Cortisol and IgA Levels in Obese Adolescents in a Five-month Training Program

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Healthy individuals present variable responses of the hypothalamic-pituitary-adrenal (HPA) axis induced by different patterns of physical training. On the other hand, obesity is associated with altered patterns of substrate utilization at rest and during exercise. Moreover, the immunity can be altered by exercise and cortisol levels. The aim of this study was to observe the influence of an individualized training program on salivary cortisol and IgA concentrations in obese adolescents. Twelve sedentary obese adolescents (4 boys and 8 girls) participated in a five-month resistance and endurance training program. Unstimulated saliva samples were collected before and immediately after the exercise sessions in the first and fifth months of training. Salivary cortisol and IgA concentrations were determined by ELISA. No significant difference in salivary cortisol concentrations was detected either before or after the exercise sessions (p=0.378) or after the fifth-month training program (p=0.684). These data suggest a blunted reactivity of the HPA axis to exercise in obese individuals. Regarding the salivary IgA concentration, in the first month of training was observed a decrease after the exercise session (p=0.024) and in the fifth month of training occurred an increase in salivary IgA concentration at rest (p=0.0232). In this way, regular and moderate exercise has a positive effect in the mucosal immunity, which may contribute to decrease risk of upper respiratory infection.

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