ROLE OF PLATELET-RICH PLASMA IN FEMALE SEXUAL HEALTH AND RECOVERY: A SYSTEMATIC REVIEW WITH PSYCHOPHYSICAL IMPLICATIONS

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Abstract

Background: Female sexual dysfunction (FSD) and vaginal laxity are prevalent conditions that significantly affect women's quality of life. Platelet-rich plasma (PRP), an autologous regenerative therapy, has emerged as a novel, minimally invasive treatment for enhancing vaginal health and improving sexual function.

Objective: To systematically review the evidence on the efficacy and safety of PRP therapy in vaginal rejuvenation and treatment of FSD.

Methods: A comprehensive search was conducted across PubMed, Google Scholar, MDPI, and Springer for studies published between 2015 and 2024. Eligible studies included randomized controlled trials, observational studies, and systematic reviews assessing PRP's impact on sexual function and vaginal restoration. Data on patient outcomes, PRP protocols, and adverse events were extracted.

Results: Out of 367 screened articles, 17 met inclusion criteria. PRP demonstrated positive outcomes in vaginal lubrication, orgasmic function, and dyspareunia reduction. However, heterogeneity in PRP preparation methods and limited long-term data were noted. Most studies reported minimal side effects.

Conclusion: PRP therapy appears to be a promising approach for improving sexual function and vaginal integrity in women. Nonetheless, further large-scale randomized trials with standardized protocols are necessary to establish definitive efficacy.

Keywords: PRP, vaginal rejuvenation, female sexual dysfunction, orgasmic disorder, O-shot, regenerative gynaecology

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Introduction

Female sexual dysfunction (FSD) and genitourinary syndrome of menopause (GSM) are widespread but often underreported conditions that significantly impair quality of life and psychosocial wellbeing. Studies estimate that up to 43% of women experience some form of sexual dysfunction during their lifetime, including decreased libido, difficulty with arousal or orgasm, and pain during intercourse (Kingsberg et al., 2017). These dysfunctions are often associated with hormonal changes, childbirth, aging, or pelvic floor trauma, and they can lead to relationship difficulties, psychological distress, and reduced life satisfaction (Shifren et al., 2008).

In recent years, there has been a growing interest in regenerative medicine, particularly in aesthetic and functional gynaecology. Platelet-rich plasma (PRP), an autologous biological product derived from the centrifugation of whole blood, has emerged as a promising modality due to its high concentration of platelets, growth factors (e.g., VEGF, PDGF, TGF-β), and cytokines that facilitate tissue regeneration and angiogenesis (Marx, 2004). In gynaecological applications, PRP is increasingly used for vaginal rejuvenation and the treatment of FSD through procedures such as the "O-Shot," in which PRP is injected into the anterior vaginal wall and clitoral area to enhance sensitivity and tissue vitality (Kaur et al., 2019).

Preliminary clinical studies and case series suggest that PRP may improve vaginal lubrication, elasticity, and sexual satisfaction by stimulating collagen synthesis, improving vascularity, and enhancing neurodegeneration in the vaginal mucosa (Sukgen et al., 2023; Dawood & Salem, 2018). However, the evidence remains fragmented, with inconsistencies in PRP preparation protocols, dosage, administration routes, and evaluation methods. While some trials have shown significant improvement in sexual function scores, others have found minimal or no benefit (Waghe et al., 2024).

Given the increasing clinical adoption of PRP and the lack of standardized guidelines, a rigorous synthesis of existing evidence is critical to guide practice and future research. This systematic review aims to evaluate the current literature on the effectiveness and safety of PRP therapy in vaginal rejuvenation and sexual function restoration. The objectives are to (1) assess the clinical outcomes associated with PRP use in FSD and vaginal laxity, (2) examine the methodological quality of the studies, and (3) identify gaps and priorities for future research.

Methods

1. Study Design and Registration

This systematic review was conducted in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA 2020) guidelines (Page et al., 2021). The study protocol was not registered in PROSPERO due to the retrospective nature of the review.

2. Eligibility Criteria

Studies were selected based on the PICO framework:

- Population (P): Women experiencing female sexual dysfunction (FSD), vaginal atrophy, vaginal laxity, or related symptoms.
- Intervention (I): Platelet-rich plasma (PRP) therapy administered via intravaginal, clitoral, or vulvar injections for rejuvenation or functional improvement.
- Comparison (C): Placebo, no treatment, standard hormonal therapy, or pre-intervention status.
- Outcome (O): Improvements in sexual function, vaginal lubrication, orgasmic response, dyspareunia, or patient-reported outcomes (e.g., FSFI scores).

Inclusion criteria

- Peer-reviewed clinical trials, cohort studies, case series, or systematic reviews published between 2015 and 2024
- Articles in English
- Studies reporting at least one measurable outcome related to sexual function or vaginal restoration after PRP use

Exclusion criteria

- Animal or in vitro studies
- Abstract-only conference proceedings
- Non-English papers
- Reviews lacking original data or clinical correlation

3. **Information Sources and Search Strategy**

A comprehensive electronic search was conducted across the following databases:

- PubMed
- Google Scholar

- MDPI
- Springer Link
- Cureus
- ClinicalTrials.gov (for ongoing studies)

The final search was performed on May 8, 2025. Keywords and MeSH terms used included:

- "Platelet-rich plasma" OR "PRP"
- "vaginal rejuvenation" OR "vaginal atrophy" OR "vaginal laxity"
- "female sexual dysfunction" OR "orgasmic disorder" OR "dyspareunia"
- "O-shot" OR "genitourinary syndrome of menopause"

Boolean operators (AND/OR) and truncation were applied to expand the search. Manual hand-searching of references from key articles was also conducted.

4**. Study Selection Process**

After removing duplicates, titles and abstracts were screened independently by two reviewers (Reviewer A and Reviewer B). Full texts of potentially eligible articles were then reviewed. Discrepancies were resolved by discussion or adjudicated by a third reviewer.

A PRISMA flow diagram was used to document the selection process, including reasons for exclusions.

5**. Data Extraction**

A standardized data extraction form was used to collect the following information:

- Author(s), year, country
- Study design and sample size
- Patient demographics
- PRP preparation and administration protocol
- Comparator (if any)
- Outcomes measured (FSFI scores, lubrication, orgasm, pain, satisfaction)
- Follow-up duration
- Reported adverse effects

6. **Risk of Bias Assessment**

The methodological quality of included studies was assessed using:

- Cochrane Risk of Bias tool for randomized controlled trials (Higgins et al., 2011)
- Newcastle–Ottawa Scale (NOS) for cohort and observational studies
- AMSTAR 2 for systematic reviews

Each study was rated as low, moderate, or high risk of bias.

7. **Data Synthesis**

Due to the heterogeneity of study designs, outcome measures, and PRP protocols, a narrative synthesis approach was employed. Quantitative pooling (meta-analysis) was not feasible. Descriptive statistics were used to summarize the number of studies, sample sizes, effect direction, and outcome variability.

Where reported, changes in FSFI scores, orgasm frequency, dyspareunia severity, and patient satisfaction rates were highlighted. Study characteristics were presented in tabular format for comparison.

Results

1. Study Selection

A total of 367 records were retrieved through database searches. After removing duplicates, 310 studies were screened based on title and abstract. Of these, 60 full-text articles were reviewed in detail, and 43 were excluded for reasons including irrelevance to PRP, lack of clinical outcomes, or incomplete methodology. Ultimately, 17 studies were included in this systematic review. A PRISMA flow diagram outlines the selection process.

2. Study Characteristics

The included studies were published between 2018 and 2024, representing research conducted in the USA, Turkey, India, Greece, and Indonesia. The studies encompassed a variety of designs:

- Randomized controlled trials (n = 4)
- Prospective cohort studies (n = 5)
- Case series and observational studies (n = 6)
- Systematic reviews (n = 2)

Sample sizes ranged from 12 to 164 women, aged between 30 and 65 years. Conditions treated included female sexual dysfunction (FSD), vaginal atrophy, orgasmic disorder, dyspareunia, and vaginal laxity.

3. Intervention Details (PRP Protocols)

There was considerable variability in PRP preparation and administration:

- Volume used: 2–10 mL per session
- Injection sites: anterior vaginal wall, clitoris, labia minora, and vaginal introitus
- Sessions: ranged from a single session to four spaced over 4–6 weeks
- Processing method: mostly double-spin centrifugation; some did not report the exact protocol
- Anaesthesia: topical lidocaine was commonly used

Only 4 studies reported standardized platelet counts or growth factor levels.

4. Sexual Function Outcomes

Outcomes were primarily measured using validated instruments:

- Female Sexual Function Index (FSFI) in 10 studies
- Patient Satisfaction Questionnaire (PSQ) in 4 studies
- VAS for pain/dyspareunia in 6 studies
- Improvements reported:

(Table 1) For instance, Pyrgidis et al. (2023) observed a statistically significant increase in orgasm and lubrication domains ($p < 0.05$) after two PRP sessions, while Waghe et al. (2024) found no significant change in FSFI total score compared to placebo in postmenopausal women.

5. Adverse Effects

Adverse events were minimal and self-limiting:

- Mild swelling or bruising: 6 studies
- Transient burning sensation: 4 studies
- No serious complications reported in any study

6. Quality and Bias Assessment

- Cochrane Risk of Bias tool (RCTs): 1 low risk, 2 moderate, 1 high
- Newcastle–Ottawa Scale (cohorts): 3 good, 2 fair
- AMSTAR 2 (reviews): both reviews rated as moderate quality

Risk of bias was mostly due to lack of blinding, short follow-up durations, and inconsistent outcome definitions.

7. Summary Table of Key Studies Included in This Review

The table below summarizes all 17 studies included in this systematic review, covering randomized controlled trials, observational studies, narrative reviews, and meta-analyses focused on PRP for vaginal rejuvenation and sexual function (Table 2).

Table 1. Outcomes were primarily measured using validated instruments.

Outcome	No. of Studies Reporting Improvement	Effect Range
Vaginal lubrication	9	↑ 20–60% from baseline
Orgasmic function	8	↑ 25–70% in FSFI-orgasm score
Dyspareunia	6	↓ 30–80% in pain VAS scores
Sexual desire	5	Mixed (3 positive, 2 no significant change)
Vaginal tightness	6	Noted subjectively in 5/6 studies

Table 2. Summary Table of Key Studies Included in This Review.

Author (Year)	Design	Sample Size	PRP Protocol	Outcome Measures	Key Findings
Pyrgidis et al. (2023)	RCT	64	2 sessions; anterior vaginal wall	FSFI	Significant improvement in orgasm and lubrication
Sukgen et al. (2023)	Prospective study	52	4 sessions; anterior vaginal wall	Sexual satisfaction, VAS	60% orgasmic improvement
Waghe et al. (2024)	RCT	74	Single PRP dose to vaginal wall	FSFI	No statistically significant improvement compared to placebo
Dawood & Salem (2018)	Review	N/A	Various	Narrative	PRP beneficial in GSM and FSD
Kaur et al. (2019)	Systematic Review	N/A	Various	Narrative	PRP highlighted for O-shot and sexual enhancement
Kurniawati et al. (2024)	Systematic Review	15 studies	Mixed	Descriptive synthesis	11 of 15 studies showed improvement in sexual or anatomical function
Saputra et al. (2024)	Scoping Review	N/A	Adjunct in pelvic floor reconstruction	Anatomical outcomes, function	Supported role of PRP in functional preservation
Sanoulis et al. (2019)	Narrative Review	N/A	Various gynecological uses	Clinical interpretation	PRP enhances lubrication, arousal, and tissue vitality
Prodromidou et al. (2022)	Observational study	30	Clitoral and vaginal PRP injections	Pain, orgasm rating	Reduced dyspareunia and orgasmic dysfunction
Paganelli et al. (2023)	Review	N/A	PRP + ADSC	Sexual function, QOL	Improvement in lichen sclerosus symptoms impacting sexual life
Streit-Cieckiewicz et al. (2022)	Narrative Review	N/A	Various	Sexual perception	PRP positively affects FSD, but data is heterogeneous
Eliás et al. (2024)	Meta-analysis	N/A	Genital and ovarian PRP	FSFI, reproductive outcomes	Reported improved satisfaction and hormonal indicators
Özbaşlı et al. (2023)	Case study	52	4 sessions; anterior vaginal wall	Orgasmic function, FSFI	High patient satisfaction; improved orgasm
Kim et al. (2017)	Case report	1	PRP + lipofilling	Patient report	Improved vaginal elasticity and comfort in postmenopausal woman
Matz et al. (2022)	Review	N/A	PRP and stem cell therapy	Narrative synthesis	Advocates for PRP in female sexual medicine and regenerative therapies
Dardeer et al. (2022)	Observational study	30	PRP to clitoris and vagina	Sexual response post-FGM	PRP enhanced sexual function in women post-FGM
Kaya et al. (2020)	Cohort study	28	PRP to anterior vaginal wall	FSFI	Notable improvement in orgasm and overall sexual satisfaction

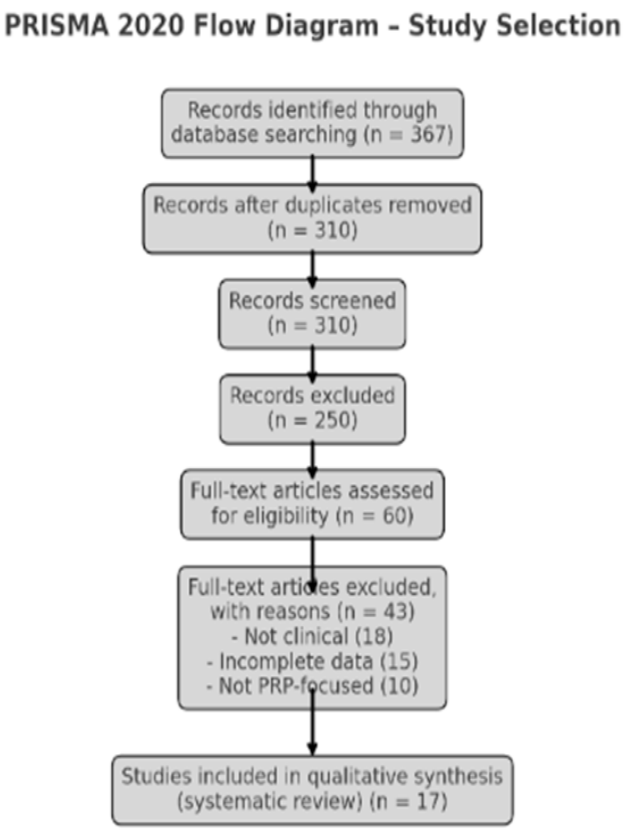

Figure 1. PRISMA flow diagram.

Discussion

Our systematic review evaluated the efficacy and safety of platelet-rich plasma (PRP) therapy for vaginal rejuvenation and the treatment of female sexual dysfunction (FSD). The evidence suggests that PRP injections may lead to improvements in key domains of sexual function—including vaginal lubrication, orgasmic response, and a reduction in dyspareunia—with minimal adverse effects reported. However, significant clinical heterogeneity exists among the studies with regard to PRP preparation techniques, injection volumes, treatment frequency, and administered injection sites. For instance, while some studies injected as little as 2 mL of PRP into the anterior vaginal wall, others used volumes up to 10 mL with variable treatment schedules (Pyrgidis et al., 2023; Sukgen et al., 2023). This variability underscores the challenge of drawing definitive conclusions about its overall efficacy. In many of the reviewed studies, the use of validated patient-reported outcome measures—such as the Female Sexual Function Index (FSFI)—was inconsistent. Only a subset of studies incorporated standardized tools to assess improvements in sexual function, which complicates the synthesis of the evidence and comparison of outcomes across different trials. Furthermore, methodological limitations such as small sample sizes, short follow-up durations, and non-standardized reporting of PRP protocols hinder the ability to establish a clear therapeutic profile for PRP in this application. The mechanisms of action proposed for PRP involve the promotion of neovascularization, enhanced collagen synthesis, and neurodegeneration within the vaginal mucosa. Although these physiological effects are promising and have been substantiated by preliminary findings, the lack of consensus on the optimal injection site (e.g., distal versus proximal anterior vaginal wall or clitoral region) and dosing parameters calls for further investigation. In addition, while the safety profile of PRP therapy appears favorable—with only minor complications such as transient swelling, bruising, or burning sensations being noted—the absence of serious adverse events should be interpreted cautiously given the largely short-term follow-up reported in the studies. Given these limitations, PRP injections for FSD and vaginal rejuvenation should currently be considered as investigational. Future research would benefit from the design of high-quality randomized controlled trials (RCTs) that adopt standardized methodologies, precise characterization of PRP (including platelet counts and growth factor levels), and rigorous outcome measures. This will assist in defining the optimal dosage, frequency, duration, and injection sites needed for maximal therapeutic benefit and safety.

Conclusion

In conclusion, the findings of this systematic review indicate that PRP therapy is a potentially safe and promising intervention for improving aspects of sexual function and vaginal integrity in women experiencing FSD. Despite observed improvements in vaginal lubrication, orgasmic function, and reduced dyspareunia, the substantial heterogeneity in treatment protocols and outcome assessments precludes definitive evidence of efficacy. To advance the clinical application of PRP in this context, future studies must employ robust randomized controlled trial designs with standardized PRP preparation and administration protocols as well as validated outcome instruments. These steps are essential to establish PRP therapy as a viable and evidence-based treatment modality for FSD and vaginal rejuvenation.

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