

## Comparison of Cardiovascular and Metabolic Responses Following In-Water and On-Land Jump in Postmenopausal Women

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**Abstract :** Purpose: The purpose of this study was to investigate the responses of systolic blood pressure (SBP), diastolic blood pressure (DBP), heart rate (HR), rating of perceived exertion (RPE) and lactate following continued high-intensity interval exercise in water and on land. The results of studies can be an exercise program design reference for health care and fitness professionals. Method: A total of 20 volunteer postmenopausal women was included in this study. The inclusion criteria were: duration of menopause > 1 year; and sedentary lifestyle, defined as engaging in moderate-intensity exercise less than three times per week, or less than 20 minutes per day. Participants need to visit experimental place three times. The first time visiting, body composition was performed and participant filled out the questionnaire. Participants were assigned randomly to the exercise environment (water or land) in second and third time visiting. Water exercise testing was under water of trochanter level. In continuing jump testing, each movement consisted 10-second maximum volunteer jump for two sets. 50% heart rate reserve dynamic resting (walking or running) for one minute was within each set. SBP, DBP, HR, RPE of whole body/thigh (RPEW/RPET) and lactate were performed at pre and post testing. HR, RPEW, and RPET were monitored after 1, 2, and 10 min of exercise testing. SBP and DBP were performed after 10 and 30 min of exercise testing. Results: The responses of SBP and DBP after exercise testing in water were higher than those on land. Lactate levels after exercise testing in water were lower than those on land. The responses of RPET were lower than those on land post exercise 1 and 2 minutes. The heart rate recovery in water was faster than those on land at post exercise 5 minutes. Conclusion: This study showed water interval jump exercise induces higher cardiovascular responses with lower RPE responses and lactate levels than on-land jumps exercise in postmenopausal women. Fatigue is one of the major reasons to obstruct exercise behavior. Jump exercise could enhance cardiorespiratory fitness, the lower-extremity power, strength, and bone mass. There are several health benefits to the middle to older adults. This study showed that water interval jumping could be more relaxed and not tried to reach the same land-based cardiorespiratory exercise intensity.

**Keywords :** interval exercise, power, recovery, fatigue

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