

Junk food and heart disease: the missing tooth

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Most clinicians recognise that junk food consumption is associated with premature heart disease. The general consensus is that this relationship can be explained by the saturated fats in these foods increasing obesity, diabetes and hyperlipidaemia risk and the high salt content raising blood pressure. However, an emerging body of evidence has now demonstrated an association between poor oral health and cardiovascular disease (CVD) risk. As well as having high levels of saturated fat and salt, junk foods often contain a great deal of sugar and the effect this has on oral health may be an important additional mechanism by which junk food elevates risk of CVD.

The global consumption of junk food is unquestionably on the rise. The astronomical growth of the fast food industry in the past few decades has led to the proportion of foods consumed from these outlets rising dramatically and this trend is more recently being mirrored in the developing world, with urbanisation occurring in many parts of Asia and Africa. Worryingly, fast food outlets are most prevalent in low-income neighbourhoods, and there have been suggestions that policy-makers should consider limiting the number per community, particularly in school areas.¹ Among different types of junk food, soft drinks have raised particular concerns and are the main source of free sugar for many individuals. From 1980 to 2000, for example, the contribution of soft drinks to total sugar intake more than doubled from a level of 15% to 37% and these figures have continued to increase since.²

There is now a convincing evidence base linking poor oral health, in particular periodontal disease, to amplified CVD risk.³ Periodontal disease occurs as the result of untreated dental caries, which is in turn driven by a number of factors including poor oral hygiene and excess sugar consumption. It has been noted that the free sugars in fizzy drinks and other junk foods are particularly potent drivers of this. Individual studies have demonstrated links between periodontal disease and atherosclerosis as well as various clinical CVD outcomes.⁴ In addition,

proxy markers for periodontal disease such as tooth loss and reduced tooth brushing have also been associated with higher levels of CVD.⁵

The mechanism by which poor oral health increases CVD risk is thought to be an inflammatory response to chronic infection. The inflammatory component of atherosclerosis has long been recognised and periodontal disease is an extremely common chronic infection, associated with elevated inflammatory biomarkers including C-reactive protein.⁶ Thus, the increase to the systemic inflammatory burden caused by this disease may mediate the increase in atherosclerosis. Indeed, findings from prospective longitudinal studies indicate that inflammatory biomarkers may be useful predictors of future CVD.⁷

In the most recent UK national guidance on the prevention of CVD at population level, the National Institute for Health and Clinical Excellence discusses the importance of policy and legislation being used to influence various key dietary areas.⁸ These include protecting children from irresponsible marketing, ensuring clear food-labelling systems and empowering local authorities to have greater influence over fast-food outlets. The policy goals for individual dietary components, meanwhile, include reductions in salt and saturated fat consumption and an increased public awareness about the harmful effects of industrially produced trans-fatty acids. Although reductions in sugar are indirectly mentioned, this is not yet a major policy goal in these guidelines.

Decreasing the consumption of junk food is complex and requires a multifaceted approach. Reducing availability seems to be an important step with density of outlets being associated with consumption patterns, particularly in children.⁹ Another means of reducing availability is through pricing and taxation. Evidence has revealed that even modest increases in prices of fast food, for example, may be sufficient to achieve reductions in consumption.⁹ There has been much debate about this in the international community, with governments, public health departments

and journalists grappling with the concept of a 'junk food tax', which has been instigated in various different forms across the world. Clearly, the implications of this are vast and the long-term impact on deprived socioeconomic groups, in particular, remains to be seen.

The association between oral health and CVD suggests that reducing sugar consumption may be a particularly important target for future health policy in this area. Although the well-publicised New York 'Soda ban' has brought the issue to the attention of many,¹⁰ fizzy drinks remain commonly available in public areas ranging from hospitals to schools. There are also unanswered questions about whether the primary prevention of CVD can be tackled in clinical dental practice and how to find robust means to acknowledge poor oral health as an emerging CVD risk factor. Closer collaboration between primary care dental and medical services would undoubtedly help to bridge these gaps. It may take some time, however, for clinicians and patients to recognise this important relationship between teeth and the heart.

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