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Changes of Cardiovascular Function during Exercise Tolerance Testing in Sedentary Postmenopausal Women after Exercise Intervention

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Objective Previous studies suggested that being postmenopausal could increase the risk of cardiovascular disease(CVD). If we can master the change characteristics of postmenopausal women' cardiovascular function when they doing exercise, we may prevent or reduce the risk of CVD which induced by exercise. To get a more accurate tolerant judgment of the intensity of exercise, we discussed the change of cardiovascular function in sedentary postmenopausal women during exercise tolerance testing after exercise intervention, wish to provide more reliable theory basis in preventing exercise emergence and make an appropriate exercise prescription.
Methods Thirty postmenopausal women participated the study. PAR-Q questionnaires and International Physical Activity Questionnaire-Short Forms were used to screen participants. They were randomly divided into control group(n=15) and experimental group (n=15). The experimental group had an exercise intervention with 3 months walking while the control group lived as usual. Using an exercise tolerance testing by cycle ergometer, let participants do one-time maximal graded exercise test to exhaustion, get the indicators of heart rate, blood pressure, VO_2max, then analyzed the changes of cardiovascular function indexes before and after exercise intervention in experimental group, compared with control group in the same age categories, explored the similarities and differences between index variation.
Results (1) After 3 months of exercise intervention, the rest systolic blood pressure in the experimental group was significantly lower than that in the control group($P<0.05$). (2) With the increase of exercise intensity, heart rate tend to rise in both two groups ($P<0.05$). After 3 months of exercise intervention, the amplitude of heart rate variation between two intensities got smaller in the experimental group. (3) With the enlargement of exercise intensity, systolic blood pressure tend to increase in both two groups ($P<0.05$). After 3 months of exercise intervention, the amplitude of systolic blood pressure variation between two grades got smaller in the experimental group. (4) The exercise intervention can effectively improve the cardiac functional capacity of postmenopausal women ($P<0.05$).
Conclusions Exercise for 3 month can efficiently increase the ability of postmenopausal women's cardiovascular system in the quiet state, increase the reaction and adaptability of intensity stimulation of heart.