

Effect of Smoke on Normal Human Mouth Microflora

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Abstract: *Cigarette smoking is a public health problem. It decreases the commensal population of normal flora in the oral cavity leading to an increase of pathogenic microbes. It causes oral cancer, periodontitis, colour change on the teeth, halitosis and other health implications. The study was designed to determine the changes caused by tobacco smoking on the microbial profile and oral health conditions of cigarette smokers. One hundred and twenty subjects comprising 60 tobacco smokers and 60 non smokers were enrolled for the study. Oral swabs were collected from the oral cavity of the subjects using sterile swab sticks under standard aseptic methods. The specimens were subjected to microscopy and culture. Organisms were identified using standard microbiological techniques. Higher rates of microbes 86.7% were recovered from the oral cavity of smokers than non smokers 33.3%. There was a statistically significant effect of tobacco smoke on the oral flora of smokers ($\chi^2 = 299.0$, $P = 0.0002$). *Staphylococcus aureus* 13(25.0%) and *Klebsiella pneumoniae* 10(19.2%) were more prevalent among smokers, while *Klebsiella pneumoniae* 4(20.0%) and *Pseudomonas aeruginosa* 4(20.0%) were the most prevalent bacterial isolates among the control subjects. Smokers had a diverse microbial colonization than non smokers. Smoking may have altered bacterial acquisition and oral mucosal colonization in favor of periodontal pathogens. The campaign against smoking should therefore be intensified as this may help to improve the oral health conditions of smokers. The oral microbiota has been observed to be influenced by cigarette smoking and linked to several human diseases. However, research on the effect of cigarette smoking on the oral microbiota has not been systematically conducted in the Chinese population.*

Keywords: Oral Microbiota, Cigarette Smoking, 16S rRNA Gene Sequencing, China, Saliva