HydroWorx and Running Study

Peak Cardiorespiratory Responses during Aquatic and Land Treadmill Exercise

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Purpose:

This study investigated the cardiorespiratory responses elicited during maximal-effort protocols using an underwater treadmill and a land treadmill.

Method:

Participants consisted of twenty-three recreationally competitive male and female runners. Subjects performed two maximal-exertion runs, one on a land treadmill, and the other on a HydroWorx underwater treadmill, measuring cardiorespiratory rates, perceived exertion, and blood lactate after each run. Runs were separated by a forty-eight hour period.

Results:

Underwater treadmills can elicit similar peak cardiorespiratory responses compared with land treadmill running during maximal-exertion testing. Heart rate decreased during underwater treadmill exercise due to an increase in central venous return, preload, and stroke volume as a result from a shift in blood volume from the hydrostatic pressure of water.

Conclusion:

Underwater treadmill and jets elicit comparable responses to inclined land treadmill in fit individuals. Underwater treadmill training may be a viable training alternative to maintain or improve fitness levels for injured and healthy athletes alike.