

Summary

The essence of proper hydration has been brought up since a long time. It is especially important in the context of competitive sport and peak performance. As has been shown in several studies, proper fluid supply before, during and after exercise, as well as between training sessions is hardly ever met sufficient. In spite of the common knowledge on this topic, understanding both benefits and complications that may result from optimal hydration, this topic is often underestimated by combat sport athletes and coaches. A properly hydrated body is able to perform harder, longer and more efficient physical work, what is followed by better training effects and consequently improved sports performance. Alkaline water has become an alternative solution for drinks that have so far been used by athletes. It has mainly been used to prevent diseases with metabolic acidosis. Currently, the topic of alkaline water is often tackled in the meaning of improving athletes post exercise recovery. There are experimental studies about its positive influence on acid-base balance both at rest and after anaerobic exercise. The objective of the thesis was a detailed analysis of the influence of alkaline water on hydration and physical work capacity. The topic of the doctoral dissertation includes 5 papers related to the influence of alkaline water on hydration and anaerobic exercise capacity of team sport and combat sport athletes. The presented studies include results of experiments conducted on competitive basketball, soccer players as well as combat sport athletes (judo, MMA). The study consisted of anthropometric measurements, eating habits interview, hydration with water of different alkalization, fitness tests (Wingate test, cycle ergometer test, running test) and laboratory tests (pH, urine sediment and specific gravity, blood pH, LA concentration, pCO₂, pO₂, HCO₃-act, HCO₃-std, BE(ecf), BE(B), O₂SAT, ctCO₂, K⁺, Na⁺). The results indicated a positive influence of alkaline water on the human body. The experiments showed improved results in anaerobic capacity tests, improvement of blood buffering capacity, decreased urine specific gravity, blood and increased urine pH and more efficient use of lactate. In the future, this knowledge can be used to support post workout recovery and decrease metabolic acidosis in athletes subjected to intense exercise with a predominance of anaerobic metabolism.