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# Postexercise Hypotension After Aquatic Exercise in Older Women With Hypertension: A Randomized Crossover Clinical Trial

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## Abstract

### BACKGROUND

Hypertension can be prevented and modified with lifestyle interventions that include regular exercise. Aquatic exercise is widely recommended for older adults for a variety of health benefits, but few studies have assessed the immediate ambulatory blood pressure (BP) response to aquatic exercise, a response termed postexercise hypotension (PEH). Thus, we assessed PEH after a session of aquatic exercise in physically active, older women with hypertension.

### METHODS

Twenty-four women  $70.0 \pm 3.9$  years with a resting systolic (SBP)/diastolic (DBP) BP of  $124.0/72.3$  mm Hg and body mass index of  $29.8 \pm 4.1$  kg/m<sup>2</sup> were randomly assigned to participate in a 45-minute session of moderate intensity, water-based exercise (WATER) and a 45-minute land control session (CONTROL). All experimental sessions started at 9

AM sharply with 7 days between them. Subjects left the experiments wearing an ambulatory BP monitor for the next 21 hours.

## RESULTS

SBP was lower by  $5.1 \pm 1.0$  mm Hg after WATER than CONTROL over 21 hours ( $P < 0.001$ ), over awake hours by  $5.7 \pm 1.1$  mm Hg ( $P < 0.001$ ), and sleep hours by  $4.5 \pm 0.4$  mm Hg ( $P = 0.004$ ). DBP was lower following WATER compared to CONTROL:  $1.2 \pm 0.3$  mm Hg over 21 hours ( $P = 0.043$ );  $0.9 \pm 0.6$  mm Hg over awake hours ( $P = 0.101$ ); and  $1.4 \pm 0.9$  mm Hg over sleep hours ( $P = 0.039$ ).

## CONCLUSIONS

Aquatic exercise elicited PEH ( $\sim 5$  mm Hg) over 21 hours, BP reductions that are comparable in magnitude to land aerobic exercise. The immediate antihypertensive benefits of acute aquatic exercise should continue to be explored in future studies.

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**Keywords:** [aerobic exercise](#), [ambulatory blood pressure](#), [blood pressure](#), [elderly](#), [hypertension](#), [postexercise hypotension](#)

**Topic:** [physical activity](#), [hypertension](#), [aerobic exercise](#), [hypotension](#), [blood pressure](#), [exercise](#), [sleep](#), [elderly](#), [control groups](#), [aquatic exercises](#)

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