

# Sleeping in dentures doubles the risk of pneumonia in the elderly

October 7 2014

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Poor oral health and hygiene are increasingly recognized as major risk factors for pneumonia among the elderly. To identify modifiable oral health-related risk factors, lead researcher Toshimitsu Iinuma, Nihon University School of Dentistry, Japan, and a team of researchers prospectively investigated associations between a constellation of oral health behaviors and incidences of pneumonia in the community-living of elders 85 years of age or older. This study, titled "Denture Wearing During Sleep Doubles the Risk of Pneumonia in Very Elderly," has been published by the International and American Associations for Dental Research (IADR/AADR in the OnlineFirst portion of the *Journal of Dental Research (JDR)*.

At baseline, 524 randomly selected seniors (228 males, 296 females, average age was 87.8 years old) were examined for [oral health](#) status and [oral hygiene](#) behaviors as well as medical assessment, including blood chemistry analysis, and followed up annually until first hospitalization for or death from [pneumonia](#). Over a three-year follow-up period, 48 events associated with pneumonia were identified (20 deaths and 28 acute hospitalizations). Among 453 denture wearers, 186 (40.8%) who wore their dentures during sleep, were at higher risk for pneumonia than those who removed their dentures at night.

In a multivariate Cox model, both perceived swallowing difficulties and overnight denture wearing were independently associated with approximately 2.3-fold higher risk of the incidence of pneumonia, which was comparable with the high risk attributable to cognitive impairment,

history of stroke and respiratory disease. In addition, those who wore dentures while sleeping were more likely to have tongue and denture plaque, gum inflammation, positive culture for *Candida albicans*, and higher levels of circulating interleukin-6 as compared to their counterparts.

This study provides empirical evidence that denture wearing during sleep is associated not only with oral inflammatory and microbial burden but also with incident pneumonia, suggesting potential implications of oral hygiene programs for pneumonia prevention in the community. Frauke Mueller, University of Geneva, Switzerland, wrote a perspective titled "Oral Hygiene Reduces the Mortality From Aspiration Pneumonia in Frail Elders," commenting that these findings lead to a simple and straight forward clinical recommendation—denture wearing during the night should be discouraged in geriatric patients.

Provided by International & American Associations for Dental Research

Citation: Sleeping in dentures doubles the risk of pneumonia in the elderly (2014, October 7) retrieved 10 April 2024 from <https://medicalxpress.com/news/2014-10-dentures-pneumonia-elderly.html>

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