TACSM Abstract

Exercise blood pressures are lower after aquatic compared to land treadmill training

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ABSTRACT

Traditional treadmill training has been shown to moderately decrease exercise blood pressures but the degree to which aquatic running alters exercise blood pressures has not been fully investigated. **PURPOSE:** To compare the exercise blood pressure responses after land treadmill (LTM) training to an equivalent volume of aquatic treadmill training (ATM). **METHODS:** We tested blood pressure responses to the Bruce treadmill protocol PRE and POST 12-wks of matched volume training on LTM (n= 9♂,13♀, age=43±3 yrs, weight=88.1±3.6 kg) or ATM (n=18♂, 17♀, age=45±2 yrs, weight=90.6±3.0 kg). Systolic (SBP), diastolic (DBP), pulse pressure (PP) and mean arterial pressure (MAP) were analyzed using a 2 (ATM or LTM) x 2 (PRE & POST) ANOVA repeated for the training time at rest, 3 stages of the exercise protocol, and 1 and 5 minutes of recovery; Tukey's post hoc tests were used as follow-up for significant interactions, α=0.05. **RESULTS:** VO_{2max} increased significantly 11-15% with training in both groups. Significant training changes for MAP shown in Table (mmHg, mean±SE); SBP and PP paralleled these results. Significance remained after covarying for BMI, %body fat, and age.

GROUP (TIME)	STG 1	STG 2	PEAK	REC 1	REC 5
ATM (PRE)	105.9 ±1.9	112.3 ±2.1	115.2 ±1.8	111.4 ±1.9	99.7 ±2.3
ATM (POST)	99.8 ±1.5*	104.1 ±1.2*	110.4 ±1.3*	105.9 ±1.3*	93.6 ±1.3*
LTM (PRE)	105.1 ±1.9	110.1 ±1.8	113.9 ±1.3	111.1 ±1.7	99.6 ±2.1
LTM (POST)	103.0 ±1.9	106.8 ±2.1	112.1 ±1.5	110.8 ±1.7	101.4 ±2.5

* = Within group by time ($p<0.05$). Bruce Protocol Stage (STG) 1, 2, Peak; Recovery (REC) 1,5 minutes

CONCLUSION: ATM significantly reduces exercise blood pressures. These data suggest ATM may provide a superior benefit over LTM for promoting said reduction. Funding provided by HydroWorx International, Inc.