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Oral Health and Salivary IgA Responses in Division 1 Female Athletes

Brian K. Leary, Miriam E. Leary, Savannah Bryner, Megan Pycraft, Renee Engle, I. Mark Olfert, and Randy W. Bryner. West Virginia University, Morgantown, WV.

Poor oral health is common in athletic populations. Salivary IgA has been reported to be decreased following bouts of intense exercise, but this may be influenced in part by oral health status as IgA plays an important role in mucosal homeostasis. **PURPOSE:** Examine oral health and salivary IgA responses to intense exercise in elite college athletes. **METHODS:** Twenty-Division I collegiate female soccer players underwent a brief dental examination using the dental epidemiologic study: Decay, Missing, Filled Surfaces Index (DMFS). Subjects were separated into two groups based on DMFS score; High DMFS (>5) and Low DMFS (DMFS ≤ 5). Subjects participated in an inter-squad scrimmage designed to simulate high-intensity competitive exercise. Salivary samples were collected prior to and immediately after the scrimmage, and immediately placed on ice until frozen at minus 80^o C. Salivary IgA (sIgA) levels were determined in duplicate using standard ELISA kits. Exercise stress was assessed by determining average and maximal heart rate (HR), total distance covered, and training stress (TS, session RPE x Time) during the scrimmage. **RESULTS:** Athletes with high DMFS had higher levels of total decay (6.3 ± 1.3 vs 0.70 ± 0.47), fillings (4.5 ± 4.2 vs 1.6 ± 0.62), and DMFS index (11 ± 1.3 vs 2.3 ± 0.6) compared with Low DMFS (p<0.05). There was a positive relationship between DMFS index and resting sIgA (r²=0.26, p<0.05). Whole group analysis revealed a significant decrease in sIgA pre (31.3 ± 3.7 mg/dL) vs post (22.6 ± 2.5 mg/dL) scrimmage (p<0.05). Furthermore, sIgA was reduced pre (35.6 ± 6.0 mg/dL) vs post (22.5 ± 2.8 mg/dL) in the High DMFS group (p<0.05), while there was no difference in the Low DMFS group (Pre: 27.0 ± 4.2 mg/dL Post: 22.7 ± 4.3 mg/dL) (p>0.05). There was no difference between groups in markers of exercise stress including average HR (154.8 vs 156.5 bpm), maximal HR (208.5 vs 210.4 bpm), distance covered (10.087 vs 9.8075 km), or TS (540.46 vs 549.47) (p>0.05). **CONCLUSION:** Poorer dental health status may be associated with higher levels of resting salivary IgA concentrations. Athletes with poor dental health may be at risk for reduced salivary IgA following intense exercise, independent of specific exercise stress variables.