Day to Day Differences In Periodic Cortisol Measurements in Professional Firefighters

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INTRODUCTION: Professional firefighters (PF) are routinely exposed to life-threatening environments. As a result, PF are at risk for the development of both psychological and physical stress related disorders. **PURPOSE:** This study sought to assess day to day changes in the diurnal cycle of eight PF (age: 45±7 yrs & 21.8±7.27 yrs experience) Cortisol. **METHODS:** Saliva samples were collected from eight PF at 09:00, 12:00, 18:00, and 22:00 hours during nine on-duty days and two off-duty days. Cortisol concentration was measured in saliva samples using ELISA. **RESULTS:** Despite a downward trend in Fig. 1, ANOVA did not reveal a significant trend ($P>.05$) for time and a main effect for days. The interaction between the on-duty and off-duty assessments also failed to reach significance. Lastly, the interaction between test day and time period was not significant ($p>.05$). **CONCLUSION:** Cortisol levels did not differ from day to day at any time point for PF. However, the non-significant trend of Cortisol levels throughout the day reflects a normal diurnal pattern. The data suggests that future research is needed to probe for Cortisol level differences between on-duty and off-duty days as well as Cortisol levels in response to emergency dispatch.

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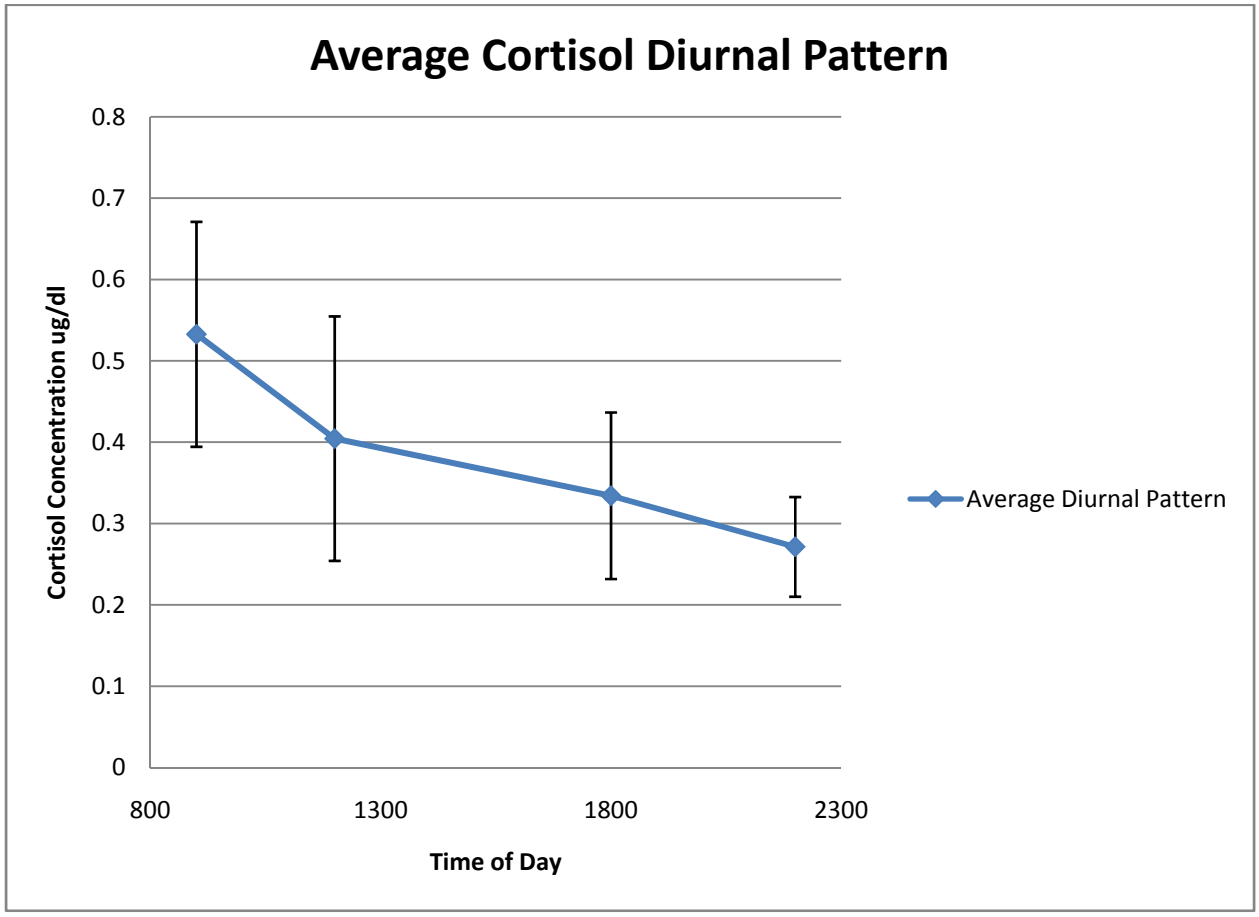
Fig. 1


Average Cortisol Diurnal Pattern
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Cortisol Concentration ug/dl
800
1300
1800
2300
Time of Day
Average Diurnal Pattern