

**Periodontal health status of heavy and  
light smokers and its correlation with  
salivary superoxide dismutase enzyme**

*(Comparative study)*

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## **Abstract**

### **Background:**

Periodontal disease is a chronic bacterial infection that affects the gingiva and bone supporting the teeth, smoking, which is an important risk factor for periodontitis, induces oxidative stress in the body and causes an imbalance between reactive oxygen species (ROS) and antioxidants, such as superoxide dismutase (SOD).

### **Aims of the study:-**

The purpose of this study was to evaluate the influence of smoking on periodontal health status by estimating the levels of salivary SOD level in non-smokers (controls) and light and heavy smokers and to test the correlation between the SOD level enzyme and the clinical periodontal parameters in each group.

### **Materials and methods:**

The sample included 75 males divided into three groups:-  
Group one (G1) :-25 males non smokers.  
Group two (G2) :- 25males light smokers ( $\leq 10$  cigarettes/day) .  
Group three (G3) :- 25 males heavy smokers ( $\geq 10$  cigarettes/day).  
All with an age rang 35-50 years.

Clinical Periodontal parameters used in this study were Plaque index (PLI), gingival index (GI), bleeding on probing(BOP), probing pocket depth (PPD) and Clinical attachment level (CAL). Unstimulated salivary samples were collected from all groups and SOD levels were analyzed using spectrophotometric assay.

### **Results:**

Highly significant differences in PLI between(non smokers/heavy smokers) and (light smokers/heavy smokers).On the other hand no significant difference in gingival index between groups.

There were a highly association between severity of smoking & bleeding on probing & probing poket depth and there is association between severity of smoking and clinical attachment loss.

There were a significant difference in the level of salivary superoxide dismutase enzyme between the (non smokers/light smokers) groups & between (heavy smokers/light smokers) & there were a highly significant difference between (non smokers/heavy smokers) groups.

There is no correlation between the activities of the salivary superoxide dismutase enzyme and the clinical periodontal parameters except in SOD with (BOP score 0 and PPD score 1 & score 3) in heavy smokers group.

**Conclusions:** There was a significant reduction in salivary superoxide dismutase enzyme levels from non-smokers to light smokers to heavy smokers groups.