A literature review on vaginal dilator use

Amy S. Little, DPT, WCS, CLT-LANA[1]

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Abstract

Dilator stretching is often a frequent part of treatment for multiple disorders involving the pelvic floor muscles and it is unknown what the time and duration of dilator use is until patient goals are achieved. This paper looks at studies involving patient use of vaginal dilators with the diagnoses of vaginismus, dyspareunia, and pelvic pain to begin to answer the question. It was determined the recommendations given to UIHC physical therapy patients with these diagnoses change to increase the daily time and frequency of dilator usage.

[1]Rehabilitation Therapy, Physical Therapy, University of Iowa Hospitals and Clinics, Iowa City, Iowa

Introduction

Since the first known definition of dyspareunia in the ancient Raesseum Papyri IV Scrolls Egyptian scrolls,[1] definitions of female sexual dysfunction continue to evolve. Dyspareunia is defined as pain with intercourse, during and/or afterwards. Vaginismus has been defined as involuntary tightening of the pelvic floor muscles when anything is being inserted into the vagina, or is attempting to insert, as the muscle tightness often prevents insertion. The items included in insertion attempts can include cotton swabs, tampons, speculums, digits, sex tools, and self or partner anatomy. More recently, vaginismus and dyspareunia have been combined into a new diagnosis: genito-pelvic pain/penetration disorder.[2] The International Classification of Diseases 10th Revision (ICD-10) code F52.6, gentio-pelvic pain penetration disorder, is defined as a part of a cluster of diagnoses which include sexual dysfunctions.[3] In female patients who have undergone treatment for pelvic cancers including radiation, pain with intercourse is reported in 29-80% of the population.[4,5] In patients without radiation, pain with intercourse is

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Corresponding author: *Amy S. Little, DPT, WCS, CLT-LANA, Senior Physical Therapist, Rehabilitation Therapies, University of Iowa Health Care, 200 Hawkins Dr, 0733 JPP, Iowa City, IA 52242, Phone: 319-356-2663 | Fax: 319-353-7199. Email: amy-little@uiowa.edu*

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reported in 20-73% of women around the world, including 21% of women under the age of thirty.[6,7]

Since 1862, the use of dilator stretching in the field of pelvic floor muscle dysfunction has expanded greatly. Dilator stretching for vaginismus is defined as a technique using a medical device, usually smooth and cylindrical, to desensitize the vaginal canal and pelvic floor muscles, stretch the vaginal canal, promote muscle relaxation, and decrease symptoms of dyspareunia.[8,9] Pelvic floor physical therapy (PFPT) often incorporates dilator stretching. The field of pelvic floor physical therapy was founded in the United States by Elizabeth Noble in 1977.[10] The goals of PFPT are patient-specific and are often focused on normal voiding habits, increased function, and a reduction in pain. Pain reduction includes decreasing pain during or after sexual activity, no or reduced pain with activities of daily living, pain-free menstrual self-cares, and pain-free examinations by other healthcare providers.

The topic of dilator stretching in the female population is important as the prevalence of diagnoses which require dilator usage as a treatment option is growing. Other medical diagnoses which may benefit from dilator stretching include post-cancer care, pelvic pain, vulvar/vaginal dermatosis, bowel and bladder dysfunction, congenital abnormalities, and gender-affirming care; however this list is not exhaustive.

While PFPT is beneficial for patients across the gender spectrum and throughout the lifespan, the scope of this paper includes dilator stretching as a specific portion of treatment in the adult, female population who have been diagnosed with vaginismus. The goals of this literature review include updating the University of Iowa Hospitals and Clinics (UIHC) PFPT treatment practices for patients to ensure recommendations are up-to-date and appropriate for this patient demographic.

Methods

A literature review was completed in 2015 by the author for a presentation to PFPTs on the topic of dilator stretching which produced twenty-four articles. A secondary literature review was performed in 2022 by the same author to include new publications and enhance the robustness of the available literature on dilator use in the physical therapy patient population. Search terms used for this search were (("vaginal dilator") AND (dyspareunia OR vaginismus OR "pelvic pain")). This new search produced 19 articles from PubMed and 8 articles from CINHL.

After reviewing the initial list of articles from 2015 and the articles produced by the new search terms, 32 articles were included in this literature review. [Figure 1] Reasons for removal of articles include duplications, use of dilators outside of the scope of this paper, irrelevant diagnoses, and full articles not being available in English. See Appendix I for more information on search terms used.

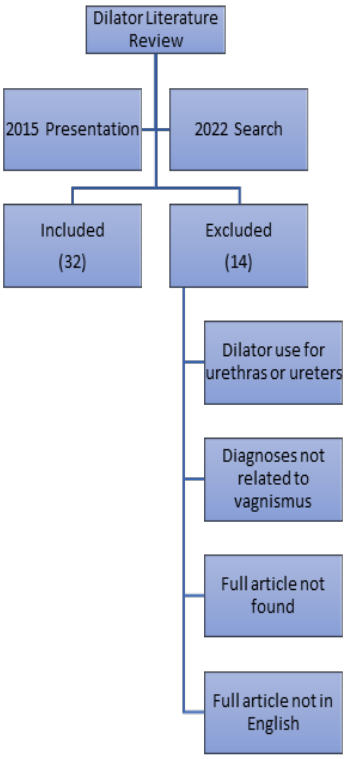

Figure 1: Article Selection

Main Outcome Measures/Goals

There are three main goals of this literature review. The first goal is to continue to provide excellent patient care with an emphasis on evidence-based practice by maintaining and improving on the knowledge of publications and staying up to date on the highest quality of care.

The second goal of this literature review is to refine and update UIHC's Rehabilitation Therapies patient's home exercise programs regarding dilator stretching based on the evidence while always taking each patient's needs into consideration. If changes are made to the current home program recommendations, the changes will likely affect other UIHC departments as well, primarily Urology, Gynecology, and Radiation Oncology. The current home program for dilator stretching recommends the use of the dilators for five to ten minutes every day or every other day with a variety of maneuvers or placements of the dilator, depending on the patients' needs. See Appendix II for the current home program.

A third outcome of this literature review is to review frequently used outcome measures across practices in the research literature to potentially update, change, and/or add to the outcome measures frequently used by UIHC's

PFPTs to ensure a high standard of documentation practices and meet the requirements of different payors. Currently at UIHC, outcome measures used include the Patient Specific Functional Scale (PSFS)[11] [see Appendix III], the Numerical Rating Scale,[12] and the individual goals of the patient and the physical therapist. Several of the referring providers to the UIHC physical therapy use the Pelvic Floor Disability Index (PFDI-20)[13] [see Appendix IV] as it covers bowel, bladder, and prolapse dysfunction but does not address pain or intercourse specifically. A portion of the PFDI-20 (Urinary Distress Inventory-Short Form, UDI-6) was used as an outcome measure in one of the reviewed papers as it was part of the standard intake at the researching clinic and incontinence symptoms are often associated with other pelvic floor dysfunctions.[14]

Results

Diagnoses from these 32 papers were varied but fell into three major categories. The three categories which rose to the surface were patients who received pelvic radiation, patients who had a pain condition (including genito-pelvic pain/penetration disorder), and patients with vaginal agenesis. See Figure 2 for the classification of these diagnoses.

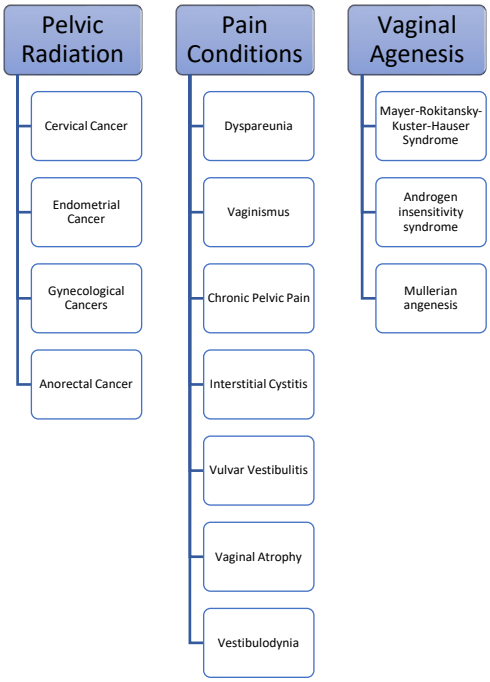

Figure 2: Diagnosis Groups Using Dilators

Authors of these 32 papers also fell into three major categories. The categories were papers written by psychologists (10), papers written by physicians (15), and papers written by physical therapists (7). The majority of the physicians were gynecologists and several of these authors were practicing in the specialty of Gynecological Oncology. Some papers were co-authored by multiple disciplines, and one was written by nurses.

Dilator styles varied in the literature and included items found at home, items found in the clinic, and dilators purchased or supplied specifically for this use [See Figure 3]. Qualitative studies suggest patients should choose the type of stretching they are the most comfortable with to increase the frequency in which stretching occurred independently.[15,16] Easy access to dilators also increased success rates.[17,18]

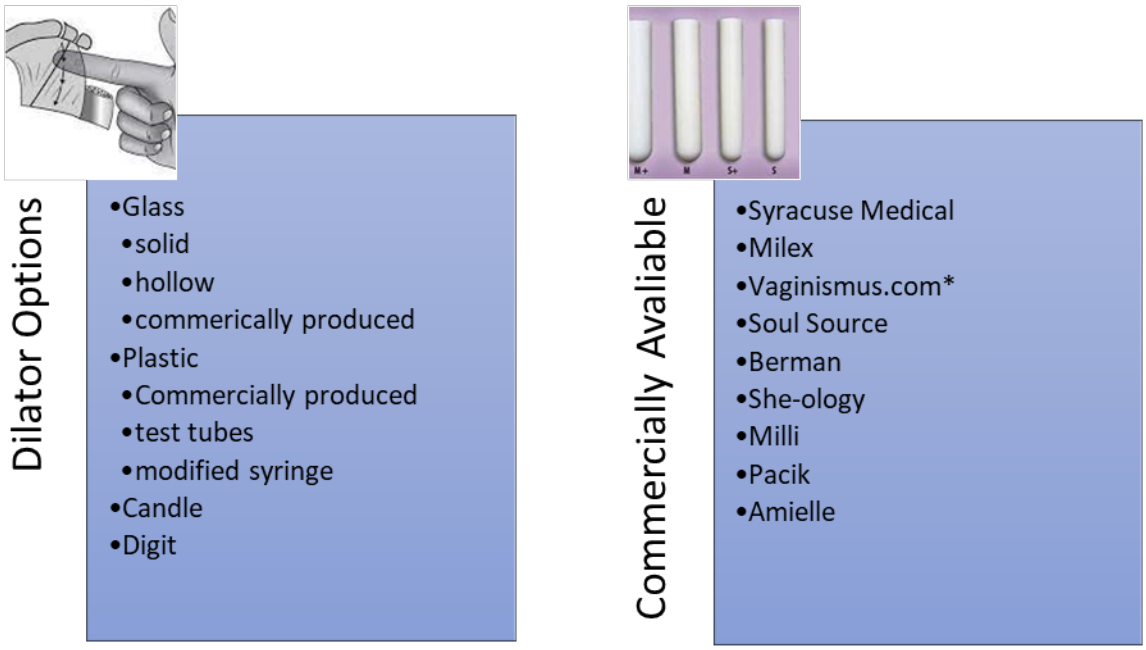

Figure 3: Dilator Styles in the Research[4, 14, 19, 20, 21, 24]

Looking at all the papers which included patient interventions, there were greater than twenty different outcome measures used throughout this group of literature [See Appendix V].The majority of the randomized control trials (RCTs) in this review used return-to-intercourse as a primary functional outcome measure, followed by the Numerical Rating Scale. The most-frequently used patient-reported outcome measure specific to this patient population was the Female Sexual Function Index, which is a 19-question validated questionnaire which is considered the “gold standard” for female sexual function and does incorporate

mostly inclusive language for vagina-owners.[25]

Of the 32 articles reviewed, 13 of the articles mentioned dilator treatment time specifically. Treatment time varied based on classification of diagnosis [see Figure 4 and Table 1]. Dilator stretching was shorter for the pain conditions and longest for patients with vaginal agenesis. The average time of dilator stretching for patients with pain conditions was approximately 11.4 minutes for 6.5 days a week [see Table 1].

Table 1: Dilator Time

Paper	Diagnosis	Dilator Time
17	agenesis	1-3 times per day for 10-30 minutes.
48	agenesis	30 minutes daily
Agenesis recommendations: one to two times a day for 25 minutes [(2 times per day + 1 time per day)/2] for [(20 minutes + 30 minutes)/2]		
26	pain conditions	daily for 10-20 minutes
23	pain conditions	5-10 minutes daily
14	pain conditions	5-10 minutes most days of the week
20	pain conditions	10-15 minutes 1-2 times per day
49	pain conditions	5-10 minutes (frequency unknown)
7	pain conditions	3–5-time weeks at 10-minute sessions
50	pain conditions	progression from 10 minutes 3x/week to 20 minutes three times a week
Pain condition recommendations: 11 [10.7] minutes daily [6.08 times per week] [(15 + 7.5 + 7.5 + 12.5 + 7.5 + 10 + 15 minutes)/7] minutes for [(7 +7 + 5 + 10.5 + 4 + 3)/6] time per week		
21	pelvic radiotherapy	15 minutes daily; 10-15 minutes twice a day*
51	pelvic radiotherapy	38% said 5-10 minutes, 26% 2-5 minutes, 16% 0-2 minutes, 13% greater than 10 minutes**
52	pelvic radiotherapy	5-10 minutes 2-3 times per week
53	pelvic radiotherapy	5-10 minutes
Radiation recommendations: 11 minutes [10.625] 8 times [7.83] times per week [(15 + 12.5 + 7.5 + 7.5)/4] minutes [(7 + 14 + 2.5)/3] times per week ***included both in calculations for recommendations** **** not included in calculations for recommendations**		

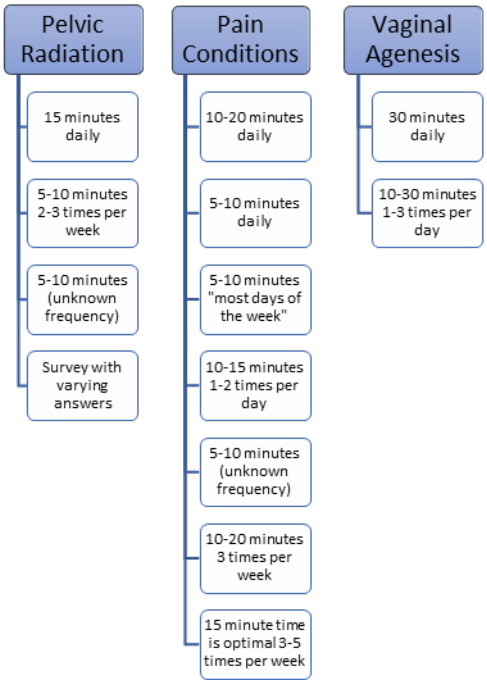

Figure 4: Dilator Time Recommendations [See Table 1]

Table 2: Duration of Dilator Use

Paper	Diagnosis	Treatment Duration
[17]	Agenesis	until goals achieved
[48]	Agenesis	5 follow up visits; 4.2-7.3 months, median 5.2
[54]	Pain conditions	once a week for 45-60 minutes
[26]	Pain conditions	12 weeks
[23]	Pain conditions	4 weeks
[9]	Pain conditions	2-44 months, mean 16; mean # of PT sessions 6.6 (range 1-16)
[14]	Pain conditions	9 weeks
[20]	Pain conditions	6-24 weeks; mean 12 weeks
[49]	Pain conditions	9 PT visits over a three-month duration
[22]	Pain conditions	5 weeks
[55]	Pain conditions	2-8 weeks
[2]	Pain conditions	24 hours to 8 years
[51]	Pelvic radiotherapy	"for life"

Treatment duration varied greatly within and between papers and was measured in visit numbers, weeks, months, and years [See Table 2]. The shortest duration of dilator use until end of the episode of care was 24 hours, and the longest was 8 years.[2] Of the four papers mentioning duration of treatment with only physical therapists as authors instead of all healthcare providers, the range was narrowed from 5 weeks to 44 months.[6,14,22,26] The average number of physical therapy visits needed was 6.6 visits per patient.[6]

When educating patients on the resources needed to reach their goals, it is important to stress the variability of treatment in the literature. The literature suggests treatment variability in terms of time ranges from hours to years[2] and this variability is also seen in the number of clinic visits. In this author's personal experience, patients with vaginismus require between one visit to seven years of treatment to reach their goals of pain-free intercourse. Therefore, when counseling patients, it is important to recognize the variability in progressions towards goals and any recommendations given should be used only as a guide for managing expectations. It has also been noted that adherence to dilator stretching improves with increased interactions with healthcare providers, suggesting the availability of more frequent appointments will improve patient outcomes.[15] Other factors which may affect treatment duration and patient outcomes are patient's comorbidities. Patients with pelvic floor muscle dysfunction commonly have diagnoses such as fibromyalgia, migraines, irritable bowel syndrome, painful bladder syndrome, and temporomandibular joint disorders.[27]

Physical therapy was rated the most helpful healthcare intervention by patients in one qualitative study surveying women about their treatment experiences for vaginismus.[28] These women also had gynecological care, psychological care, sex therapy, and pharmaceuticals.[28] Helpful hints for increasing the ease of dilator stretching from other studies included the patient informing the partner of dilator stretching as a treatment, focusing on deep breathing or relaxation but not distraction, using the dilator prior to intercourse, and reducing psychosocial and logistical barriers.[4,17]

Discussion

An interesting observation is how many of these articles were written by psychologists. Historically, sexual dysfunction has been considered a mental disorder and classified only under the Diagnostic and Statistical Manual of Mental Disorders (DSM).[29] The ICD-10 codes F50-59 are defined as "behavioral syndromes associated with physiological disturbances and physical factors".[3] With advances in biopsychosocial approaches,[30] the focus on the interplay between physical and mental symptoms increased in significance and treatment shifted to a patient-focused approach, showing recognition of how many of these patients needed to be treated with a multidisciplinary approach and likely by multiple providers.

It was reaffirming to this author to note the variability of the dilators used in the research [see Figure 3 and Appendix VI] and that not all dilators are commercially produced. UIHC PFPT initially provides dilators for patients and then will lead them to resources to purchase dilators elsewhere should the patient desire. The research advocates for this UIHC PFPT practice as patients who have early and easy access to dilators succeed more frequency than patients who are not able to easily access dilators.[17,18]

The difference in time to achieve goals and required visit numbers is vast in the literature. In this author's experience in over a decade of pelvic health, this variation between patients has been observed in the clinic also. Some UIHC patients have required only one visit to meet their goals when they present with a diagnosis of vaginismus and one patient finally met her goals after seven years and one month since initial presentation and physical therapy evaluation. It is interesting to note that patients who had more frequent access to healthcare providers met their goals at a higher rate.[15]

Conclusion

After review of the literature, recommendations for dilator stretching home exercise program prescription will vary by patient and by diagnosis. For patients with the diagnosis of vaginismus, instruction for dilator stretching at home should be updated from the current written home program of dilator stretching for 5-10 minutes every 1-2 days to more closely match the averages found in the research: 10.7 minutes 6.08 times per week. This was rounded up to "at least ten minutes daily" for increased patient understanding. These updates can be found in the new, updated UIHC PFPT dilator instruction handout [see Appendix VII].

Other suggestions should be considered for patients requiring dilator stretching as part of their home program. Patients with vaginal agenesis will likely need to use vaginal dilators more frequently, though the times varied from a few times per week to twice daily in the reviewed research [see Table I]. The type of stretching (digit, partner, dilator) should be left up to the patient to increase patient home program performance.[9,15,16] There is evidence that dilator stretching by the patient themselves is superior to stretching with a digit or having the partner stretch.[1] Patients' willingness and ability to stretch will also affect recommendations for the dilator home program. General treatment approaches for this patient population include utilizing a multimodal and multidisciplinary approach with individualized treatment and a patient-centered approach involving lots of education.[8,31] Introducing the dilator early with a straight-forward manner, being aware of emotional responses and responding appropriately, and having dilators easily accessible for the patients is also important for increasing the rate of achieving patient goals.[18]

Outcome measures should include the patient's main goals, which often include return-to-intercourse, numerical rating scales, and functional outcome measures and/or patient-reported outcome measures. Using the patient's main goals embodies a patient-centered approach and can be modified into the

Patient Specific Functional Scale11,32 [See Appendix III] and is currently common practice for UIHC PFPTs. Common patient-reported outcome measures (PROMs) for female sexual dysfunction are listed in Table III and described below.

Table III: Outcome Measures

Outcome Measure	Population	Number of Questions	Score Range	MCID	Specificity	Sensitivity
FSFI[36]	Females	19	2.0-36	-	0.8	0.88
FSFI-6[38]	Females	7-20	2-30	-	0.94	0.93
SFQ[56]	Females	28	varies	-	0.16 – 1.0	0.0 – 1.0
PISQ-IR[57]	Females	7	0-4 0-100	0.31[41]		

The Female Sexual Function Index (FSFI) [see Appendix VIII] is a self-reported, validated outcome measure for female sexual dysfunction across all ages, all sexual orientations, and for women speaking up to twenty-one different languages.[33] The FSFI is shown to have high discriminant validity and high test-retest reliability coefficients in the individual domains.[34] The individual domains include desire, arousal, lubrication, satisfaction, orgasm, and pain. There are nineteen questions for the FSFI, which is seen as a detractor for some patients.[35] The FFSI also has a cut off score of 26.55, suggesting that women who score below this do not have sexual dysfunction.[36]

The Short Form of the Female Sexual Function Index (FSFI-6) [see Appendix IX] is 6 questions long and correlates well with the FSFI.[37] It has a sensitivity of 0.94 and a specificity of greater than 0.9.[38] It is also the shortest of all of the questionnaires.

The Sexual Function Questionnaire (SFQ) is 28 questions long and relates to patients with sexual dysfunction in the presence of symptoms of prolapse and/or incontinence.[39] However, it has been shown that women with symptoms of vulvodynia may score abnormally high due to the nature of the questions.[40]

The Pelvic Organ Prolapse/Urinary Incontinence Sexual Questionnaire, IUGA-Revised (PISQ-IR) is seven to twenty questions and is valid in female patients with sexual dysfunction with diagnoses of pelvic floor dysfunction in nine languages.[41] This test is validated in patients who are sexually active and not sexually active and has a cutoff score of 2.68.[42] The mean clinically important difference for this PROM is 0.31 points for each corresponding scale of 0-4.[41]

Given the UIHC PFPT patient population, the use of the FSFI-6 would increase treatment time with patients as it is the shortest PROM. The PISQ-IR would also be a viable alternative for females with

sexual disfunction as it is valid in the sexually active and non-sexually active patient populations and correlates well with the FSFI.[42] Regarding findings from the International Continence Society, both are acceptable for use, but the PISQ has a higher grade.[43]

As always, more research on the topic is needed, especially regarding physical therapy treatment of patients with pelvic floor muscle dysfunction.[44] However, the high complexity of the average patient seeking PFPT including comorbidities, confounding factors, and the need for individualized treatment make high-quality physical therapy research difficult. Current work is in process for determining how the UIHC PFPT treatment numbers and durations match up to the numbers which have already been published.

Further future work for revising UIHC's PFPT home programs should start by expanding the diagnoses which utilize dilator stretching as well as a formal literature review for UIHC's postoperative home program for patients undergoing vaginoplasty.

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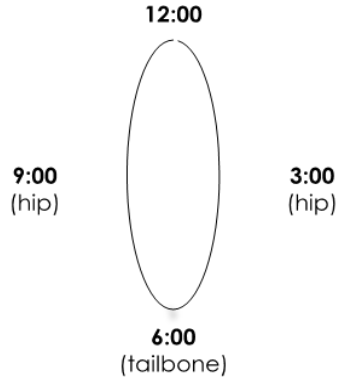
Appendix I – Search Terms

- Initial Searches
    - PubMed (results)
        - Dilator AND pelvic floor muscle (60)
        - Dilator AND pelvic pain (34)
        - Dilator and interstitial cystitis (0)
        - Dilator AND dyspareunia (18)
        - Dilator AND vaginismus (9)
    - CINAHL
        - Dilator AND pelvic floor muscle (10)
        - Dilator AND pelvic pain (10)
        - Dilator AND interstitial cystitis (0)
        - Dilator AND dyspareunia (16)
        - Dilator AND vaginismus (9)
- Final Search:
    - Dilator lit review from 2015 - 24
    - ("vaginal dilator") AND (dyspareunia OR vaginismus OR "pelvic pain")
        - PUBMED – 19
        - CINAHL – 8
- Total Articles found: 46
    - After reading articles and removing irrelevant articles: 32
        - Reasons for removing articles
            - Full article not available in English
            - Wrong type of dilation
                - Usually urethra or ureter
            - Irrelevant diagnosis to our patient population or the scope of this paper
            - Duplicate articles
- Resources in the author's personal EndNote
    - Dilators – 138
- Other search terms for the future:
    - "vaginal dilator" AND "physical therapy" – PubMed (4)
    - "pelvic floor" and "physical therapy" – PubMed (976)
        - AND "pain" – PubMed (274)
        - AND "dyspareunia" – PubMed (65)
        - AND "vaginismus" PubMed (12)
        - AND "incontinence" – PubMed (525)
            - AND meta-analysis – PubMed (17)

Appendix II: Current UIHC Dilator Home Program

University of Iowa Hospitals and Clinics
Department of Rehabilitation Therapies
0733 JPP, 200 Hawkins Drive
Iowa City, Iowa 52242-1009
319-356-2663 ***Telephone***
319-353-7199 ***Fax***

Pelvic Floor Stretching
Self trigger point release and stretching



Dilator stretching – or use your thumbs.

-lie semi-reclined on your back with knees bent up or in any comfortable position
-apply lubricant to dilator- we recommend coconut oil, olive oil or vegetable oil
-choose dilator size based on amount of stretch you feel- the level of **discomfort** should be less than 3/10 based on 0-10 pain scale
-leave dilator in for **5-10 minutes** to stretch tissues
-options: ___ stretch "down and out" towards 7/8 and 4/5:00 positions
___ move dilator around in circles to increase stretch
___ slide dilator back and forth between 3-6:00 and 6-9:00 positions
___ insert dilator in and out X 5 to desensitize tissues
___ find "trigger points" or tender spots and stretch for 20-30 seconds each
-wash dilator with soap and water and dry well before storing
-perform stretching **every day** or every other day

Appendix III: Patient Specific Functional Scale[11]

THE PATIENT-SPECIFIC FUNCTIONAL SCALE (PSFS) AS ORIGINALLY DESCRIBED BY STRATFORD ET AL (1995)[70]

Clinician to read and fill in. Complete at the end of the history and prior to physical.

Read at Baseline Assessment

I'm going to ask you to identify up to 5 important activities that you are unable to do or have difficulty with as a result of your problem.
Today, are there any activities that you are unable to do or have difficulty with because of your problem? (show scale to patient)

Read at Follow-up Visits

When I assessed you on (state previous assessment date), you told me that you difficulty with (read 1, 2, 3, 4, 5 from list).
Today, do you still have difficulty with 1 (have patient score each activity); 2 (have patient score each activity); 3 (have patient score each activity); 4 (have patient score each activity); 5 (have patient score each activity).

Scoring Scheme (show patient scale):

0	1	2	3	4	5	6	7	8	9	10
Unable to perform activity										Able to perform activity at preinjury level

	Date/Score												
Activity													
1													
2													
3													
4													
5													
Additional													
Additional													

Appendix IV: PFDI-20[13]

Pelvic Floor Distress Inventory – short form 20

PFDI -20 Instructions: Please answer all of the questions in the following survey. These questions will ask you if you have certain bowel, bladder, or pelvic symptoms and, if you do, how much they bother you. Answer these by circling the appropriate number. While answering these questions, please consider your symptoms over the **last 3 months**.

The PFDI-20 has 20 items and 3 scales of your symptoms.
All items use the following format with a response scale from 0 to 4.

Symptoms Present = YES, scale of bother: 1 = not at all
2 = somewhat
3 = moderately
4 = quite a bit

Symptoms Not Present = NO 0 = not present

Pelvic Organ Prolapse Distress Inventory 6 (POPDI-6)

Do you ...	No	Yes
1. Usually experience pressure in the lower abdomen?	0	1 2 3 4
2. Usually experience heaviness or dullness in the pelvic area?	0	1 2 3 4
3. Usually have a bulge or something falling out that you can see or feel in your vaginal area?	0	1 2 3 4
4. Ever have to push on the vagina or around the rectum to have or complete a bowel movement?	0	1 2 3 4
5. Usually experience a feeling of incomplete bladder emptying?	0	1 2 3 4
6. Ever have to push up on a bulge in the vaginal area with your fingers to start or complete urination?	0	1 2 3 4

Colorectal-Anal Distress Inventory 8 (CRAD-8):

Do you ...	No	Yes
7. Feel you need to strain too hard to have a bowel movement?	0	1 2 3 4
8. Feel you have not completely emptied your bowels at the end of a bowel movement?	0	1 2 3 4
9. Usually lose stool beyond your control if your stool is well formed?	0	1 2 3 4
10. Usually lose stool beyond your control if your stool is loose?	0	1 2 3 4
11. Usually lose gas from the rectum beyond your control?	0	1 2 3 4
12. Usually have pain when you pass your stool?	0	1 2 3 4
13. Experience a strong sense of urgency and have to rush to the bathroom to have a bowel movement?	0	1 2 3 4
14. Does part of your bowel ever pass through the rectum and bulge outside during or after a bowel movement?	0	1 2 3 4

Urinary Distress Inventory 6 (UDI-6):

Do you ...	No	Yes
15. Usually experience frequent urination?	0	1 2 3 4
16. Usually experience urine leakage associated with a feeling of urgency, that is, a strong sensation of needing to go to the bathroom?	0	1 2 3 4
17. Usually experience urine leakage related to coughing, sneezing, or laughing?	0	1 2 3 4
18. Usually experience small amounts of urine leakage (that is, drops)?	0	1 2 3 4
19. Usually experience difficulty emptying your bladder?	0	1 2 3 4
20. Usually experience *pain* or *discomfort* in the lower abdomen or genital region?	0	1 2 3 4

Scoring the PFDI-20:

Scale Scores: Obtain the mean value of all of the answered items within the corresponding scale (possible value 0 to 4) and then multiply by 25 to obtain the scale score (range 0 to 100). Missing items are dealt with by using the mean from answered items only.

PFSI-20 Summary Score: Add the scores from the 3 scales together to obtain the summary score (range 0 to 300).

Adapted by Herman & Wallace Pelvic Rehabilitation Institute from Barber, M., Walters, M., et al. (2005). "Short forms of two condition-specific quality of life questionnaires for women with pelvic floor disorders (PFDI-20 and PFIQ -7)." American Journal of Obstetrics and Gynecology **193**: 103-113.

Appendix V: Outcome Measures (listed in order of frequency)

Numerical Pain Scale (5)
Return to Intercourse (3)
Female Sexual Function Index (2)
sEMG (2)
Frequency of Intercourse
Brief Sexual Function Inventory
Fear of Pain Questionnaire
Pain Catastrophizing Scale
Pelvic Organ Prolapse/Urinary Incontinence Sexual Function Questionnaire-12
Patient Global Impression of Improvement
7-point scale of improvement
Urinary Distress Inventory-6 (a portion of the PFDI-20)[14]
IIQ-7
EORTC QLQ-30
QLQ-EN-24
Adherence to Rehabilitation Strategies Scale
Knowledge Scale
Hospital Depression and Anxiety Scale
Sexual Activity Questionnaire-14
Sexual Vaginal Changes Questionnaire-27
Sexual Functioning in Gynecological Illness-8
Marinoff Scale for Depression
O'Leary-Sant Interstitial Cystitis Symptom and Problem Indexes
Short Form-12 Quality of Life Scale
Classification Scale for Vaginal Stenosis
Lamont & Pacik Scale for Grading Vaginismus [41,42]

Grade	**Lamont Definition**	**Pacik Definition**
First Degree	Perineal and levator spasm – relived with reassurance	Patient is able to relax for examination
Second Degree	Perineal spasm – maintained throughout pelvic exam	Patient is unable to relax for examination
Third Degree	Levator spasm and elevation of buttocks	Buttocks lift off table, early retreat
Fourth Degree	Levator and perineal spasm, elevation, adduction, and retreat	Generalized retreat: buttocks lift up, thighs close, patient retreats
Grade 5	Patient refused examination	Generalized retreat as in level 4 plus visceral reaction

Appendix VI: Commercially Produced Dilators

Syracuse Medical Vaginal Dilators

Vaginismus.com

- Milex Vaginal-Hymenal Silicone Dilators

Soul Source Silicone Vaginal Dilators

- Soul Source Vaginal Dilators - Rigid

- She-ology Wearable Vaginal Dilators

- Dr. Laura Berman Dilator Set

- MilliForHer.com

- Pacik Vaginismus

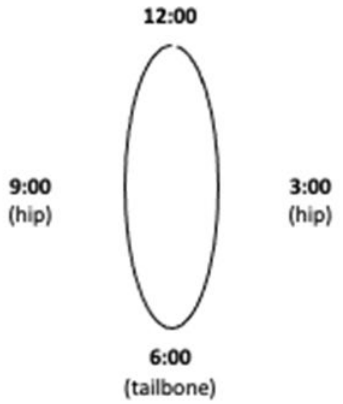
- Amielle Restore Vaginal Dilators

Appendix VII: Updated UIHC PFPT Dilator Home Program

UNIVERSITY of IOWA HEALTH CARE

University of Iowa Hospitals and Clinics
Department of Rehabilitation Therapies
0733 JPP, 200 Hawkins Drive
Iowa City, Iowa 52242-1009
319-356-2663 ***Telephone***
319-353-7199 ***Fax***

Pelvic Floor Stretching
Self trigger point release and stretching



Dilator stretching – or use your thumbs.

- Lie semi-reclined on your back with knees bent up or in any comfortable position
- Apply lubricant to dilator- we recommend coconut oil, olive oil or vegetable oil
- Choose dilator size based on amount of stretch you feel
  - The level of **discomfort** should be **less** than 3/10 based on 0-10 pain scale
- Leave dilator in for at least **10 minutes** to stretch tissues
- Options for dilator use (recommendations for you are checked):
  - ___Insert dilator and hold in place until comfortable
  - ___ stretch "down and out" towards 7/8 and 4/5:00 positions
  - ___ move dilator around in circles to increase stretch
  - ___ slide dilator back and forth between 3-6:00 and 6-9:00 positions
  - ___ insert dilator in and out X 5 to desensitize tissues
  - ___ find "trigger points" or tender spots and stretch for 20-30 seconds each
- Wash the dilator with soap and water and dry well before storing
- Perform dilator stretching **every day**

Updated 4/30/2022 based on a review of the literature. Ask for resources if interested.

Appendix VIII: FSFI[33]

Female Sexual Function Index (FSFI)

Name: **Date:**

INSTRUCTIONS: These questions ask about your sexual feelings and responses during the past 4 weeks. Please answer the following questions as honestly and clearly as possible. Your responses will be kept completely confidential.

In answering these questions the following definitions apply:

Sexual activity can include caressing, foreplay, masturbation, and vaginal intercourse.

Sexual intercourse is defined as penile penetration (entry) of the vagina.

Sexual stimulation includes situations like foreplay with a partner, self-stimulation (masturbation), or sexual fantasy.

CHECK ONLY ONE BOX PER QUESTION.

Sexual desire or interest is a feeling that includes wanting to have a sexual experience, feeling receptive to a partner's sexual initiation, and thinking or fantasizing about having sex.

1. Over the past 4 weeks, how often did you feel sexual desire or interest?

- ☐ 5 = Almost always or always
- ☐ 4 = Most times (more than half the time)
- ☐ 3 = Sometimes (about half the time)
- ☐ 2 = A few times (less than half the time)
- ☐ 1 = Almost never or never

2. Over the past 4 weeks, how would you rate your level (degree) of sexual desire or interest?

- ☐ 5 = Very high
- ☐ 4 = High
- ☐ 3 = Moderate
- ☐ 2 = Low
- ☐ 1 = Very low or none at all

Sexual arousal is a feeling that includes both physical and mental aspects of sexual excitement. It may include feelings of warmth or tingling in the genitals, lubrication (wetness), or muscle contractions.

3. Over the past 4 weeks, how often did you feel sexually aroused ("turned on") during sexual activity or intercourse?

- ☐ 0 = No sexual activity
- ☐ 5 = Almost always or always
- ☐ 4 = Most times (more than half the time)
- ☐ 3 = Sometimes (about half the time)
- ☐ 2 = A few times (less than half the time)
- ☐ 1 = Almost never or never

4. Over the past 4 weeks, how would you rate your level of sexual arousal ("turn on") during sexual activity or intercourse?

- ☐ 0 = No sexual activity
- ☐ 5 = Very high
- ☐ 4 = High
- ☐ 3 = Moderate
- ☐ 2 = Low
- ☐ 1 = Very low or none at all

5. Over the past 4 weeks, how confident were you about becoming sexually aroused during sexual activity or intercourse?

- ☐ 0 = No sexual activity
- ☐ 5 = Very high confidence
- ☐ 4 = High confidence
- ☐ 3 = Moderate confidence
- ☐ 2 = Low confidence
- ☐ 1 = Very low or no confidence

6. Over the past 4 weeks, how often have you been satisfied with your arousal (excitement) during sexual activity or intercourse?

- ☐ 0 = No sexual activity
- ☐ 5 = Almost always or always
- ☐ 4 = Most times (more than half the time)
- ☐ 3 = Sometimes (about half the time)
- ☐ 2 = A few times (less than half the time)
- ☐ 1 = Almost never or never

7. Over the past 4 weeks, how often did you become lubricated ("wet") during sexual activity or intercourse?

- ☐ 0 = No sexual activity
- ☐ 5 = Almost always or always
- ☐ 4 = Most times (more than half the time)
- ☐ 3 = Sometimes (about half the time)
- ☐ 2 = A few times (less than half the time)
- ☐ 1 = Almost never or never

8. Over the past 4 weeks, how difficult was it to become lubricated ("wet") during sexual activity or intercourse?

- ☐ 0 = No sexual activity
- ☐ 1 = Extremely difficult or impossible
- ☐ 2 = Very difficult
- ☐ 3 = Difficult
- ☐ 4 = Slightly difficult
- ☐ 5 = Not difficult

9. Over the past 4 weeks, how often did you maintain your lubrication ("wetness") until completion of sexual activity or intercourse?

- ☐ 0 = No sexual activity
- ☐ 5 = Almost always or always
- ☐ 4 = Most times (more than half the time)
- ☐ 3 = Sometimes (about half the time)
- ☐ 2 = A few times (less than half the time)
- ☐ 1 = Almost never or never

10. Over the past 4 weeks, how difficult was it to maintain your lubrication ("wetness") until completion of sexual activity or intercourse?

- ☐ 0 = No sexual activity
- ☐ 1 = Extremely difficult or impossible
- ☐ 2 = Very difficult
- ☐ 3 = Difficult
- ☐ 4 = Slightly difficult
- ☐ 5 = Not difficult

11. Over the past 4 weeks, when you had sexual stimulation or intercourse, how often did you reach orgasm (climax)?

- ☐ 0 = No sexual activity
- ☐ 5 = Almost always or always
- ☐ 4 = Most times (more than half the time)
- ☐ 3 = Sometimes (about half the time)
- ☐ 2 = A few times (less than half the time)
- ☐ 1 = Almost never or never

12. Over the past 4 weeks, when you had sexual stimulation or intercourse, how difficult was it for you to reach orgasm (climax)?

- ☐ 0 = No sexual activity
- ☐ 1 = Extremely difficult or impossible
- ☐ 2 = Very difficult
- ☐ 3 = Difficult
- ☐ 4 = Slightly difficult
- ☐ 5 = Not difficult

13. Over the past 4 weeks, how satisfied were you with your ability to reach orgasm (climax) during sexual activity or intercourse?

- ☐ 0 = No sexual activity
- ☐ 5 = Very satisfied
- ☐ 4 = Moderately satisfied
- ☐ 3 = About equally satisfied and dissatisfied
- ☐ 2 = Moderately dissatisfied
- ☐ 1 = Very dissatisfied

14. Over the past 4 weeks, how satisfied have you been with the amount of emotional closeness during sexual activity between you and your partner?

- ☐ 0 = No sexual activity
- ☐ 5 = Very satisfied
- ☐ 4 = Moderately satisfied
- ☐ 3 = About equally satisfied and dissatisfied
- ☐ 2 = Moderately dissatisfied
- ☐ 1 = Very dissatisfied

15. Over the past 4 weeks, how satisfied have you been with your sexual relationship with your partner?

- ☐ 5 = Very satisfied
- ☐ 4 = Moderately satisfied
- ☐ 3 = About equally satisfied and dissatisfied
- ☐ 2 = Moderately dissatisfied
- ☐ 1 = Very dissatisfied

16. Over the past 4 weeks, how satisfied have you been with your overall sexual life?

- ☐ 5 = Very satisfied
- ☐ 4 = Moderately satisfied
- ☐ 3 = About equally satisfied and dissatisfied
- ☐ 2 = Moderately dissatisfied
- ☐ 1 = Very dissatisfied

17. Over the past 4 weeks, how often did you experience discomfort or pain during vaginal penetration?

- ☐ 0 = Did not attempt intercourse
- ☐ 1 = Almost always or always
- ☐ 2 = Most times (more than half the time)
- ☐ 3 = Sometimes (about half the time)
- ☐ 4 = A few times (less than half the time)
- ☐ 5 = Almost never or never

18. Over the past 4 weeks, how often did you experience discomfort or pain following vaginal penetration?

- ☐ 0 = Did not attempt intercourse
- ☐ 1 = Almost always or always
- ☐ 2 = Most times (more than half the time)
- ☐ 3 = Sometimes (about half the time)
- ☐ 4 = A few times (less than half the time)
- ☐ 5 = Almost never or never

19. Over the past 4 weeks, how would you rate your level (degree) of discomfort or pain during or following vaginal penetration?

- ☐ 0 = Did not attempt intercourse
- ☐ 1 = Very high
- ☐ 2 = High
- ☐ 3 = Moderate
- ☐ 4 = Low
- ☐ 5 = Very low or none at all

Thank you for completing this questionnaire.

FSFI Domain Scores and Full Scale Score

The individual domain scores and full scale (overall) score of the FSFI can be derived from the computational formula outlined in the table below. For the individual domain scores, add the scores of the individual items that comprise the domain and multiply the sum by the domain factor (see below). Add the six domain scores to obtain the full scale score. It should be noted that within the individual domains, a domain score of zero indicates that the subject reported having no sexual activity during the past month. Subject scores can be entered in the right-hand column.

Domain	Questions	Score Range	Factor	Minimum Score	Maximum Score	Score
Desire	1,2	1 – 5	0.6	1.2	6.0	
Arousal	3, 4, 5, 6	0 – 5	0.3	0	6.0	
Lubrication	7, 8, 9, 10	0 – 5	0.3	0	6.0	
Orgasm	11, 12, 13	0 – 5	0.4	0	6.0	
Satisfaction	14, 15, 16	0 (or 1) – 5	0.4	0	6.0	
Pain	17, 18, 19	0 – 5	0.4	0	6.0	
		Full Scale Score Range		1.2	36.0	
						Total

A score ≤ 26.55 is classified as FSD.*

From Rosen R, et al. The Female Sexual Function Index (FSFI): A Multidimensional Self-Report Instrument for the Assessment of Female Sexual Function. *Journal of Sex and Marital Therapy*. 2000;26(2):191-208. Reprinted by permission of the publisher, Taylor & Francis Ltd, http://www.informaworld.com.

* Wiegel M, et al. *J Sex Marital Ther.* 2005;31:1-20.

Appendix IX: FSFI-6[38]

The 6-item FSFI.*

Over the past 4 weeks

1. How would you rate your level (degree) of sexual desire or interest? (Q2 of the original desire domain)

2. How would you rate your level of sexual arousal ("turn on") during sexual activity or intercourse? (Q4 of the original arousal domain)

3. How often did you become lubricated ("wet") during sexual activity or intercourse? (Q7 of the original lubrication domain)

4. When you had sexual stimulation or intercourse, how often did you reach orgasm (climax)? (Q11 of the original orgasm domain)

5. How satisfied have you been with your overall sexual life? (Q16 of the original satisfaction domain)

6. How often did you experience discomfort or pain during vaginal penetration? (Q17 of the original pain domain)