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# Application of PRP in aging management

*Application of PRP in the management of aging*

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## SUMMARY

Platelet-Rich Plasma (PRP) is an innovative, regenerative technique used in advanced aesthetics. This approach uses growth factors present in the patient's own blood platelets to stimulate tissue regeneration, reduce the appearance of pores, reduce fine lines, lighten blemishes, and improve collagen density.
This study aims to analyze the efficacy and safety of PRP in the treatment of facial aging, identifying its effects, risks, and clinical indications. The research followed a qualitative approach, an integrative literature review, covering publications published between 2019 and 2025. Data collection was conducted through secondary sources, with careful selection based on studies on PRP in the aesthetic field and materials published in academic and scientific platforms such as Google Scholar, Scielo, PubMed, and LILACS.
The focus was to identify the use of PRP in aging management, the most appropriate conditions for applying the technique, as well as possible side effects and treatment limitations. The analysis of the compiled data was descriptive and comparative, prioritizing the consistency and relevance of the scientific evidence found. Studies show that the use of PRP brings significant results when it comes to facial rejuvenation, improving the appearance of wrinkles, skin texture, pigmentation, and collagen density. Therefore, it is a viable and safe option for preventing signs of aging.

**Keywords:** Plasma. Aging. Rejuvenation. Platelets. Aesthetics.

## ABSTRACT

Platelet-Rich Plasma (PRP) is an innovative and regenerative technique applied in the field of advanced aesthetics. This approach uses the growth factors present in the patient's own blood platelets to stimulate tissue regeneration, reduce pore appearance, attenuate fine expression lines, lighten skin spots, and improve collagen density. The present study aims to analyze the efficacy and safety of PRP in the treatment of facial aging, identifying its effects, risks, and clinical indications. The research followed a qualitative approach, through an integrative literature review, covering publications from 2019 to 2025. Data collection was carried out through secondary sources, with a careful selection based on studies about PRP in aesthetics, published in academic and scientific databases such as Google Scholar, Scielo, PubMed, and LILACS. The focus was to identify the use of PRP in aging management, the most suitable conditions for its application, as well as possible side effects and treatment limitations. The analysis of the compiled data was descriptive and comparative, prioritizing the consistency and relevance of the scientific evidence found. Studies show that the use of PRP provides significant results in facial rejuvenation, improving the appearance of wrinkles, skin texture, pigmentation, and collagen density. Therefore, it is a viable and safe option for the prevention of aging signs.
**Keywords:** Plasma. Aging. Rejuvenation. Blood Platelets. Dermatology.

## 1 INTRODUCTION

Aging is a natural, progressive and inevitable biological process, characterized by physiological, morphological and functional changes, leaving marks that affect not only the organism, the self-esteem of many people. Among the most obvious changes, the following stand out: changes in the skin, such as reduced collagen and elastin, decreased dermal thickness and decreased tissue regenerative capacity (López, 2023).

From a cellular point of view, aging is marked by changes in DNA, resulting in telomere shortening, low mitochondrial function, increased oxidative stress, in addition to low-grade chronic inflammatory processes. In the current context, in which longevity has increased significantly due to advances in medicine and technology and living conditions, the search for strategies that promote a healthy aging and quality of life (Girardi, 2025; Andrade, 2020).

Aging, although a natural and particular process, can be associated with various physiological and functional conditions of the individual, such as loss of muscle mass, reduced bone density, cognitive decline, and changes in skin appearance. To manage these effects and maintain autonomy and well-being, several approaches have been developed integrated, which involve adopting healthy habits, such as a balanced diet, regular practice of physical activity, stress control and adequate sleep, to interventions biomedical and technological (Girardi, 2025; Andrade, 2020).

In this scenario, regenerative therapies, in the area of aesthetic biomedicine, seek to delay this process, among several techniques aimed at this objective is the use of plasma rich in platelets (PRP), which utilizes the effects of stem cells and growth factors on tissue, have gained prominence for its potential to stimulate tissue regeneration, improve function cellular and delay signs of aging, offering a promising alternative in the field of aesthetic medicine (Girardi, 2025).

In the thinking of regenerative aesthetic medicine, changes in individual lifestyle habits are irrevocable. As a result, we have experienced an increase in the number of individuals adopting a new lifestyle, thus minimizing the biological changes of aging and ensure healthier aging. This describes the practice of managing the aging, which consists of a set of multidisciplinary strategies that aim delay the effects of aging to preserve autonomy, prolong capacity functional and promote physical, psychological and social well-being (Girardi, 2025; Andrade, 2020). It involves actions to promote health, prevent diseases, and practice physical activity,

adequate nutrition, psychosocial support, in addition to the use of regenerative therapies and aesthetic interventions. As a result, regenerative therapies, such as PRP, have gained prominence for acting directly on cellular biostimulation, tissue regeneration and improvement of skin appearance, contributing to healthy aging and well-being (Andrade, 2020).

Mainly, stimulation with PRP involves taking advantage of the natural mechanisms that it offers, by concentrating the patient's autologous platelets and reintroducing them into desired locations, there is the release of several growth factors: PDGF (Platelet Derived Growth Factor) stimulating cell proliferation and angiogenesis; TGF-ÿ (Transforming Growth Factor Beta) inducing collagen production; EGF (Epidermal Growth Factor) stimulating regeneration epithelial; VEGF (Vascular Endothelial Growth Factor) promoting angiogenesis (Asubiaro, 2024).

There are also studies associated with available treatments such as microneedling in synergy with PRP, microneedling is a technique that uses fine needles to cause controlled micro-injuries to the skin, stimulating a natural healing response. When combined with Platelet Rich Plasma, the effects of microneedling are enhanced synergistically, as microneedling opens microchannels that facilitate penetration of growth factors present in PRP directly into the dermis, it acts as a “fuel biological” that accelerates and enhances tissue regeneration initiated by microneedling (Souza, 2023). Therefore, recent studies indicate that the synergy between PRP and microneedling has shown superior results to the isolated use of each technique, in facial rejuvenation or even treatments for alopecia and scars (Souza, 2023).

However, thanks to the advancement of aesthetic science that plays an important role in aging management, providing not only improvements in physical appearance, but also significant impacts on psychological well-being and self-esteem. As aging causes morphological changes, many people, especially women, turn to professionals in the field of advanced aesthetics for help, as a way of maintain positive self-perception and quality of life. Regenerative therapies have been very used by these professionals, such as Platelet Rich Plasma (PRP), microneedling, radiofrequency and collagen biostimulators, as they have gained highlighted for acting directly on the physiological mechanisms of skin aging.

In addition to the aesthetic benefits, these procedures offer the individual the possibility of restore self-confidence, contributing to emotional and psychological balance (Silva, 2021; Meira, 2020; Souza, 2023).

Based on the social context in which aesthetics finds itself today, this research aims to highlight the benefits of PRP as a tool to reduce the impact of the process aging. Furthermore, within the academic community, it is a way to broaden the base theoretical framework on the mechanisms of PRP, contributing with evidence of its effectiveness, limitations, assisting and connecting different areas such as medicine, dentistry, biomedicine, among others others.

## 2 METHODOLOGY

This present study adopted a qualitative approach, carried out in accordance with publications scientific evidence over the last five years on the topic of “PRP”. Thus, the review bibliographical research was conducted according to internationally recognized bases, each one with specific characteristics, ensuring greater scope and quality such as PubMed and Scielo, respectively, integrate articles focused on the health area and offer a wide range of and accessible scientific digital library, including national and international evidence, both with peer-reviewed articles with high scientific credibility. In the second stage Google Scholar was also used, which allows for a wide range of related to articles, books, dissertations and theses, available in different languages, uniting the international and national, thus expanding its diversity and enriching the content analyzed.

The main inclusion criteria used were published articles, dissertations and books mainly between 2019 and 2024, taking into account criteria such as recent revisions on PRP therapy, the criteria include articles written in English, Spanish and Portuguese in which they specifically addressed the use of platelet-rich plasma in facial rejuvenation, describing its mechanism of action, protocols, benefits, its risks and results (figure 1). Therefore, systematic reviews and mainly randomized clinical trials, as they offer greater quality and detail, thus ensuring the reliability of the findings. Examples of included studies refer to Fagundes & Pepes (2022), which covers articles associated with the technique and mainly the deepening the risks and benefits of PRP for advanced techniques facial rejuvenation (Table 1).

Articles published before and after the selected dates were excluded, ensuring a further deepening and updating of the technique, case reports were also excluded isolated even though there is no robust scientific basis. Therefore, they were also

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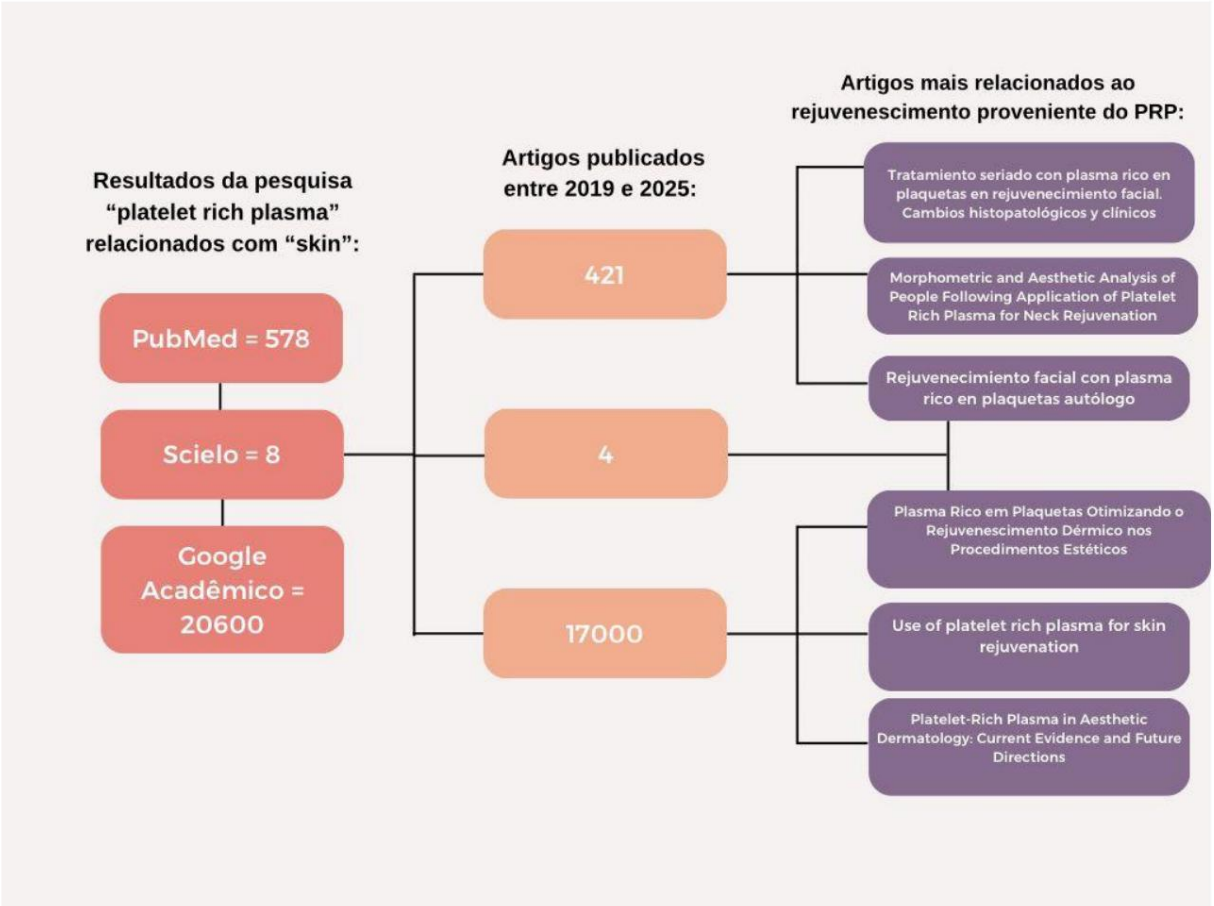
excluded studies in which PRP was applied in other medical areas, not necessarily related to skin rejuvenation therapy.

**Figure 1:** Flowchart for the inclusion of scientific material on the use of PRP in aging




Source: authors, 2025

**Table 1:** Description of articles selected for research development

| Author and | Objectives | Results and Conclusion |
|---|---|---|
| **year** Phoebe, 2024. | To evaluate the effectiveness of PRP treatments for skin rejuvenation. | Improvements were observed in pore size, texture, wrinkle reduction, dark spots, collagen density, and hyaluronic acid levels. This study highlights the efficacy of PRP monotherapy for rejuvenation and emphasizes the need to standardize preparation protocols in future studies. |
| Asubiaro J, Avajah F, 2024. | To evaluate the current evidence for the application of PRP in skin rejuvenation, hair restoration, wound healing, and fat grafting. | PRP has been shown to hold promise for a variety of dermatological applications, including rejuvenation. The positive results and safety profile |

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| | | favorable make it an attractive option for many patients. |
| Tatiana Hernández González, 2022. | To evaluate the results of platelet-rich plasma therapy in patients with facial aging. | With a base of 68 patients with an average age of 46, predominantly women, and 95.6% of patients experienced a reduction in signs of aging (wrinkles, texture, hyperpigmentation, etc.) when combined with the use of sunscreen.<br><br>No record of adverse effects. |
| Kabakci, 2022. | Evaluate the effectiveness of injection of PRP for neck rejuvenation in women aged 40 to 55 years. | Fifty-two of the 55 women completed the study. The results were assessed six weeks after the final session, comparing improvements in anatomical measurements. Significant differences were found between measurements of elasticity, jaw angle, mental cervicolateral angle, wrinkle elasticity, and patient satisfaction. and |
| Sanchez, 2021. | Application of a treatment PRP series for facial rejuvenation and demonstrate its effectiveness through of changes histopathological and clinical. | An increase was observed significant number of fibroblasts and collagen in the 3 months of treatment, an increase notable dermal thickness with an average of 1.22mm between 3 and 6 months; and one increase in collagen with average values of 69.28% before and 78.92% after treatment. |
| Campos, J, 2021. | Demonstrate the importance and the benefits of using platelet-rich plasma end of optimize the dermal rejuvenation facial. | Hemoconcentrates are a good cost-effective alternative for tissue repair and regeneration. There are benefits to different clinical applications in facial aesthetics. PRP promotes a significant increase in the amount of growth factors at the applied site, which enhances the |

| | | |
|---|---|---|
| | | angiogenesis, cell proliferation and differentiation. |

Source: authors, 2025

## 3 DISCUSSION AND RESULTS

As a fundamental principle, PRP (Platelet Rich Plasma) is characterized as autologous biological product that, through the injection of activated platelets, stimulates the release of growth factors, triggering the proliferation of fibroblasts and the formation of new collagen, elastin and cellular matrices, this mechanism being the most sought after when it comes to prevention and treatment of aging (Phoebe, 2024; Sánchez, 2021; Asubiaro, Avajah, 2024).

As evidenced in the clinical studies analyzed in this research, the following benefits aesthetics related to the application of PRP in the treatment of signs of aging are the noticeable improvement in wrinkles, skin texture, collagen density and skin appearance (Sànchez, 2021; Gonzàlez, 2022; Phoebe, 2024). Gentile, describes in his systematic review, that in 11 of the 12 studies analyzed showed positive results with the application of the technique of PRP in aging. This review also recorded significant improvements in elasticity and skin thickness, in approximately 75-80% of cases, that is, it reinforces the benefits therapeutic techniques in the field of aesthetic biomedicine.

In addition to significant improvements in wrinkles, skin texture and skin hydration, studies demonstrated improvement in elasticity; lightening of dyschromia; among others. Another point highlighted by the studies was the lower risk of adverse effects from performing the technique in the area of aesthetics (Gentile, 2023).

According to studies carried out with women complaining of signs of aging, significant differences were observed between skin elasticity, at the angle of the jaw, in the mental cervico-angle, wrinkles and elasticity, these being determining factors in the complaint of “facial melting” (Kabakci, 2022). Collaborating for the use of the PRP technique in treatment of aging complaints or as prevention of skin aging (Sànchez, 2021; Gonzàlez, 2022; Gentile, 2023; Phoebe, 2024).

Furthermore, the presence of randomized clinical trials among the research allows to more accurately assess the effectiveness of therapeutic interventions, such as the application of platelet-rich plasma (PRP) in Gentile's facial rejuvenation (2023).

Despite the promising results proven in the studies, there are clear limitations such as the lack of standardization of practical protocols in relation to the preparation of PRP, concentration injected by region or by treatment, the way the technique is applied and the predominance of non-randomized or observational studies. It was also observed that pro-inflammatory cytokines from irritated skin can neutralize the anti-inflammatory potential of PRP, in addition to the fact that age can alter the composition of the blood and even the blood count platelets, making it necessary to select suitable patients (Phoebe, 2024).

The reviews found in the literature show low methodological rigor and low confidence in the evidence, as assessed with AMSTAR-2 and GRADE, as they assess the quality methodological approach to systematic review and assessment of the quality of evidence and reliability of the conclusion. Furthermore, some recent clinical studies have not yet confirmed efficacy, highlighting the high need for the association of more robust randomized trials (Gentile, 2023).

## 4 FINAL CONSIDERATIONS

Based on the results compiled by this research, it can be considered from the literature that PRP has potential as a non-invasive aesthetic therapy, with evidence of improvement functional and patient satisfaction. However, the lack of consensus on methodology and the heterogeneous quality of studies limits the generalization of results.

Therefore, future controlled clinical trials are recommended, with a clear definition of standardized protocols, with objective assessments and longitudinal follow-up to validate the effectiveness of PRP in facial rejuvenation.

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