

## The change of zinc level in oral environment as a risk factors of periodontal disease

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### Abstrak

As an essential nutrient, zinc play important roles in many biological functions. The activity of zinc as co-factor enzymes is supporting by the activity of copper and iron. The study was observed the changes of level activity of zinc, copper and iron concentration in sub lingual gland saliva, sub mandible gland saliva and parotids gland saliva The concentration of zinc, copper and iron were determinant by using the X-Ray Fluorescent. The concentration of zinc and iron were significantly increase ( $p < 0.005$ ) in sub lingual within 60 min restraint stress, and copper was significantly decrease ( $p < 0.05$ ). While in parotids gland saliva zinc, copper and iron concentration were significantly decrease ( $p < 0.005$ ). Further, the concentration of zinc, copper and iron in parotids gland saliva were significantly increase ( $p < 0.005$ ;  $p < 4,05$ ) within 60 min restraint stress.

In conclusion, the changes in trace elements of zinc, copper and iron in the salivary gland of sub lingual gland saliva, sub mandible gland saliva, and parotids gland saliva may be closely related to the processes of enzymes activations induced by mild physiology stimuli and that the metabolisms of these metals are differently regulated according to each functional role in the salivary gland system.