*Short Communication*

# A 10-Year Longitudinal Study of Self-Assessed Chewing Ability and Dental Status in 50-Year-Old Subjects

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Chewing ability and dental status were assessed in 2 Swedish counties via questionnaires sent in 1992 and 2002 to all subjects born in 1942. Those who answered both questionnaires—at ages 50 and 60—were included in the study (n = 5,008). The proportion of those who reported chewing ability as very good decreased from 75% to 66% during the 10-year follow-up. Approximately 80% of complete denture wearers considered their chewing ability to be good. Chewing ability was reported to be worse at age 60 than at age 50, although there was only a minor impairment in dental status. *Int J Prosthodont 2007;20:643–645.*

It is generally suggested that masticatory function is closely related to number of teeth and dental status. This has been corroborated in several laboratory studies using comminution of test foods. However, self-assessed chewing ability was shown to be weakly correlated with masticatory performance measured by comminution tests.[1] It has therefore been suggested that patient-based measures are the most appropriate variables of masticatory efficiency.[2] Most studies of chewing ability are cross-sectional, and longitudinal aspects have rarely been investigated.

Therefore, the aim was to longitudinally study changes over a 10-year period of self-assessed chewing ability and dental status in a population sample of 50-year-old subjects.

## Materials and Methods

Identical questionnaires were sent to all subjects born in 1942 living in 2 Swedish counties in 1992 (N = 8,888) and 2002 (N = 8,260). The response rate was 71% for 50-year-old subjects in 1992 and 75% for 60-year-old subjects in 2002. Of those who answered in 1992, 74% responded in 2002, and 5,008 subjects answered the question on chewing ability at both ages.

The nonresponse rate was analyzed, and the results were in agreement with a previous longitudinal study between 1992 and 1997 of the same topic, which concluded that there were no serious deviations between responders and nonresponders.[3]

### *Questionnaire*

The questionnaire comprised 53 questions, with a total of 123 items divided into socioeconomic conditions, general health, and oral conditions. This study focused on dental status and self-assessed chewing ability. The Mann-Whitney *U* test, Wilcoxon signed ranks test, and Spearman rank correlation (r) were used in the statistical analyses.

## Results

There were small but statistically significant changes in dental status (similar in men and women) during the 10-year period between ages 50 and 60 (Fig 1). The proportion of those with any type of removable prosthesis increased from 6.4% to 8.3% (Table 1). The self-assessed chewing ability was worse at age 60 than at age 50 ($P < .001$; Figs 2 and 3). There was a moderate association between number of teeth and chewing ability at both 50 ($r = 0.37$, $P < .01$; Fig 3) and 60 years of age ($r = 0.41$, $P < .01$).

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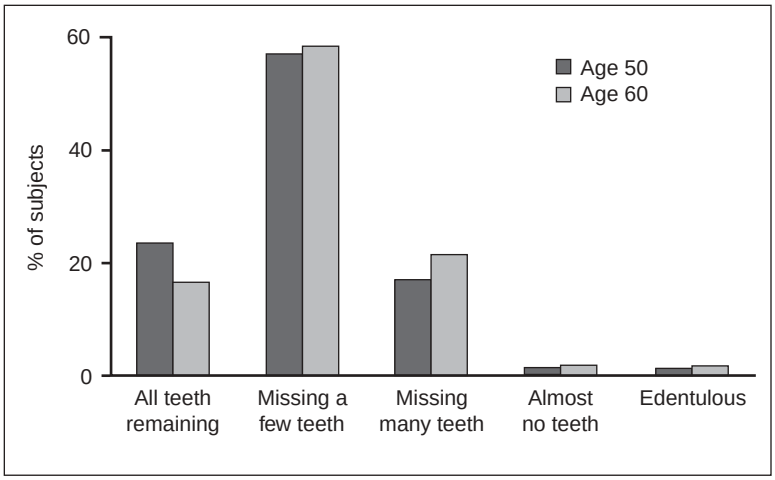


**Fig 1** Distribution (%) of dental status in 5,008 subjects according to reported number of teeth at ages 50 and 60.

**Table 1** Prevalence (%) of Removable Dentures in 4,984 Subjects Examined at 50 and 60 Years of Age*

| | Age 50 | | | | Age 60 | | |
|---|---|---|---|---|---|---|---|
| Denture | Men | $P_2$ | Women | $P_1$ | Men | $P_2$ | Women |
| Removable partial denture | 3.5 | NS | 3.3 | < .01[a] | 4.6 | NS | 4.5 |
| Complete denture in one arch | 2.7 | NS | 2.3 | < .01[b] | 3.6 | NS | 2.8 |
| Complete denture in both arches | 1.2 | NS | 1.2 | < .01[a] | 1.9 | NS | 1.7 |

*$P_1$ denotes difference between age 50 and 60; $P_2$ denotes difference between men and women: a = in both genders; b = in men only, women NS.
NS = nonsignificant.

Approximately 80% of complete denture wearers, at both ages, considered their chewing ability good, whereas those with other types of removable dentures were less satisfied at age 60 than at age 50. Those who wore complete dentures at both ages made similar assessments at both examinations. Those who were dentate without a removable prosthesis at age 50 but had received any type of removable denture during the follow-up period assessed their chewing ability as poorer than 10 years earlier (Fig 4).

## Discussion

Self-assessed chewing ability was less positive at age 60 than at age 50 despite only minor changes in dental status. Since the decreased satisfaction with chewing was observed in all dental status groups, it can be assumed that factors other than number of teeth are involved in the assessment process. One explanation may be that the participants developed greater demands of chewing ability over time. Such a time factor was indicated in a study showing that over a 30-year period with a dramatic improvement of dental status, there was no associated increase of satisfaction with chewing ability.[4] This was interpreted as increased expectations with time and might be taken as a possible explanation for the present results as well.

The assessment of chewing ability was mostly stable in the complete denture wearers. The high satisfaction with chewing ability among complete denture wearers corroborates previous findings. It may also help explain the astonishing result of a previous study that 36% of edentulous individuals refused an offer of free implants to retain their mandibular dentures.[5]

It has been suggested that satisfaction with chewing ability is a complex multidimensional assessment process, and more needs to be known about the frames of reference used by individuals.

## Conclusions

In this longitudinal study, chewing ability was reported to be worse at age 60 than at age 50 in all groups with varying numbers of natural teeth. In contrast to the dentate subjects, complete denture wearers had a stable level over the 10-year period, with approximately 80% assessing their chewing ability as good at both 50 and 60 years of age.

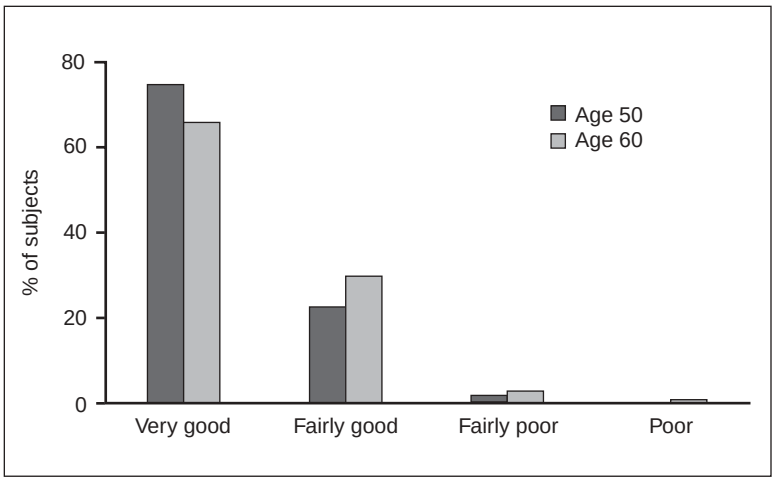


**Fig 2** Distribution (%) of chewing ability in 5,008 subjects according to self-assessment at ages 50 and 60.

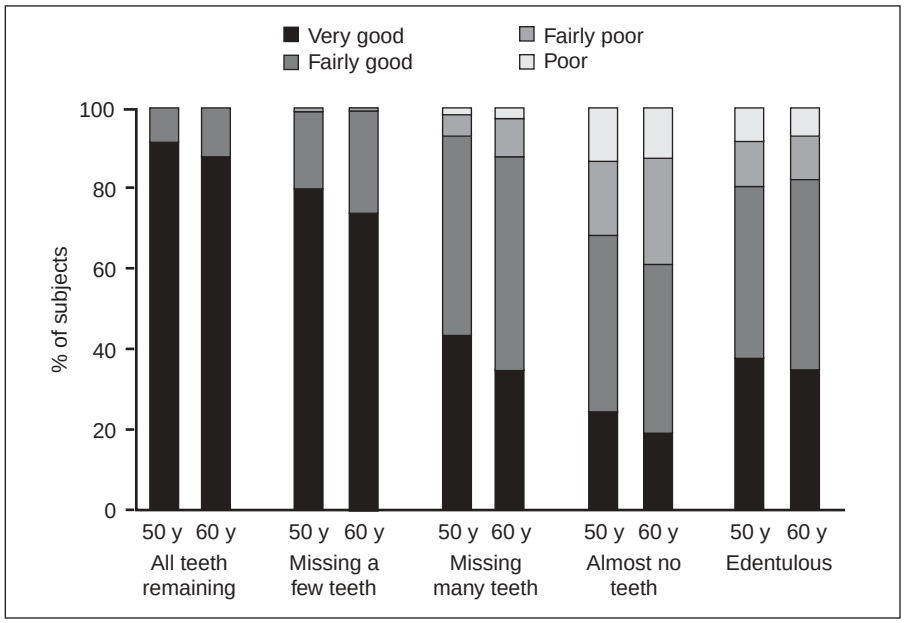


**Fig 3** Distribution (%) of self-assessed chewing ability in 5,008 50- and 60-year-old subjects with respect to dental status/number of teeth.

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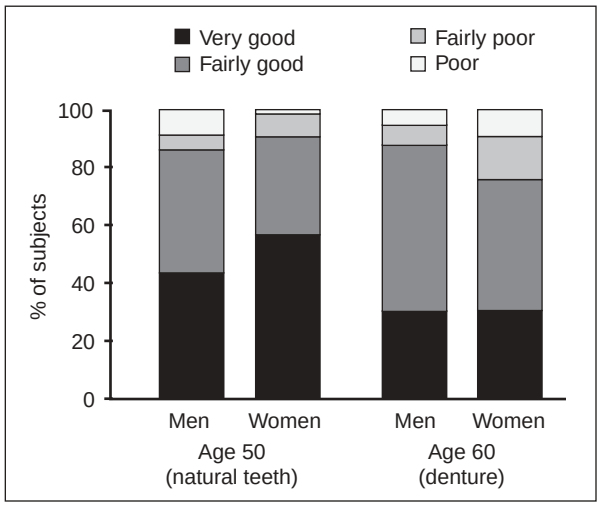


**Fig 4** Distribution (%) of self-assessed chewing ability in 162 subjects who reported having only natural teeth at 50 years of age but received some type of removable denture during the period up to age 60.

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