

Switching one bad habit for another?

Selvaraj Balaji discusses developing knowledge and solutions for tobacco cessation.

The long-term effects of tobacco use on oral and systemic health are well known. It is implicated in a wide spectrum of diseases, including cardiovascular disease and a range of cancers, including cancers affecting the mouth, head and neck. It is also recognised as a significant risk factor for periodontitis. Tobacco use is associated with increased pocket depths, loss of periodontal attachment and alveolar bone, and a higher rate of tooth loss. Smokers additionally have a 140.2 per cent higher risk of implant failure than non-smokers.

Therapies using nicotine-containing alternatives to smoking are designed for short-term use. While some products can legitimately help smokers quit the habit, nicotine, even when isolated from tobacco, is not a healthy product. It is addictive and has been shown to affect gingival blood flow, as well as the immune response due to its effect on cytokine production, and neutrophil and other immune cell function.

Some research indicates that nicotine may in fact be the main ingredient in tobacco that drives the mechanisms responsible for the overall effects on periodontal tissues. Nevertheless, an ever-emerging suite of



nicotine-containing products is successfully marketed to non-smokers and smokers alike as not only a lifestyle choice but as a healthy alternative to smoking.

Nicotine pouches

Increasingly popular with young people, are options that are marketed as 'tobacco-free', as this leads to a perception that they are healthier alternatives to smoking. Nicotine pouches (NPs), for example, are thin, prefilled, microfibre pouches, containing white powdered nicotine, flavourings, and filling agents. NPs are placed between the

upper lip and gum, dissolving in the mouth over time, and entering the bloodstream through the oral mucosa.

NPs contain no tobacco leaf but are potent. They typically deliver higher levels of nicotine than most smokeless tobacco products, although nicotine content varies widely. Some 'strong' NPs deliver as much as 11mg of nicotine per unit, while cigarettes typically deliver between 1mg and 3mg per unit, depending on the technique of the smoker.

Relatively new to the UK, NPs are cheaper than cigarettes and are often branded and flavoured to appeal to young

people. They are endorsed by a number of online influencers and are legally available to under-18s. Some even come with discounts and rewards for referring others, for promoting via personal social media accounts and for frequent use.

All signs point to the use of these products continuing to grow, and not as a strategy to stop smoking. In 2021, the global market was valued at \$1.50 bn. Based on the steady increase in sales, industry analysts predict that NPs will be valued at \$22.98 bn by 2030. At least half of those using NPs had never used nicotine products before.

Nicotine pouches and periodontal health

Despite the increasing prevalence of NPs in recent years, research on the effect of these products on systemic and oral health is still emerging, complicated by the range and variety of products and associated additives. However, studies have confirmed the inflammatory effects of NPs, and there is a clear association between the use of NPs and periodontal disease.

Nicotine is believed to interact with host cells, affecting the inflammatory response to microbial challenges. In vitro

studies show that nicotine exposure – particularly serious in NP use due to the close, sustained proximity with gingival tissues – has a significant effect on periodontal health, which can lead to marginal bone loss. The toxins in the chemical can ultimately cause DNA fragmentation and cell death. Studies additionally show that this inflammatory response is exacerbated by different flavourings and other additives included in some products.

Treatment options

Before any restorative treatment can take place, habits affecting periodontal and bone health like the use of NPs must be addressed. Any active periodontal infection must be controlled, and the residual effects of periodontal disease on the long-term stability of natural teeth or implants must be treated. This may include regeneration of the bone and gingiva for function and aesthetics, placement of implants, and restorative therapy.

Developing the knowledge and skills to predictably manage hard and soft tissue around natural teeth and implants – especially in complex cases such as treating (ex) tobacco users – is of enormous benefit to every implantologist's practice. As founder of the Academy of Soft and Hard Tissue Augmentation (ASHA), I decided to lead an Advanced Horizontal and Vertical Augmentation Course to support clinicians. This two-part course takes place over four days and deals with the theory and practice of anterior aesthetic bone and soft tissue augmentation techniques in both the maxilla and mandible. Delegates will experience flap design, CTG harvesting and fixing, the tunnel technique periosteal-elastic technique, and much, much more.

As the market continues to develop around products like NPs, clinicians must continue to develop their knowledge and skills to educate and inform their patients, as well as to offer the most effective treatment.

References available on request.



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