

INPLASY PROTOCOL

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**Review Stage at time of this
submission:** Formal screening
of search results against
eligibility criteria.

Conflicts of interest:
None declared.

INTRODUCTION

Review question / Objective: What is the antimicrobial effect of human PRF in vitro studies?

Rationale: Although the issue of PRF's antimicrobial activity requires future

Antimicrobial effect of PRF: A systematic review of in-vitro evidence-based studies

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Review question / Objective: What is the antimicrobial effect of human PRF in vitro studies?

Condition being studied: Recently, PRF has been used as an adjuvant in treating wounds (e.g., diabetic foot) by making a protective barrier to increase local cellular activity, causing the tissue to be recovered³. This is due to PRF's tissue regeneration potential. PRF's involvement in wound healing may go beyond being a protective barrier. It is already possible to observe studies that point to PRF as an autologous biomaterial with great potential to act as a local antimicrobial. This phenomenon can be caused by blood cells in the fibrin matrix or chemotaxis caused by cytokines released in the recipient tissue.

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 06 April 2023 and was last updated on 06 April 2023 (registration number INPLASY202340016).

translational evidence, some studies demonstrate the robust regeneration potential of the blood byproduct in tissue. Well-defined protocols are required for the production of PRF. In addition, studies will need to focus on PRF's antimicrobial activity in the affected tissue and the

efficacy of the blood byproduct's scaffold against various microorganisms. Therefore, this SR aimed to analyze the antimicrobial potential of different types of PRF often used in regenerative treatments.

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METHODS

Search strategy: PubMed/MEDLINE, EMBASE, Web of Science, and Scopus were used to search for relevant articles that were published prior to January 2023, without any restrictions regarding date of publication or language. Gray literature was searched using the Literature Report and OpenGrey databases. Additionally, the study reference lists were evaluated (cross-referenced) to identify other potential studies for inclusion. The following search terms were used: ("platelet rich fibrin" OR "leucocyte platelet rich fibrin" OR "advanced platelet rich fibrin" OR "injectable platelet rich fibrin" OR "PRF") AND ("microbiome" OR "biofilm" OR "oral pathogen" OR "microbial" OR "antimicrobial" OR "microorganisms" OR "antibacterial" OR "antimicrobial" OR "infection") NOT (review).

Participant or population: PRF collection in healthy humans.

Intervention: Use of human PRF as an antimicrobial agent.

Comparator: Antibiotic efficacy between different types of PRF with other antibiotic

agents and different microorganisms' species.

Study designs to be included: In vitro studies.

Eligibility criteria: In vitro studies that analyzed the antimicrobial effect of human PRF.

Information sources: PubMed/MEDLINE, EMBASE, Web of Science, and Scopus were used to search for relevant articles that were published prior to January 2023, without any restrictions regarding date of publication or language.

Main outcome(s): Microorganism growth, microorganism inhibition and microorganism activity.

Quality assessment / Risk of bias analysis: For the analysis of the risk of bias, the modified OHAT (Office of Health Assessment and Translation) tool was used. The tool was developed to assess the risk of bias of all study designs, including in vitro studies. Nine domains were used to rank each study. Each domain was classified as 'definitely low risk of bias', 'probably low risk of bias', 'probably high risk of bias', and 'definitely high risk of bias'. These ratings are coded by "++", "+", "- / NR" (not reported), and "--", respectively. To estimate the risk of bias between studies, a percentage estimate of each four ratings was conducted.

Strategy of data synthesis: A quantitative analysis based on meta-analysis could not be developed due to the heterogeneity observed in the design and methodologies adopted by the studies. On the other hand, a qualitative analysis based on the synthesis of the results of the selected studies was carried out.

Subgroup analysis: Not performed.

Sensitivity analysis: Not performed.

Language restriction: No language restriction.

Country(ies) involved: Brasil, USA, and Swiss.

Keywords: PRF; Platelet-Rich Fibrin; Antimicrobial; Microorganisms.

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