

Cardiac Cycle Patterns Among RCMP Cadets

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Why study the cardiac cycle in RCMP cadets?

Royal Canadian Mounted Police (RCMP) have an increased risk for developing various posttraumatic stress injuries (PTSI). Monitoring RCMP heart functions may be vital to identify hazardous changes that contribute to future health challenges. The current study was designed to characterize the cardiac functions of RCMP cadets beginning their cadet training protocol (CTP), providing important baseline information for future comparisons.

Background

Cardiac cycle timing intervals (i.e., the duration of various segments of one complete heartbeat) provide key insights to overall heart function and heart health. Sustained exposure to stress leads to continuous release of stress hormones and can result in harmful effects to the cardiovascular system. Sustained exposures can cause long-term changes to accommodate highly stressful states, and those changes can increase risks for a major adverse cardiac event (MACE), such as a heart attack.

The current study

The current research draws on data from the larger, 10-year RCMP Study, a part of a Federal Framework on Posttraumatic Stress Disorder (PTSD). The RCMP Study was designed to assess the impact of skills taught to help protect members from PTSD. Participants recorded 60-seconds of their cardiac cycle data at the same time of day and completed at least three recordings during their 26-week CTP.

Results

There were no differences between RCMP cadets and healthy members of the general public with respect to cardiac markers that may predict future health challenges; as such, during training, RCMP cadets do not have heightened risks for a future MACE.

Conclusions

Cardiac cycle interval information can help identify causes of elevated cardiac stress and clarify the risk for a MACE. The elevated psychological stress from occupational demands on RCMP may alter their cardiac cycle intervals, increasing their risk for the occurrence of a MACE. The current results provide critical context and baselines for future research to clarify how heart function is impacted by diverse occupational stressors and linked with physical and mental health changes.

Highlights



Chronic Stress

Associated with an increased risk of MACE

Factors That Increase the Risk of a MACE

- ↓ Myocardial Performance Index
- ↓ Diastolic Performance Index
- ↓ Systolic Performance Index
- ↓ Isovolumic Relaxation Time
- ↓ Isovolumic Contraction Time

- RCMP cadets evidence cardiac timing intervals similar to the general public; and,
- RCMP cadets during training do not evidence cardiac timing patterns that indicate heightened risks for a future MACE.

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*The original wording of the study was changed and condensed for the current research infographic.



Read the full study here:

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The RCMP Longitudinal PTSD Study



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