Effect of Static and Dynamic Exercises on the Stress Index of the Autonomic Nervous System

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The present study investigates the effect of static and dynamic stretching exercises on the autonomic nervous system's stress index (SI). In sports, it is essential to understand the differences between static and dynamic stretching exercises and their potential effects on the autonomic nervous system (ANS). Thirty-two (n = 32) healthy males (n = 16) and females (n = 16) were recruited for this study. The static stretching group participants performed static stretching (SS) exercises for 05 minutes. Participants in the dynamic stretching (DS) group performed DS exercises for 05 minutes. After the 48 hours washout period, the group that performed SS exercises changed to DS exercises for 5 minutes. Then the group who performed DS completed SS for 5 minutes. Before the exercises, both groups ran for 05 minutes at self-set speed in both scenarios. SI data was recorded using a Polar H10 heart rate monitor during pre- and post-intervention periods. Recorded data was analyzed using Kubios HRV software. Study results showed that the SI has significantly ($p < .001$) increased after SS exercises ($M = 16.74$, $SD = 10.14$) compared to the baseline ($M = 11.75$, $SD = 7.87$). Furthermore, the SI significantly increased ($p < .001$) after DS exercises ($M = 23.8375$, $SD = 15.38507$) compared to the baseline ($M = 10.4344$, $SD = 5.52739$). The findings of this study revealed a significant increase in stress levels because of stretching exercises. Interestingly, DS exercises showed a more substantial rise in SI on the ANS than SS exercises. These results suggest that incorporating dynamic stretching into warm-up routines may elicit more pronounced changes in the ANS.

Keywords: Dynamic, Statics, Stretching, Heart Rate Variability, Stress Index