

Ambulatory Blood Pressure Lower Following Aquatic Exercise than Land Treadmill Exercise

CAITLIN HOGAN, JESSICA BARNES, TAYLOR TODD, JOSHUA WARNER, and DUSTIN P. JOUBERT

Human Performance Lab; Department of Kinesiology and Health Science; Stephen F. Austin State University; Nacogdoches, TX

Category: Undergraduate

Advisor / Mentor: Joubert, Dustin (joubertd@sfasu.edu)

ABSTRACT

Blood pressure (BP) is an important marker of cardiovascular (CV) health. In addition to resting BP, ambulatory BP (AMBP) measured throughout the day is an independent predictor of CV risk. Aquatic exercise has previously been shown to elicit a greater post-exercise hypotensive response than land exercise, but the effects on AMBP are unknown. **PURPOSE:** To determine the effects of deep water, aqua jogging exercise versus land treadmill exercise on daytime AMBP in men and women with above normal BP. **METHODS:** After a resting BP screening, 15 individuals (10 males, 33 ± 14.8 years, 30.4 ± 5.6 kg m⁻², $127 \pm 8/ 83 \pm 8$ mmHg) with above normal resting BP (>120 mmHg systolic and/or >80 mmHg diastolic) who were not on any hypertensive medication completed the study. All subjects participated in a control day, an aquatic exercise session, and a land treadmill session. The exercise sessions consisted of 30 minutes of aqua jogging or land treadmill exercise at 55% heart rate reserve. Each exercise session began at 0700 hours. Immediately following the exercise bout, subjects wore an AMBP device (Oscar 2, Suntech Medical), which was programmed to take measurements every 15 minutes throughout the day until 1600 hours. Each session occurred on separate days and the order of sessions were randomized and counterbalanced. Individuals did not consume any alcohol, nicotine, or caffeine on the days of the study, nor participate in any other exercise or take naps. A repeated measures ANOVA was used to analyze difference across trials and a dependent sample t-test for post-hoc analysis. **RESULTS:** All results are displayed in Table 1. **CONCLUSION:** Daytime AMBP tended to be lower following the aquatic exercise. These data support the efficacy of aquatic exercise for the promotion of CV health and BP regulation.

Table 1. Ambulatory Blood Pressure Response (n = 15)

Variable	Aquatic	Land	Control	p-value
SBP (mmHg)	135 ± 9	139 ± 9	139 ± 10	0.110
DBP (mmHg)	$77 \pm 7^\dagger$	81 ± 6	80 ± 6	0.072
MAP (mmHg)	$97 \pm 7^\dagger$	100 ± 6	99 ± 6	0.072
HR (bpm)	$80 \pm 11^\ddagger$	$79 \pm 10^\ddagger$	73 ± 12	0.001*

*p < 0.05; † different than Land; ‡ different than control
All values represent mean \pm SD