

Heart rate and salivary cortisol changes in stress caused by intense short duration exercise in sedentary people

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Abstract

Background. Intense short duration exercise is a type of stress, especially for sedentary individuals.

Aims. The objective of this study was to reveal dynamic changes comparatively, in stress caused by intense short duration exercise, for two parameters, in physically sedentary persons.

Methods. The chosen subjects were selected to meet the requirements of the study. Stress was represented by intense short duration exercise, performed on a Monark Ergonomic 839E cycle ergometer. The parameters analyzed were heart rate and salivary cortisol. Evaluative statistics were based on Student t test.

Results. Heart rate presented the most intense significant increase, immediately in the pre-exercise period. Salivary cortisol increased significantly immediately post-stress compared to the pre-stress time.

Conclusions. 1) Intense short duration athletic stress has, in sedentary persons, an important impact on heart rate and salivary cortisol. 2) There were differences in the dynamic evolution between heart rate and salivary cortisol. 3) Heart rate variations have shown that in this type of stress, emotional changes are anticipatory. 4) Salivary cortisol changes show that changes in oxidative stress induced by analyzed exercise are more intense post-stress. 5) The results obtained are consistent with the latest bibliographic data on stress caused by exercise. 6) The two studied parameters could be considered important markers of stress induced by intense short duration exercise, for sedentary persons.

Keywords: stress, intense short duration exercise, heart rate and salivary cortisol.