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SALIVARY SECRETORY IMMUNOGLOBULIN A VARIATION BETWEEN VARSITY SWIMMERS, VARSITY CROSS-COUNTRY RUNNERS, AND NON-ATHLETES

Carlye Chaney

Mentor: E. A. Quinn

This study examined salivary secretory immunoglobulin A (sIgA) variation between Washington University in St. Louis varsity swimmers, cross country runners, and non-athletes to determine if participation in collegiate athletics affects this measure of the immune system. Past work has only examined salivary sIgA variation by studying one type of physical activity at a time, which makes comparison across different types of physical activity difficult. Prior research suggests that endurance training increases salivary sIgA among elite athletes. Therefore, we hypothesized that varsity athletes would show elevated sIgA secretion rates compared to non-athletes. We recruited 52 female participants aged 18-22 years with 13-20 individuals per group. We collected two saliva samples from each participant: baseline and a second sample two weeks later when athletic training had intensified. Participants also completed a survey including the Undergraduate Stress Questionnaire and a Profile of Mood States.

We found no significant differences in salivary sIgA secretion rate between groups and no association with exercise. There was a significant increase in the mean sIgA secretion rate from the first to the second time period. Normative stress levels significantly predicted sIgA in both the first and second samples. Self-perceived normative stress was significantly negatively associated with sIgA, and athletes were significantly less stressed than non-athletes for this measure of stress. This suggests that the increased innate immune function shown through sIgA secretion rates observed in athletes might be due to their decreased stress levels and not to increased physical activity. When the sick and healthy individuals were subdivided by group, athletes had higher secretion rates than non-athletes when healthy, but the values were similar among the sick individuals across groups. The data suggests that athletes may experience immunoprotective effects from increased innate immunity through higher sIgA secretion rates, but also may have a blunted immune response when they do fall ill.