The Effect of Tempo Speed Vibrations of Daphnia magna

Beeravalli, Neha (School: Science, Math, and Technology Center at Mills E. Godwin High School)

The experiment aims to explore the impact of tempo speed vibrations on the heart rate of Daphnia magna. The purpose of this experiment is to understand how external stimuli, such as rhythmic vibrations, influences the physiological response of these organisms. It is hypothesized if the metronome is set to 1000 bpm, then the heart rate of Daphnia magna will increase. This prediction is based on the assumption that the rapid tempo will stimulate a response in the organism, leading to an elevated heart rate compared to a control group subjected to a different to no tempo. This research contributes to a broader understanding of how environmental factors, including noise pollution, can impact the cardiovascular functions of aquatic species, with complications on ecosystem health and biodiversity. A metronome was used, and a subwoofer was positioned beneath the D. magna. The metronome was set to the desired beats per minute (100 bpm, 300 bpm, 600 bpm, 1000 bpm) for a 10-minute duration. After, D. magna's heart rate was observed under a dissecting microscope. The results show that tempo speed vibrations have a statistically significant effect on the heart rate of Daphnia magna. The t-test results for all comparisons between the different speeds and the control revealed that the null hypothesis was rejected, supporting the research hypothesis that 1000 beats per minute leads to an increase in the Daphnia magna's heart rate compared to other tempo levels and the control.

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