

Sexual changes during climacterium under a kinesiological-functional approach: review

Alterações sexuais no climatério do ponto de vista cinesiológico-funcional: revisão

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RESUMO | INTRODUÇÃO: As mudanças físicas e psicológicas que a mulher enfrenta durante o climatério, podem prejudicar a sexualidade devido às alterações hormonais do período. **OBJETIVOS:** Com isso, o objetivo desta revisão é de investigar os possíveis recursos fisioterapêuticos usados sob um prisma cinesiológico funcional para minimizar os efeitos deste período. **MÉTODOS:** Uma busca eletrônica das seguintes bases de dados foi realizada: PubMed, Lilacs e Google Scholar. A pesquisa foi executada do ano de 2010 até o ano de 2018, utilizando as seguintes combinações de palavras: disfunção sexual feminina AND menopausa AND fisioterapia, com os termos em português e inglês. **RESULTADOS:** Durante o climatério ocorre uma atrofia vaginal, e essa condição pode levar a dores durante o intercurso sexual que, por sua vez, podem gerar contratura no músculo do assoalho pélvico (MAP). Uma vez instaurada esta contratura a dor tende a aumentar, assim originando um ciclo vicioso de dor. A MAP durante o climatério também sofre uma queda da sua função muscular, podendo gerar disfunções pélvicas como a incontinência urinária, os prolapso de órgãos pélvicos e prejudicar a função sexual da mulher. **CONCLUSÕES:** A fisioterapia tem um grande arsenal de recursos terapêuticos que podem incrementar a musculatura pélvica e melhorar a qualidade de vida nesse período de declínio hormonal. Apesar de se necessitar de mais estudos a esse respeito, as técnicas fisioterapêuticas que obtiveram maior eficácia no tratamento da dispáreunia em mulheres no climatério, descritas nesta revisão, foram a termoterapia na MAP, liberação manual dos ponto-gatilhos miofasciais da MAP e treinamento dessa musculatura. Sendo assim, a fisioterapia pélvica deve ser uma linha terapêutica a ser prescrita no climatério.

PALAVRAS-CHAVE: Fisioterapia. Menopausa. Assoalho pélvico. Disfunções sexuais fisiológicas.

ABSTRACT | INTRODUCTION: The physical and psychological changes that the woman faces during the climacteric can damage sexuality due to the hormonal changes of the period. **OBJECTIVES:** Therefore, the objective of this review is to investigate the possible physiotherapeutic resources used under a functional kinesiological prism to minimize the effects of this period. **METHODS:** An electronic search of the following databases was performed: PubMed, Lilacs and Google Scholar. The research was performed from the year 2010 to the year 2018, using the following combinations of words: female sexual dysfunction AND menopause AND physiotherapy, with the terms in Portuguese and English. **RESULTS:** During climacteric vaginal atrophy occurs, and this condition can lead to pain during sexual intercourse which, in turn, may lead to contractures in the pelvic floor muscles (PFM), once this contracture is established, the pain tends to increase, thus giving rise to a vicious cycle of pain. PFMs during the climacteric also suffer a decrease of their muscular function, being able to generate pelvic dysfunctions, such as urinary incontinence, prolapses of pelvic organs and also to impair the sexual function of the woman. **CONCLUSIONS:** With this, physiotherapy has a great arsenal of therapeutic resources that can boost pelvic floor muscles and improve the quality of life in this period of hormonal decline. Despite the need for further studies in this regard, the physiotherapeutic techniques that were most effective in the treatment of dyspareunia in menopausal women, described in this review, were the thermotherapy in PFM, manual release of PFM myofascial trigger points and training of this musculature. Therefore, pelvic physiotherapy should be a therapeutic line to be prescribed in climacteric.

KEYWORDS: Physiotherapy. Menopause. Sexual dysfunction. Physiologic. Pelvic floor.

Introduction

Body changes during the climacteric can affect a woman's life in several ways. It is known that estrogen deficit, particularly, may result in several dysfunctions¹, from symptoms such as menstrual irregularity, sleep disorders, vasomotor symptoms and urogenital changes².

It is estimated that 10–50% of postmenopausal women have signs and symptoms of urogenital atrophy^{3,4}. These symptoms include dryness, irritation, pruritus and dyspareunia³, and dysfunctions regarding urination, defecation and sexual performance can also occur, leading to psychological and emotional damage, as well as an important impact on the quality of life¹.

Changes in the vaginal epithelium and in the pelvic floor musculature (PFM), both due to hormonal changes in women during the climacteric, are important factors for the impairment of the female sexual activity in this period^{2,5}. The pelvic floor is a musculoskeletal unit that provides support and control to the pelvic organs and their respective functions. Its anatomy and functionality are the basis of basic physiological functions such as storage and release of urine and feces, support of pelvic organs and sexual function itself⁶. Currently, the kinesiological-functional impairment of these functions has been highlighted in the literature. Sexual function and its impairments, particularly, have the functionality of the musculoskeletal component as a strong candidate for the etiology of the dysfunctions^{7,8}.

However, it seems that there is no consensus in the literature regarding the sexual changes in women during menopause, especially when studied from a kinesiological-functional approach and this is, therefore, the objective of this review.

Methodology

We conducted an electronic search in the databases PubMed, Lilacs and Google Scholar, restricted to

clinical trials published from 2010 to 2018, using the following word combinations: female sexual dysfunction AND menopause AND physiotherapy, including variants in Portuguese. The search was repeated to verify the results.

The reviewers evaluated the titles and abstracts of the articles identified in the initial search to verify the inclusion and exclusion criteria. We adopted as inclusion criteria the state of menopause; presence of sexual dysfunction and treatment by physiotherapy. The excluded studies were case studies, trials in experimental subjects and duplicate studies in the databases.

If the title and abstract of the article did not present clearly whether the article should be included, the article was fully read and classified.

Information from the resulting studies was extracted in a descriptive manner according to characteristics of the population and the type of physiotherapeutic intervention. We analyzed the sexual dysfunctions and the intervention measurements, presenting which ones were used and how each one was analyzed.

Results

The electronic search, accounting for the keywords, generated a total of 984 articles. After the selection of the articles considering the inclusion criteria, 8 articles were selected as potential studies based on the title and the abstract. The non-included articles were 977 and were excluded because they were neither in Portuguese nor English, had men as subjects or were reviews. Most of the non-included articles came from Google Scholar, which, by definition, also presents editorial letters, synthesis articles, theses, dissertations, comments, etc. All articles were fully read and 5 were excluded because the studies were only of evaluation and not of clinical intervention (Figure 1).

Figure 1. Flowchart of the selection of the primary articles

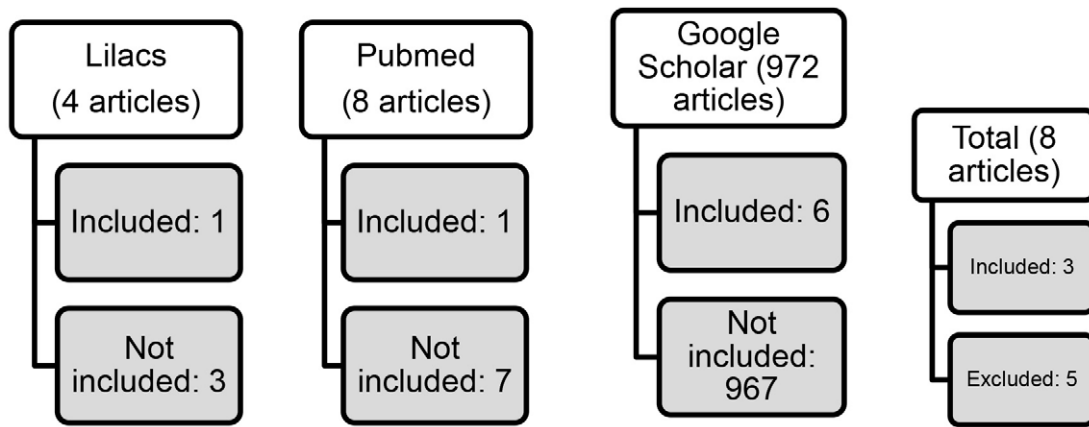


Table 1 characterizes the population of the 3 selected articles that contain information on the studies and are arranged by author name and year, methods used, results and conclusion.

Lara et al. (2012) conducted a study with 32 sexually active postmenopausal women that underwent pelvic floor muscle training (PFMT) and warm-up and stretching exercises twice a week for 12 weeks. For evaluation, they used the questionnaires Female Sexual Quotient (SQ-F) and Oxford Scale. The mean score of the Oxford scale after the protocol was significantly higher than the score before the protocol. As a result, the authors observed that postmenopausal, sedentary and continent women, when subjected to an exercise program that included PFMT, effectively improved anxiety and the strength of the PFM. However, there was no significant impact on the sexual function measured by the SQ-F⁹.

Lisboa et al. (2015) analyzed postmenopausal women divided into two groups: fibromyalgia (n = 47) and control (n = 43). They used the questionnaires Utian Quality of Life (UQOL), Blatt-Kupperman menopausal index (BKMI) and SQ-F. The study consisted of a 10-week treatment protocol conducted twice a week, with a daily duration of one hour. The proposed practice followed a sequence of perception, abdominoperineal dissociation, voluntary contraction and automation of the pelvic floor. The results in the domains of quality of life showed a statistically significant improvement for both groups. In the between-groups evaluation after the treatment, a statistically significant difference was observed in three of the four domains of the UQOL (occupational, health and sexual), with sexual function improving its scores in both groups, but this was even more evident in the control group. The climacteric symptoms had a significant reduction for both groups. Thus, it was concluded that kinesiotherapy for the pelvic floor provides a significant improvement in the quality of life, signs and symptoms of the climacteric and sexual function. However, the symptoms of fibromyalgia have a negative impact on the evolution of PFMT in postmenopausal women¹⁰.

Schwartzman et. al. (2016), through a randomized clinical trial using the questionnaires Female Sexual Function Index (FSFI), Cervantes Scale, Visual Analog Scale for Pain and PFM evaluation through electromyography vaginal palpation using the New Perfect Scale, aimed to assess whether 42 postmenopausal women with dyspareunia would improve their symptoms with a protocol of pelvic physiotherapy. The intervention group received thermotherapy, manual release and PFMT during five sessions. The control group received thermotherapy in the lumbar region and manual release of the musculature of the abdominal diaphragm, piriformis and iliopsoas, without the involvement of the PMF. The results were satisfactory since the scores of the intervention group decreased from a mean of 7.77 to 2.25 and, of the control group, decreased from a mean of 7.62 to 5.58. Thus, it is possible to say that the intervention performed directly on the PFM was associated with a statistically significant reduction in the pain scores. The study also verified an improvement of the scores of the New Perfect Scale and of the total scores of the FSFI and Cervantes Scale¹¹.

Table 1. Characterization of the studies' population

Author/Year	Methods	Results	Conclusion
Lara et al. 2012 ⁹	Prospective, longitudinal and exploratory study. Sexually active postmenopausal women (n = 32) Questionnaires: SQ-F and HADS; PFM Evaluation: vaginal bimanual palpation and muscle strength through the modified Oxford scale. Protocol: PFMT and warm-up and stretching exercises. Twice a week for 12 weeks.	Increase of the score on the Oxford scale after the protocol. The number of women suffering from anxiety was significantly smaller after the protocol. There was no change in the proportion of women with depression and in the general score of the SQ-F.	This study of postmenopausal, sedentary and continent women indicates that the implementation of an exercise program that includes the PFM leads to an effective improvement in anxiety and strength of the PFM but has no impact on the sexual function measured by the SQ-F.
Lisboa et al. 2015 ¹⁰	Clinical trial. Postmenopausal women. The patients were divided into two groups: fibromyalgia (n = 47) and control (n = 43). Questionnaires: UQOL, BKMI and SQ-F. Protocol: Kinesiotherapy of the PF during 10 weeks conducted twice a week, with daily duration of one hour.	The domains of quality of life had a statistically significant improvement in both groups. The scores of sexual function increased in both groups, but a more significant improvement in the control group is highlighted. The climacteric symptoms had a significant reduction in both groups.	It is concluded that kinesiotherapy for the pelvic floor provides significant improvement in the quality of life, climacteric signs and symptoms and sexual function.
Schwartzman et al., 2016 ¹¹	Randomized clinical trial. Questionnaires: FSFI, Cervantes Scale, Visual Analog Scale for pain. PFM evaluation: Electromyography and New Perfect Scale. The study included 24 postmenopausal women with dyspareunia, which were divided into two groups. The protocol consisted of thermotherapy, kinesiotherapy and PFMT.	The pain scores in the intervention and control groups had a statistically significant reduction.	The proposed physiotherapy protocol was efficient to improve dyspareunia, quality of life, sexual function and PFM function in postmenopausal women with dyspareunia.

Discussion

This study aimed to indicate sexual changes in postmenopausal women from a kinesiological-functional view. First, we highlight the small number of articles that meet the inclusion criteria considering the importance of the subject.

Among the selected articles, all evaluated the pelvic floor muscles (PFM), sexual function and quality of life of postmenopausal women, and observed the importance of physical and psychological aspects, especially in this period, since it is known that there is a decrease in sexual function and quality of life during the menopause. The population of the three included studies was not homogeneous, which diffculted the comparison of the results.

During the climacteric, vaginal atrophy occurs together with reduction of vaginal lubrication due to a decrease in hormone production, and this condition may lead to pain during the sexual intercourse that, in turn, may generate contractures in the PFM^{12,13}. Once this contracture occurs, pain tends to increase, leading to a vicious cycle of pain. The PFM during the climacteric also suffer a decrease in muscle function due to reduction in the thickness of the vaginal epithelium, density of the smooth muscle layer, blood vessels, morphology and density of the nerve endings and collagen structure, which may generate pelvic dysfunctions such as urinary incontinence, prolapse of pelvic organs and impairment of sexual function^{14,15,16}. Pelvic floor muscle training, for this population, generates benefits for the already established dysfunctions or may function as prevention, increasing muscle perception, pain relief and muscle coordination, leading to physical and psychological improvement¹⁷.

There is also little evidence regarding the treatment protocols for female sexual dysfunction and this observation was corroborated by the variety of protocols described in the three studies included in our review. Lara et al. (2012) used a 12-week protocol conducted twice a week and consisting of four series of ten repetitions of maximum contractions of the pelvic floor maintained for six seconds followed by three quick contractions performed for one second, in the supine, sitting, hands on the knees and standing positions. The program also included warm-up and stretching exercises for the quadriceps, ischiotibial, triceps surae, paravertebral, abdominal and PFM, as well as relaxation⁹.

Lisboa et al. (2015) presented a protocol conducted in 10 consecutive weeks and involved 20 kinesiotherapy sessions for the PFM conducted twice a week with a daily duration of one hour. The proposed practice followed a sequence of perception, dissociation between the abdominal and pelvic floor musculatures, voluntary contraction and automation of the pelvic floor associated with facilitating postures, mobilization of the pelvis and respiratory training during the PFM contractions¹⁰.

Finally, Schwartzman et al. (2016) applied thermotherapy to the PFM, manual release of PFM myofascial trigger points and training of this musculature during five sessions. The control group received thermotherapy in the lumbar region and manual myofascial release of the musculatures of the abdominal diaphragm, piriformis and iliopsoas without including the PFM¹¹.

Among the three articles, the study of Schwartzman et al. (2016) obtained better results on the sexual function since the Visual Analog Scale for pain decreased significantly in both groups and the general scores of the FSFI increased. Therefore, the described physiotherapy protocol caused a significant improvement in postmenopausal women with dyspareunia.

We noticed that none of the articles used therapeutic resources of electrostimulation for analgesia such as TENS, improving pain only through manual techniques.

The study of Lara et al. (2012)⁹ included women with an average age of 52 years and all were in long-term relationships. The mean score of the Oxford scale after the protocol was significantly higher than the score before the protocol. The number of women with anxiety after the protocol was significantly smaller than before the protocol. However, there was no significant change in the proportion of women with depression in the general score of the SQ-F after the treatment. Depression is known as a common factor in the menopause and is related to both physical and emotional factors¹⁸. Thus, the fact that Lara et al. did not obtain satisfactory results regarding improvement of depression in the patients must be interpreted with caution because it does not necessarily mean that exercises for the pelvic floor in the climacteric do not help fight depression in these women but that it may need an exercise protocol with, e.g., a more aggressive dosage. Also, it is worth highlighting that depression in this period may not be related only to sexual problems but also to other general aging factors that physiotherapy directed to the pelvic floor cannot reach. Such intriguing questions certainly deserve to be studied.

The study of Lisboa et al. (2015)¹⁰ with 83 participants, of which 43 were part of the fibromyalgia group and 40 of the control group, showed that the applied kinesiotherapy protocol allowed an improvement in the quality of life for both the fibromyalgia group and the control group in all domains. Regarding the evaluation of the sexual function, one can see that, after the intervention, both the fibromyalgia group and the control group increased their scores with statistically significant differences. In fact, training of the pelvic floor improves significantly the sexual function in women with all sorts of sexual complaints¹⁹, and the study of Lisboa et al. shows that this training is also efficient to improve the sexual function of postmenopausal women that are also affected by fibromyalgia – although the results in this group was slightly more modest than in the group without fibromyalgia. It is possible that the training of the pelvic floor musculature improves the sexual function even of healthy women, which is another subject that needs to be investigated, considering that an improvement in sexual function also means an improvement in quality of life in general¹⁹.

Schvartzman et al. (2016)¹¹, showed that the exercises for the PFM correspond to a statistically significant reduction in the scores of sexual pain and increase of the pelvic floor function and sexual function in general. In fact, pelvic physiotherapy is efficient for the treatment of sexual pain^{8,20}, pelvic floor function^{7,19,20,21} and improvement of female sexual function in general^{7,8,19,20}.

Exercises for the pelvic floor help improve body awareness and strengthening of the PFM, which act as stabilizers of pelvic organs such as the uterus and bladder, act in urinary and fecal continence and contribute to distinct stages of the female sexual response such as desire, arousal and orgasm²⁰.

Although there are still few studies addressing the effects of pelvic physiotherapy on the female sexual function, their resources can be used as modalities without contraindications or potential risks²¹ and can be useful even for the treatment of sexual dysfunction in postmenopausal women.

Conclusion

Menopause is a natural period of a woman's life cycle and can generate impairments in all aspects of life, such as physical, social and psychological ones. Among the physical aspects, we can highlight sexual dysfunctions such as lack of desire, low lubrication and dyspareunia. Since they consist of physical and functional problems, physiotherapy has an arsenal of therapeutic resources that, by improving the function of the pelvic floor musculature and, thus, the local sensitivity, improve the quality of life even during this period of hormone decline. Despite the need of more studies on this subject, the most efficient physiotherapy techniques for the treatment of dyspareunia in postmenopausal women described in this review were thermotherapy on the PFM, manual release of the PFM myofascial trigger points and the training of this musculature, so that pelvic physiotherapy must be a therapeutic approach prescribed in the climacteric.

Author contributions

Camilo SN and De Conto CL were responsible for the writing of the scientific article. Latorre GFS participated in the conception, design and interpretation of the results. Nunes EFC critically reviewed the content of the article.

Competing interests

No financial, legal or political competing interests with third parties (government, commercial, private foundation, etc.) were disclosed for any aspect of the submitted work (including but not limited to grants, data monitoring board, study design, manuscript preparation, statistical analysis, etc.).

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