

Can we help smoking patients? How?



Who is a smoker? The World Health Organisation defines 'smoker' as someone who smokes any tobacco product, either daily or occasionally. Smoking itself is an entity that needs to be treated.

Detrimental effects of smoking on oral health were first reported by Pindborg more than 50 years ago.¹ Since then, many clinical studies have reported clinical, biochemical, and microbiological findings that relate tobacco products with the extent and severity of periodontal diseases. Smokers have more severe periodontal disease; more pocketing, more bone loss, more attachment loss, more gingival recession, and greater susceptibility to tooth loss.² Almost half of all periodontitis cases could be related to smoking. Signs and symptoms of gingival inflammation are suppressed in smokers due to vascular changes. There is less detectable gingival hyperaemia and bleeding that delays patients' demand for periodontal treatment. Moreover, smokers have a higher risk for unresponsive pockets and further breakdown during supportive periodontal treatment,³ eventually increasing the treatment costs.⁴

Studies have indicated mostly similar bacterial profiles in the subgingival plaque of smokers and non-smokers. But in smokers, pathogen bacteria can colonise more frequently in shallow sites. Smoking may lead to a shift in subgingival biofilm, increasing the prevalence of pathogens. It is also evident that smoking patients with periodontitis reveal less decrease in the rates of pathogens following non-surgical periodontal treatment. It is likely that decreased local oxygen tension due to smoking may promote the growth of anaerobic bacteria. Moreover, bacteria can easily adhere to epithelial cells in smokers and this is a crucial step for bacterial aggregation.

'Oral health' has been defined as the ability to chew and eat the full range of foods native to the diet, speak clearly, have a socially acceptable smile and dentofacial profile, be comfortable and free from pain, and have fresh breath.⁵ Many of these components are negatively affected by smoking.

There are hundreds of published studies on the possible effects of smoking on periodontal health or outcomes of periodontal treatment. However, like in many other fields, unpublished studies with negative findings cause a publication bias. Moreover, many intervention studies exclude smokers and this causes lack of data. A great number of studies assign participants to 'smoker' or 'non-smoker' group according to the participants' self-reports, which may not reflect the truth all the time. Furthermore, discriminating solely between smokers and non-smokers

may be too vague, as the amount smoked may well influence the findings. Reasons for tooth loss are important, but usually not reported for already missing teeth. Narrowing the inclusion criteria increases the homogeneity of the study groups, but may also lead to loss of data.

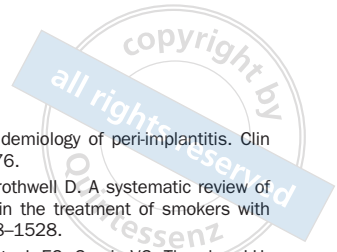
Smoking is the strongest modifiable/preventable risk factor for periodontitis. Is it really modifiable/preventable? Despite a decrease in smoking habits, it is estimated that approximately 10% of all deaths in 2020 will be related to smoking.⁶ On the other hand, severe periodontitis affects approximately 700 million people worldwide. Without any smokers, risk of periodontitis would be reduced by 14%.⁷

Smokers are generally less compliant than non-smokers.^{8,9} Smoking patients present less reduction in probing depth, less clinical attachment gain with non-surgical periodontal treatment.^{10,11} Surgical periodontal treatment provides less reduction in probing depth and less clinical attachment gain.¹² Although findings from different studies are controversial, smoking seems to negatively affect the outcomes of root closure surgeries. Failure rates of dental implants are higher in smokers and smokers have higher risk of post-operative infections and marginal bone loss.¹³

Do adjunctive antibiotics improve the outcomes of periodontal treatment in smoking patients? At present, there is insufficient evidence for the beneficial effects of adjunctive use of antibiotics due to the limited number of randomised controlled trials in smokers and low level of clinical significance of published findings.¹⁴⁻¹⁶ On the other hand, potential risks of antibiotic usage such as development of resistance, allergic reactions, drug interactions etc. should be weighed carefully.

Smoking cessation may provide additional benefits for probing depth reduction after scaling and root planing.^{17,18} Smokers should be encouraged to quit during periodontal treatment.¹⁹ Motivation and instruction for plaque control can be accompanied by motivation and counselling for quitting.²⁰ Long-term comparisons revealed similar probing depth, clinical attachment and bone levels in ex-smokers and never-smokers that were much lower than those of current smokers.²¹⁻²³ More data from smoking cessation studies are warranted, but there are certain difficulties inherent to such studies, e.g. patient compliance is questionable, blind examinations are difficult if not impossible, drop-out rates are high, and chemical validation of smoking status is required. Thus, setting the power is difficult.

Physical withdrawal symptoms of quitting can be variable and severe, such as depression, insomnia, irritability, difficulty in concentrating, frustration, restlessness,



anger, increased appetite, etc. But most symptoms subside within 2-4 weeks²⁴ and unassisted attempts to quit have low success rates of 3-6%, whereas brief, repeated motivational interventions may achieve long-term cessation success of 16-20%.²⁵ Patients believe dentists are qualified to give cessation advice.^{26,27} Half of the patients willing to quit wish to have a cessation programme along with periodontal treatment.²⁸ However, only 35% of periodontists spend more than 5 min of counselling, although 99% ask about smoking habits.²⁹

Untreated severe periodontitis may cause tooth loss and impaired oral health, decreasing the quality of life and self-esteem. As dentists, we should be aware of the great power we have to help our patients quit. We should train our students to increase their skills and knowledge in smoking cessation counselling. We need more evidence on the effects of smoking on oral health. Therefore, we should include smokers in the intervention studies and compare their data with those of non-smokers, instead of excluding them. We should place more emphasis on the principles of non-surgical periodontal treatment to treat periodontal diseases in smokers.

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