

Scientists suggest linkages between obesity and oral bacterial infection

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A scientific team from The Forsyth Institute has discovered new links between certain oral bacteria and obesity. In a recent study, the researchers demonstrated that the salivary bacterial composition of overweight women differs from non-overweight women. This preliminary work may provide clues to interactions between oral bacteria and the pathology of obesity. This research may help investigators learn new avenues for fighting the obesity epidemic.

This work will be published in the *Journal of Dental Research*, and is available online today at <http://jdr.sagepub.com/cgi/content/full/88/6/519>. "There has been a world-wide explosion of [obesity](#), with many contributing factors," said Dr. J. Max Goodson, senior author of the study. "However, the inflammatory nature of the disease is also recognized. This led me to question potential unknown contributing causes of obesity. Could it be an epidemic involving an infectious agent?" "It is exciting to image the possibilities if oral bacteria are contributing to some types of obesity," added Goodson.

Summary of Study

In order to measure the salivary bacterial populations of [overweight women](#), samples were collected from 313 women with a body mass index between 27 and 32 (classifying them as overweight). Using DNA analysis, the researchers measured the bacterial populations of this group

and compared it with historical data from 232 individuals that were not overweight. Significant differences in seven of the 40 species studied occurred in the salivary bacteria of subjects in the overweight group. In addition, more than 98 percent of the overweight women could be identified by the presence of a single bacterial species, called *Selenomonas noxia*, at levels greater than 1.05 percent of the total salivary bacteria. These data suggest that the composition of salivary bacteria changes in overweight women. It seems likely that these bacterial species could serve as indicators of a developing overweight condition and possibly be related to the underlying causation.

Dr. Goodson noted that the reasons for a relationship between obesity and oral bacteria are likely complex. The observed relationship may be circumstantial as being related to diet or opportunistic due to metabolic changes. In the next phase of this research, Dr. Goodson plans to further examine this relationship by initially conducting a controlled cohort study to see if this initial observation can be reproduced. In addition, he hopes to conduct longitudinal studies in children to see if oral infection relates to weight gain. Ultimately, the development of strategies to eliminate specific oral bacteria would be required to provide definitive evidence that certain oral bacteria may be responsible for weight gain.

Source: Forsyth Institute

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