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### Literature Abstract

#### Sex differences of tooth loss and obesity on systemic markers of inflammation

This study evaluated the associations of obesity and the effect of low-grade inflammation on tooth loss in men and women. Data were collected from 2,714 participants as part of the Study of Health in Pomerania (SHIP) cohort, which recorded anthropometric measures, periodontitis, tooth loss, and markers of inflammation such as C-reactive protein (CRP), and interleukin 6. Regression analyses were then performed on the dataset. Based on obesity status, it was found that men lost more teeth than did women. In contrast, there was a steeper increase in CRP levels when obesity levels increase in women as compared to men. With elevated CRP (CRP > 2 mg/L compared to CRP ≤ 2 mg/L), incidence rate ratio (IRR) of tooth loss was higher in men (IRR = 1.50; 95% confidence interval [CI]: 1.27, 1.77) than women (IRR = 1.18; 95% CI: 1.02, 1.37). Further regression analyses (negative binomial regression) revealed that more teeth were lost with a dose-response effect when analyzing body mass index and waist-to-hip ratio. After adjusting for covariates, the IRR of tooth loss associated with the third tertile of waist-to-hip ratio was lower in men (1.37; 95% CI: 1.04, 1.80) than in women (1.53; 95% CI: 1.14, 2.05). When a threshold of CRP of 2 mg/L was used, tooth loss was significant in men (IRR = 1.33; 95% CI: 1.07, 1.66; *P* = .006) but not in women (IRR = 0.92; 95% CI: 0.73, 1.17; *P* = .689). This study suggests that both obesity and low-grade inflammation may affect tooth loss, with distinct sex-specific differences. In particular, obesity as a risk factor of tooth loss is likely to be related to CRP in men but not in women.

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