— ABSTRACT —

The 0.1 Hz component of HRV as an Indicator of Mental Workload:

Sensitivity for Intensity and Time on Task Effects

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Legal regulations in the EU concerning the evaluation of mental workload require suitable methods for the assessment of mental workload at the workplace. Since the 0.1 Hz component of HRV is currently discussed as a candidate for such assessments it was investigated whether this measure is suitable to indicate effects of levels of workload and of time on task. In a between subjects design a grammatical reasoning task (GRT) at 3 different levels of task difficulty was performed for 60 minutes each by 3x5 participants. Reaction time tasks (RTT) and break periods for 5 minutes each both before and after the GRT were used as covariates for ANCOVAs. These ANCOVAs of the HRV showed no effects for intensity, time on task or any interaction for the GRT, although such effects were reflected in the performance and perceived difficulty data. Furthermore, when a steady state in performance at the GRT was reached, HRV remained constant although an increase in effort with time on task would have been expected. In conjunction with earlier findings, this cardiovascular indicator again does not meet conventional requirements to be used in evaluation of type and/or intensity and/or time on task related evaluation of mental workload.