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Changes in heart rate variability after a six month long aerobic dance or step-dance programme in women 40–65 years old: The influence of different degrees of adherence, intensity and initial levels

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Abstract

The aim of the present study was to investigate how changes in heart rate variability (HRV) after a 6 month long aerobic dance or step-dance programme are related to adherence, to exercise intensity and to the initial level of HRV. The experimental group consisted of 44 women aged 47.3 ± 5.4 years. Methods used were the spectral analysis of short term recordings of R–R intervals and the incremental uphill walk jog test till maximum on the treadmill. Intervention consisted of a group aerobic exercise, done for a period of six months, three times per week, for 40–45 minutes. Exercise intensity was monitored and followed using monitors of heart rate. There were great differences among the women in the realised training units (9–73). The average weight decrease which occurred measured from 72.1 ± 12.9 kg to 71.1 ± 11.8 kg and the average VO_{2max} increase measured from 33.3 ± 5.7 ml.kg⁻¹.min⁻¹ to 37.0 ± 5.1 ml.kg⁻¹.min⁻¹. The exercise programme did not cause any statistically significant changes in the monitored parameters of HRV. Only two characteristics of exercise intervention (total duration of the aerobic part of the exercise and the average intensity of the exercise) correlated with changes in HRV. A negative correlation was found between most monitored parameters of HRV and their changes. Correlation analyses suggested that the shift of spectral power from sympathetic to parasympathetic happened in the women with a higher adherence to the programme, but it was shown that the influence of volume and quality of exercise were suppressed by the initial level of each parameter of HRV. The lower or worse the initial values of these parameters were before starting the programme, the greater were their increases in a half a year. With regards to the relationship between aerobic power and ANS activity, it is possible to state that in light of its impact on ANS activity, aerobic dance or step-dance could serve as a suitable exercise activity more for subjects with lower aerobic power.

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