

Scientific release
from the European
Federation of
Periodontology

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Study:



Is weight gain associated with the incidence of periodontitis? A systematic review and meta-analysis

Nascimento, G.G., Leite, F.R.M., Do, L.G., Peres, K.G., Correa, M.B., Demarco, F.F., Peres, M.A.
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Relevant
background
to study:

Subjects whose Body Mass Index (BMI) is between 25 and 29.9 are considered overweight, whereas those whose BMI is >30 are considered obese. Several reports have demonstrated the adverse effects of obesity on long-term health

outcomes including a positive association with periodontitis. People who are obese and overweight are also more susceptible to infectious diseases than their normal-weight counterparts.

Study aims:

To conduct a systematic review of prospective longitudinal studies assessing the effect of weight gain, with individuals becoming overweight or obese, on the incidence of periodontitis in adults.

Methods:

Associations between the incidence of periodontitis and weight gain leading to obesity, or to being overweight, were reviewed independently. An electronic search was conducted in PubMed via Medline, Embase, Web of Knowledge, and Scopus. In addition, hand searching was performed using the reference list of all studies that were included. Prospective observational studies that assessed the association between weight gain and the incidence of periodontitis in adults were included.

All studies had to provide a clear description of BMI, Waist Circumference, as well as the case definition employed for periodontitis. To conduct meta-analysis, effect measures (Relative Risk – RR) with respective 95% Confidence Intervals (95% CI) were recorded. The Newcastle-Ottawa scale for cohort studies was used to assess the quality of included studies and the overall quality of evidence was estimated according to the GRADE guideline.

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Results:

Five studies fulfilled the criteria for inclusion in this review and meta-analysis. The number of participants enrolled in these studies totalled 42,198. The methodological quality of the studies included was high (6-9 on the Newcastle-Ottawa scale) and the overall quality of evidence was moderate for both meta-analyses (GRADE approach).

All studies were conducted in high-income countries. Periodontal measurements and BMI were utilised in all articles. However, one study utilised self-reported data only.

The meta-analysis investigating the effects of weight gain upon the incidence of periodontitis demonstrated that subjects who became overweight or obese had a greater risk of developing periodontitis (RR 1.13; 95% CI 1.06–1.20; RR 1.33 95% CI 1.21–1.47 respectively) compared with their counterparts who retained normal weight over the same period. Heterogeneity was not significant in either of the analyses ($p>0.05$); therefore the fixed-effect model was employed. The omission of any study would not modify the association for both exposures.

**Limitations,
conclusions
and impact:****Limitations:**

- Very few studies fulfilled the inclusion criteria and almost all of them presented positive results.
- It was possible to perform only a pooled analysis of probing-depth data.
- The studies analysed used different definitions of periodontitis and incident periodontitis, and different clinical examinations for periodontitis and assessments of nutritional status.
- One study presented only self-reported data for periodontitis and nutritional status.
- The population in one study was young (university students) and the very short follow-up period in some of the studies may have resulted in an underestimation of the incidence of periodontitis.

Impact:

Clinicians should be aware of the role played by weight gain in the development of new cases of periodontitis. Prevention should be based on a “common-risk-factor approach”.

Conclusions:

The results of this systematic review and meta-analysis clearly demonstrated that weight gain increases the risk of incident periodontitis.