

Achieve Threshold Intensity Training with HydroWorx

Land Versus Water Treadmill Running: Lactate Threshold



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Purpose:

This study was conducted to **compare whether the lactate threshold (LT)**, which is when lactic acid starts to build up in the blood stream according to the intensity of exercising, **is different when running on land vs. an aquatic treadmill**. The study also explored if LT occurs at similar levels of energy expenditure (VO₂) and treadmill running speeds.

Methods:

Fifteen males and females free of musculoskeletal injury and recreationally **active runners** participated in this study. Each participant performed a **VO₂ peak test using the aquatic treadmill**. The requirements each subject met determined the speed of the treadmill. The LT test had different stages that lasted 3 minutes. **Each participant was tested on land and water** for: 1) running speed at which LT occurred, 2) percentage of VO₂ peak at which LT occurred, and 3) absolute blood lactate concentration at which LT occurred.

Results:

The LT point occurred at statistically significantly lower VO₂ and HR levels in the water compared with land. Results were similar for running speed, lactate concentration, rating of perceived exertion and respiratory exchange ratio.



Conclusion:

This study shows that aquatic therapy is beneficial to achieve threshold-intensity training while lowering the joint stress that is caused by land running. The lower HR and VO₂ response in water may reflect a lower energy requirement due to body weight being partially supported.



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