



Press release

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To all news organizations

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Having missing teeth but not using dentures increases the risk of falls by 2.5 times

**~Findings from follow-up with 1,763 healthy older adults in a
Japanese government study~**

We have determined through a 3-year follow-up study with 1,763 healthy adults aged 65 years and older that dental status is associated with subsequent falls. Three years after an initial survey was mailed, we conducted another survey asking whether the participants had had any falls over the past year. Regardless of sex, age, functional disability during the follow-up period, or depression, **participants who had 19 or fewer teeth but did not use dentures were shown to have an increased risk of falling.** The use of dentures by participants with 19 or fewer teeth was shown to potentially reduce this increased risk of falls by about half.

<Background>

Approximately one-third of older people fall once a year; about 6% of these falls result in fractures. In particular, hip fractures cause older people to be bedridden. Also, it has been suggested that older people who fall once withdraw from society due to the fear of falling again.

Known risk factors for falls among older people include diseases (rheumatoid arthritis, etc.), depression, and impaired leg strength and balance function. However, intervention addressing these risk factors has not led to fall prevention. Therefore, identification of additional risk factors may yield better results.

The loss of dental occlusion has been reported to lead to subsequent impairment of leg strength and balance function. The nerves that lead from the teeth and the masticatory muscles to the central nervous system are suggested to be associated with balance function. However, there have been almost no studies in Japan or elsewhere on whether dental status affects subsequent falls.

Therefore, we conducted a cohort study to determine the relationship between dental status and subsequent falls.

<Methods>

As part of the Aichi Gerontological Evaluation Study (AGES), a questionnaire survey of healthy adults aged 65 years or older living in Aichi Prefecture, Japan, was conducted in 2003. The participants

in this study were 1,763 AGES participants who had not experienced any falls in the past year as of the first follow-up survey and with whom we could follow up for 3 years. We examined the association between falls in the past year and the use/non-use of dentures.

<Results>

According to the follow-up survey, 86 respondents (4.9%) had experienced multiple falls in the past year. The percentage of fallers was higher among participants with fewer teeth.

Sex, age, certification of functional disability during the follow-up period, depression, self-rated health, and educational attainment were shown to be associated with falls. Calculations adjusting for these factors revealed that **the risk of falls was 2.50 times higher for participants with 19 or fewer teeth who did not use dentures than for those with 20 or more teeth (Fig.).** For participants with 19 or fewer teeth who used dentures, the risk of falls was 1.36 times higher than for participants with 20 or more teeth. Thus, there was no evident (statistically significant) difference.

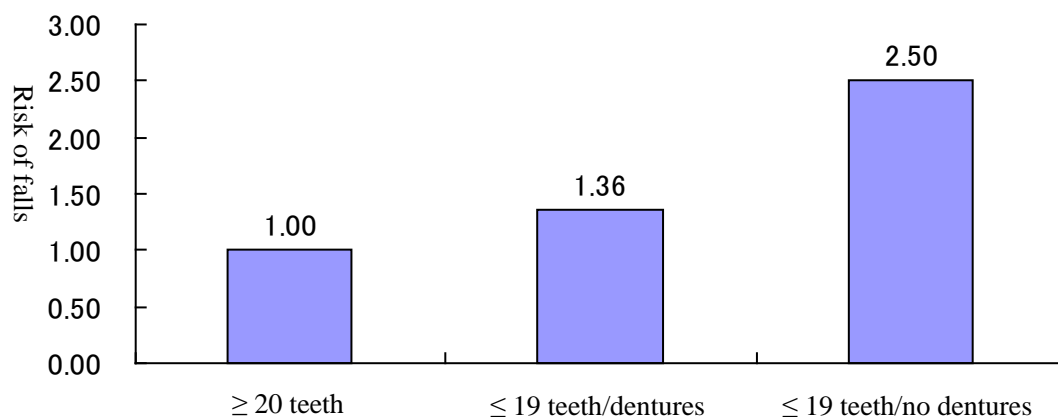


Fig: Association between number of teeth/use of dentures and falls
(Adjusted for sex, age, functional disability during the follow-up period, depression, self-rated health, and educational attainment)

<Significance of the present study>

This study demonstrated that not using dentures despite losing teeth increases the risk of subsequent falls. If dentures are not used despite the loss of teeth, the position of the jaw and the center of gravity of the body (including the head) become unstable. This instability is suggested to potentially result in poor balance and falls. Also, the study showed that the risk of falls can be reduced by using dentures.

Analysis for this study was conducted by Tatsuo Yamamoto, Associate Professor at Kanagawa Dental College and member of a research team supported by a Health and Labour Sciences Research Grant (Principal Investigator; Katsunori Kondo, Professor, Nihon Fukushi University). The study was published in the journal BMJ Open. The findings are part of the Development of a Benchmark System to Evaluate Long-Term Care Insurance Policy (2009–2010), which is conducted as Health and Labour Sciences Research (Comprehensive Research on Health and Aging).

Original article

Yamamoto, T., Kondo, K., Misawa, J., Hirai, H., Nakade, M., Aida, J., Kondo, N., Kawachi, I., & Hirata, Y. (2012). Dental status and incident falls among older Japanese: A prospective cohort study. *BMJ Open*, 2, e001262. doi:10.1136/bmjopen-2012-001262