

Does Short-Term Increase in Heart Frequency During High School Exams Correlate with The Performance?

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Abstract

Introduction: Written examinations are an acutely stressful situation for most students. The aim of this study is to investigate physiological signs of exam stress and their correlation with exam difficulty.

Methods: In a double-blind study, a continuous electrocardiogram (ECG) was used to record the heart rate beat by beat of 15 subjects during an exam period and an exam-free class period. The mean heart rates of the two periods were compared using Student's t-test. Self-perceived stress level and exam difficulty were correlated.

Results: Heart rate increased by a statistically significant 7% during the exam period. The individual increase correlated with the difference between the desired and actual exam result. A brief period of further elevated heart rate was observed at the beginning and end of difficult exams.

Conclusion: The continuous ECG made it possible to determine the physiological stress level of students during classes and exams and even to identify signs of coping. The measurement method validated here can be a building block to assess mental stress and to optimize teaching methods and school health.

Keywords: teaching, student, exam, stress, ECG