

Effects of acute anulom-vilom breathing on autonomic control of the heart

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Objective: Anulom-Vilom breathing (alternate nasal breathing) is one of yogic breathing exercises which aim to cure various physical and psychological ailments. The aim of this study was to compare the immediate effects of Anulom-Vilom (AV) breathing and Paced Breathing at the same breathing rate (PB) on heart rate variability.

Intervention: Twenty healthy young adults (22.3 ± 2.9 yrs) performed Anulom-vilom breathing and paced breathing for 30 minutes in a random order. Blood pressure and continuous EKG were recorded before and during each breathing manipulations. The last 5 minutes of 30 minutes of ECG data were utilized to calculate heart rate variability.

Results: Heart rate and blood pressure were significantly lower during paced breathing compared to Anulom-Vilom breathing ($P < 0.05$). Total power, low frequency power and low frequency/high frequency increased and high frequency decreased during both breathing manipulations compared to rest periods ($P < 0.05$). There was a breathing x time interaction on lnLF/lnHF ($F = 6.72$; $p = 0.018$) [Table 1].

Conclusion: We found that both AV and PB resulted in decreased parasympathetic and/or increased sympathetic control of the heart. Furthermore, AV may result in less of an increase in sympathetic and/or less of a reduction in parasympathetic control than PB. Future research should aim to determine the mechanisms responsible for these changes and potentially examine the time course of autonomic changes in response to chronic AV breathing practice.

Biography

Shreya Ghiya is a passionate physical therapist with interest in Yoga and breathing exercises and their effects on different physiological variables. Her research interests include effects of breathing exercises on heart rate variability at fixed breathing rate. She also proposes new applications of Gini index on heart rate variability as an independent and homogenous indicator of mental stress evaluation.

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