

**ORAL HEALTH STATUS AND DENTAL  
TREATMENT NEEDS IN RELATION TO  
SALIVARY CONSTITUENTS AND  
PARAMETERS AMONG A GROUP OF  
PATIENTS WITH THYROID DYSFUNCTION**

**A Thesis  
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# ***Abstract***

**Background:** Numerous functional and physiological disorders associated with thyroid dysfunction. The alteration in salivary constituents among those patients may affect the dental and gingival health condition.

**Aims of the study:** To investigate the oral health status of females patients already diagnosed as having thyroid dysfunction in relation to salivary variables, and to compare results with healthy subjects matching with age (control group).

**Materials and Methods:** The study population consisted of 60 females patients (30 with primary hyperthyroidism and 30 with primary hypothyroidism) (study groups). Clinical examinations were conducted under standardized conditions. Diagnosis and recording of dental caries was according to the criteria of WHO 1987. Plaque index of Silness and Loe (1964) and calculus index of Ramfjord index (1959) were applied to assess oral cleanliness, gingival index of Loe and Silness (1963) was used for recording gingival health condition, as for the loss of periodontal attachment of Ramfjord index (1959) was used. Stimulated salivary samples were collected and chemically analyzed to determine the concentration of the following constituents: ions of calcium, phosphorus, iron, total protein, lipid profile and thyroid stimulating hormone. Salivary flow rate in addition to salivary pH was determined.

**Results:** Results showed a 100% of occurrence of dental caries. The total mean values of caries experience among hyperthyroid group was ( $25.45 \pm 17.70$ ), hypothyroid group ( $20.52 \pm 8.80$ ), compared to control group ( $8.89 \pm 5.92$ ) with statistically highly significant differences (P

<0.01). Caries experience was found to increase among study groups with advancing age with no statistically significant differences ( $P > 0.05$ ).

The mean values of plaque index, gingival index, pocket depth and loss of attachment were noticed to be highest among study groups, hyperthyroid, plaque index was  $1.62 \pm 0.16$ , and gingival index was  $1.52 \pm 0.16$ , and calculus index was  $0.72 \pm 0.14$ , and pocket depth was  $3.61 \pm 0.25$  and loss of attachment was  $2.17 \pm 0.49$ . While for hypothyroid group plaque index was  $1.73 \pm 0.16$ , and gingival index was  $1.50 \pm 0.11$ , and calculus index was  $0.81 \pm 0.17$ , and pocket depth was  $3.68 \pm 0.12$ , and loss of attachment was  $2.15 \pm 0.28$ , compared to control group plaque index was  $1.21 \pm 0.09$  and gingival index was  $0.98 \pm 0.20$ , and calculus index was  $0.17 \pm 0.05$ , and pocket depth was  $2.66 \pm 0.17$ , and loss of attachment was  $0.67 \pm 0.96$  with statistically highly significant differences. Results showed that 100% of females were affected by gingivitis among study and control groups.

Salivary flow rate was observed to be lower among study groups, hyperthyroid group,  $0.82 \pm 0.32$  ml/min, hypothyroid group,  $0.75 \pm 0.37$  ml/min compared to control group  $1.11 \pm 0.21$  ml/min with statistically highly significant differences ( $P < 0.01$ ).

Higher concentration of salivary iron, total protein, cholesterol, triglycerides, low density lipoprotein and very low density lipoprotein were recorded among study groups compared to control; this was with statistically significant differences concerning triglycerides and very low density lipoprotein. While salivary calcium, phosphorus, high density lipoprotein and thyroid stimulating hormone were noticed to be lower among study groups compared to control group with statistically highly significant differences concerning calcium, phosphorus and high density lipoprotein ( $P < 0.01$ ). All the correlations between organic and inorganic salivary constituents and caries experience in the study and control

groups were weak and not significant except the correlation with salivary iron for hypothyroid group was statistically highly significant and the correlation with salivary triglycerides for hyperthyroid group was statistically significant, for the control group the only highly significant correlation with salivary low density lipoprotein and significant correlation with salivary cholesterol. This special groups with thyroid dysfunction may have increased severity of dental caries and periodontal disease, so a special preventive programs need to be designed for those patients.