

Impact of water intake on muscle recovery and performance



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This research report looks at the impact of water intake on muscle recovery and performance

Why you are interested in this topic

I want to discover and highlight the importance of water intake on muscle recovery and performance in terms of weight and cardiovascular training. I believe water is often overlooked. When I have discussions with my friends about what factors they take into consideration for muscle recovery and performance, water was never mentioned.

Description of the aims of the papers gathered

Oliveria et al. (2011) is a quantitative research with purpose to find the influence of water intake on post-exercise. The exercise was on cycle ergometer and being assessed through the analysis of post exercise heart rate variability recovery. Carlton and Orr (2015) is a critical review with the goal of investigating the effect of athlete's hydration status on physical performance. It is a critical review that had found nine articles of high standard of research to meet the inclusion criteria out of 124 possible articles identified from database searches. Shirreffs (2009) is a symposium that aims to find how a variety of different types and modes of exercise performance can be influenced by hydration state.

How your papers relate to your topic of interest

For me, muscle recovery and performance go together. If you have better recovery, you grow more muscles, lift heavier, run faster and longer.

Oliveria et al. (2011) research article mentioned the decrease in cardiac parasympathetic tone and the increase in cardiac sympathetic tone seem to be the main cause of sudden death due to cardiovascular events soon after a session of physical exercises. Interventions that could potentially improve post-exercise autonomic recovery may help to prevent cardiovascular events during this vulnerable period. The results suggest that post exercise water intake enhance post exercise autonomic recovery. Thus, it relates to me as I do cardiovascular training, and sometimes on a stationary bike. This research article made me realise the potential danger since I do go hard in my training and how water intake is important.

Carlton and Orr (2015) critical review of nine articles meet the inclusion criteria: investigated the effect of dehydration on physical task performance, published within last 10 years, research involved human participants, published in English, article was an original research article. From the critical review, most of the research suggests that dehydration has a detrimental effect on physical performance when exercise last longer than 30 seconds with the potential exception of activities lasting less than 15 seconds. This relates to me because I do aerobic and anerobic cardiovascular exercise which are longer than 30 seconds.

Shirreffs (2009) symposium states the composition and temperature of a drink and the volume and rate of its consumption can all influence the physiological response to ingestion and can impact on exercise performance.

It includes sport performance, cognitive performance consists of reaction
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response and motor control which I sometimes play for fun but I want to do well to win if possible, endurance exercise performance although I only train up to an hour whereas the article mentioned approximately one hour to six hours.

What do these papers bring to the topic of interest (ie what is new in this article)

Oliveria et al. (2011) research article made post-exercise autonomic recovery divided into two phases. First phase was fast phase which comprises the first 5 minutes following the end of exercise where decrease in heart rate is fast. Second phase was slow phase of post exercise autonomic recovery in which the decrease in heart rate fall is slower and more prolonged. The approach on fast phase of post-exercise autonomic recovery was a 30 second window for signal recording and then being calculated for each window. It mentioned the approach used was relatively recent therefore only few studies using it. The study found a positive influence (significance set at $P= 0.05$) of water intake on recovery heart rate variability both during the fast and slow phases. Thus, the research study was an original contribution, as a beneficial effect of water intake on the fast phase of heart rate variability recovery could be determined.

Carlton and Orr (2015) critical review goes through a procedure of narrowing 124 possible articles down to nice. Of 124 articles, 108 were removed because it did not meet the five inclusion criteria. Additional seven were removed due to duplication. Six articles were added from the search of reference lists which identified previously unidentified articles. Only the

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remaining 15 articles were then reviewed in detail and considered against the inclusion criteria with nine papers retained for critical review. The k statistic for inter-tester agreement of the methodological quality of the studies indicated a substantial agreement ($k = 0.744$). The scores (mean = $79\% \pm 4\%$) ranging from 72% to 81% using the Downs and Black checklist.

Shirreffs (2009) symposium takes consideration of the environmental conditions experienced by an individual that impacts hydration status. Additionally, it has stated that not all hypohydration negatively affects performance. Evidence showed that reductions in body mass due to water loss of certain percentages according to different types of exercise does not always negatively affect performance.

Future directions arising from these papers, this could be either research or practical

Oliveria et al. (2011) research article recommend precise identification of the mechanisms responsible for the observed responses and the influence of water temperature and volume on the cardiovascular responses should be further investigated. Different liquids might also produce different responses.

Carlton and Orr (2015) critical review states there were three limitations: small number of current research studies that met the inclusion criteria, the difference between protocols for the studies, and the difference in subjects and their training history. Therefore, advocating further research be conducted into the impacts of dehydration on physical performance within the specific task environment while employing performance outcome measures that closely mimic the athlete's key physical task.

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Shirreffs (2009) symposium highlights some of the areas which includes cognitive performance, mood and mental readiness have been a relatively small number of investigations. Thus, impacts on the strength of the conclusion that can be drawn.

References:

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