Salivary Total Protein Tracks Plasma Adrenaline Concentrations during Long-Term Training

Diaz, M.M.¹; Bocanegra, O.L.¹; Teixeira, R.R.¹; Soares S.S²; Pedrosa VB¹; Borges, RM¹; Justino, A.B.¹; Martins, B.C.¹; Espindola, F.S.¹

1. Institute of Genetics and Biochemistry. Federal University of Uberlandia. MG, Brazil.
2. Faculty of Physical Education. Federal University of Uberlandia, MG, Brazil.

A significant body of research supports the notion that saliva offers an interesting possibility to assess the adaptive response to exercise. However, missing are studies that enable us to determine the variation of salivary components in response to long-term training. Thus, this study examined the variation in salivary total protein (sPT), and the concentration of plasma adrenaline and noradrenaline during 21 weeks of training in elite swimmers. Samples of saliva and blood were collected once a month during five months from twelve male professional athletes during their regular training season under resting conditions. Unstimulated whole saliva was assessed for sPT by the Bradford method whereas venous blood was assessed for catecholamines by means on HPLC. The variation in catecholamines throughout the 21 weeks was then compared against sPT and the dynamics of volume and intensity of training as well as training load. Salivary total protein was highly correlated with adrenaline (r = 0.78) but only modestly correlated with noradrenaline (r = 0.57). In addition to this, sPT showed a proportional response to intensity of training (r = 0.82). Since protein secretion into saliva is regulated by autonomic control, sPT constitutes a promising surrogate to explore autonomic activity during long-term training programs.

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