

Effects of Testosterone Hormone in the Sexual Aspect of Postmenopausal Women: A Systematic Review

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Abstract

A decrease in the level of testosterone hormone in women during the postmenopausal period shows a vast majority of signs and symptoms that affect the quality of sexual life of these patients, due to this fact nowadays, it is important to understand and treat with an appropriate medication for improving this hormone deficiency. To summarize the effects of testosterone hormone treatment in the sexual aspect of postmenopausal women. PubMed was searched from the year 1974 until the present using MESH terms: (((Testosterone hormone) OR (Androgens)) OR (Testosterone Deficiency)) AND (Sexual Dysfunction) AND (Postmenopausal women) AND (current therapy replacement))). The inclusion criteria are studies with observational and experimental approaches on postmenopausal women that evaluated the mechanism of action of testosterone hormone. The updated data show that the testosterone hormone decreases most of the signs and symptoms of menopausal women related to sexual aspect, the use of this hormone decrease the sexual dysfunction, however, these data are limited due to the small study group and a few studies about this relationship. With the new knowledge of the relationship between testosterone hormone and postmenopausal women, there is a huge development in the use of this hormone, to validate these findings and ensure they can be generalized, further randomized controlled trials are essential, these future studies should aim to confirm the efficacy of testosterone therapy.

Categories: Obstetrics/Gynecology

Keywords: sexual dysfunction, testosterone deficiency, testosterone insufficiency, testosterone, menopause women

Introduction And Background

Based to the North American Menopause Society (NAMS), menopause is considered normal when it is marked by the final menstrual period, which is diagnosed after 12 consecutive months of natural amenorrhea with no identifiable medical reason [1].

Women typically experience a range of signs and symptoms during menopause, with the most common being hot flashes, night sweats, sleep disturbances, vaginal atrophy, and dyspareunia [2-3].

In postmenopausal women most of them has vulvovaginal atrophy (VVA), due to this problem they can develop sexual dysfunction such as loss of desire, decrease lubrication and loss of orgasm causing psychophysiological changes and interpersonal emotions [4].

Testosterone is a crucial hormone that plays a significant role in maintaining the function of the female genital apparatus, including vaginal lubrication, which is essential for sexual health [5]. Therefore, research have shown that testosterone levels in women are typically higher than those of estradiol [6].

Testosterone is produced by key organs such as the ovaries and adrenal glands, once released into the bloodstream, it binds to sex hormone-binding globulin (SHBG), which has a higher affinity for testosterone than albumin [7], when testosterone binds to androgen receptors, it triggers the activation of genes responsible for various functions, including sexual function [8].

During menopause, the levels of androgens, including testosterone, decline due to the aging effects on the adrenal and ovarian functions, this reduction can lead to decreased sexual motivation [9].

Due to this background, it is hypothetically believed that a decrease in the testosterone hormone would be a reversible cause of Hypoactive Sexual Desire Disorder (HSDD) and nowadays there are guidelines for the management and use of Testosterone Replacement Therapy (TRT) in women during menopausal period [10].

In the United States, menopausal and postmenopausal women frequently experience female sexual dysfunction (FSD) and Hypoactive Sexual Desire Disorder (HSDD), which are among the most commonly reported conditions in studies [11]. It is crucial to recognize that sexual dysfunction not only affects the women themselves but also has a significant impact on their relationships [11].

This systematic review aim is to summarize the evidence regarding the effects of testosterone on the sexual health of postmenopausal women; it is important to recognize that hormone levels, including testosterone, fluctuate throughout different stages of life, understanding these variations is crucial for comprehending the impact of testosterone on sexual health during post menopause.

Review

We developed a literature search, and applied the guidelines of the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) [12]. It's worth noting that this research does not need ethical approval, as it entails reviewing existing published articles on patient data. A thorough search was performed in the following database: PUBMED and it was applied the MESH terms such as (((Testosterone hormone) OR (Androgens)) OR (Testosterone Deficiency)) AND (Sexual Dysfunction) AND (Postmenopausal women)) AND (current therapy replacement))).

We used data from 1974 until the present, publications with observational and experimental designs on humans that evaluated the effect of testosterone in the sexual aspect were accepted as inclusion criteria, the research includes another hormone (estrogen) related to the studies or women with young stage of age before 40 years were excluded (Figure 1) gives you the process of selection [12]. In the description of the data, to provide a better understanding, we use a table to develop a summary of all the information recollected about comparing different aspects in the sexual field.

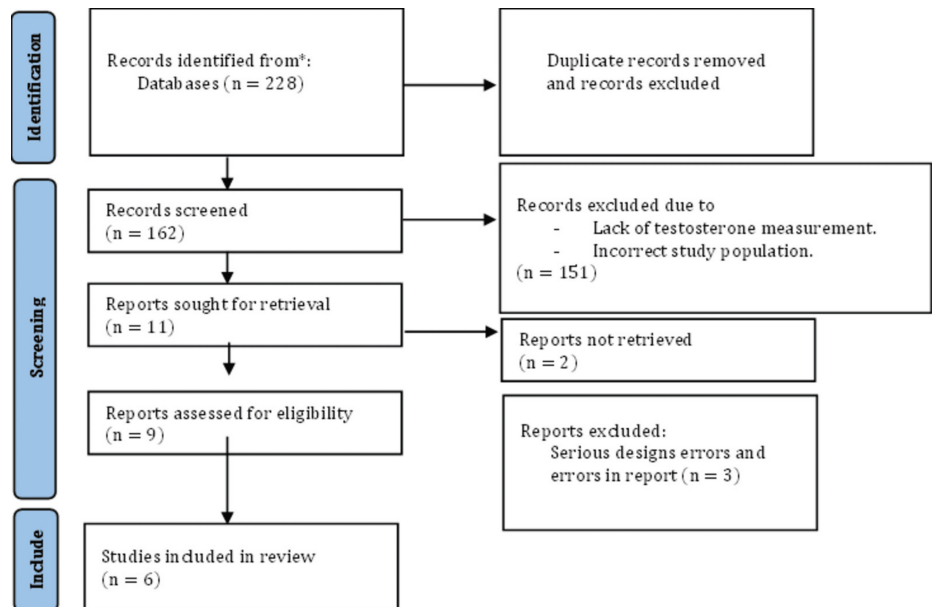


FIGURE 1: Prisma Flow

Results.

Selection and Characteristics.

Our study began with an initial set of 228 articles, as illustrated in (Tabla 1), after reviewing the titles and abstracts, 66 articles were removed due to duplication. Following the full-text review, an additional 156 records were excluded. In the end, 6 articles remained, which were subjected to further examination.

Author(s), Years	Study Design	Aim of study	Setting and Participants	Results and Findings
Ayane Alves et al. (2022)	Systematic Review	To evaluate the efficacy of the hormonal and nonhormonal approaches to symptoms of sexual dysfunction and vaginal atrophy in postmenopausal women.	55 articles	This review suggests that vaginal hormone therapy with DHEA could positively influence sexual desire and sexual function.
Ana Cabrera et al. (2021)	Systematic Review	To assess the effectiveness and safety of Tribulus terrestris to treat female sexual dysfunction (FSD).	5 randomized controlled trials	Increase in sexual function scores.
Channa N. Jayasena et al. (2018)	Systematic review	Investigating the efficacy and safety of testosterone therapy for female sexual dysfunction in postmenopausal women.	69 articles	In summary, although the majority of studies suggest that testosterone helps reduce symptoms of sexual dysfunction irrespective of the method of administration, this conclusion is not universally supported by all research
Chiara Achilli et al. (2016)	Systematic reviews and meta-analysis.	To systematically review and summarize the existing evidence related to the efficacy and safety of transdermal T in postmenopausal women for the treatment of hypoactive sexual desire disorder (HSDD).	7 randomized controlled trials.	The T group experienced notably higher levels of satisfying sexual episodes, sexual activity, orgasms, desire, as well as significant improvements in Personal Distress Scale scores, they reported more androgenic side effects, including acne and increased hair growth, compared to the placebo group.
Mohit Khera et al. (2015)	Narrative review and Expert Opinion	The aim of this study is to provide an overview of the current literature regarding the use of testosterone therapy (TTh) for the treatment of FSD.	66 articles	Testosterone therapy has been demonstrated to enhance various aspects of female sexual dysfunction, including sexual desire, arousal, pleasure, and overall satisfaction, although, testosterone therapy can lead to side effects like acne and hirsutism, there is no strong evidence suggesting that it increases the risk of cancers such as breast or endometrial cancer.
Maria Uloko et al. (2022)	Narrative review	To highlight the use of TRT in the management of the postmenopausal woman experiencing symptoms of HSDD.	71 articles	Conclude that testosterone is a vital hormone in women in maintaining sexual health and function.

TABLE 1: Resume of articles

Data

The systematic review included a total of 6 studies, and all of them had a positive impact on the sexual aspect of postmenopausal women decreasing their sexual dysfunction, improving sexual desire, and overall satisfaction [10,13,14,15,16,17].

The improvement is similar to patients who had surgical menopause in which the administration of testosterone improved their sexual dysfunction [18].

Discussion and Perspective.

Current evidence indicates that testosterone therapy for female sexual dysfunction (FSD) can enhance not only dyspareunia and vaginal dryness but also sexual desire and orgasm [19]. However, this treatment is not suitable for all women, particularly those with conditions such as breast cancer, endometrial cancer, or deep venous thrombosis. Furthermore, there is limited evidence regarding the effectiveness of non-hormonal therapies in improving orgasm, lubrication, and overall sexual satisfaction in postmenopausal women [2].

The current review indicates that testosterone therapy may positively affect sexual desire and function in all areas, not just in reducing dyspareunia and vaginal dryness [19].

Nonetheless, some studies indicate that testosterone might not be appropriate for cases of low sexual desire

[20]. Thus, the results of this study should not be broadly applied until additional randomized clinical trials are carried out to validate and reinforce the evidence.

Due to the fact that testosterone therapy helps in the sexual aspect of the human body [19], it is important to be aware that people should use this therapy but first we need more randomized clinical trial in order to use this therapy because of the side effects that has been discovered [20].

Conclusions

This comprehensive review underscores the potential benefits of testosterone therapy in addressing female sexual dysfunction (FSD) and Hypoactive Sexual Desire Disorder (HSDD) in postmenopausal women.

Our analysis, grounded in the review of six studies, emphasizes that testosterone therapy can notably improve not only dyspareunia and vaginal dryness but also boost sexual desire and orgasm, this aligns with the growing body of evidence supporting testosterone's role in improving various aspects of sexual health, particularly in those suffering from vulvovaginal atrophy and diminished sexual motivation.

The results of this review suggest that testosterone therapy could have a profound positive impact on sexual health across multiple domains, extending beyond the relief of specific symptoms like dyspareunia and vaginal dryness, however, conflicting evidence on its efficacy for low sexual desire indicates the need for a nuanced approach to treatment.

To fully validate these findings and ensure they can be generalized, further randomized controlled trials are essential, these future studies should aim to confirm the efficacy of testosterone therapy, evaluate its long-term safety, and clarify its role in the broader context of sexual health management for postmenopausal women.

Additional Information

Author Contributions

All authors have reviewed the final version to be published and agreed to be accountable for all aspects of the work.

Concept and design: Julio G. Rojas-Zambrano, Augusto R. Rojas-Zambrano

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