

Water and physical performance

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Abstract

Water is a vital element for the human body. Total body water is approximately 60% of the body weight. Cell membranes delimited the distribution of water: intracellular fluid (40%) and extra cellular fluid (20%). Extra cellular water comprises the following volumes: vascular fluid (plasma), transcellular fluid and interstitial fluid. The two fluid compartments are normal in osmotic equilibrium.

Water shifts permanently exist between intracellular and extra cellular compartments. The actual environment of the cell of the body is the interstitial fluid. Water balance represents the difference between water intake and water loss. Loss of water from the body (dehydration) causes a decrease in extra cellular volume, because water is lost from both the intracellular and extra cellular compartments.

During athletic competition a body's hydration level can become compromised, resulting in a decrement in performance. Dehydration by 20% of body mass impairs the exercise performance. Endurance exercise is associated with significant losses of fluid and sodium, mainly due to sweat loss and reduces urinary water loss. To maintain endurance capacity and to avoid negative health consequences athletes should drink fluids containing electrolytes and carbohydrates in the pre-exercise, during and after training, or competition period. Body weight control is one of the parameters that should be carefully monitored before and after intensive endurance exercise.

Keywords: water, dehydration, rehydration, exercise, performance.