



## The Impact of Smoking on the General Health

Based on the 2014 United States Surgeon General's Report on the health consequences of smoking [6], cigarette smoking has been causally linked to diseases of nearly all organs of the body, to overall diminished health status and to harm to the fetus. The health consequences causally linked to smoking include cancers and chronic diseases. Additionally, cigarette smoking impairs immune function. Chronic nicotine use activates multiple biological pathways through which smoking increases risk for disease. Cancers in the oropharynx, larynx, esophagus, trachea, bronchus, lung, stomach, liver, pancreas, kidney, ureter, cervix, bladder and colorectal as well as acute myeloid

## The Impact of Smoking on the Periodontal Treatment Outcome

In smokers, clinical improvement with periodontal treatment has been documented following various therapeutic approaches. However, both extent and predictability of clinical improvement were significantly reduced with respect to non-smokers, even after corrections of oral hygiene levels [59-66]. Smokers respond less favorably than non-smokers to non-surgical [64,67] and surgical periodontal treatment [28,68-74].

In the short-term, both non-surgical and surgical approaches are less efficient in smokers than non-smokers [61,75]. Concerning the short-term response to non-surgical periodontal treatment, at 6 to 8 weeks smokers presented 0.7 mm less probing depth (PD) reduction and 0.4 mm less CAL gain than non-smokers [76] and at 6 months smokers had 0.9 mm less PD and 0.6 mm less CAL improvement at periodontitis sites (PD>5 mm, CAL>3 mm) than non-smokers [77]. Palmer and Soory stated that in non-surgical treatment, smoking is associated with poorer PD and CAL improvement (approximately 0.5 mm less) and that in most studies smokers have lower bleeding level at baseline, and following treatment there is similar bleeding reduction for smokers and non-smokers [78]. In a systematic review on smoking effect on non-surgical treatment, Labriola et al. found that for all sites the PD reduction was 0.13 mm greater in non-smokers than smokers (6 studies). CAL gain and bleeding reduction did not differ between

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months after active treatment was a strong site-specific predictor for residual pockets with BOP at 12 months of maintenance [99].

Data reveals that following a strict periodontal maintenance care program is imperative for smokers. Specifically, Papantonopoulos, in well-maintained advanced periodontitis patients showed absence of significant difference in PD and radiographically imaged bone loss over a 5 to 8-year period between smokers and non-smokers [68]. Fisher et al. in a 3-year study of well-maintained chronic periodontitis patients failed to demonstrate any statistically significant differences in disease progression (CAL and PD), inflammatory indices (PI and BOP) and tooth loss between current smokers and validated current non-smokers. Hence, in this small study of highly motivated individuals receiving optimal care in a hospital clinic, regular maintenance treatment seemed equally successful in preventing progressive periodontal destruction in current smokers.





- periodontal therapy: a systematic review and individual patient data meta-analysis. *J Clin Periodontol* 40: 607-615
- 103 Baumer A, Pretzl B, Cosgarea R, Kim TS, Reitmeir P, et al. (2011) Tooth loss in aggressive periodontitis after active periodontal therapy: patient-related and tooth-related prognostic factors. *J Clin Periodontol* 38: 644-651.
- 104 Teughels W, Dhondt R, Dekeyser C, Quirynen M (2014) Treatment of Aggressive Periodontitis. *Periodontology* 2000 65: 107-133
- 105 Mendoza AR, Newcomb GM, Nixon KC (1991) Compliance with supportive periodontal therapy. *J Periodontol* 62: 731-736
- 106 Ramseier CA, Kobrehel S, Staub P, Sculean A, Lang NP, et al. (2014) Compliance of cigarette smokers with scheduled visits for supportive periodontal therapy. *J Clin Periodontol* 41: 473-480
107. Grossi SG, Zambon JJ, Ho AW, Koch G, Dunford RG, et al. (1994) Assessment of risk for periodontal disease. I. Risk indicators for attachment loss. *J Periodontol* 65: 260-267.
- 108 Grossi SG, Genco RJ, Machtei EE, Ho AW, Koch G, et al. (1995) Assessment of risk for periodontal disease. II. Risk indicators for alveolar bone loss. *J Periodontol* 66: 23-29. ment 106 ar S>