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Effects of Yoga and High-intensity Exercise on Heart Rate Variability and Stress- A Pilot

Study

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Healthcare students have increasingly higher stress levels than in other fields of study. Yoga and meditation are common suggestions to help manage stress and are highly supported in the available literature regarding stress management. Unfortunately, not all students are willing or able to partake in yoga and meditation. **PURPOSE:** This study aimed to determine if high-intensity aerobic exercise is a plausible and equally effective alternative to yoga and meditation for stress management among healthcare students. A second aim was to compare the impacts of yoga versus high-intensity aerobic exercise on heart rate variability (HRV). **METHODS:** Nine female healthcare students were assigned to one of three intervention groups: yoga, high-intensity aerobic exercise (HIT), or control group. The Perceived Stress Scale (PSS) and HRV were measured over eight weeks. **RESULTS:** The control group and the HIT group did not have statistically significant changes in HRV over the 8 weeks (control 65.33 ± 9 to 66.67 ± 8.1 and HIT 54 ± 10 to 66 ± 6.1). The yoga had an improvement in HRV from 56.33 ± 7.5 to 63.67 ± 6.65 with $p < 0.05$. ANOVA comparison between all three groups was not statistically significant. All subjects had a decrease in score on the perceived stress scale, however there was no significant difference between groups on ANOVA comparison. One subject from the yoga group and one subject from the HIT group improved from moderate to low stress on the PSS. No subjects in the control group reached low stress categorization. Pearson correlation revealed a negative correlation of -0.238 between HRV and PSS but was not statistically significant ($p = 0.176$). One subject in the HIT group had lower than average HRV and the highest PSS score at the start of the study, however, at the end of 8 weeks her HRV improved to normal range and her PSS score decreased to the low stress category. **CONCLUSION:** This pilot study begins to explore the impacts of HIT and Yoga on HRV and perceived stress. Yoga and HIT may decrease perceived stress and improve HRV, especially in students with high PSS scores and below normal HRV. The limitation of low subject size can only demonstrate trends. Further studies with larger samples sizes need to be conducted.