

## Commonwealth Health Ministers Meeting 2007

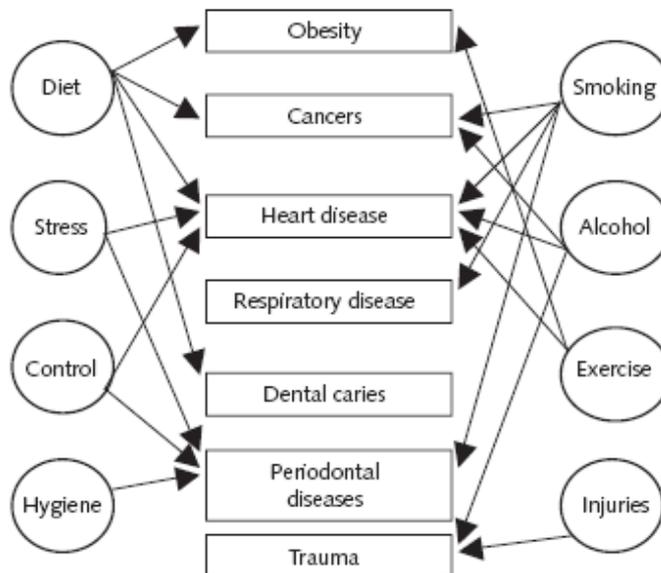
A paper from the Commonwealth Dental Association (CDA)  
for the meeting to be held in Geneva on May 13<sup>th</sup> 2007

***“The impact of nutritional changes on lifestyle diseases”***

### Introduction

There is no doubt that most of the common diseases of the mouth are derived from lifestyle, and that changes of lifestyle – whether planned or accidental (from social factors) for which the consumer may not have choice can lead to deterioration of oral health. Particularly relevant is the choice or availability of food and drink.

The relationship of various factors has been shown thus:



Source: “*Choosing better oral health: an oral health plan for England*” page 23 - Department of Health (England) 14<sup>th</sup> November 2005, Gateway reference 4790

### Dental caries

Dental caries, also described as tooth decay, is an infectious disease which damages the structures of teeth. The disease can lead to pain, infection and tooth loss.

Dietary carbohydrates consist basically of sugars and starch. There is no doubt that sugars cause caries; starch can cause caries but much less so than sugars. Of the common dietary sugars, lactose is the least *cariogenic*.

Sucrose is present in varying quantities in very many processed foods commonly eaten (and drunk) in all societies. Sucrose is thought to be the most *cariogenic*.

There is little evidence that fresh fruit and vegetables cause dental caries. However, sugar-containing fruit-flavoured drinks, when fed frequently in bottles or reservoir feeders and especially when given as comforters, are a major cause of caries in infants and young children. Milk is not cariogenic, although (rarely) caries occurs in children breastfed over long periods.

Staple starchy foods such as potatoes, rice, pasta, and bread are not seen as significant causes of caries. But, when starchy foods are heat-treated and finely ground, as happens in many snack foods, compounds are formed which have potential for caries development. Advances in food technology have led to an increase in processed foods with a cariogenicity between that of sugars and starch.

These advances in food technology and the appreciation that sugars cause caries have also led to an expansion in the availability and use of non-sugar sweeteners. Bulk sweeteners are used mainly in confectionery, chewing gums, and liquid oral medicines, while intense sweeteners are used mainly in drinks and for enhancing the flavour of chewing gums and other foods and medicines. Substitution of these sweeteners for sugars does benefit dental health.

Some components of our diet can protect against dental caries. The most important of these are fluoride (as in toothpaste or dietary fluoride supplements) and sugar-free salivary stimulants. Chewing gum stimulates the saliva glands to produce more saliva (to wash the teeth), so there is no doubt that chewing sugar-free gum benefits dental health.

How and when foods are eaten has an important influence on caries development. There is much evidence that frequent eating of sugary foods is particularly dangerous. Frequent eating prolongs the time acids are present, encouraging demineralisation of tooth enamel, and decreases the time that plaque pH is high, when remineralisation of the enamel can occur. Although frequency of intake is very important, the amount of sugar consumed is also independently a relevant factor.

### **Dental erosion and attrition**

Dental erosion is defined as the physical result of the loss of hard (dental) tissue which has been chemically etched away from tooth surfaces by acid and/or chemical chelation, without chemical involvement. Often erosion, abrasion (from poor toothbrush technique) and attrition of tooth surfaces combine to cause tooth wear.

Dental erosion was largely ignored until near the end of the 20<sup>th</sup> century but the decline in dental caries in developed countries, the great worldwide increase in the consumption of soft drinks, the wider availability of fruits and fruit juices, and the obsession of many young women for slimness may have all contributed to a wide acceptance that the prevalence of dental erosion has increased. The epidemiology of erosion is still in its early days.

The three sources of acids causing these problems are diet, the stomach, and the environment.

Common dietary causes are fruit-flavoured and cola-flavoured soft drinks, citrus fruit, fruit juices, and vinegar-based foods. Dietary supplements such as vitamin C tablets and medicines, either as liquid or as acid-containing chewable tablets, have also been implicated.

Frequency and duration of drinks, especially when taken alone as a snack instead of with a meal, and/or taken last thing at night are considered risk factors.

Other patient-related risk factors include low salivary flow.

Prevention relies on spotting signs of erosion early and establishing its causes. This can be difficult, particularly when some patients are reluctant to admit to vomiting and may be ignorant of regurgitation. Reducing any dietary cause is paramount and involves taking a dietary history and giving personal and practical dietary advice.

The use of fluoride toothpastes, mouth-rinses, and varnishes can be encouraged, although evidence for their effectiveness is limited at present. There are strong indications that the manufacturers of soft drinks could make their drinks less erosive.

### **Oral cancers**

The incidence of mouth and pharyngeal cancers is twice as common in the developing world, where nearly 80 per cent of cases occur. However, in developed countries, recent trends show an increasing incidence and mortality.

Cancers of the mouth and pharynx include those of the tongue, gums, floor of the mouth, and other parts of the mouth and pharynx. Cancers of the lip (predominantly influenced by sunlight and smoking) and of the salivary glands are outside this classification.

By far the most important dietary influence on the occurrence of oral cancer is alcohol. The evidence is extensive and consistent. Early studies have indicated that the highest relative risk is in whisky drinkers, but subsequent studies have reported similar risks of cancer of the mouth and pharynx among drinkers of different types of drink – wines, beers, whisky, and mixed drinks.

It is likely that there are synergistic interactions between alcohol consumption and tobacco use. Further, alcohol can facilitate the entry of tobacco carcinogens into cells as a result of its solvent properties. Finally, both alcohol and tobacco damage cells, thus inducing a compensatory hyper-proliferation that increases the likelihood of persistence of unrepaired DNA damage across generations of cells.

There is a multitude of carcinogens in tobacco, both chewed and smoked. Betel-quid chewing has long been linked to oral cancer-studies for over 70 years. Although there are several and varied ingredients of the betel-quid, only tobacco has been clearly related to oral cancer. A CDA position statement is at Appendix 1.

Of all the other dietary constituents, vegetables and fruit have consistently been associated with **decreased** risk of cancer of the mouth and pharynx. Protective associations for vegetable and fruit consumption have remained significant after adjustment for smoking (or other forms of tobacco consumption such as chewing) and

high alcohol consumption. Typically, the risk of cancer of the mouth and pharynx is halved in those who eat fruit/vegetables daily versus less than daily consumption. The evidence is most consistent for carrots, citrus fruits, and green vegetables. However, there is no protective association with consumption of pulses, grains, minerals, and vitamins, other than for vitamin C.

Data available provide no evidence that coffee or tea consumption increases the risk of oral cancer. However, mate is commonly drunk as tea in some parts of South America and would appear to be a risk factor for oral cancer. Regular drinkers of mate have approximately a two-fold increase in risk.

Oral cancer is largely a preventable disease. It has been estimated that almost 87 per cent of the incidence of cancer of the mouth and pharynx can potentially be reduced by not smoking, reducing alcohol drinking, and increasing consumption of vegetables and fruits. Excluding the non-dietary risk factor of smoking, a diet high in a variety of vegetables and fruits and avoidance of alcohol may prevent between 33 and 50 per cent of cases of cancer of the mouth and pharynx.

### **Periodontal diseases**

It is not thought that diet has any significant effect on the incidence of periodontal (gum) diseases, however the disease of scurvy, from the absence of Vitamin C does have a profound effect on the gums, which become tender, swollen and haemorrhagic and can lead to mobility of teeth and their subsequent loss.

Regression of the disease normally rapidly follows vitamin C therapy.

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### The Commonwealth Chewing And Smokeless Tobacco Cessation Statement

Tobacco use is a recognised health hazard and cigarettes are by far the dominant form of tobacco used worldwide. However, in many Commonwealth countries, especially those in South Asia, chewing tobacco represents over a third of all tobacco consumed. Smokeless tobacco delivers nicotine and is dependence forming. It causes considerable health risks; in particular it is a major cause of oral cancer. Recent evidence has demonstrated substantial amounts of tobacco specific nitrosamines (TSNAs) in smokeless tobacco products. TSNAs are the most common carcinogens in unburnt tobacco which are formed during the ageing, curing and fermentation of tobacco.

Smokeless tobacco products vary considerably and, in an unregulated environment, it is difficult for professionals and members of the public to know the contents of the different forms of chewing tobacco.

Health Professionals have a fundamental role to play in tobacco control and members of the dental team can play a special role in that process. Dental professionals have the opportunity to help people change their behaviour and then they can give advice, guidance and answers to questions related to the consequences of tobacco use in general and oral tobacco use in particular.

Members of the dental team should, therefore, be encouraged and trained to play a significant role in preventive measures, especially when considering the youth. They have the opportunity to promote social norm change, and forewarn children and adolescents of the dangers of oral tobacco use and assist in tobacco cessation.

Dental health professionals should themselves be the examples that a healthy society reflects upon. Many associations and establishments have started - and should continue - to designate their own workplaces as smoke- and tobacco-free. Adding tobacco control as a component of the training and education programmes of all dental health professionals is an important first step. Dental students should be trained in tobacco control during their educational years and so become more efficient at identifying and treating patients in tobacco-related issues, and be able to support their patients' cessation efforts.

Commonwealth Health Ministers are urged to:

- ◆ Recognise the dangers of tobacco use in any form
- ◆ Recognise the dangers and relative risks of smokeless tobacco within the general tobacco control programme and the role that members of the dental team can play in prevention and tobacco cessation.
- ◆ Request the collaboration, support of governments and international bodies (eg WHO, FDI, CDA, PAHO) to:
  - (1) Work towards the establishment of appropriate leadership centres and an international network in reducing chewing and other smokeless tobacco use
  - (2) Develop suitable continuing education programmes for members of the dental team to facilitate tobacco cessation
  - (3) Encourage the relevant national dental bodies to have policies on tobacco free work places and educational programmes on tobacco cessation
  - (4) Provide support for the development and evaluation of national programmes on preventing oral cancer

- (5) Develop partnerships between civil society organisations and dental and other health professionals and the private sector, on tobacco cessation initiatives
- ◆ Direct the Commonwealth Secretariat to identify appropriate centres to monitor and evaluate the progress of the above.

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