

# SALIVARY HORMONE RESPONSE TO MAXIMAL EXERCISE AT TWO TIME POINTS DURING THE DAY

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## **Abstract**

*The aim of the present study was to establish a relationship between the diurnal variations of testosterone and cortisol with the circadian rhythm of strength and power performance. Changes in salivary cortisol and salivary testosterone were measured after two different modes of maximal exercise (back squat and maximal 5 m sprint) at two different times of day to assess diurnal fluctuations. Seventeen physically active males volunteered as subjects. A randomized cross-over design was utilized and participants were allocated to a maximal back squat protocol at 09:00 and 17:00 h, and a maximal 5 m sprint protocol at 09:00 and 17:00 h separated by at least 48 h. Saliva samples were collected before exercise, at 5 and 60 min post exercise. Exercise performance displayed no time of day effect. No significant effect of exercise mode or time of day was observed in cortisol or testosterone concentrations. Cortisol concentrations were higher in the morning ( $p < 0.001$ ). Testosterone did not exhibit a significant time of day effect however, higher levels tended to be observed at 09:00 h. The data suggest that non weight trained individuals do not display a time of day effect for maximum squat or 5 m sprint performance, or the subsequent salivary hormonal response.*

**Keywords** *Cortisol, Diurnal variation, Power, Sprinting, Strength, Testosterone.*