Salivary Indexes of Autonomic Activity

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Previous research suggests that adverse psychological stimuli can increase the release of alpha-amylase (sAA) into saliva. However, no attempts have been made to examine whether other proteins behave similarly in response to such situations. Therefore, we investigated the response of sAA, salivary total protein (sTP) and chromogranin A (CgA) to sporting competition and their relation with positive and negative affect. Eleven professional swimmers were examined during the first day of a national contest and on a recreated event that matched time-of-the-day and day-of-the-week assessments two weeks later. Total protein was determined by the Bradford method and sAA and CgA by western blotting upon awakening, 30 and 60 min post awakening, immediately before warming up for competition and 5, 20 and 60 min after competition. Psychometric instruments included the Positive Affect and Negative Affect Schedule - X. The concentrations of TP, sAA and CgA differed from controls only prior to and 5 min after the event. We observed positive correlations between higher negative affect scores with higher levels of sTP, sAA and CgA prior to the event on the competition day. All three markers showed a similar reactivity to sporting competition, which may be attributed to the mechanisms responsible for protein secretion into saliva when collection is performed with no exogenous stimulation. sTP could represent a very attractive marker of autonomic activity in biobehavioral research given that the Bradford assay is faster and cheaper than traditional kinetic or immune assays.

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