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Preventive dentistry

A prospective study on sucrose consumption, visible plaque and caries in children from 3 to 6 years of age

Karjalainen S, Söderling E et al.
Community Dent Oral Epidemiol 2001; 29: 136-142

More frequent sucrose intake and visible plaque at 3 yrs was associated with presence of caries at 6 yrs.

Industrialized countries' data on the relationship of caries and sugar consumption is not consistent. In this Finnish study 71 boys and 64 girls (after 9% dropout) were examined at the mean ages of 3.1 yrs and 6.2 yrs, and each time parents were interviewed and 4-day food diaries were completed. The children were systematically selected from a random sample in a much larger medical study on coronary risk factor intervention.

At the 1st and 2nd examinations, moderate caries experience was respectively 7.4% and 18.5%, high caries experience, 0.7% and 9.6%, and no caries experience, 84% and 60%. Children with caries at age 6 yrs had a significantly higher sucrose intake at age 3 yrs, and this difference persisted at age 6 yrs, although there was no difference in daily energy intake at either age. When higher sucrose intake frequency was combined with a higher visible plaque presence at age 3 yrs, the relative risk for presence of caries at age 6 yrs approached significance (1.7; 95% CI: 0.9-3.0). The authors suggest that this combination of factors at 3 yrs may predict caries status 3 yrs later, and consider that plaque is an indicator of the efficiency with which fluoride toothpaste is applied.

Cariology

Caries decline before fluoride toothpaste was available: earlier and greater decline in the rural north than in southwestern Norway

Birkeland JM, Haugejorden O
Acta Odontol Scand 2001; 59: 7-13

Caries declined from 1968 in the rural north, but fluoride toothpaste was not freely available until 1972.

This study examined dental data for 6-17 yr-olds from 4 northern and 7 southwestern Norwegian counties over the period 1966 - 1983. In all these counties the Public Dental Service system provided dental care by 1966. Fluoride toothpaste was prescribable from 1969, and purchasable over the counter from September 1971. From 1963, fluoride tablets were prescribable and by 1971 were used by about 1% of children under 15 yrs.

In 1967, the mean sum of filled and extracted permanent surfaces was 7.3 in the north, declining to 6.8 in 1969, 6.2 in 1971 and 3.5 in 1975; in the southwest, respective figures were 5.6, 5.9, 5.6 and 3.5. In the north, the mean sum of filled and extracted permanent surfaces was significantly greater than in the southwest when

compared over various time periods: for instance, in 1967 and 1983 the respective figures were 5.4 and 3.7 ($P < 0.01$).

The authors consider their findings disprove the claims that caries began to decline in 1972 in Norway, after fluoride toothpaste was made freely available, and that the decline was similar and of the same magnitude in all parts of the country. They suggest that the early caries decline was related to school-based fluoride programmes, though several factors were later involved.

Tooth loss

Reasons for tooth extraction in a Brazilian population

Caldas AF, Marcenés W et al.
Int Dent J 2000; 50: 267-273

Caries accounted for 70% of extractions.

In the Brazilian town of Recife, population 1.34 m., data were selected in 1998, using a multi-stage random sampling system, from public health centres and insurance company health centres, to identify the main reasons for tooth extraction. Females accounted for 53% of the final sample of 404 subjects, and over 4/5 were 18-39 yrs old, though the range was up to 83 yrs.

Overall reasons for extractions were: caries 70%, comprising primary 14%, secondary 29% and pulp involvement 27%; periodontal disease 15%, pre-prosthetic treatment 6%, wisdom teeth 4%, orthodontic treatment 3%, trauma 1% and patient request 1%. The authors provide a comprehensive analysis of their data, and note that the finding that caries accounts for most extractions agrees with 20 of 24 studies published from 1980 to 1999.

Occlusion

Occlusal stability in shortened dental arches

Witter DJ, Creugers NHJ et al
J Dent Res 2001; 80: 432-436

A 9 year study showed minimal differences between shortened and complete dental arches.

Subjects with shortened dental arches (SDA: $n = 74$) consisting of intact anterior segments and 3-5 occlusal units in the posterior region (occluding premolars = 1 unit, molars = 2 units) were compared with 72 controls with complete dental arches (C). Comparison was at 3 year intervals up to 9 years, by which time the dropout rate was 43% in both groups. Five parameters were used as indicators of occlusal stability.

Interdental spacing affected only a minority of teeth, but was significantly greater in SDA premolars, with a similar non-significant trend in anteriors. There was no age effect in C patients, and the spacing remained constant over time in SDA. *Occlusal contact* was significantly higher in ICP in SDA than C (73% v. 62%). More canines than incisors were in contact in both groups. There were no age or time effects. *Overbite* also did not change with time. *Occlusal tooth wear* was significantly greater in premolars only for subjects who had had SDA more than 15 yrs. *Periodontal support* was significantly less in SDA group, but did not change with time.

The authors conclude that SDA is not a condition which can itself result in occlusal collapse, and that the minor changes with time contribute to equilibrium.