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### Behavioural science

## Relaxation vs. cognitively oriented therapies for dental fear

**Berggren U, Hakeberg M et al.**  
**J Dent Res 2000; 79: 1645-1651**

More patients completed cognitively-orientated therapy, but those who completed relaxation-orientated therapy appeared to have a better result.

In this study, 112 patients were randomly allocated to one of 2 therapies aimed at treating severe dental anxiety. Both therapies were performed by the same clinical psychologist up to a maximum of 8 sessions, first using a series of short dental video scenes and finally with the patient handling dental instruments.

In relaxation therapy, 54 patients (12 had never completed a course of dental treatment) were trained in muscle relaxation, with the aim of reducing stress. Electromyography (EMG) was used to increase the patient's feedback. In the cognitive therapy, 58 (9) patients were interviewed to assess their thoughts, beliefs, attitudes and opinions in relation to dentistry, and EMG was used but not as feedback. The treatment was aimed at producing better coping mechanisms through exploring the sources of fear. Finally, 3 dental treatment visits were scheduled as outcome tests.

More patients completed cognitive therapy (74%) than relaxation therapy (59%), but the difference was not significant. Respective dropouts were 14% and 26% with psychologist, 3% and 7% with dentist, and a further 7% and 9% were unsatisfactory in the dental treatment visits. Respective mean DMFT was 17.6 and 18.2. In terms of several different measurements of anxiety, relaxation therapy gave reductions consistently higher than cognitive therapy. The willingness of patients to engage in treatment (their self-perceived motivation) was a significant predictor of outcome: failure was 3.6 times higher if they had low scores.

### Preventive dentistry; sociology

## Water fluoridation, poverty and tooth decay in 12-year-old children

**Jones CM, Worthington H**  
**J Dent 2000; 28: 389-393**

Fluoridation helps to reduce socio-economic health inequality.

Previous studies in several countries have disagreed on whether fluoridation gives greater benefit to those who are socio-economically disadvantaged. In this study, data from the 1992-3 NHS survey of 12-year-old children were examined in relation to the Townsend index of deprivation derived from the 1991 census (national mean is 0, and 10 means very deprived). Electoral wards in fluoridated Newcastle and non-fluoridated Liverpool were compared with respect to data from 6,638 children.

Mean DMFT for Liverpool was 1.58 (ward scores range: 0.97-3.01), and for Newcastle, 0.92 (0.48-1.48). Respective Townsend ward scores ranged from -1.21 to 13.09, and from -3.3 to 9.4. Regression lines for the ward DMFT scores in relation to Townsend scores indicated that fluoridation gave a 37% reduction of DMFT for a deprivation score of 0, and a 52% reduction for a

score of 10. Furthermore, the socio-economic effect of fluoridation was also apparent when comparing only those wards which were within a common range of Townsend scores for the two towns.

### Cariology

## Dental plaque mass and acid production activity of the microbiota on teeth

**Borgström MK, Edwardsson S et al.**  
**Eur J Oral Sci 2000; 108: 412-417**

An increased mass of plaque was less active in acid production.

When plaque is frequently disrupted and re-colonized, the bacterial constituents thus selected are those which produce most acid through fermentation. The more complex microflora in less disturbed locations has fewer such microbes and may produce less acid at the tooth surface. The present study examined plaque thickness in 25 Swedish children aged 14-15 yrs and from an area with 0.2-0.4 mg/l of fluoride in drinking water. After its mass had been clinically assessed, plaque was collected from all non-occlusal surfaces and the teeth were then professionally cleaned. This was repeated 3 weeks later, 5 min after subjects rinsed with a 40% sucrose rinse for 1 min.

Plaque samples were weighed and acid production assessed. Mean weights on the 2 occasions were 11.9 and 11.1 mg (ranges 2.5-43.7 and 1.5-42.2), and correlated well with plaque mass scores. Plaque weight was inversely related to the concentration of acid anions (mainly acetate, lactate and propionate) recovered in all samples. Resting plaque was dominated by acetate and propionate, and sucrose-exposed plaque by lactate and acetate. The authors state that further studies are needed to show whether thin plaque is more closely related to caries.

### Dental anatomy

## Clinical crown length changes from age 12-19 years: a longitudinal study

**Morrow LA, Robbins JW et al.**  
**J Dent 2000; 28: 469-473**

Passive eruption continued throughout the teenage years.

Study models were made for a longitudinal study of orthodontic treatment need in 456 subjects at ages 11-12, 14-15 and 18-19 yrs. No subject was receiving orthodontic treatment at the time when impressions were made. Vertical crown length measurements were made at the labial surface centre of the right maxillary central incisor and canine (teeth 11 and 13), the left maxillary lateral incisor (22) and the left mandibular central incisor (31) on all casts.

The 2 central incisors increased in crown length by a mean of about 1 mm over the 7 yr period, the canine by 1.5 mm and the lateral incisor by 0.5 mm. There was a gender difference for the maxillary teeth, which were 0.2-0.5 mm longer in males at all 3 ages examined. Most of the increase in crown length of tooth 13 occurred by age 14-15, but the increase was spread over the whole period for the other teeth. The authors note the aesthetic significance of their findings for the timing of gingivally-related anterior restorations in teenagers.