

# **The risk of dental implant loss is increased in history of periodontitis patients: the results from a systematic review with meta-analysis**

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In the last decades, bioengineering research has played a prominent role in the field of dental implant rehabilitation. Dental implants represent, nowadays, the main treatment option for edentulism. Periodontitis, a broadly diffused biofilm-induced chronic disease involving tooth-supporting tissues, represents the main cause of tooth loss in adult patients and may affect, at the same time, the long term prognosis of implant rehabilitations. The aim of the present systematic review and meta-analysis was to assess the influence of history of periodontitis on dental implant loss.

The protocol of the present PRISMA-driven meta-analysis was registered on PROSPERO. Literature searches were conducted up to January 2023. All prospective clinical studies comparing implant loss (or implant survival) in history of periodontitis patients (HPP) and periodontally healthy patients (PHP) were included. The quality of the included studies was assessed using the Newcastle-Ottawa Scale or the RoB2. A meta-analysis was performed on implant loss at the available follow-up time points. Sub-analyses were performed for the reported type and severity of periodontitis.

From 10549 initial records, 16 articles were finally included. A high-quality level for the main part of the included studies was found. Meta-analysis showed that HPP had a higher risk for implant loss compared to PHP with a >3 years follow-up period. Sub-analyses revealed that history of aggressive (vs chronic) and severe (vs moderate) periodontitis showed a significantly higher risk of implant loss.

Moderate evidence exists showing that history of periodontitis increases the risk of implant loss, particularly for longer follow-up and for history of aggressive and severe periodontitis. Further well-designed and well-conducted prospective studies are needed in order to consolidate the available scientific evidence on the risk of dental implant loss in HPP.