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### Does creatine supplementation improve swimming performance?

**Catrin Morgan and Atholl Johnston**  
University of London, UK

Creatine supplementation should theoretically increase total muscle creatine and so enhance the generation of intramuscular phosphocreatine and subsequent ATP formation. The use of creatine as a potential ergogenic aid in sport has been an area of significant scientific research for a number of years. However the effect of creatine supplementation and swimming performance is a relatively new area of research and is the subject of this review. In swimming creatine supplementation could help maintain maximal power output, aid recovery and increase lean body mass. After investigating the underlying theory and science behind creatine supplementation, a literature review was conducted to identify the best evidence looking at the effect of creatine supplementation on swimming performance. The search identified 27 potential studies, and out of these 17 were selected for review. The studies were then categorised into single sprint performance, which involves swimming a short distance race, or repeated interval performance, which involves swimming a series of sprints with intervals of rest between them. None of the studies on the effect of creatine controlled for the multiple confounding factors associated with measurement of swimming performance. The sample size in the studies was limited and this reduced the reliability of the studies and introduced the possibility of bias. The studies reviewed provided insufficient evidence to determine if creatine supplementation is beneficial to swimming performance. However, what data there was supported the use of creatine supplementation in repeated interval swimming rather than in single sprint swimming. From a review of the studies, it was calculated on average, there was a 1.37% increase in swimming performance with the use of creatine for repeated intervals and a 0.86% increase in performance for single sprint. While this may seem minor, it should be remembered that swimming races are often won by much smaller margins. In the 2012 London Olympics the Men's 100 metres freestyle race was won by a margin of only 0.01 of a second. Therefore any potential benefit could make a dramatic difference to the final outcome of the race. Overall more research is warranted before the benefits of creatine supplementation in swimming performance can be further clarified.

[c.a.morgan@smd13.qmul.ac.uk](mailto:c.a.morgan@smd13.qmul.ac.uk)

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