

Juice Cocktail Could Help Reduce Muscle Soreness in Athletes



By Alex Berezow — May 30, 2017

A team of Spanish researchers believes it's discovered a fruity concoction that reduces muscle soreness. The formula is a combination of watermelon and pomegranate juice enriched with citrulline and ellagitannins, ingredients that are linked to beneficial metabolic effects and performance enhancement.



Credit: Shutterstock [1]

Strenuous activity often leads to muscle soreness, even for highly trained athletes. Finding a way to reduce this unpleasant consequence of physical activity would be a boon to both professional and amateur sports enthusiasts.

Now, a team of Spanish researchers believes it has discovered a cocktail that reduces such discomfort. Their formula is a combination of watermelon and pomegranate juice enriched with citrulline and ellagitannins. The authors chose these ingredients because they are linked to beneficial metabolic effects and performance enhancement.

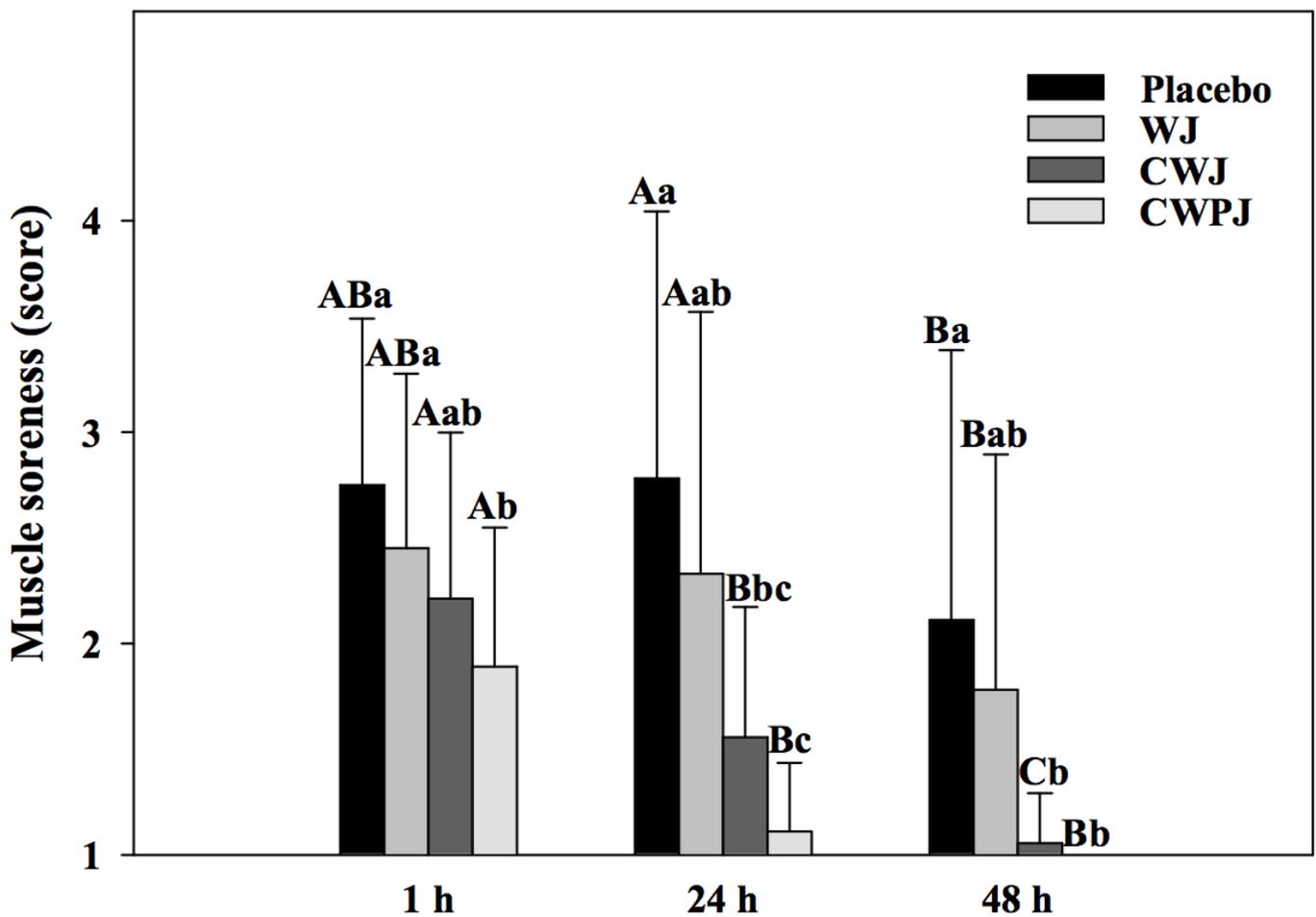
For example, citrulline, a non-essential amino acid found in watermelon, helps reduce the accumulation of lactic acid, a major cause of muscle fatigue. Citrulline is also converted to nitric oxide, a chemical that increases blood flow and is believed to boost muscle performance. Pomegranates contain antioxidants and ellagitannins; the former help protect nitric oxide from

being degraded, and the latter aids strength recovery.

The Juice Test

The scientists then recruited 19 young men, aged 18 to 30 with extensive experience in resistance training, into a double-blind randomized crossover study. They tested four different beverages: Watermelon juice (WJ); watermelon juice enriched with citrulline (CWJ); watermelon and pomegranate juice enriched with citrulline and ellagitannins (CWPJ); and placebo (sugary water with pink coloring).

Each man consumed 200 mL (about 7 ounces) of one of the beverages at random, and then performed a physically intensive squat exercise. The researchers then collected blood samples and asked the volunteers to rate the muscle soreness of their legs on a scale from 1 to 5. After given a week to rest, the volunteers repeated the experiment with a different randomly selected beverage. This procedure was continued until every volunteer had consumed all four beverages.



The muscle soreness results are shown on the right. At all three time points after the squat exercise (1-hour, 24-hour, and 48-hour), the watermelon/pomegranate cocktail (CWPJ) was significantly associated with reduced muscle soreness compared to placebo. In fact, by 48 hours, athletes reported no muscle soreness at all.

Furthermore, when the volunteers drank the placebo, their blood tests revealed a higher concentration of myoglobin (a biomarker of muscle damage) than when they drank CWPJ. The cocktail, therefore, appeared to reduce muscle damage.

Limitations

Though the overall study design was excellent, the authors should have included more beverages, specifically pomegranate juice alone and sugary water supplemented with citrulline and ellagitannins. Because they did not include these drinks, it is not exactly clear which components in CWPJ were responsible for the exercise-boosting benefits. Additionally, the authors may have been able to obtain significant results for the other beverages (as well as smaller error bars) had they included more volunteers in their study.

Still, these results provide a scientific rationale for further exploration. Coaches may want to add watermelon and pomegranate juice to their players' pre-game warm-up routines.

Source ^[2]: Ascensión Martínez-Sánchez, et al. "Consumption of Watermelon Juice Enriched in L-Citrulline and Pomegranate Ellagitannins Enhanced Metabolism during Physical Exercise." *J Agric Food Chem*. Published online: 17-May-2017. DOI: 10.1021/acs.jafc.7b00586

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