

On Carbohydrate Intake and Dental Status in the Elderly

Akademisk avhandling

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- I. Alstad T, Österberg T, Rothenberg E, Steen B, Birkhed D. **Intake of monosaccharides, sucrose and fibre in the elderly – a cross-sectional and longitudinal study.**
Scand J Nutr (1999) 43:147-52.
- II. Alstad T, Österberg T, Steen B, Birkhed D. **Intake of lactose, starch and different fibres in the elderly – a cross-sectional and longitudinal study.**
Scand J Nutr (2001) 45:25-7.
- III. Alstad T, Holmberg I, Österberg T, Steen B, Birkhed D. **Patterns of carbohydrate intake – a study of typology, associations and changes over time in an elderly Swedish population.**
J Nutr Health Aging (2006) 10:401-7.
- IV. Alstad T. **Better dental status among the elderly is associated with an improved diet – a study of four 70-year-old cohorts between 1971 and 2001.**
Manuscript.
- V. Alstad T, Österberg T, Holmberg I, Birkhed D (2008). **Associations between oral sugar clearance, dental caries and related factors among 71-year-olds.**
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Abstract:

People's dental status has the potential to affect dietary intake and, at the same time, diet may affect the health of the dentition. To study the associations, the elderly appear to be an appropriate group and carbohydrates the appropriate nutrients. The aim of the thesis was to explore the associations between intake of carbohydrates and dental status in the elderly.

A number of different elderly cohorts in Göteborg (the H70 Studies) have been examined both cross sectionally and longitudinally regarding their intake of carbohydrates. Dieticians conducted the interviews based on the diet history method. The intake of energy and carbohydrates was analysed using food tables from the National Swedish Food Administration. There were differences between cohorts but no clear longitudinal trend. Most differences between cohorts followed the trend of supply data relating to the consumption in Sweden.

To examine the inter-relationships between different carbohydrates, energy intake and the intake of other macronutrients, a factor analysis was performed. Using six factors, as much as 90% of the variation could be explained. Of these factors, four were related to the intake of carbohydrates. To analyse patterns within the samples, a k-mean cluster analysis was performed. A model with seven clusters explained no less than 40% of the original variation. The different clusters were associated with background factors such as gender, education, BMI and dental status.

Dentists or dental hygienists examined the cohorts regarding their dental status. To analyse the relationship between dental status and the intake of nutrients, a graphic interaction model, including cohort, gender, education, height, smoking habits, BMI, modified Eichner index (as the measure of dental status), subjective health and dietary intake, was built. All the nutrient variables were included in a factor analysis and eight factors were found which once again explained about 90% of the variation: four of them were related to the intake of carbohydrates. The dental status was related to the intake of monosaccharides, sucrose and lactose and furthermore to cholesterol. A higher intake of sucrose was associated with a poorer dental status, and with a higher prevalence of dental caries.

In order to study the associations between oral function and dental caries, a number of different measurements were assessed in a sub-sample of elderly people (n = 92). The variables within different areas were reduced by factor analysis and they were then included in stepwise regression models. Chewing efficiency and motoric ability was for example related to oral sugar clearance, and chewing time with the prevalence of dental caries.

In conclusion, these findings show that the carbohydrate intake among the elderly is mostly influenced by cohort and period and less by age. However, dental status appears to be a factor that independently plays a significant part and, as a result, it should be included in nutritional epidemiological studies.

Keywords: Carbohydrates, Cohort analysis, Dental caries, Dental status, Elderly, Epidemiology, Factor analysis, Graphic interaction model, Oral sugar clearance

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