Antioxidant supplements have little effect on muscle soreness

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The juices of cherry, blackcurrant and pomegranate are rich in antioxidant and many athletes take them to boost their recovery. Credit: University of Portsmouth

Taking antioxidant supplements to reduce muscles soreness after exercise could have almost no effect, according to new research.

People engaging in intense exercise often take antioxidant supplements, such as vitamin C and/or E or antioxidant-enriched foods, before and after exercise in the anticipation that these will help reduce muscle soreness.

In a new review published in the *Cochrane Library* today, researchers from by the University of Portsmouth and Sheffield Hallam University looked at the evidence from 50 studies. These all compared high-dose antioxidant supplementation with a placebo and their participants all engaged in strenuous exercise that was sufficient to cause muscle soreness. Of the 1,089 participants, nearly nine out of ten were male and most were recreationally active or moderately trained.

The researchers found that high dose antioxidant supplementation, more than the recommended daily dose, does not appear to reduce muscle soreness early after exercise or at one, two, three or four days after exercise.

The slight differences in the average pain scores for participants taking supplements compared with those taking placebos were smaller than the difference that people would consider important or even notice.

Dr. Joe Costello, senior lecturer in exercise physiology at the University of Portsmouth's Department of Sport and Exercise Science, and one of the researchers, said: "Delayed-onset muscle soreness, or 'DOMS', affects many people after exercise and can impair future athletic performance. It usually peaks one to four days after exercise.

"Taking antioxidant supplements is one of the commonest strategies used by people who hope to reduce the risk of DOMS after engaging in strenuous physical activities.

"The findings from this review indicate that antioxidant supplementation

does not appear to reduce muscle soreness at one, two, three or four days after exercise. These findings have important implications for athletes who use, or are considering using antioxidant supplementation."

Dr. Mayur Ranchordas, senior lecturer in sport and nutrition and exercise metabolism at Sheffield Hallam, said: "Many people take antioxidant supplements or antioxidant-enriched foods before and after exercise in the belief that these will prevent or reduce muscle soreness after exercise.

"Some athletes are strategically taking antioxidant supplements in order to accelerate recovery during periods of intense competition rather than taking them every day. For example, in professional football, when there is a period of fixture congestion, a team may play three matches in an eight day period (for example, Premier League fixtures Saturday to Saturday separated by a mid-week Champions League fixture), dietary antioxidants could be strategically used to reduce inflammation and muscle soreness. This would allow the players to recovery more quickly in preparation for the next match. In professional cycling, a Tour de France rider may take antioxidant supplements to accelerate recovery after each stage, in order to recover more quickly for the following day's stage.

"Various types of antioxidants supplements could be used to achieve this and some examples include tart cherry juice, blackcurrant nectar and pomegranate juice. Our review found that antioxidant supplementation may very slightly reduce muscle soreness in the first three days after exercise, however, these reductions were so small that they were unlikely to make any difference."

Provided by University of Portsmouth