

The correlation between heart rate and blood glucose as a result of noise exposure using isolated rat's hearts

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Introduction and Objectives: Noise pollution is becoming increasingly more severe nowadays especially in industrial countries. Prevalence of noise is implicated in various illness of human and it is responsible for increased morbidity associated with modern life style. The present study was undertaken to evaluate the correlation between the changes in heart rate (HR) and blood glucose after exposure to acute and chronic high intensity noise using the Langendorff apparatus.

Methods: The rats were divided into four groups and they include exposure to noise of intensity 80-100 dBA on duration of 12 hours exposure (acute effect), 8 hours daily for 20 days (chronic effect), 20 days into 3 days exposure and 2 days without 8 hours per day (intermittent effect) and the control group.

Results: Noise of 80-100 dBA was found to cause a significant negative correlation between HR and blood glucose in acute noise exposure group ($r=-0.091$, $p=0.01$) and chronic continuous noise exposure group ($r=-0.84$, $p=0.03$). There was no correlation between the HR and blood glucose in chronic intermittent noise exposure study group.

Conclusion: The present study determined that high intensity noise may have an adverse effect on cardiovascular functions and thus noise exposure should be well monitored.

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