies on **erectile dysfunction** used the same intensity of pelvic floor muscle contractions. Some used **biofeedback** and/or **electrical stimulation** in addition. Number of sessions varied greatly between five and 20 sessions in about a three to four month period. All trials incorporated home- exercises. **Reported cure rates ranged between 35% and 47%.**

All studies on **premature ejaculation** included electrical stimulation with pelvic floor muscle training. Some added biofeedback as well. Twelve to twenty sessions in a four week to three month period were given. In only one trial men had to perform home-exercises. **Cure rates (post-phoning of ejaculation) were between 55% and 83%.** Three studies reported on a significant increase in IELTS.

My opinion:

The results of pelvic floor muscle training for men with erectile dysfunction and premature ejaculation are definitely promising. However due to the study designs and heterogeneity of the population and intervention we should be cautious to make too bold statements regarding the effects. Properly executed RCT's on efficacy of PFMT with/without biofeedback and/or electrical stimulation for patients with erectile dysfunction and premature ejaculation are warranted. I would also recommend a proper investigation of the pelvic floor muscles. This is necessary before you start treatment because otherwise you don't know what you are treating. As

mentioned in a previous blog it is also very important to report training schedules, settings for electrical stimulation etc. properly.

As erectile dysfunction and premature ejaculation can have causes that cannot be influenced with pelvic floor muscle training it is also important to have good patient selection. **If pathology is ruled out, conservative treatment with pelvic floor muscle training might be a good first-line treatment option.**

For those of you who want to know the specifics of this systematic review please read the full text article.

Reference:

Myers C, Smith M, [Pelvic floor muscle training improves erectile dysfunction and premature ejaculation: a systematic review.](#) [Physiotherapy.](#) 2019 Jun;105(2):235-243. doi: 10.1016/j.physio.2019.01.002. Epub 2019 Jan 14.



What is a 'normal' size penis?

"It is not much of an exaggeration to say that penises in (men's) fantasy land come in only three sizes – large, gigantic, and so big you can barely get them through the door" (Zilberberg, 1978)

But what is a 'normal' size penis? Is there a difference between what men think that the average length is 15.2 cm (6 inches), and reality? That's the topic of this blog. It is based on a literature review.

The length of the penis has been researched many times and in three different ways. In one way the erect penis was measured. Measured either by 1) the men themselves or 2) a researcher, and 3) the stretched flaccid penis length was measured by a researcher.

Results

Self-reported erect length (10 studies):

- Range between 15.8 and 25.4 cm (6.2 inch - 10+ inch)

Researcher measured erect length (9 studies):

- Average length between 12.95 and 13.97 cm (5.1 and 5.5 inch)

Researcher measured stretched penis length (22 studies)

- Mean length (n=13.719)= 12.98 cm (5.11 inch)
(problem: underestimation of erect length)

The difference between self-reported and researcher measured length is substantial. This might be due to several problems occurring when men are asked to measure themselves: volunteer bias and social desirability bias. Men would like to have a longer penis.

In one study men (n=1661) were asked to measure their penis with the objective to properly fit a condom and not to research the length. The mean self-reported length of the penis was 14.15 cm (5.57 inch), so quite a difference with the mean self-reported length found in the studies focusing on length.

So I think we can conclude that there is a substantial difference between what men think and the reality. If we get a question regarding the average size of the penis we can

now give a reliable answer. The average size lies between 12.95 and 13.97 cm!

Reference:

Bruce M. King (2020): [Average-Size Erect Penis: Fiction, Fact, and the Need for](#)

[counselling](#), Journal of Sex & Marital therapy, DOI: 10.1080/0092623X.2020.1787279.

Zilberberg, B. (1978). Male sexuality: A guide to sexual fulfillment. Boston. Little Brown.



Promising results of conservative treatment for Peyronie's disease!

In this blog I will discuss a randomized controlled trial on the effectiveness of therapeutic ultrasound for the treatment of Peyronie's disease with very promising results!

Why did they do this study?

The aim of this study was to establish the effectiveness of 12 sessions of therapeutic ultrasound in patients with Peyronie's disease.

Up to now therapeutic ultrasound has only been described in case studies for treating Peyronie's disease. This is the first randomized controlled trial on this subject!

How was the research executed?

Inclusion criteria: having Peyronie's disease, confirmed with penile duplex doppler ultrasound.

Exclusion criteria: diabetes, use of phosphodiesterase-5 inhibitors like Viagra or other medication to treat erectile dysfunction, smoking, having radiation therapy were excluded.

The men were randomized to either the intervention (n=23) with ultrasound or to the control group (n=20). The men in the control group received the intervention 4 weeks later.

Intervention:

- Therapeutic ultrasound at the penile plaque with a dose of 1.5 to 2.5 W/cm² with a continuous mode (heating effect)
- 12 sessions of 10 minutes, 2 to 3 times per week
- 3 MHz, 2 cm soundhead
- Ultrasound should be experienced as a mild and a comfortable warmth

Outcome measures:

- measurement of the size, the number and position of the penile plaques with penile duplex doppler ultrasound
- Penile curvature measured with goniometer measured on photos of the penis at the begin and the end of the trial
- International Index of Erectile Function the IIEF-5

- Peyronie's Disease Questionnaire the PDQ
- Photos of penis at begin and at the end of the trial

($p < 0.05$ is considered significant)

What are the results?

The mean age of the participants was 59 years with a mean duration of 17 months of the symptoms.

- **Penile plaques:** significant reduction between groups ($p = .036$), average reduction was 0.37 mm in the treatment group. Plaques > 0.5 mm at baseline did not have a good response in contrast to plaques < 0.05 mm.
- **Penile curvature:** significant effect. Reduction in angle of 17° . This is a 38% improvement.
- **IIEF-5:** significant effect between groups ($p = 0.035$)
- **PDQ:** *no significant* difference between groups

What can be the clinical implications for the (pelvic) physical therapist?

Do these results implicate that we should dust of our ultrasound machines and start treating

men with Peyronie's disease? As this is a non-invasive treatment option with no side-effects to my knowledge we can give this treatment. However I think that it is important to inform the men that although this research shows promising results, more evidence confirming these results is necessary.

My personal thoughts are that this randomized controlled trial has definitely very promising results, but *'one swallow doesn't make a summer'*.

More evidence with high quality randomized controlled trials is necessary to improve the level of evidence, but also to find the optimal number of treatment sessions, patient selection and thus the optimal treatment algorithm. Another important issue that needs to be addressed are long-term effects. Is there a wash-out of the results? Is it necessary to have occasional sessions to maintain the results?

Reference:

Millios JE, Ackland TR, Green DJ. [Peyronie's disease and the role of therapeutic ultrasound: a randomized controlled trial](#), Journal of Rehabilitation Therapy, 2020;2(2):32-39.





Menopause

Effect of pelvic floor muscle exercises on vaginal dryness

[Genitourinary](#) syndrome (e.g. vaginal dryness and dyspareunia) due to menopause is a common complaint. In this blog I will discuss the very interesting and promising results of a feasibility study on the effect of pelvic floor muscle exercises on genitourinary syndrome and ofcourse my personal thoughts in the end.

Last year I read the feasibility study I will discuss today. Because it is a feasibility study I put it aside at the time but....I have changed my mind. Yes, together with a recently published study by the same authors explaining why pelvic floor muscle training might be beneficial for women with genitourinary syndrome it is so interesting that I don't want to wait discussing this topic until results of a randomized controlled trial will be published.

The aim of the current study was to see on the one hand how women with genitourinary syndrome respond to a vaginal assessment

and pelvic floor muscle training and on the other hand to collect data regarding the effect of pelvic floor muscle training on for instance symptoms and signs, quality of life, and sexual function.

The women in this study were 55 years or older and because this study was a sub study all women had stress or mixed urinary incontinence as well. The women had the following symptoms in the last two weeks: vaginal dryness, vaginal itching, [dysuria*](#) or dyspareunia. When informed consent was given a gynaecologist had to confirm if genitourinary syndrome was present.

Study design

The two evaluation moments before the intervention were performed (figure 1) to see whether the results of the first evaluation was stable at the second evaluation. At evaluation 2 the women were taught how to contract the pelvic floor muscles properly with vaginal palpation by a trained physiotherapist.

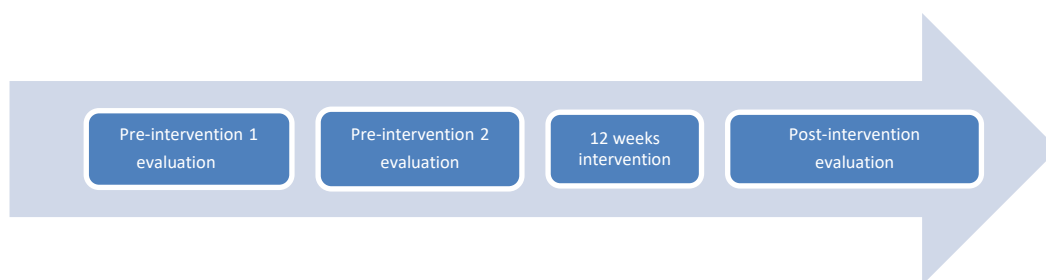


Figure 1: study design

Participants had to rate their genitourinary symptoms (vaginal dryness and itching/irritation, dysuria and dyspareunia) on a 4-point scale and report their most bothersome symptom. A gynaecologist evaluated the vaginal mucosa on e.g. secretions and epithelia. Quality of life was measured with appropriate questionnaires. The [12 week physiotherapy program](#) is

described and published in an open access article. It consists of both education and exercises.

Table 1. baseline

Variable	N=29 (%)	% most bothersome symptom (rank)
Age (years)	Mean 68.0 (SD 6.6)	
Vaginal dryness	24 (83)	44 (1)
Vaginal itching/irritation	18 (62)	21 (3)
Dysuria	3 (10)	
Dyspareunia	20/29 (69)	34 (2)

Results

After the 12 week pelvic floor muscle training program 76% of the women (n=22) reported an improvement (significant) of their most bothersome symptom. Four of them were even symptom free. The fact that 31% of the participants reported an increase in vaginal discharge is very interesting.

Significant improvements were also registered on e.g. vaginal secretion, epithelial thickness, vaginal colour, and dyspareunia.

The adherence to the exercise program was good with no adverse events. The vaginal assessment was well accepted.

My opinion

Genitourinary syndrome is very common among post-menopausal women. I see a lot of patients with and without urinary incontinence, but also referrals for dyspareunia. This research raises more questions like: a lot of women with dyspareunia have pelvic floor overactivity. Is this pelvic floor overactivity due to pain

because of vaginal dryness and is this therefore a vicious circle? What is the most effective treatment option? Relaxation or training of the pelvic floor muscles?

The results of this study are promising. However, this was a feasibility study meaning there was no control group. Therefore we cannot be sure that the effects are due to the intervention. I really look forward to the results of a randomized controlled trial.

In my next blog I will discuss more on this important and interesting topic.

***Symptom**, defined by ICS as:

Complaint of pain, burning or other discomfort during voiding. Discomfort may be intrinsic to the lower urinary tract (e.g. bladder or urethra), external or referred from

other adjacent similarly innervated structures e.g. lower ureter.

Reference:

Mercier J, Morin M, Zaki D, Reichetzer B, Lemieux MC, Khalifé S, Dumoulin C. [Pelvic floor muscle training as a treatment for genitourinary syndrome of menopause: A single-arm feasibility study](#). Maturitas. 2019 Jul;125:57-62. doi: 0.1016/j.maturitas.2019.03.002. Epub 2019 Mar 29.



Can the positive results of pelvic floor muscle training on vaginal dryness be explained?

There are promising signs that **pelvic floor muscle training** has a positive effect on **vaginal dryness** and **dyspareunia** in women with genitourinary syndrome. This was one of the results of the feasibility study I discussed in the previous blog. Objectively, an increase in secretions and color of the vaginal wall and thicker vaginal epithelial surface was observed. In this blog I will discuss the outcome of additional tests these women got during their assessment before and after the 12 week pelvic floor muscle training program.

How can the improvement of vaginal dryness and dyspareunia be explained?

Can it be due to improved:

1. blood flow of vulvovaginal tissue?
2. pelvic floor muscle function?
3. vulvovaginal elasticity?

Blood flow of the vulvovaginal tissue was measured with doppler ultrasound. The main vessels, the internal pudendal artery and the dorsal clitoral artery were checked. The blood flow was measured three times at rest and after three pelvic floor muscle contractions.

The **pelvic floor muscle function** was measured with an intravaginal dynamometric speculum and the **Vaginal Atrophy Index** was used to assess genitourinary syndrome.

After the 12 week pelvic floor muscle training program the vulvovaginal blood flow increased significantly in all arteries. The relaxation of the pelvic floor muscle after a contraction was significantly faster. The overall Vaginal Atrophy Index and especially the items on skin elasticity and [turgor](#) and increase in vaginal mucosa thickness as well as the introitus width improved significantly.

Interestingly the pelvic floor muscle strength did not improve significantly ($p=0.051$). The authors hypothesise that this might be due to the fact that the women in this study can have a lowered tone of the pelvic floor muscles because of their menopausal state but women can also have a heightened tone due to dyspareunia and because of the small sample size significance was not reached.

My opinion

The results of this study are very interesting and I hope more high quality research in this field (to test the reproducibility of the results) will be done to improve our understanding of the effect of pelvic floor muscle training on symptoms of genitourinary syndrome. I am waiting for the first randomized controlled trial on this subject with hopefully a longer follow-up period as well. A randomized controlled trial can also differentiate between baseline variables like pelvic floor muscle tone (heightened or lowered) and the results on genitourinary syndrome.

Reference:

Mercier J, Morin M, Tang A, Reichetzer B, Lemieux MC, Samir K, Zaki D, Gougeon F, Dumoulin C.
[*Pelvic floor muscle training: mechanisms of action for the improvement of genitourinary syndrome of menopause.*](#)
Climacteric. 2020 Feb 27:1-6. doi:
10.1080/13697137.2020.1724942. [Epub
ahead of print]





Widening of inter-rectus distance?

Recently published scientific research confirms that the inter-rectus distance widens when the pelvic floor muscles and/or the pelvic floor muscles contract.

A diastasis rectus abdominis post-partum is quite common. The diastasis is measured with the inter-rectus distance. This is the distance between the two muscle bellies of the rectus abdominis muscle. There is no consensus as to what is a clinically significant inter-rectus distance. In literature this varies between 1.0 and 2.2 cm.

When a diastasis rectus abdominis is diagnosed, therapy mainly consists of exercises to close the inter-rectus distance by training the transverse abdominis muscles. However, if you take a closer look at the anatomical position it is interesting to see if the transverse abdominis muscles can actually close the gap.

It is also known that when you contract the pelvic floor muscles properly there is a co-contraction of the transverse abdominal muscles and visa versa. Hypothetically you could think that when you contract the pelvic floor muscles the diastasis rectus abdominis would close as well.

The objective of the research I will discuss is:

To identify the effect of a contraction of the pelvic floor muscles and transverse abdominis muscles on the inter-rectus distance.

Method:

Inclusion criteria:

- Healthy, primi- and multiparous women
- Single and multiple births
- Diastasis rectus abdominis ≥ 2 fingers widths at level of umbilicus, and/or 2 cm below and above the umbilicus

Exclusion criteria:

- Inability to perform correct pelvic floor muscle and/or transverse abdominis contraction
- Pregnancy
- Inadequate comprehension of Scandinavian language
- Chronic physical or mental illness

The primary outcome measure was the change in inter-rectus distance measured with ultrasonography 2 cm above and 2 cm below the umbilicus.

The pelvic floor muscles were assessed by:

- An experienced women's health physiotherapist by inspection and vaginal palpation
- Ultra-sonography

The transverse abdominal muscles were assessed with ultrasound. Before the inter-rectus distance was measured a correct contraction of the muscles was checked.

Inter-rectus distance was measured in the following order:

1. At rest
2. During pelvic floor muscle contraction
3. During transverse abdominis muscle contraction
4. During combined pelvic floor muscle (start) and transverse abdominis contraction (after contraction of pelvic floor muscles)

Results:

In total 38 women with a mean age of 34.6 (SD 4.0) and a mean of 15.1 (SD 5.9) weeks post-partum were included.

There was a significant increase in inter-rectus distance with a:

- Contraction of the pelvic floor muscles
- Contraction of the transverse abdominis muscles
- Combined contraction of the pelvic floor and transverse abdominis muscles

At 2 cm above and 2 cm below the umbilicus.

Contraction of the pelvic floor muscles alone resulted in the smallest increase. A contraction of the transverse abdominis muscle showed a larger increase and the largest increase was when both muscles

were combined (pelvic floor + transverse abdominis muscle).

There is an indication that a contraction of the pelvic floor muscles and the transverse abdominis muscles increase the inter-rectus distance. The increase of the inter-rectus distance due to pelvic floor muscle contraction is small.

However: the increases found in this research were within the *limits of the measurement error*. This means that it is not sure that the increase is due to the contracting muscles.

Clinical implications (personal opinion):

So a contraction of the pelvic floor muscles and transverse abdominis muscles increase the inter-rectus distance. We know from other research that a contraction of the rectus abdominis muscle (a crunch) narrows the inter-rectus distance.

So with this in mind is an abdominal crunch (without a contraction of the transverse abdominis muscle) the best exercise for women with a diastasis rectus abdominis?

Well I don't think so and my opinion is based on the research of Lee and Hodges and my clinical observations:

Previous research by [Lee, Hodges and Mota](#) has already shown that a contraction of the rectus abdominis muscle (curl-up) without a preactivation of the transverse abdominis reduced the inter-rectus distance. With preactivation of the transverse abdominis muscle the inter-rectus distance was the same or wider during a curl-up.

Lee and Hodges hypothesise that if you solely focus on narrowing the inter-rectus distance, you forget that support of the abdominal content is compromised. This might result in

less mechanical function and above all in a less cosmetic appearance. However, as the above is a hypothesis more research is needed.

Women who visit us in the clinic often have the aim to decrease the diastasis rectus abdominis. I think that it is more important to explain the biomechanics of the muscles of the abdominal wall.

‘So, that not a decrease of the inter-rectus distance but improvement of the abdominal wall should be the main objective of training’.

Reference:

N.M. Theodorssen, L.I. Strand, K. Bø. [Effect of pelvic floor and transversus abdominis muscle contraction on inter-rectus distance in postpartum women: a cross-sectional experimental study](#). Physiotherapy: 105(2019) 315-320



Subjective recovery from pelvic girdle pain 6 weeks post-partum

Pelvic girdle pain is a common complaint in pregnancy. In my practise I frequently see women with pelvic girdle pain. These women often ask: what is the prognosis? So when I found the article that I will discuss today, I was really interested. Is there new information based on patient reported outcomes?

This study has the aim to:

- investigate the subjective recovery of pelvic girdle pain at 6 weeks post-partum
- see if there are risk factors for a poor recovery

Inclusion criteria:

- all pregnant women
- low-risk singleton pregnancy

Symptomatic women filled in questionnaires at;

- 18 and 30 weeks gestation
- 6 weeks post-partum

Questionnaires:

- Self-constructed questionnaire. Questions on for instance:

comorbidities, workload, symptoms, location of symptoms and average pain of the previous trimester rated with the numeric rating scale.

- Every Sunday the women received a SMS (text message). The SMS contained the question: how many days during the past week was your pelvic pain **bothersome**. The women received one reminder after 24 hours if necessary.

Subgrouping

For the subgrouping of pain patterns the authors followed a thorough process until consensus was reached. Subgroups were established for before and after delivery. Before delivery women were grouped based on severity of pelvic girdle pain: severe, moderate, no or mild and missing data. After delivery the recovery was recorded as: substantial, poor (no or transitory, incomplete) and missing data. (Box 1 in original article)

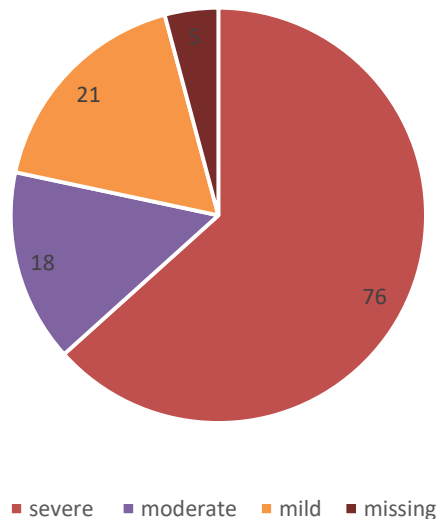
Women with severe and moderate pelvic girdle pain were included in the statistical analysis.

RESULTS

In total 120 women were included in the study. Figure 1 shows the distribution of the

self-reported severity of pelvic girdle pain in pregnancy.

figure 1: intensity of pelvic girdle pain before delivery



Average response rate SMS:

10 weeks before delivery: 89%, after delivery 71% in week 1 dropping to 43% in week 6.

Results are based on 76 of the 94 (81%) women with severe to moderate pelvic girdle pain.

After delivery (6 weeks post-partum):

Substantial recovery: 63/76 (83%) of which 44% reported reported 0 days of bothersome pelvic girdle pain within 2 weeks post-partum.

(substantial recovery = 0-2 days of bothersome pelvic girdle pain per week)

Differences between groups (significant)

substantial recovery (n=63) versus no, transitory, or incomplete recovery (n=13))

1. **Primiparous** (p=0.042) women reported more substantial recovery
2. Women who had **pelvic girdle pain in the year before pregnancy** reported a poorer recovery (p= 0.047).
3. Women with no, transitory, or incomplete recovery reported **higher pain intensity** (SMS) in pregnancy (p= 0.026).

Unfortunately the response rate dropped quite a lot post-partum. So we should keep this in mind when looking at the results.

However, a **sensitivity analysis** was performed with the following outcome:

- If all missing data were added to the substantial recovery group. Than 86% substantial recovery (95% CI, 78-92).
- If all missing data were added to the no, transitory, or incomplete recovery group. Than 67% substantial recovery(95% CI, 57-76).

MY PERSONAL OPINION:

This study has asked the participants about the **bothersomeness of pelvic girdle pain**. This is not common practice. Often participants are asked about the level of experienced pain. But **experienced pain and bothersomeness are different constructs**. I will give you an example: some women who score a 3 on the numeric rating scale (0=no pain and 10=extreme pain) experience this as no bother and some would experience this as bothersome. Therefor I think that asking about the level of bothersomeness is very important in research.

The fact that this research is using bothersomeness as an outcome measure is one of the reasons why I want to discuss it. Unfortunately they didn't perform a power calculation.

This study has confirmed some things that we already know, but also shows that 17% of women who reported severe or moderate pelvic girdle pain during pregnancy recover poorly. These women had a higher pain intensity during pregnancy but were also more at risk if they were multiparous or had pelvic girdle pain in the year before the pregnancy.

A lot of my pregnant patients with pelvic girdle pain in pregnancy ask me about their prognosis after delivery. Besides the prognosis I always discuss help-seeking post-partum. This research will help me answering their questions and discussing prognosis.

Reference:

Gausel AM, Malmqvist S, Andersen K, Kjærmann I, Larsen JP, Dalen I, Økland I. [Subjective recovery from pregnancy-related pelvic girdle pain the first 6 weeks after delivery: a prospective longitudinal cohort study](#). Eur Spine J. 2020 Jan 16. doi: 10.1007/s00586-020-06288-9. [Epub ahead of print]



Risk factors for pelvic girdle pain post-partum?

Knowing risk factors for pelvic girdle pain post-partum is so important. It can help us in order to give better advice on prevention or treatment of pelvic girdle pain.

Why did they do this study?

The aim of this study was to establish if there are risk factors for pelvic girdle and low back pain post-partum. Therefore they did a systematic review and meta-analysis.

The current systematic review differs from other systematic reviews because of 1) the meta-analysis and 2) that women with pelvic girdle pain during and (new onset) pelvic girdle pain post-partum are included.

How was the research executed?

- The PRISMA statement was followed and the systematic review was registered in PROSPERO. PROSPERO is

- An [international database](#) in which systematic reviews are registered.
- **Included:** all prospective cohort studies
- **Excluded:** systematic reviews, randomized controlled trials, case studies and studies on low back pain and PGP in women with neurological disorder and systemic diseases.
- The [QUIPS](#) (quality in prognostic studies tool) was used to assess the risk of bias. Studies with a high risk of bias were excluded from statistical pooling.

What are the results?

Twelve studies were included in the qualitative synthesis. Because of high risk of bias 7 studies were excluded. The results are therefore based on the remaining five studies (with moderate to low risk of bias).

Multivariate analysis was not possible because of heterogeneity of the studies. Univariate pooling revealed five significant risk factors for pelvic girdle pain post-partum:

Personal and pre-pregnancy risk factors:

1. History of low back pain or pelvic girdle pain
2. BMI >25

Pregnancy

3. Pelvic girdle pain in pregnancy
4. Depression in pregnancy
5. Heavy workload in pregnancy

Obstetric and child-related factors

- None reached significance

What can be the clinical implications for the (pelvic) physiotherapist?

With the identification of these 5 risk factors we can 1) give women advice regarding heavy work. This can be for instance on ergonomics, 2) provide women with a history of low back and/or pelvic girdle pain with information, 3) discuss strategies about how to make changes at home and/or work in order to try to prevent the development of problems for women at risk of developing pelvic girdle pain,

4) screen women with pelvic girdle pain postpartum for depression. In case you suspect a depression my advice would be to discuss this with the woman and advice her to seek help if necessary, and 5) discuss BMI. BMI is a modifiable risk factor. However it is often not an easy issue to discuss. High BMI is a risk factor for many health conditions and therefore I think it is our duty to discuss this. It is important regarding the risk of developing pelvic girdle pain but also for woman's health in general.

Reference:

M Wiezer, MAH Hage-Fransen, A Otto, MS Wieffer-Platvoet, MH Slotman, MWG Nijhuis-van der Sanden, AL Pool-Goudzwaard. [Risk factors for pelvic girdle pain postpartum and pregnancy related low back pain postpartum; a systematic review and meta-analysis.](#) Musculoskelet Sci Pract; 2020 Aug;48:102154. doi: 10.1016/j.msksp.2020.102154.



Evidence

Perineal massage reduces risk of tears!

I have a confession to make. I was not convinced of the benefit of perineal massage.....until....I read the systematic review and meta-analysis that I will discuss in today's blog. I am convinced, convinced that we should inform, promote, and instruct pregnant women to start massaging their perineum!

After reading this blog you can make up your mind whether you are convinced as well.

Why did they do this research?

Since the Cochrane systematic review covering only 4 articles on this topic, new research about the effect of perineal massage on the risk of perineal trauma and post-partum complications has been published.

How was this research done?

Patient: pregnant women regardless of parity

Intervention: antenatal perineal massage in last 4 to 6 weeks before delivery

Control: no perineal massage

Outcome: *primary:* risk of perineal tears, incidence of episiotomies. *Secondary:* duration 2nd stage labour, perineal pain, wound healing, urinary and fecal incontinence reported within 3 months post-partum

Statistics

Statistical [heterogeneity](#) (variability) of the studies was assessed with I^2 . When $I^2 \geq 50\%$ = indication of high heterogeneity. This means that the populations, samples or results are different. In that case a sensitivity analysis was done. In this blog I will report only the results of the outcome if heterogeneity was low. Otherwise I will report the results from the sensitivity analysis (all other data are in the original article). Dichotomous data (two possible answers) are pooled as risk ratio's (RR) and continuous data as mean difference (MD).

What did they find?

The results (Table 1) are based on 11 randomized controlled trials with in total 3467

women. The quality of the studies was moderate to high.

Table 1. Results of perineal massage

OUTCOME	RESULTS	EFFECT
Perineal tears (9 studies, n=1631)	2 studies excluded, $I^2=20\%$, $RR=0.90$, $p=0.03$ Subgroup analysis - Significant reduction in incidence 3 rd and 4 th degree perineal tears, $RR=0.36$, $p=0.03$ No significant difference for 1 st and 2 nd degree tears	Significant
Episiotomy (11 studies, n=1711)	$RR=0.79$, $p<0.001$	Significant
Duration 2 nd stage labour (8 studies, n=685)	2 studies excluded, $I^2=34\%$, $MD=.06$, $p=0.005$	Significant
VAS perineal pain (2 studies, n=80)	1 study excluded, $I^2=0\%$, $MD=-2.29$, $p<0.001$	Significant
Wound healing (2 studies, n=80)	1 study excluded, $I^2=0\%$, $MD=-1.47$, $p<0.001$	Significant
Anal incontinence (2 studies, n=78)	1 study excluded, $I^2=0\%$, $RR=0.30$, $p=0.003$	Significant
Urinary incontinence (n=3)	$RR=0.90$, $p=0.27$	Not significant
RR= risk ratio, MD= mean difference.		

What does this mean?

Antenatal perineal massage is **protective** for:
1. perineal tears, especially 3rd and 4th degree tears, and 2. Episiotomy and 3. The duration of 2nd stage labour is shorter. As you can see Table 1 reports more variables. However I will not discuss these results because of the low number of studies and subsequent low number of participants in the analysis.

There is one thing that I am really curious about and that is if there is a difference in results between primi- and multiparous women. That would be interesting research for the future.

I think we should advise our patients or clients to do a regular perineal massage before delivery. There might be several barriers for women to do a perineal massage like: not comfortable to touch herself, not being able

or difficulty to reach the perineum because of the growing belly or the hands and arms getting tired from massaging because they are not used to do this. We as experts in the field can discuss these barriers and together with the women try to find a solution. The next step is to provide the women with information on the technique. [The National Health Service \(NHS\) has a nice leaflet](#) on perineal massage and I like [this YouTube](#) film. It shows the different massage techniques that can be applied. There is no consensus on when to start with perineal massage but often it is recommended to start between 32 and 36 weeks of gestation. The advised frequency of the perineal massage ranges from daily to a few days per week for a duration of 5 minutes.

Reference:

Abdelhakim AM, Eldesouky E, Elmagd IA, Mohammed A, Farag EA, Mohammed AE, Hamam KM, Hussein AS, Ali AS, **Keshta NHA**, Hamza M, Samy A, Abdel-Latif AA [Antenatal perineal massage benefits in reducing perineal trauma and postpartum morbidities: a systematic review and meta-analysis of](#)

[randomized controlled trials](#). *Int Urogynecol J*. 2020 Sep;31(9):1735-1745. doi: 10.1007/s00192-020-04302-8. Epub 2020 May 12. PMID: 32399905



Is it wise to advise women to start exercising at 6 weeks post-partum?

Can I start exercising again? This is a question early post-partum women regularly ask. A very good question. But what is the right answer? What will be the effect on the pelvic floor muscles or will it provoke pelvic organ prolapse? The research I will discuss today will help you give an evidence based advice.

Research question

What is the effect (at 12 months post-partum) of exercise started early post-partum (6 weeks) on:

1. Pelvic floor muscle strength
2. Pelvic floor muscle endurance
3. Stress urinary incontinence
4. Pelvic organ prolapse
5. Anal incontinence

For this study healthy, nulliparous women with a singleton pregnancy were included. Vaginal resting pressure, pelvic floor muscle strength and endurance (participants learnt how to contract the pelvic floor muscles by vaginal palpation) were measured.

Women were considered an exerciser if they were training 3 or more times per week with a duration of 30 or more minutes starting at 6

weeks post-partum. (strolling was not considered as exercising).

Results

In total 281 women included of which 86 (31%) were classified as an exerciser (of which 5% were high-impact exerciser like running and jumping, ≥ 3 x per week ≥ 30 minutes) and 195 (69%) non-exerciser. The mean age was 29 years.

At 12 months post-partum 104 women were excluded or lost to follow-up leaving 177 for analysis. 32.2% were exercisers and 67.8% were non-exerciser. The lost to follow up women only differed significantly with the remaining women regarding exercising the pelvic floor muscles. The remaining women in the study performed pelvic floor muscle exercises ≥ 3 times per week in 42% of the cases and the lost to follow up in 28% ($p=0.03$).

(AI not included in the results because of very low numbers $n=2$)

Main outcome between exercisers and non-exercisers at 12 months post-partum

- Vaginal resting pressure
- Pelvic floor muscle strength
- Pelvic floor muscle endurance
- Stress urinary incontinence
- Pelvic organ prolapse

No statistical differences

Risk factors

- Women with a BMI between 25 to 29.9 are twice as likely to report symptoms of stress urinary incontinence at 12 months post-partum
- Women with a BMI >30 are three times as likely to report symptoms of stress urinary incontinence at 12 months post-partum
- Women with heavy work are three times more likely to report symptoms of pelvic organ prolapse

!! No negative impact on pelvic floor muscle function and symptoms of stress urinary incontinence and pelvic organ prolapse of general exercise started at 6 weeks post-partum!!!

However: more research is needed to predict the impact of high impact exercise.

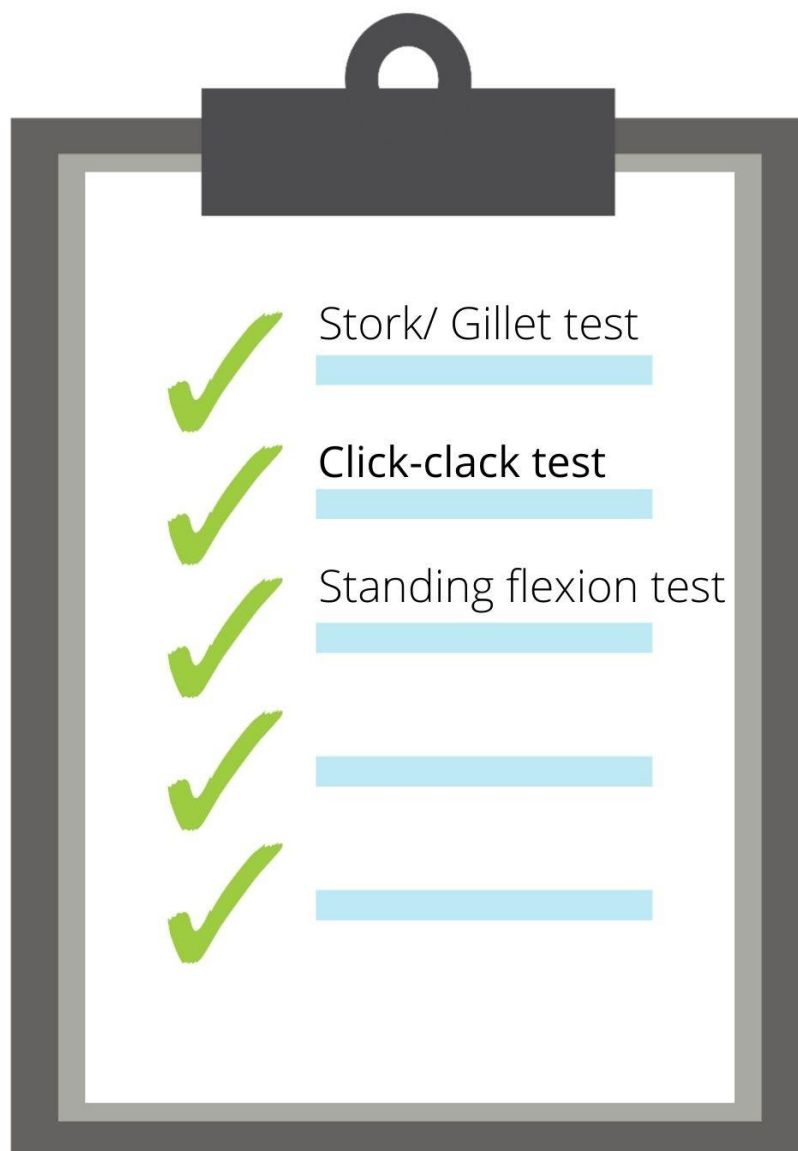
Bottom line

When a patient at 6 post-partum asks me if she can start exercising again I will tell her that it is alright to start. However, we don't know the impact of high-level exercise like running and jumping on the pelvic floor muscles and pelvic organ prolapse. Therefore I would recommend to start with lower level exercise and start training the pelvic floor muscles to provide good support. Once the pelvic floor is in shape the exercises can gradually increase in intensity.

Reference:

Tennfjord MK, Engh ME, Bø K. **The Influence of Early Exercise Postpartum on Pelvic Floor Muscle Function and Prevalence of Pelvic Floor Dysfunction 12 Months Postpartum.** Phys Ther. 2020 May 4;pzaa084. doi: 10.1093/ptj/pzaa084.

tests





Are sacroiliac joint mobility tests reliable?

In daily practice sacroiliac joint pain is a common complaint. There are two types of tests to either 1. provoke pain or 2. test dysfunction/mobility of the sacroiliac joint.

Up until today there is no consensus whether there is actually sacroiliac joint movement. Some 20 years ago some systematic reviews on the reliability and validity of sacroiliac joint mobility tests were published. They showed that the tests were not reliable or valid.

In the meantime new tests have been developed and the systematic review I will discuss today has the aim to update the previous systematic reviews. Are the recommendations still in place?

METHOD

For this systematic review the Preferred Reporting Items for Systematic Reviews and Meta-analysis (PRISMA) guidelines were followed. Studies reporting on clinimetric properties of sacroiliac joint mobility tests which can be used in daily practice were included. The tests had to be tested on; adults with non-specific low back pain, pelvic girdle pain and/or sacroiliac joint pain.

The Consensus-Based Standards for the Selection of Health Measurement Instruments (COSMIN) was used to assess quality of the studies. With the COSMIN you can score for instance reliability, content validity, structural validity, criterion validity and responsiveness. Each item is scored on a 4 point scale: excellent, good, fair and poor. In this systematic review they only selected studies with a fair or higher overall quality score were considered for data extraction.

The measurement properties of the tests werein a best evidence synthesis. This is based on the adjusted Grades of Recommendation, Assessment, Development and Evaluation Working Group (GRADE Working group).

RESULTS

Twelve studies were included and assessed. Eleven studies described the reliability and two the validity of sacroiliac joint mobility tests. Reliability, validity definitie

Three reliability studies were of fair methodological quality and therefor included. All three reported on inter-tester and two on intra-tester reliability. The reliability of eight

mobility tests were described and one of a cluster of four.

Which tests are we talking about (some have links to YouTube films):

1. Click-clack test. The patient is sitting upright on the bench. The patient moves from lordosis to kyphosis in the lumbar spine. The examiner palpates the speed of each Posterior Superior Iliac Spine (PSIS). The test is positive if one of the PSIS moves slower from cranial to caudal.
2. [Standing flexion test](#)
3. [Seated flexion test](#)
4. [Gillet test](#)
5. [Prone knee flexion test](#)
6. Heel-bank test. The patient is sitting upright on the bench. The patient raises one knee and places the heel on the bench without using the hands. The ability to raise the leg is scored on a 5-point scale.
7. Abduction test. The patient is in side-lying. Both hips and knees are flexed. The patient is asked to lift to top leg 20 cm in abduction. The ability to lift the leg is scored on a 5-point scale.
8. Thumb-posterior superior iliac spine (PSIS) test. The patient is sitting upright on the bench. The arms are crossed. The examiner palpates PSIS. The position of the PSIS is scored.

The authors classified the **level of evidence as low (inter-tester reliability)**. This is due to the fact that of each test only one study was well enough performed (fair) to be included in the systematic review. The exception was the Gillet test. But for the Gillet test the level of evidence was inconsistent.

The study examining the cluster of the Gillet test, standing flexion test, seated flexion test and the prone knee flexion test showed higher

reliability (fair to moderate agreement for four positive tests). But we have to keep in mind that this is *based on only one study*.

Clinical implication for (pelvic) physiotherapists

The review I have discussed today hasn't found validity studies with at least a fair methodology. However, the authors hypothesise that palpation of sacroiliac joint mobility might be impossible because:

1. The motion of the sacroiliac joints is very very small
2. Variation in anatomy of the sacroiliac joint
3. Soft tissue might distort palpation accuracy

This systematic review is an update of a 20 year old systematic review. **It confirmed that there is no need to adjust the present recommendation not to use sacroiliac joint mobility tests in clinical practise.**

My personal opinion

Besides the recommendation not to use these tests and the knowledge that sacroiliac joint mobility cannot be tested clinically I would also like to state that it is very important that physiotherapists use the right words in communicating with the patient. So for example don't use words like: stiff, limited or mobility because this just cannot be tested.

Reference:

Klerx SP, Pool JJM, Coppieters MW, Mollema EJ, Pool-Goudzwaard AL. [Clinimetric properties of sacroiliac joint mobility tests: A systematic review](#). Musculoskelet Sci Pract. 2019 Nov 9:102090. doi: 10.1016/j.msksp.2019.102090. [Epub ahead of print]



Gait characteristics of women with pelvic girdle pain

Part of the assessment of pregnant women with pelvic girdle pain is the 'gait analysis'. Today's research provides us, in my opinion, with a good view on gait in pregnancy.

Why did they do this study?

This research was performed in order to add to our knowledge of gait in the 2nd trimester of pregnancy. (Besides gait also trunk, pelvic, and hip kinematics were researched, which I will not discuss in this blog).

How was the research executed?

Three groups were compared; 1. pregnant women with pelvic girdle pain (n=25), 2. pregnant (a-symptomatic) women without pelvic girdle pain (n=24) and 3. non-pregnant women (n=24).

Inclusion criteria

Pregnant women:

- No-risk pregnancy
- < 27 weeks of gestation

Pelvic girdle pain group:

- Posterior pelvic pain between christa iliaca and gluteal folds
- Onset in current pregnancy
- Positive posterior pelvic pain provocation test (P4)
- Active straight leg raising test (ASLR) > 0

Measurement

Pelvic girdle pain group:

- Pelvic girdle pain questionnaire (PGQ)
- Numeric rating scale for pain intensity (NRS)
- Fear of movement (Tampa scale, 1 question)
- (most) painful side = test side. In case pain is equal on both sides test side was randomly selected by a coin toss)

All groups:

- Biomechanical testing (markers on specifical anatomical landmarks) (gait cycle and influence on trunk, pelvic and hip kinematics)

- Pregnant and non-pregnant women without pelvic girdle pain. Test side selected by a coin toss.

Testing was executed barefoot at the women's own speed. They did four repeated gait trials. The results were also adjusted for speed. The correlation between mean gait speed and 1. fear avoidance, 2. PGQ score, and 3. pain intensity (NRS) was calculated.

What are the results?

Pelvic width: no difference between pregnant women with or without pelvic girdle pain

Pelvic girdle pain group:

- PGQ varied between 10-73%, pain intensity 0-7, fear of movement 1-10 and ASLR sum score 1-8 (32% of women ASLR >4).
- Mean gait speed correlated negatively with fear of movement (speed lower, fear of movement higher) and disability measured with PGQ and

there was no significant correlation with pain intensity.

Pregnant women with pelvic girdle pain compared to asymptomatic pregnant women have:

Figure 1: explanation of gait parameters

- 18% slower gait speed, longer cycle time (9%)
- Longer stance time (12%)
- Shorter step length (ipsilateral 9%, contralateral 11% - 10% shorter stride)
- Longer double limb support (10%) (bodyweight is supported by two legs, for instance toes left foot and heel right foot)
- (Less pelvic and hip movement)
- (Greater side to side movement of the trunk)

When adjusted for speed:

- Shorter contralateral step length and double limb support remained significantly different. A woman with pelvic girdle pain has a shorter stance phase on painful side.

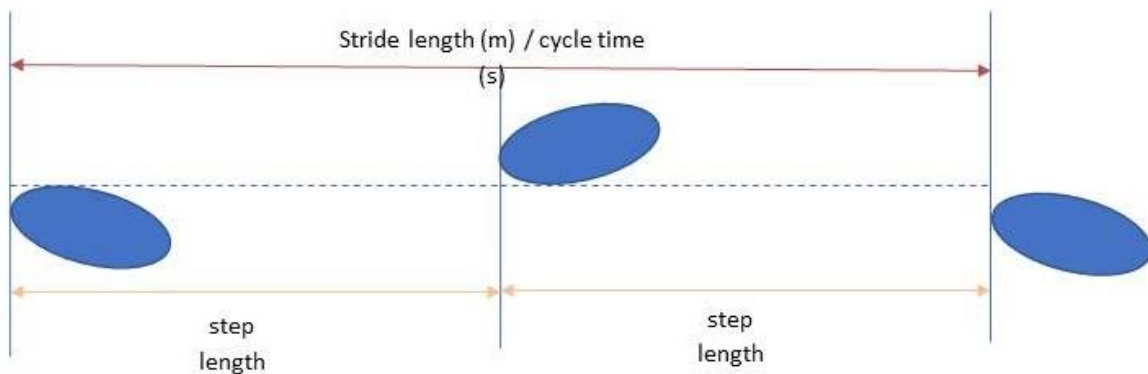


Figure 1: gait parameters

Between asymptomatic pregnant and non-pregnant women

Figure 2: gait cycle

- Stance time (s), stance phase (%of gait cycle) and double limb support significantly different.

- Less forward rotation of ipsilateral

thorax in pregnant women.

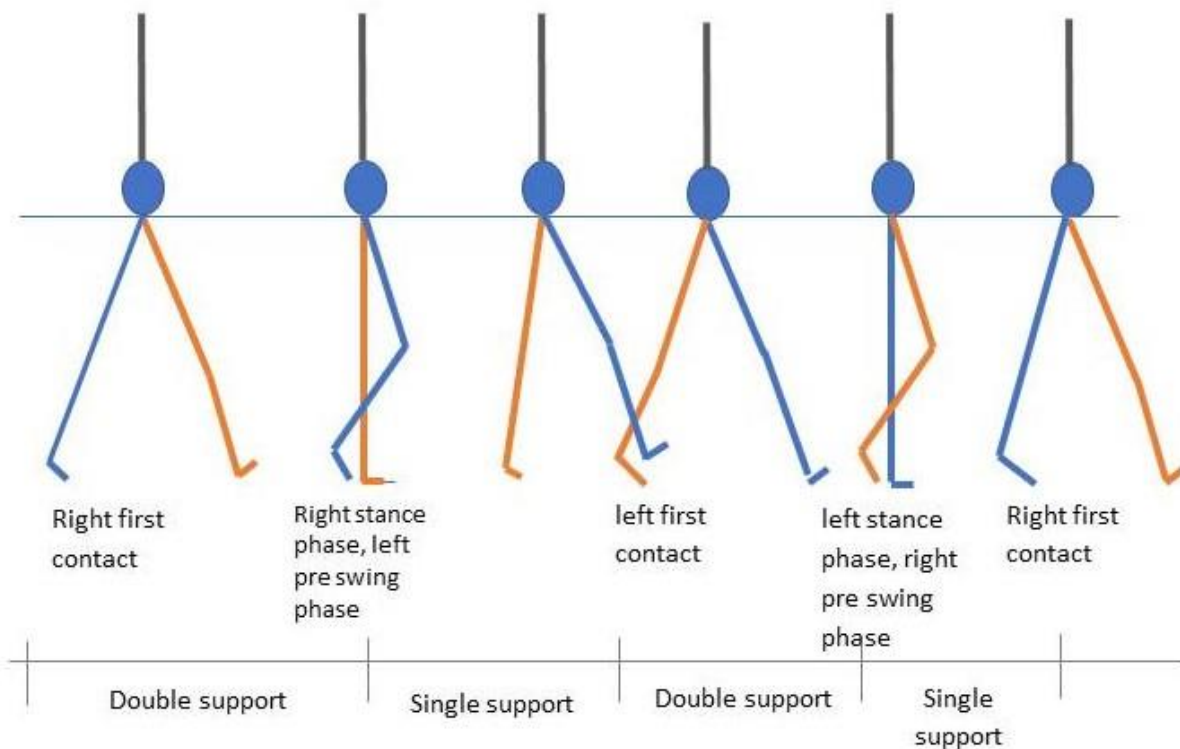


Figure 2: gait cycle

Clinical implications for the (pelvic) physiotherapist?

The authors hypothesize that the effect of the longer double support when walking reduces load transfer because the single stance time is shorter. This results in the shorter contralateral (on the least painful side) step length is shorter. This might mean that weight bearing on the painful side is weakened. Speed between asymptomatic pregnant and non-pregnant women differed not significantly. However, stance time and double limb support in asymptomatic pregnant women was significantly increased compared to non-pregnant women.

Biopsychosocial factors might influence gait as women with pelvic girdle pain were more afraid to move and had a higher PGQ score. Pain intensity played no part.

In this research women with ASLR>0 were included in the pelvic girdle pain group. I am curious to see whether there are differences between pregnant women with ASLR <4 and those with an ASLR ≥4.

In the next blog I will discuss research on the kinematics of the 'stork test' in pregnant women.

Reference:

Christensen L, Veierød MB, Vøllestad NK, Jakobsen VE, Stuge B, Cabri J, Robinson HS. Kinematic and spatiotemporal gait characteristics in pregnant women with pelvic girdle pain, asymptomatic pregnant and non-pregnant women. Clin Biomech (Bristol, Avon). 2019 Aug;68:45-52. doi: 10.1016/j.clinbiomech.2019.05.030. Epub 2019 May 23.



The Stork test in pregnant women with pelvic girdle pain

In this blog I will discuss research on the Stork (Gillet) test in pregnant women with pelvic girdle pain. After reading this blog you will know 'why' the Stork test is not an appropriate test to evaluate trunk, pelvic and hip movement in pregnant women. You will also learn of some interesting observations regarding movement.

Why did they do this research?

In a previous blog I discussed research on the difference between the 'gait pattern in pregnant women with pelvic girdle pain and asymptomatic pregnant and non-pregnant women'. The results from that study showed that pregnant women with pelvic girdle pain walk slower with a shorter step length and with a significantly longer double limb support. That means that the single leg stance time is shorter. It was hypothesised that this might be due to a change in load transfer in the lumbo-pelvic hip region.

So, although it is known that the Stork test is not a good test to assess the mobility of the sacroiliac joint this might be different in the pregnant population due to anatomical changes?

The aim of this study was to investigate the influence of pelvic girdle pain in pregnancy (2nd trimester) on trunk, pelvis and hip movement during the Stork test.

How did they do this research?

I have described the Inclusion criteria for this study in a previous blog.

Stork test: patient lifts one leg up to 90° flexion of the hip at their own speed.

The first 4 tests in which the participant stood on one leg (single leg stance) were analysed. The test side (standing leg) for pregnant women with pelvic girdle pain was the (most) painful side.

For the analysis 25 pregnant women with pelvic girdle pain, 23 asymptomatic pregnant women and 24 healthy controls were evaluated.

What did they find?

1. Pregnant women with pelvic girdle pain had 2.1° less hip adductions

when compared with asymptomatic pregnant women (significant) (between groups).

2. Within every group the differences between women were large.
3. The 4 repetitions of the Stork test each woman was asked to perform showed small variation.

What does this mean?

The results show very small and few differences between pregnant women with pelvic girdle pain and asymptomatic pregnant women. Therefore it is unlikely that we can detect this very small difference visibly.

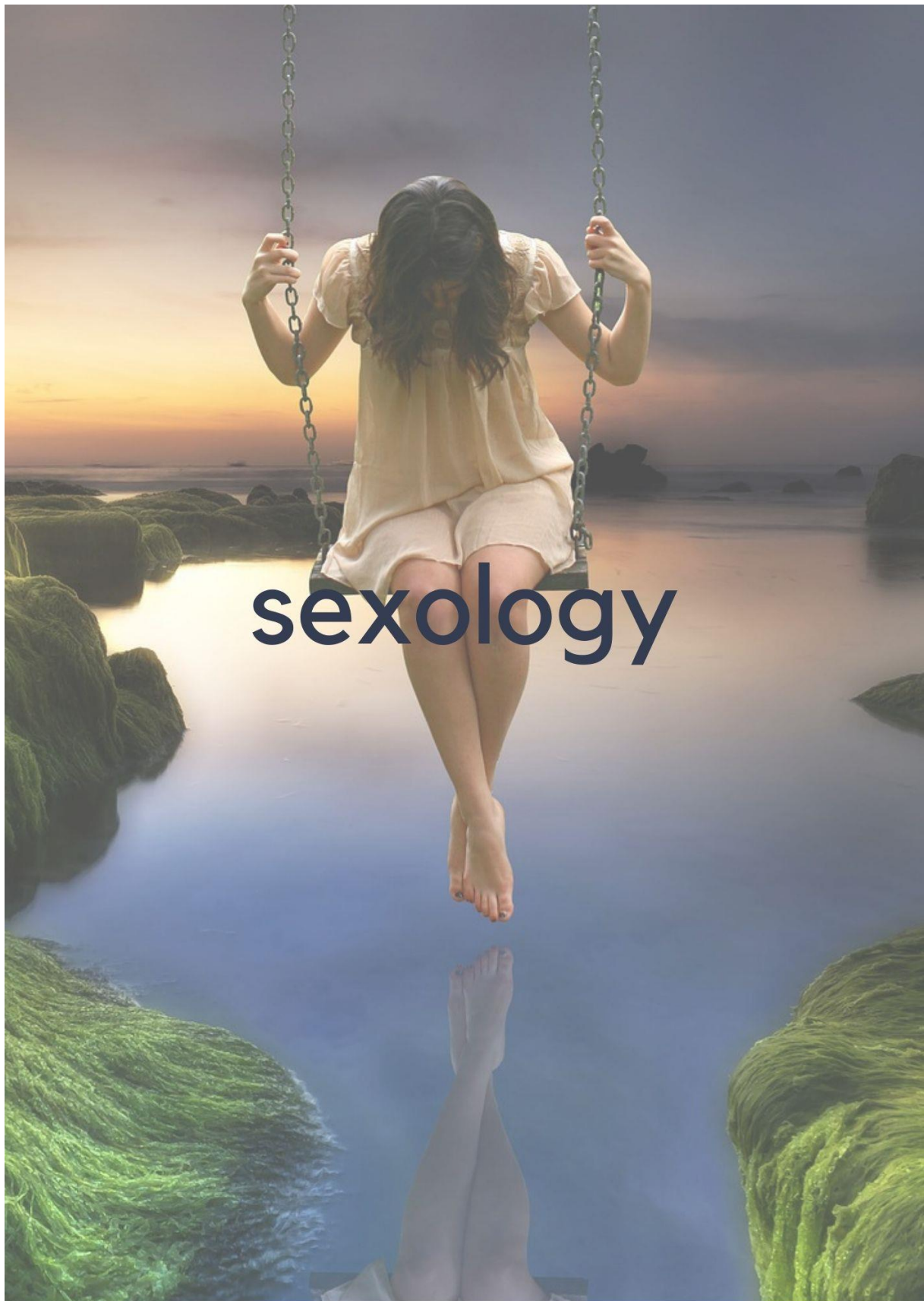
This research also showed that women in all three groups varied greatly in movement pattern. Some women would lift their leg quickly and others more slowly. So if a pregnant woman with pelvic girdle pain lifts her leg slowly this might not be because of her problem but just because that is the way she is used to perform this task pregnant or not. Of course speed of performing the Stork test

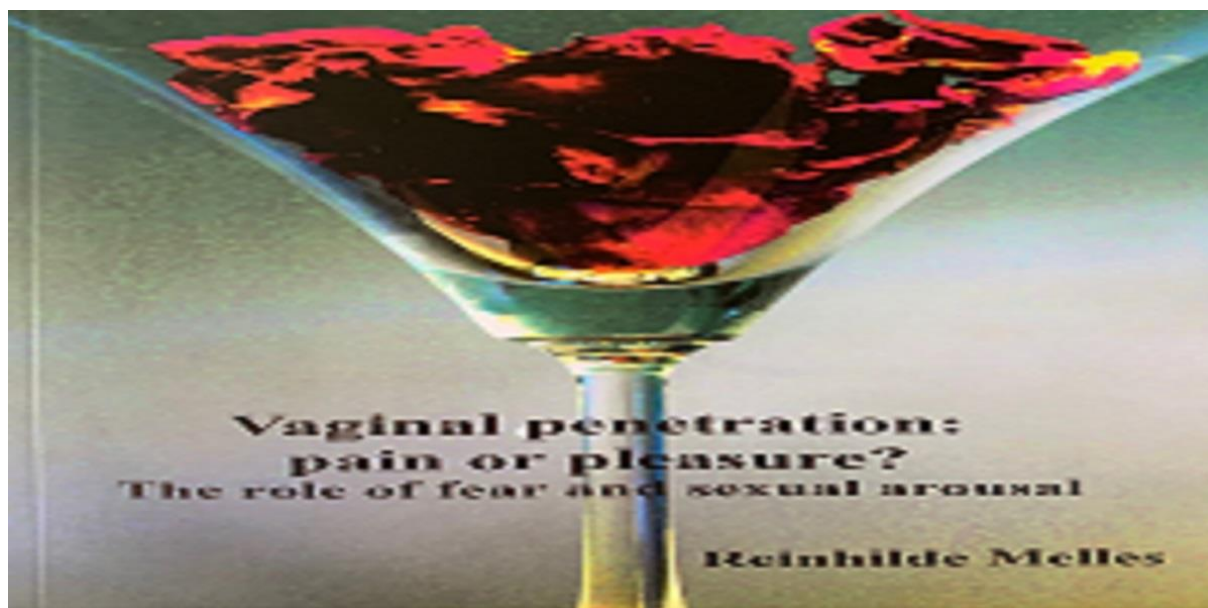
might influence trunk, pelvic and hip movement.

So, the shorter single leg stance time of pregnant women with pelvic girdle pain reported in the gait analysis cannot be explained with the Stork test (static test).

Reference:

Christensen L, Vøllestad NK, Veierød MB, Jakobsen VE, Stuge B, Bakke ES, Cabri J, Robinson HS. [Trunk, pelvic and hip kinematics during the Stork test in pregnant women with pelvic girdle pain, asymptomatic pregnant and non-pregnant women](#). Clin Biomech (Bristol, Avon). 2020. Volume 80, December 2020, 105168.





Lifelong vaginismus

Fantastic results with exposure therapy

Exposure therapy for women with lifelong vaginismus has the aim to overcome fear of vaginal penetration not only for the penis but also for fingers and tampons. The results are amazing with a success rate of 90% within two weeks.

This blog is based on an interview with Reinhilde Melles. She is a clinical psychologist and sexologist at the Maastricht University Medical Center (MUMC+). Reinhilde recently obtained her PhD on: 'Vaginal penetration: pain or pleasure? The role of fear and sexual arousal.

Pelvic physiotherapists know that the pelvic floor muscles can tighten as a response to fear. Therefore it is important to consider what the women are feared of and help them to get used to the relaxation of the pelvic floor muscles and learn how to relax them.

Explanation of the exposure therapy for women with lifelong vaginismus:

We schedule three exposure sessions within one week. The first exposure session takes three hours and the other two take two hours each. The partner is always present during the exposure sessions.

Women who are traumatized or with post-traumatic stress disorder related to the genitals or sexual abuse are excluded. They need another therapy, also exposure but a lot more slowly and fully clothed. If there is a medical reason for the vaginismus the women are excluded as well. However, women with vaginismus due to a medical reason can profit from this therapy. Because relaxation of the pelvic floor muscles is necessary to enable gynaecological examination.

In the first session the woman learns how to relax her pelvic floor muscles. The partner of the woman is standing behind the woman. The sexologist is standing near the head of the woman to support her. It is important to note that the woman is in charge all the time.

The woman is in a semi-reclined position on the treatment couch and made comfortable and supported with a lot of pillows to prevent tension in her legs and neck. Then we ask her to spread her legs and look in the mirror which is standing between her legs. Ofcourse the woman gets a lot of information and education about the anatomy to learn what she is looking at.

The therapy starts with abdominal breathing exercises. When she is able to breathe through her abdomen she is asked to contract and relax the pelvic floor muscles. This is examined by visual inspection in the mirror. The exposure therapy does not proceed before the woman can relax the pelvic floor muscles and remain relaxed. This takes usually over half an hour.

During the next step the woman places two fingers just beneath the introitus on the perineum to feel the contraction and relaxation. We give her a lot of instructions how to relax her pelvic floor muscles until the woman has learned to feel the difference between a tightened and relaxed pelvic floor muscles in combination with touching herself.

Then she continues while using a lot of lubricants to insert the top of her finger in the introitus and remain there, followed by one finger totally, two fingers, three fingers and dilators in different positions. This is all done very gradually in three hours. It is important not to go too fast because it is our experience that than it is more difficult to reach a good relaxation. When a woman tightened up her pelvic floor muscles, which is a response to fear, she is not allowed to remove her finger to prevent avoidancy. She has to overcome her fear by graded exposure as well as relaxation of the pelvic floor muscles.

All women can insert one or two fingers in the first session. Most of the women only need 1½

session in total. The third session is hardly used.

The woman always starts with her own fingers because in that way she gets biofeedback. When we start, all women have catastrophizing thoughts; that they don't have space, that it will be painful, that the penis will not fit etc. All these negative cognitions contribute to the tightening of the pelvic floor muscles. Women have to discover themselves how it feels to insert the vagina, the pelvic floor and the softness and flexibility of the vaginal tissues. Our research clearly show that to change these negative cognitions, it is very important that the woman feels that she has enough space in her vagina and that the vaginal sensations are not painful. By therapist-aided exposure these negative associations changed a lot during the first session.

In case inserting the finger is painful, we ask the woman to feel if the pelvic floor is still relaxed. If not, we continue with training the relaxation of the pelvic floor muscles. We also check if there is still enough lubricant (we use a lot of it). We use silicon based lubricants because water based is already dry before you start. If she still experiences pain we ask the woman to explore and ask if it is really the pain she is feeling or memories of pain. Because when women have experienced a lot of pain in the past, this might be in her head and is being triggered. Research has showed that those women appraise normal vaginal pressure as pain. That they cannot differentiate between normal vaginal pressure and pain. We are continually reappraising the cognitions by the experiences. Another technique we ask is to compare this pain with the most severe pain she has ever had in her life. For instance if she has broken a bone or something like that. Is it really pain she is feeling or might it be that she is not used to this feeling.

Before therapy starts the couple makes a deal that they have to practice at home, to prevent avoidancy. The home exercises are very important. After the exposure therapy session the couple has to repeat the same exercises at home. . They have to do the exercises together at least once or twice a day. She can also do the exercises the second time on her own. Practicing at home can be more fearful but the partner is also there to support her and they can phone the sexologist if they might experience any troubles. However, this hardly happens. This contributes to the feeling of safety. The results of the first session show that the negative cognitions and fear have diminished a great deal or even vanished.

In the second session we discuss troubles she might have encountered, but we start quickly with the exercises. We practice different attitudes, positions and continue with different sizes of dilators and tampons and if they wish a vibrator.

After the first session, we encourage the couple to start practicing to vaginally insert the finger(s) of the partner at home. Therefore, we give them a lot of advices, information and tools how to do that and to encourage the woman to guide the man in telling what to do and what not to do. Because we know from research that if the man is pushing the woman too hard, the genital pain increased. But also when the man is too caring and too anxious they also reinforce the pain as well as fear and avoidance behaviour

Intercourse is practiced at home step by step. So they start with touching the introitus with the fingers of the partner, followed by the tip of the penis and continue on gradually. When they start with penetration with the penis, depends on the couple, mostly after the second session.

The results are amazing with a success rate of 90% within two weeks. The women in the trial were the most complicated cases with an average of 10 years of complaints. Most of these women had a mean of two previous other unsuccessful treatments.

There has been a lot of discussion with the Dutch scientific society for sexology, the gynaecologists and so on about this treatment. They thought we were pushing the women in this therapy, that they had sex in our laboratory (which wasn't true ofcourse). Nowadays this treatment is really accepted by the society of sexology in the Netherlands and also in California (USA) they have just started a clinic. We have trained a multi-disciplinary team there. It is our wish that every couple can have this therapy.

Heidi: I am a pelvic physiotherapist and when I think about teaching women how to train or relax the pelvic floor, I think that is pelvic physiotherapy. What is your opinion on collaborating in treating these women?

Reinhilde: pelvic physiotherapists have a lot of knowledge about the pelvic floor muscles. However, there is one concern in treating women with lifelong vaginismus. We are talking about fear and fear response in these women. The sexologist/psychologist is educated to deal with fear of the women and their partners. I think that for a small group of women it is simple 'just vaginismus' and then the pelvic physiotherapist can contribute. But the couples I see have other issues related to fear and I think they really need to be treated by a sexologist/psychologist.

But the pelvic physiotherapist can adapt this treatment for women who are not that problematic, more simple. For instance, by offering more therapy (exercise) sessions within one week. Because this will decrease fear and prevent avoidance. Another tip is to

have the woman insert her own finger during treatment and not the therapist is doing the investigation.

Up to now we have discussed the treatment of lifelong vaginismus. Another interesting topic is the importance of sexual arousal to prevent genital pain. The sexologists commonly say that increasing sexual arousal in women is important to prevent or overcome genital pain. However this was not evidence based. Therefore Reinhilde developed an instrument in which internal vaginal pressure can be applied in combination with sexual stimuli in a private situation. The device is called the Vaginal Pressure Inducer (VPI). Image 1; shows the uninflated VPI and image 2; an inflated VPI. The VPI is filled with lukewarm water (body temperature).

In this research healthy (non-vaginistic) women were shown four movies: two sexual

movies (one high arousing female friendly pornographic movie, one erotic) and two non-sexual movies. The VPI was inflated during these movies. Women had to answer a lot of questions on emotions after the film. This is the first research showing that sexual arousal really improves the pleasantness of vaginal pressure. The women also reported that vaginal pressure is an exciting stimulus in the context of sexual arousal.

The research Reinhilde did on the topics we discussed and other studies related to this topic, are gathered in her book: Vaginal penetration: pain or pleasure? The role of fear and sexual arousal. The PDF of the book is available for free.

Just send an email to:
Reinhilde.melles@mumc.nl



Image 1; uninflated VPI



Image 2; inflated VPI



Vestibulodynia

Physical therapy is best treatment

Again great research from our Canadian colleagues. This time I will discuss their randomized controlled trial on the efficacy of physical therapy in women with provoked vestibulodynia compared to the application of overnight topical lidocaine.

First I will give a very short introduction with links to other articles for those of you who want to go deeper into this topic. Then I will discuss the research methodology with the results followed by the clinical implications of the results for the pelvic physical therapist*.

*pelvic physical therapist= physical therapist with education regarding pelvic region, pelvic floor dysfunctions.

Symptoms of [provoked vulvodynia](#) are: [pain when pressure](#) is given at the vulvar vestibule and/or during penetration. The cause of this chronic condition is uncertain and it does not respond well to pain medication like for instance tricyclic antidepressants. At the moment 5% lidocaine administered locally overnight is often prescribed. However pelvic

physical therapists also treat women with provoked vestibulodynia with a variety of

treatment modalities like: pelvic floor exercises, dilation, relaxation and education (pain management).

Why did they do this study?

Up to now there was no randomized controlled trial on the effect of pelvic physical therapy for the treatment of provoked vestibulodynia. However, smaller (pilot) studies showed promising effects. Therefore they did this randomized controlled trial to determine the efficacy of physical therapy in women with provoked vestibulodynia compared to overnight topical lidocaine.

How was the research executed?

Population:

- Nulliparous women (n=212)
- Aged 18 – 45

- >6 months of pain during sexual intercourse (pain intensity, NRS ≥ 5)
- Diagnoses confirmed by gynecologist

Main exclusion criteria:

- Other urogynecological/ vulvar pain conditions

- Physical therapy/ overnight lidocaine before
- Medical conditions that might disrupt study procedure

Interventions:

Pelvic physical therapy (n=105)	Lidocaine (n=107)
10 weeks	10 weeks
1 hour session - 20-25 minutes manual therapy: desensitization, stretching, myofascial release and more - 20 minutes pelvic floor muscle exercises to improve relaxation - education on chronic pain management, sexual functioning	5% ointment on vestibule area (bedtime) + gauze with ointment (marble size/small) at vestibule area with continuous contact (≥ 8 hours)
Home exercise program with pelvic floor muscle contractions, dilator and vestibule tissue mobilization	Weekly phone calls

Outcome:

Measurement at: baseline, post-treatment, 6 month post-treatment

Primary outcome:

- Average pain intensity during intercourse (NRS: 0= no pain, 10=worst possible pain)

Secondary outcomes:

- McGill-Melzack pain questionnaire (MPQ)
- Female Sexual Function Index (FSFI)
- Female Sexual Distress Scale (FSDS)
- Satisfaction with treatment (0=completely dissatisfied, 10=completely satisfied)
- Adherence to treatment
- Side effects

What are the results?

Primary outcome: both groups significant reduction in pain. Physical therapy significantly better (baseline NRS: 7.3, post-

treatment: 2.7, 6 months post-treatment: 3.0) than lidocaine post-treatment and 6 months post-treatment (baseline: 7.3, post-treatment: 4.5, 6 months post-treatment 4.8).

Secondary outcomes: both groups improved significantly for all outcomes. However, the physical therapy group showed significantly better results regarding pain intensity, quality and sexual function and distress. This result remained at 6 months post-treatment.

Treatment satisfaction was significantly higher in the physical therapy group (post-treatment: 8.9, 6 months post-treatment: 8.5) compared to the lidocaine group (post-treatment: 5.6, 6 months post-treatment 5.2).

Adherence: treatment group (6 drop-outs), other women attended all sessions, home-exercise median 85%. Lidocaine (5 drop outs), median 91%.

Adverse events: physical therapy group: none, lidocaine group: 1 participant: dermatitis an 15% minor irritating or burning sensation.

Clinical implications for the (pelvic) physiotherapist?

The results of this well designed randomized controlled trial confirm that pelvic physical therapy is an effective and therefore important treatment option for women with provoked vestibulodynia. Therefore I think it is important that besides physicians also women with provoked vestibulodynia should be aware of this research and the results.

This research can help physicians by referring patients with provoked vestibulodynia to qualified pelvic physical therapist and pelvic physical therapists in their communication with other healthcare providers on this topic. Important factor is that the pelvic physical therapist is well educated!

The women in the physical therapy group had 10 sessions of 1 hour each so a total of 10 hours. The reimbursement of 10 hours of physical therapy might be an issue. However, I think that it is important to follow the

complete protocol for an optimal, evidence based, result.

This therapy for provoked vestibulodynia is given by physical therapists with experience and education regarding pelvic floor dysfunctions and pain management. In another blog I discuss the great results of treatment of primary vaginismus with exposure therapy, given by a psychologist/sexologist. Of both provoked vestibulodynia and primary vaginismus the etiology is not well understood, however the therapy shows a lot of similarities.

Reference:

Morin M, Dumoulin C, Bergeron S, Mayrand M-H, Khalifé S, Waddell G, Dubois M-F, For the PVD Study Group, [Multimodal physical therapy versus topical lidocaine for provoked vestibulodynia: a prospective, multicentre, randomized trial](https://doi.org/10.1016/j.ajog.2020.08.038), *American Journal of Obstetrics and Gynecology* (2020), doi: <https://doi.org/10.1016/j.ajog.2020.08.038>.



Treatment of dyspareunia in gynecological cancer survivors

In today's blog I will discuss research on the effect of pelvic physical therapy for the treatment of dyspareunia in women who have conquered gynecological cancer. Although this research is a feasibility study, so not a randomized controlled trial with the highest level of evidence, I think it is very interesting. The pelvic physiotherapy treatment the women received consisted of multiple treatments; like education, manual therapy, pelvic floor exercises and home exercises with for instance a dilator. Although the women received twelve, one hour sessions which is a larger number of sessions with a longer duration each than what I am used to in The Netherlands (because of reimbursement), the resemblance is still substantial.

Why did they do this study?

The aim of this study was to **develop** a multimodal pelvic physical therapy intervention and to examine the **feasibility and acceptability** in gynecological cancer survivors. Besides this, the effect on within: pain, sexual function, and treatment satisfaction was also of interest.

How did they do this study?

Inclusion criteria:

- Endometrial cancer or cervical cancer (stage 1 –IV)
- No disease for at least 3 months
- Vulvovaginal pain NRS ≥ 5 (0 – 10) in >80% of sexual intercourse for at least 3 months
- Stable sexual partner
- Willing to try to have sexual intercourse

Exclusion criteria (full list in article):

- Painful sexual intercourse before cancer
- Other form of pelvic pain
- Other pelvic conditions like infection, chronic constipation etc.

Before starting the pelvic physical therapy treatment the eligible women were assessed by a gynecologic oncologist to check if there is no other health condition that could cause the dyspareunia.

Pelvic physical therapy intervention:

Education on for instance: pathophysiology of dyspareunia, hygiene, chronic pain, and relaxation techniques.

Manual therapy techniques like stretching, myofascial release and triggerpoint release.

Pelvic floor muscle exercises with biofeedback with the aim to normalize pelvic floor muscle function.

Home exercises were within: breathing exercises as well as pelvic floor muscle exercises, insertion exercises with a dilator (3 times per week)

(full intervention is described in appendix original article)

What did they find/ results?

31 women were included.

Feasibility: although a very extensive inclusion method was used, inclusion was very slow. The adherence to the home exercises (pelvic floor muscle and dilation exercises) was high with 93% and 83% respectively.

Treatment effects:

- Pain intensity (NRS) – $p=0.001$ (baseline=7.3, post-treatment=1.7)
- Sexual functioning (female sexual function index-FSFI); all domains significant improvement $p=.001$ (Desire $p=.001$, arousal $p=.040$, lubrication $p=.017$, orgasm $p=.044$, satisfaction $p=.001$, pain $p=.001$)
- Frequency of vaginal penetration changed from an average of 1.4 to 3.0 per month ($p=.001$).
- Treatment satisfaction: average=9.3 (0-10)

What does this mean for clinical practice?

Over a 3 year inclusion period health care providers referred 10 potential eligible participants. Fortunately, the researchers used multiple ways to recruit women. They also advertised in newspapers and in public health care facilities resulting in 7 potential participants. The most successful was an opt-out strategy allowing the researchers to contact women who did not actively decline to be contacted.

With an eye on the inclusion flow diagram I wonder if the inclusion numbers above are an indication that questions regarding sexual functioning are not standardized and maybe therefore forgotten to be asked by health care professionals but above all that women need to be asked specifically because few seek help by themselves.

The main message for us pelvic physical therapist is that this study, although not of the highest level of evidence, shows that pelvic physical therapy treatment of gynecological cancer survivors has good results with high treatment satisfaction. But it also shows us that we need to inform women about this treatment option and above all that questions regarding sexual wellbeing need to be addressed by health care providers because women tend to not discuss this topic by themselves!

I look forward to a randomized controlled trial on this topic with also longer term follow-up and a sub analysis to see if the treatment modality women received for their cancer (for instance: brachytherapy, radiation therapy and/or chemotherapy) influences the results.

Reference:

M.P. Cyr, C. Dumoulin, P. Besettte, et al.
[Feasibility, acceptability and effects of multimodal pelvic floor physical therapy for gynecological cancer survivors suffering from painful sexual intercourse: A multicentre prospective interventional study](#), Gynecologic Oncology, 2020 Sep 30;S0090-8258(20)33856-7.doi: 10.1016/j.ygyno.2020.09.001.



Equal treatment effect PFMT with and without EMG

Once in a while new research is published on the effect of electromyography (EMG) as add on to pelvic floor muscle training (PFMT) in the treatment of urinary incontinence. However, the results of these studies are inconclusive meaning that both positive and no effects are reported.

I will discuss today's study because it is well designed and compares 'apples with apples', meaning that the only difference in the intervention between the groups is the extra EMG. After reading this blog you will know why and how the research was designed and above all what the (main) results are and what this means in my opinion.

Why did they do this study?

This study aimed to assess whether pelvic floor muscle training with EMG (EMG group) is more effective than pelvic floor muscle training alone for the treatment of stress or mixed urinary incontinence.

How was this study done?

This is a multicentre (23 locations) randomized controlled trial. EMG group, n=295, pelvic floor muscle training group, n= 298.

Participants: In- and exclusion criteria in Table 1.

Table 1: in- and exclusion criteria

Inclusion criteria	Exclusion criteria
- Women ≥ 18 years	- Urgency urinary incontinence
- Stress or mixed urinary incontinence	- Prolapse > stage 2
	- Unable to contract pelvic floor during digital examination
	- < 1 year ago pelvic floor muscle training by professional
	- Pregnant/ <6 months post-partum
	- Pelvic cancer, neurological disease, cognitive impairment, allergic/sensitive to nickel, participating in other research regarding urinary incontinence

Outcome measures:

- International Consultation on Incontinence Questionnaire-Urinary Incontinence Short Form (ICIQ-UI SF). Score 0-21 (0=no UI, 21=highest severity of urinary incontinence).
- Patient Global Impression of Improvement. One question, 7 response options (1=very much better – 7= very much worse).
- Subgroup analysis: 1. Stress or mixed urinary incontinence, 2. Age <50 or ≥ 50 , 3. ICIQ-UI SF score <13 or ≥ 13 at baseline.

- Pelvic floor muscle function (strength, endurance (number of hold and repetitions)

Measurement moments:

- 6, 12 and 24 months

Intervention. Table 2

Table 2. Intervention both groups
- 6 face-to-face appointments
- Appointment 1= 60 minutes, other= 30 minutes
- Week 0, 1, 3, 6, 10, 15
- Pelvic floor muscle internal assessment
- Individualised pelvic floor muscle training program + home exercises
<i>Extra in EMG group</i>
- EMG use during appointments
- EMG used at home during exercises

What are the results?

1. There was no statistically significant difference between group at 6, 12 and 24 months regarding the ICIQ-UI SF.
2. Subgroup analyses regarding type of urinary incontinence, age, baseline severity of urinary incontinence: no statistically significant difference between groups.
3. Patient Global Impression of Improvement showed no statistically significant difference at 24 months.
4. No differences between groups regarding: maximum muscle strength, contraction endurance and number of repetitions of the pelvic floor muscles.

By the way: these are just the main results. There is a lot more in the original article which is open access. Just use the link and discover the other results☺.

What does this mean for the pelvic physical therapist?

Pelvic floor muscle training with EMG is equally effective as pelvic floor muscle training alone. Therefore, in my opinion, the use of EMG in the treatment plan should not be standard and only be used in specific cases for a specific reason. A reasons to use EMG can be for instance the need to visualise the activity of the pelvic floor muscles, to motivate your patient to contract stronger, for a longer duration and to relax properly afterwards.

There is one thing that I missed reading this article. As described in Table 2 the pelvic floor muscle training was individualised. It consisted of a home trainings program aiming for 3 sets of exercises daily. I assume that both slow and fast contractions are part of the program. However, unfortunately the article does not describe functional training as part of the treatment plan. I think this is a pity because this is a very important part of pelvic floor muscle training in my opinion. And if functional training was a part, I am curious to know if the EMG group did their functional training while using the EMG to see how and when they contracted the pelvic floor muscles during for instance a jump.

Reference:

Hagen S, Elders A, Stratton S, Sergenson N, Bugge C, Dean S, Hay-Smith J, Kilonzo M, Dimitrova M, Abdel-Fattah M, Agur W, Booth J, Glazener C, Guerrero K, McDonald A, Norrie J, Williams LR, McClurg D. et al. [Effectiveness of pelvic floor muscle training with and without electromyographic biofeedback for urinary incontinence in women: multicentre randomised controlled trial](#). BMJ. 2020 Oct 14;371:m3719. doi: 10.1136/bmj.m3719.BMJ. 2020. PMID: 33055247 Free PMC article.

