

Addressing the Obesity Epidemic: What Is the Dentist's Role?

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Obesity now constitutes a worldwide epidemic, and, like other countries, Canada has witnessed an increase in the prevalence of this condition over the past 15 to 20 years, among both children and adults.^{1,2} Obesity is associated with many diseases (e.g., cardiovascular diseases, some forms of cancer, type 2 diabetes mellitus [T2DM] and chronic oral diseases), and a multidisciplinary approach is needed for optimal control.

Obesity and oral diseases share a common risk factor, diet. The impact of diet on oral health and dentition is well established and, according to the American Dietetic Association, nutrition is an integral component of oral health. Indeed, the American Dietetic Association has recommended collaboration between dental professionals and dietitians for the promotion of oral health, the prevention of disease and appropriate intervention.³ Furthermore, suboptimal diet is known to increase a person's risk of being overweight or obese.^{4,5} The World Health Organization's global oral health program⁶ gives high priority to the integration of oral health within a general health program, recognizing that chronic noncommunicable diseases such as obesity, cardiovascular disease, T2DM and oral diseases share a set of common risk factors.⁶ This approach, first proposed by Sheiham and Watt,⁷ moves beyond the narrow and compartmentalized scope of dental health education toward an approach that emphasizes

comprehensive health promotion messages. Thus, it is often argued that separating the mouth from the rest of the body may lead to duplication of effort and may result in conflicting and contradictory health promotion messages. In contrast, the integrated common risk factor approach is founded on the key underlying concept that promoting general health by controlling a small number of risk factors may have a substantial impact on a large number of diseases at lower cost and with greater efficiency and effectiveness than disease-specific approaches.⁷ For example, preventive programs for obesity might have spillover effects on oral health and vice versa.

The present paper advocates adoption of the common risk factor approach by the dental profession (and by individual dentists) through lobbying and education of the public and discusses specific examples of how this might be done.

Is Poor Dental Health Associated with Obesity and T2DM?

The literature shows that dental health is closely associated with nutritional status. Joshipura and others⁸ found that edentulous participants in their study consumed fewer vegetables, less fibre and carotene, and more cholesterol, saturated fat and calories than participants with 25 or more teeth. Similarly, Johansson and others,⁹ in a comparison of dietary intake between edentulous middle-aged (25–64 years) individuals and age- and

sex-matched individuals who still had their natural teeth, found no difference in daily energy intake, but edentulous men and women ate more sweet snacks than those who still had their own teeth. The edentulous men also ate fewer fruits and vegetables and less fibre, and the edentulous women ate more fat. The edentulous men and women were more obese and had lower serum concentrations of high-density-lipoprotein cholesterol than those with their own teeth, and the edentulous women had significantly higher serum concentrations of total cholesterol and triglycerides than the dentate women. Furthermore, the presence of 2 or more cardiovascular risk factors was more common among edentulous individuals than among those who still had natural teeth. Together, these results support the hypothesis that edentulous middle-aged individuals are more prone to obesity and have a more unfavourable risk factor profile for cardiovascular diseases.

In general, body mass index (BMI) is an independent predictor of the number of teeth.¹⁰ In particular, having 21 or more teeth increases the likelihood of an acceptable BMI.¹⁰ In contrast, dentate individuals with fewer than 21 natural teeth were on average more than 3 times more likely to be obese than those with 21 to 32 teeth.¹¹ The positive association between overall and abdominal obesity and the prevalence of periodontal diseases¹² further supports the association between BMI and tooth loss, a potential outcome of periodontal disease.

To date, researchers have interpreted the association between dental health and obesity and T2DM in terms of high BMI being predictive of poor oral and dental health. However, the converse, that poor dental status might favour weight gain, is also possible. Hence, it is realistic to postulate that impaired dental health might favour a decrease in masticatory function and the choice of low-fibre, energy-dense foods. In this respect, poor dietary choices could represent an intermediate effect by which poor dental status might induce long-term weight gain, obesity and T2DM.

What Is the Dentist's Role in the Common Risk Factor Approach?

The common risk factor approach considers risk factors that are common to many chronic conditions within the context of the wider socioenvironmental milieu. This approach, which is based on the evidence of common risk factors among a variety of chronic diseases, argues that targeting each disease separately will be less effective than targeting the common risk factor. Since chronic oral diseases are determined mainly by diet, oral hygiene practices, smoking, alcohol habits and stress, a collaborative approach, establishing alliances with other sectors with similar aims, is encouraged. In fact, the alarming rates of obesity and T2DM make such collaboration mandatory.

Box 1 Ways dentists can incorporate the common risk factor approach in their practice

- Screening of dietary habits of at-risk patients
- Dietary follow-up (perhaps in collaboration with a dietician) for patients who have undergone dental extractions
- Display (in the dental office) of posters showing the importance of healthy dietary habits, to help make patients aware of the importance of diet and its potential positive outcomes for oral health and body weight
- Determination of body weight at each visit, to permit assessment of any changes in this factor among at-risk patients
- Referral of at-risk patients to a medical doctor or another health care professional if major changes are observed in body weight and/or dietary habits.

To decrease the prevalence of overweight and obesity, oral health care professionals need to work in partnerships across sectors and disciplines. This collaborative style of working necessitates the development of a range of networking and communication skills, which can also be used in interactions with patients. In this regard, general dental practitioners should at least reinforce healthy eating messages with their patients. Moreover, because obesity is a public health concern and because a multidisciplinary approach is highly desirable in tackling the problem, we strongly encourage dentists to incorporate into their patient encounters some modest interventions geared specifically to this problem. Through their periodic contact with patients, dentists have the opportunity to contribute to the battle against obesity (and all of its associated comorbidities). In this respect, practical and easy-to-use preventive tools must be developed and made available, particularly if dentists are to have an impact with patients who have decreased masticatory function and/or those presenting fewer than 21 natural teeth. Some of the measures dentists can use to incorporate the common risk factor approach are listed in **Box 1**.

Given the literature showing that the link between obesity, T2DM and chronic oral diseases is strongly plausible on both biological and behavioural grounds, we advocate that dental professionals incorporate use of the common risk factor approach in their health education messages. Because these medical conditions are so common, a collaborative approach is more appropriate than one that is disease specific. Dentists can implement this approach in various ways. Doing so will not only contribute to the prevention of oral diseases, but will also address one of the major health issues of contemporary societies, that of obesity. ❖

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