

Platelet-Rich Plasma Biosupplementation in the Superior Compartment of the Temporomandibular Joint: Biological Rationale, Clinical Technique and Therapeutic Perspectives

Igor Leitão Marques, DDS, MSc^{1*}, Fernanda Quaresma Pahlsson, DDS², Elizandra de Oliveira, DDS³

¹Oral and Maxillofacial Surgeon, IFACE Institute, São Paulo, Brazil.

²Dental Surgeon, IFACE Institute, São Paulo, Brazil.

³Dental Surgeon, IFACE Institute, São Paulo, Brazil.

*Corresponding Author: Igor Leitão Marques, DDS, MSc, Oral and Maxillofacial Surgeon, IFACE Institute, São Paulo, Brazil.

<https://doi.org/10.58624/SVOADE.2026.07.012>

Received: March 04, 2026

Published: March 26, 2026

Citation: Marques IL, Pahlsson FQ, de Oliveira E. Platelet-Rich Plasma Biosupplementation in the Superior Compartment of the Temporomandibular Joint: Biological Rationale, Clinical Technique and Therapeutic Perspectives. A Literature Review. *SVOA Dentistry* 2026, 7:2, 92-94. doi: 10.58624/SVOADE.2026.07.012

Abstract

Temporomandibular disorders (TMD) represent a frequent cause of chronic orofacial pain and functional limitation. In recent years, regenerative therapies such as platelet-rich plasma (PRP) have emerged as promising minimally invasive approaches for intra-articular disorders of the temporomandibular joint. PRP is an autologous platelet concentrate rich in growth factors capable of modulating inflammation and stimulating tissue repair. The aim of this article is to describe the biological rationale, preparation protocol and clinical technique for PRP biosupplementation in the superior compartment of the temporomandibular joint.

Keywords: *Temporomandibular Disorders, Platelet-Rich Plasma, Temporomandibular Joint, Regenerative Therapy*

Introduction

Temporomandibular disorders encompass a heterogeneous group of conditions affecting the temporomandibular joint, masticatory muscles and associated structures. Among intra-articular disorders, common pathological conditions include anterior disc displacement, synovitis, capsulitis and degenerative joint disease. In recent years, regenerative medicine has introduced biologically based therapies designed to stimulate tissue repair, including platelet-rich plasma (PRP). [1-7]

Materials and Methods

Peripheral blood is obtained using sterile venipuncture technique. Approximately 10–20 mL of blood is collected and centrifuged to isolate platelet-rich plasma. The PRP fraction is aspirated and injected into the superior compartment of the temporomandibular joint using anatomical landmarks under sterile conditions.



Figure 1. Venipuncture



Figure 2. PRP after centrifugation.

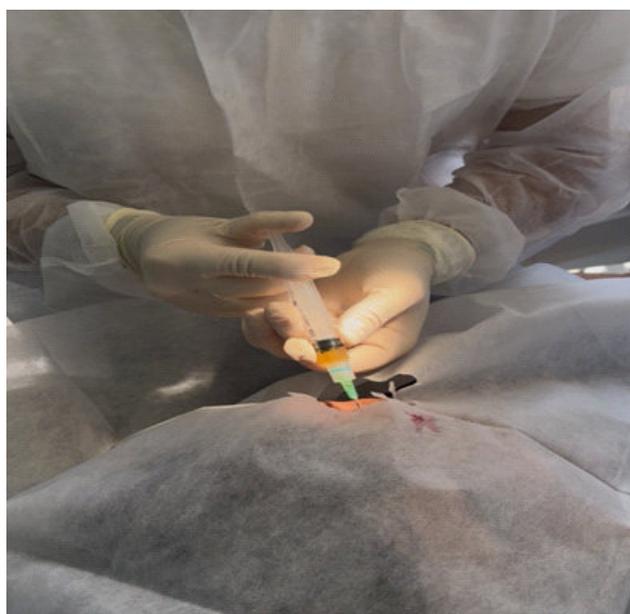


Figure 3. PRP injection in TMJ

Discussion

PRP provides a biological stimulus capable of promoting tissue regeneration and modulating inflammatory processes within the joint environment. Clinical studies suggest improvements in pain levels and mandibular mobility after intra-articular PRP injections. However, further randomized clinical trials are required to determine standardized protocols and long-term outcomes. [1-7]

Conclusion

Platelet-rich plasma biosupplementation represents a promising minimally invasive therapy for temporomandibular joint disorders, with potential benefits in pain reduction and functional improvement.

Discussion

PRP provides a biological stimulus capable of promoting tissue regeneration and modulating inflammatory processes within the joint environment. Clinical studies suggest improvements in pain levels and mandibular mobility after intra-articular PRP injections. However, further randomized clinical trials are required to determine standardized protocols and long-term outcomes. [1-7]

Conclusion

Platelet-rich plasma biosupplementation represents a promising minimally invasive therapy for temporomandibular joint disorders, with potential benefits in pain reduction and functional improvement.

Conflict of Interest

The authors declare no conflict of interest.

References

1. Marx RE. Platelet-rich plasma: evidence to support its use. *J Oral Maxillofac Surg.* 2004;62:489-496.
2. Anitua E, Andia I. Autologous platelets as a source of proteins for healing. *Thromb Haemost.* 2004;91:4-15.
3. Dohan Ehrenfest DM. Classification of platelet concentrates. *Trends Biotechnol.* 2009;27:158-167.
Sánchez M. Platelet-rich plasma in musculoskeletal pathologies. *Br Med Bull.* 2009;89:1-15.
4. Hegab AF. Platelet-rich plasma injection in TMJ osteoarthritis. *J Oral Maxillofac Surg.* 2015;73:1706-1713.
5. Al-Delayme RM. PRP injection for TMJ internal derangement. *Int J Oral Maxillofac Surg.* 2017;46:103-108.
6. Guarda-Nardini L. Intra-articular injections in TMJ disorders. *Oral Surg Oral Med Oral Pathol Oral Radiol.* 2012;113:659-663.
7. Kütük N. Platelet-rich plasma for TMJ osteoarthritis. *J Oral Maxillofac Surg.* 2014;72:251-258.

Copyright: © 2026 All rights reserved by Marques IL and other associated authors. This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.