

Physical therapy in sexually dysfunctional women: a systematic review

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ABSTRACT

The World Health Organization (WHO) considers Female Sexual Dysfunctions (FSDs) to be a public health issue. There are a multitude of disorders such as female sexual arousal disorder, hypoactive sexual desire disorder, orgasmic disorder, dyspareunia, and vaginismus. FSDs are detected in 67.9% of the women in the world and are present in 50% of Asians, in 30-50% of Americans, and in 30% of Brazilians. **Objective:** To systematically review the literature on the different physiotherapy techniques used in the treatment of FSDs. **Methods:** A systematic search was conducted in the databases EMBASE, PEDro, and MedLine in data as recent as June 2013, by combining words and descriptors of physical therapy treatments and female sexual dysfunctions. Excluded from review were articles concerning male sexual dysfunction, pilot studies, multicentric papers of projects, and those which were either not available in their entirety or were duplicated in another database. After the selection of studies was complete, the randomized clinical trials were scored on the PEDro Evaluation Scale. **Results:** Eleven articles were included, six of which went on to be qualitatively evaluated on the PEDro scale. The present study followed the methodological structure of PRISMA (Statement for Reporting Systematic Reviews and Meta-Analyses of Studies). All studies found used questionnaires to assess the effects of physical therapy on FSDs. A total of five different types of interventions were verified: kinesiotherapy (Kegel exercises and pelvic floor muscle training - PFMT), Cognitive behavioral therapy (CBT), biofeedback, electrotherapy (transcutaneous electrical stimulation - TENS, and therapeutic ultrasound - US), and manual therapy. The limitations found in this systematic review were related to the unavailability of the articles in full and the low methodological quality of the studies. **Conclusion:** All studies showed improvements in sexual function after physical therapy intervention. There is no consensus on any intervention with better results; however, kinesiotherapy using PFMT proved to be advantageous because of its easy application, low cost, easy learning curve, and lasting results achieved in a short period. However, there are methodological shortcomings that still need to be dealt with to determine the most suitable physical therapy treatment for FSDs, as well as defining the best dosage, the protocol to be followed, and the duration of therapy, as well as the best cost-benefit.

Keywords: Sexual Dysfunction, Physiological/rehabilitation, Women, Physical Therapy Modalities

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INTRODUCTION

The World Health Organization (WHO) considers Female Sexual Dysfunctions (FSDs) to be a public health issue since, in the long or short term, they affect the psychology, social and domestic life, careers, and health of women and their partners.¹

FSDs include multiple disorders such as female sexual arousal disorder, hypoactive sexual desire disorder, orgasmic disorder, dyspareunia, and vaginismus.² These disorders are classified into diagnostic categories that include desire or libido, excitation, pain or discomfort, and inhibition of orgasm.^{3,4} They are characterized as multicausal and multidimensional and they combine biological, psychological, and interpersonal factors.²

These dysfunctions are highly prevalent, affecting some 67.9%^{5,6} of the women in the world. As to the indices in different countries, estimates are that FSDs are present in 30 to 50% of American women, more than 50% of Asian women, and in 30% of Brazilian women.^{7,8,9} In specific demographics such as women with diabetes,¹⁰ Parkinsons,¹¹ and who have suffered heart attacks,¹² the numbers are more dramatic, namely 59%, 75%, and 50%, respectively.

The practice of physiotherapy in the treatment of FSDs seeks to improve the mobility of the pelvic floor musculature and the relief of pelvic and/or abdominal pain. Various therapies are used for this, including pelvic floor muscle training,⁹ electrotherapy,¹³ and manual therapy.¹⁴ However, in the face of this coverage it becomes necessary to search for scientific evidence on these techniques and methods to determine the best route to the reduction of these complaints.

OBJECTIVE

In order to provide the professional therapist synthesized knowledge, the objective of this study was to perform a systematic review on the different therapeutic techniques used in the treatment of FSDs.

METHODS

Source of data and research

The plan for this review was based on the guidance of the "Preferred Reporting Items for Systematic Reviews and Meta-Analyses" (PRISMA recommendations). This systematic

review has been registered in PROSPERO under N^o CRD42015017614.

Three databases were searched: EMBASE (EMBASE; Web site: <http://www.elsevier.com/online-tools/embase> accessed on July 1, 2013), the Physiotherapy Evidence Database (Pedro; Web site: www.pedro.org.au on the same date), and MedLine (accessed via Ovid [Wolters Kluwer Health, New York, New York, EUA] on the same date).

Research filters were used that were developed by the Scottish Intercollegiate Guidelines Network - <http://www.sign.ac.uk/methodology/filters.html>, using a combination of words and descriptors of physiotherapeutic treatments and female sexual dysfunctions. The terms used in the PEDro database were *Perineum or Genitor Urinary* in the "body part" field; *Continence and Women's Health* in the "subdiscipline" field; and *Clinical Trial* in the "method" field. In the MedLine and EMBASE databases, a cross search was used among the descriptors on: methodology (*Randomized controlled trial OR random allocation OR double blind method OR single blind method OR clinical trial OR randomization OR single blind procedure OR double blind procedure OR crossover procedure OR placebo OR random allocation OR prospective study*), physiotherapeutic treatment (*Therapy OR Rehabilitation OR Exercise Therapy OR Exercise OR Resistance Training OR Massage OR Electric Stimulation Therapy OR Physical Therapy Modalities OR Physical Education OR Physical Training OR Kinesiotherapy*), and female sexual dysfunction (*sexual dysfunction, Physiological OR Dyspareunia OR Vaginismus OR Vulvodynia OR Vestibulodynia OR Desire disorder OR Arousal disorder OR Orgasmic Disorder OR Perineum OR Pelvic Floor OR Pelvic Floor Muscle*).

Selection of studies

After the searches, two independent researchers selected the potentially relevant studies based on their titles. They then read the abstracts of those studies followed by a full reading of the article, at which time the inclusion/exclusion criteria were applied. In case the researchers' opinions differed in either phase, they argued between themselves and, if no agreement was reached, the third researcher made the final decision in a consensus meeting.

Inclusion criteria

Studies in the Portuguese and English languages were included that used physiotherapeutic techniques to treat FSDs in women. There was no restriction of data, so original

articles were accepted published as late as June of 2013.

Exclusion criteria

Studies with men were rejected, as were pilot studies, multicentric papers or projects, those not available in their entirety upon e-mail request of the authors, or duplicates.

Extraction of data and evaluation of quality

After final selection of the studies, the randomized clinical trials were scored on the PEDro Evaluation Scale accessing the web site: <http://www.pedro.org.au/portuguese/downloads/pedro-scale/>. Those not indexed in the PEDro database were evaluated by two independent evaluators following the norms of the Scale; scoring differences were settled after a discussion of the dubious items. The PEDro Evaluation Scale scores from zero to ten and reflects the potential bias involved in the study, with ten as the best possible score and zero, the worst. The first question is not scored.

The other types of studies were not methodologically evaluated, however, their results are presented and discussed in this review.

Synthesis of the data

The results of the included articles were grouped as to: evaluative method of the FSDs; interventions with kinesiotherapy, electrotherapy, manual therapy, and combined therapy subgroups; and methodological evaluation. There was no meta-analysis of the results found due to the heterogeneity of the techniques involved in the studies, by the lack of consensus in dealing with the different specific characteristics of the FSD.

RESULTS

Selection of studies

The database searches netted 1,525 articles. Of those, 28 met the inclusion criteria, however, 11 were excluded following an analysis of their abstracts, and 6 more following an analysis of the full text. All in all, 11 articles were selected and 6 went on to be evaluated on the PEDro scale (Figure 1).

Evaluation of the Methodological Quality

The methodological evaluation scores according to the PEDro scale are described in Chart 1. The point scoring ranged from 5 to 8, with a maximum of 10.

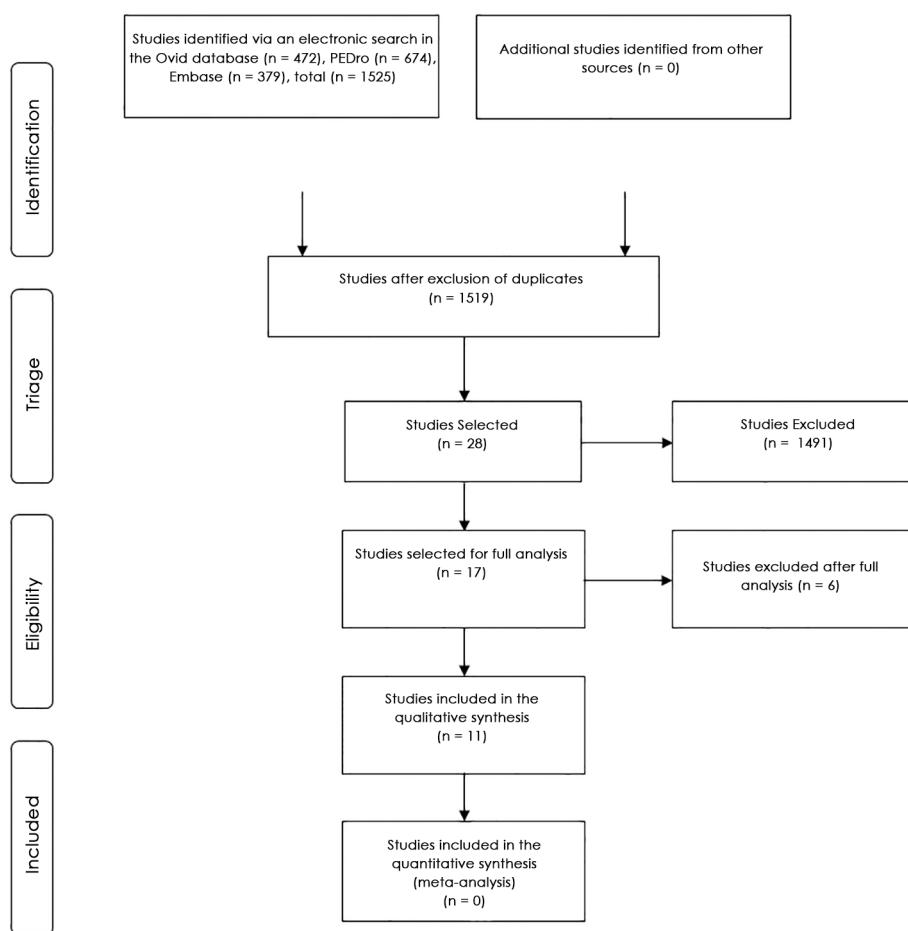


Figure 1. Flowchart with the electronic search criteria on three databases

Chart 1. Evaluation of the methodological quality of the randomized clinical trials included using the PEDro scale

Study	Physiotherapy Evidence Database											Total
	(1)*	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	
Bergeron et al. ¹⁶	+	+	-	+	-	-	-	+	+	+	+	6
Bo et al. ¹⁵	-	+	-	+	-	-	-	+	-	+	+	5
Everett et al. ²⁰	+	+	+	+	+	+	+	-	-	+	+	8
Murina et al. ¹⁸	+	+	-	+	+	-	+	+	+	-	+	7
Liebergall-Wischnitzer et al. ¹⁹	+	+	-	+	-	-	+	-	-	+	+	5

(1): eligibility; (2): random distribution; (3): allocation concealment; (4): comparability base; (5): blinded subjects; (6): blinded therapists; (7): blinded evaluators; (8): adequate follow-up; (9): analysis by intention to treat; (10): comparisons between groups; (11): estimated scores and variability. (+): criterion is clearly satisfied; (-): criterion is not satisfied. * The item 'eligibility criteria' did not contribute towards overall scoring

Only one study¹⁵ did not describe its eligibility criteria (16.6% of the articles). As for allocation concealment, 83%¹⁵⁻¹⁹ failed to fulfill this item. In 33.3% at least 16% of the participants quit after starting the intervention. In the items referring to being blinded, 83% did not blind the therapists,^{15,16} while 66.6%

used blinded evaluators^{16,18,19,20} and 33.3% had blinded individuals.^{18,20}

The analysis by intention to treat was done in half the cases.^{15,19,20} Criteria such as random distribution, similarity of the most important prognostic indicators, and measures of accuracy and of variability of at least one key outcome were always respected.

Sample and Characterization of Sexual Dysfunctions

In the articles selected for review, there was a discrepancy concerning homogeneity and sample size, with an average of 138.5 (16 to 245) women included. The majority was written in the English language, with only one in Portuguese. The countries with the most publications on the theme were the United States with 36.4% (n = 4), the United Kingdom and Norway each with 18.1% (n = 2 each), and one paper each (9%) from Australia, Brazil, and Japan (n = 1).

In the present review, Dyspareunia was the most common FSD, being the object of study in 81.8% of the subjects (n = 9), female orgasmic disorder in 18.2% (n = 2), and then female desire and/or arousal disorder and FSDs in general, representing 9% (n = 1) of the studies (Chart 2).

Physiotherapeutic Approach

The treatments proposed for FSDs were Kinesiotherapy (Kegel exercises and PFMT), Cognitive behavioral therapy (CBT), Biofeedback, Electrotherapy (transcutaneous electrical stimulation - TENS, and therapeutic ultrasound - US), and Manual Therapy. All the studies showed improvement in sexual function after physiotherapeutic intervention (Chart 3). Kinesiotherapy was used in five of the studies,^{9,15,17,19,21} while Combined Therapy was employed in two others, one of which combined Kinesiotherapy with Biofeedback²² and the other using Electrotherapy, Kinesiotherapy, and Biofeedback.²³ Interventions using only electrotherapeutic resources can be observed in two studies.^{18,20} Only one author did the intervention using Manual Therapy¹⁴ and separately, in three groups, used CBT, Biofeedback, and Vestibulectomy.¹⁶

DISCUSSION

The objective of this systematic review was to verify the physiotherapeutic techniques used in treating Female Sexual Dysfunctions (FSDs). This information is necessary since the prevalence of FSDs has increased in recent years, affecting some 67.9% of women worldwide.^{5,6}

The studies included in this review dealt with kinesiotherapy, electrotherapy, manual therapy, and in some combinations. Despite being distinct regarding applicability, time of use, and the dysfunction treated, the evidence contained shows the effective role of physiotherapy in treating FSDs.

Chart 2. Characterization of the included studies

Author, year, country	Magazine	Type of Study	Sample	Age	Sexual Dysfunction	Study Objective
Bergeron et al. ¹⁶ 2001, Canada	Pain/USA	RCT	87/Vulvar Vestibulitis	26.8	Dyspareunia	Compare the effects of CBT, electromyography, Biofeedback, and Vestibulectomy in dyspareunia
Dionisi & Senatori ¹³ 2011, Italy	The Journal of Obstetrics and Gynecology Research/Japan	Cohort/Prospective	45/post-partum perineal trauma	32.6 (27-37)	Dyspareunia	Evaluate the efficacy of intra-vaginal TENS in the treatment of dyspareunia.
Zahariou et al. ²² 2008, Greece	International Urogynecology Journal/Australia	Prospective	229/pre-menopause and post-menopause	43 (21-52)	FSD	Evaluate the efficacy of PFMT in SF of women with UI
Murina et al. ¹⁸ 2008, Italy	International Journal of Obstetrics and Gynaecology/ United Kingdom	RCT	40/Vestibulodynia	30 (21-44) GE/ 26(21-35) GP	Dyspareunia	Evaluate the efficacy of TENS in treating vestibulodynia
Everett et al. ²⁰ 1992, United Kingdom	Physiotherapy/United Kingdom	RCT	69/birth complications	27.7 GE/26.5 GP	Dyspareunia	Evaluate the use of therapeutic ultrasound in reducing dyspareunia and/or persistent pain.
Bo et al. ¹⁵ 2000, Norway	Acta Obstetrica et Gynecologica Scandinavica/(Acta Obstetrics and Gynecology Scandanavia/Norway)	RCT	59	49.6 GE/51.7 GP	Dyspareunia	Evaluate the efficacy of PFMT in the QL and SF in women with UI.
Piassarolli et al. ⁹ 2010, Brasil	Revista Brasileira de Ginecologia e Obstetrica/Brasil (Brazilian Journal of Gynecology and Obstetrics/Brazil)	Clinical Trial	26/Sexual Dysfunction	30.5	Orgasmic, desire, or arousal disorder and/or dyspareunia	Evaluate the effect of PFMT on FSD.
Citak et al. ¹⁷ 2010, Turkey	Acta Obstetrica et Gynecologica Scandinavica (Acta Obstetrics and Gynecology Scandanavia/Norway)	Prospective	118/Primiparous vaginal birth	23 GE/22.2 GP	Dyspareunia	Evaluate the effect of post-partum PFMT on sexual function.
Liebergall-Wischnitzer et al. ¹⁹ 2012, Israel	Journal of Sexual Medicine/USA	RCT	245/UI	46.7MP/ 46.6 TMAP	Dyspareunia	Evaluate the effectiveness of PM with PFMT on SF and QL in women with UI.
Chambless et al. ²¹ 1984, USA	Journal of Consulting and Clinical Psychology/USA	Case-control	16/orgasmic disorders	27.4 (20-41)	Orgasmic Disorder	Examine the effects of Kegel exercises on orgasm.
Wum et al. ¹⁴ 2004, USA	Medscape General Medicine/ USA	Experimental	29/FSD, infertility, abdominal and pelvic adhesions	33.8 (25-43)	Dyspareunia FSD.	Evaluate the efficacy of a MT technique on the increase of orgasm and the reduction of dyspareunia in women with a history of abdominal or pelvic adhesions.

USA: United States; RCT: Randomized Clinical Trial; CBT: Cognitive Behavioral Therapy; PFMT: Pelvic Floor Muscle Therapy; SG: Study Group; PG: Placebo Group; FSD: Female Sexual Dysfunction; PM Paula Method; SF: Sexual Function; QL: Quality of Life; UI: Urinary Incontinence; MT: Manual Therapy

Kinesiotherapy, also known as pelvic floor muscle training (PFMT) or Kegel exercises, is applicable in treating FSDs due to its recruitment of local musculature and the consequent pelvic vascularization and clitoral sensitivity. This effect improves excitation and lubrication. Additionally, according to a study by Piassarolli et al.,⁹ these exercises increase awareness and proprioception of the musculature in the perineal region, the receptivity to sexual relations, and satisfaction with performance. For Chambless et al.,²¹ such a practice for ten minutes a day was enough to strengthen the muscles and increase the frequency of orgasms in the studied sample. The same was described in a study by Liebergall-Wischnitzer et al.,¹⁹ which showed a reduction in dyspareunia by using this technique on women with urinary incontinence (UI). However, in the study by Bo et al.,¹⁵ with the same population, the results were to the contrary, showing no improvement in pain.

Electrotherapy has an analgesic effect. Using TENS,¹⁸ based on behavioral theory, showed positive results in treating vestibulodynia that remained after three months. In spite of ultrasound (US) having an anti-inflammatory effect due to the deep heating and consequent vasodilation, the use of this technique on dyspareunia showed no significant results in the study by Everett et al.²⁰ This fact occurred due to the small sample size and by the lack of a control group, according to those authors.

Manual therapy was used in the treatment of adhesions stemming from gynecological complications that could have set off the dyspareunia and orgasmic dysfunction in women with FSDs.¹⁴ The diminution of pain, improvement in orgasm, libido, excitation, and lubrication were all confirmed, for it acts towards the relaxation of the musculature, better muscle recruitment, and increased local vascularization. Such effects are necessary

for an adequate female sexual response.³ The study by Bergeron et al.,¹⁶ used three different methods to treat vulvar vestibulitis. The interventions were surgical (vestibulectomy), CBT, and Biofeedback; the three treatments were effective, but the first was the most effective.

Therapy combined with kinesiotherapy and biofeedback was used on women with UI and FSDs.²² The most frequent problems were lack of libido and pain, because acidic urine affects normal vaginal pH, which causes vaginal dryness and leads to dyspareunia. After PFMT there was an improvement in sexual function following an increase in lubrication and decrease in pain.

The combination of therapies was used to treat dyspareunia in women after normal childbirth.²³ The intervention was based on electrotherapy sessions using TENS, kinesiotherapy, and massage therapy concomitantly. At the final treatment, there was an esthetic improvement of the perineal scar, reduction

Chart 3. Summary of the included studies

Author, year, country	Instruments	Intervention	Intervention of study group	Intervention of control group	Main Results
Bergeron et al. ¹⁶ 2001, Canada	1. SF-MPQ 2. DSFI 3. BSI-GSI	1. CBT; 2. Electromyographical biofeedback; 3. Vestibulectomy	Biofeedback (8 sessions - 45 min - 60 repetitions with 10" R and 10" MC)	NS	1. SF-MPQ CBT (PRE 5.45 > POS 5.26) Biofeedback (PRE 5.79 > POS 4.55) 2. DSFI CBT (PRE 21.82 > POS 21.75) Biofeedback (PRE 21.46 < POS 22.18) 3. GSI-BSI CBT (PRE 56.36 > POS 52.89) Biofeedback (PRE 54.11 > POS 51.29)
Dionisi & Senatori ¹³ 2011, Italy	1. EVA 2. Marinoff Dyspareunia Scale 3. Goethe scale	1. TENS 2. PFMT 3. Biofeedback	TENS (30min/WK, biphasic pulses, f:10-50 Hz and 300/100/3000µs, A: 10-100mA) PFMT: C/R 15 min morning & 10 min at night) Biofeedback: 1 session	NS	1. VAS (PRE 8 > POS 1.5) 2. Marinoff (PRE 2 to 3 > POS 0) 3. Goethe scale (PRE-3 to 4 > POS -0 to 1)
Zahariou et al. ²² 2008, Greece	1. FSFI	1. PFMT 2. Biofeedback	PFMT daily: (2x5 RSC, 10" rest - 10x) Biofeedback: (30 min/month)	NS	1. FSFI (PRE-20.3 < POS-26.8)
Murina et al. ¹⁸ 2008, Italy	1. FSFI 2. EVA 3. SF-MPQ 4. Marinoff Dyspareunia Scale.	1. TENS	TENS: (20 sessions - 2x/WK, 15' f: 10Hz, 50-100µs and 15' pause)	TENS: (20 sessions - 2xWK, f: 2Hz and 2µs 15' pause)	1. FSFI (PRE 16.3 < POS 25.3) 2. VAS (PRE 6.2 > POS-2.1) 3. SF-MPQ (PRE -19.5 > POS-8.5) 4. Marinoff Dyspareunia Scale (PRE 2.7 > POS 1.1)
Everett et al. ²⁰ 1992, United Kingdom	1. Assessment of perineal pain	1. US	US: (f: 3MHz, I = 0.5W/cm ² , pulse interval 1:1, for 5' 3xWK)	Placebo	1. Qualitative analysis: less perineal pain
Bo et al. ¹⁵ 2000, Norway	1. B-FLUTS	1. PFMT	PFMT: (3x8-12MC 3x/day; 45' - 1x/WK)	No intervention	1. B-FLUTS Pain (PRE 33.4% > POS10.5%) Sexual function (PRE40% > POS16.7%)
Piassaroli et al. ² 2010, Brazil	1. Bidigital vaginal palpation 2. Intravaginal Electromyography 3. FSFI	1. PFMT	PFMT: (5C phases and 5C tonics of 0"-R10" = 100 contractions/day)	NS	FSFI (PRE-18.5 < POS-30.3); PFMT (PRE-1 or 2 < POS-4 or 5).
Citak et al. ¹⁷ 2010, Turkey	1. Oxford Grading System 2. Manometer 3. FSFI 4. Level of pain	1. PFMT	PFMT: 1 st -(C/R - 3" -10x 2" 1-x/day/15 days) 2 nd -(C/R for 5" and 15x/day)	No intervention	3. FSFI (Experimental 28.92 > Control -26.58).
Liebergall-Wischnitzer et al. ¹⁹ 2012, Israel	1. PISQ-12	1. PFMT 2. PM	PM: (45' 1x/WK) PFMT: (Groups of 10 people, 30', 1x/WK-4 WK)	NS	1. PISQ-12: PM (PRE -37.32 < POS -38.72) PFMT (PRE 37.15 < POS - 38.07)
Chambless et al. ²¹ 1984, USA	1. SAI-E 2. WSQ 3. PCMS	1. Kegel Exercises	Kegel Exercises (10' -2x/day)	Placebo Group: (10 non-sexual images viewed for 1' - 10' -2x/day)	1. SAI-E: NS 2. WSQ: (PRE 1.6 < POS 2.5) 3. PC Strength: (PRE 18.33mm < POS 28.17mm)
Wurn et al. ¹⁴ 2004, USA	1. FSFI	1. Manual Therapy	Intensive sessions 2 to 4 hours/day-5x/ WK	NS	1. FSFI (PRE-19.5 < POS-29.1)

CinT: Kinesiotherapy; CBT: Cognitive Behavioral Therapy; PFMT: Pelvic Floor Muscle Training; TENS: Transcutaneous Electro-neural Stimulation; US: Ultrasound Therapy; PM: Paula Method; UI: Urinary Incontinence; A: Amplitude; I: Intensity; f: Frequency; C: Contraction; MC: Maximum Contraction; RSC: Rapid Sustained Contractions; R: Relaxation; WK: Week; NS: Not Specified; B-FLUTS: Bristol Female Lower Urinary Tract Symptoms; GSI-BSI: Global Severity Index of the Brief Symptom Inventory; DSFI: Derogatis Sexual Function Inventory; VAS: Visual Analog Scale; FSFI: female sexual function index; PISQ-12: Pelvic Organ Prolapse/Urinary Incontinence Sexual Questionnaire; SAI-E: Sexual Arousal Inventory - Expanded Form; SF-MPQ: McGill-Melzack Pain Questionnaire; WSQ: Women's Sexuality Questionnaire. PFMS: Pelvic Floor Muscle Strength; PCMS: Pubo-coccygeal Muscle Strength; PRE: Pre-intervention; POS: Post-intervention

in pelvic floor hypertonia that led to a realignment of the vaginal apex, a reduction in tension, and an increase in sexual intimacy. These results continued eight months after the end of treatments.

As to methodological evaluation, it was difficult to blind the therapist in studies of physiotherapy, since there is a need to know the parameters and the techniques used, such as the alterations in frequency and intensity in studies that used US or TENS for the control and intervention groups. However, there being no mention of concealed allocation and the non-use of blinded evaluators and subjects are factors that could introduce bias in

the performance, for psychological factors can intensify or undermine the signs and symptoms being evaluated, depending on the therapy or placebo being used.²⁴

Another possible bias found in 50% of the studies was the non-fulfillment of the intention to treat, which demands that individuals who do not complete studies be included in the results. Such data can mask the equivalence and adherence to the treatment.²⁵

In light of the foregoing, it is advisable that studies fulfill the methodological demands of randomized clinical trials in order to guarantee the results of the therapeutic results in treating FSDs.

Some limitations were found in this review, such as the unavailability of some articles in full and their low methodological quality, given the lack of clarity and coherence in the interventions as well as in their results.

CONCLUSION

The results of this systematic review indicate that physiotherapeutic treatments such as kinesiotherapy, electrotherapy, and manual therapy, as well as in combinations, are effective treatments of FSDs in most cases. There is no consensus as to the most effective

intervention - however, kinesiotherapy after PFMT appears to be beneficial when done weekly at home, since it is easy to perform, inexpensive, quick to learn, and provides lasting results in a short period of time.

Physiotherapy such as that for treating FSDs needs to be better studied and evaluated, for there are still gaps in understanding that need to be filled. Some of the included studies lacked methodological rigor due to not having a control group, not randomizing the subjects, or having only a small sample. These aspects make it difficult to assess which is the best treatment for FSDs, since they can be used separately or in combination.

Due to the low methodological quality of the studies and the heterogeneity of the research samples, there still is no definitive dosage or duration of therapy with the best cost-benefit ratio. This makes it necessary to do prospective research in order to verify the long-term effectiveness of physiotherapy in the treatment of FSDs.

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