

## **Abstract**

- Title:** Effect of caffeine on local isometric performance of fingers in sport climbers.
- Targets:** The aim of this study was to investigate whether caffeine affects local isometric finger flexor performance in sport climbers during a 4 minute all-out test and the maximal force test.
- Methods:** 12 climbers participated in the testing during 3 visits to the LSM laboratory at the UK FTVS. During each visit, they completed a maximal strength test, a force gradient and an all-out test on a specific dynamometer. During the second and third testing we randomly administered caffeine or a placebo to the climbers and monitored whether there was a change in performance.
- Results:** The average maximal force during the initial measurement was 48.8 kg ( $\sigma = 12.5$  kg), with caffeine supplementation the average maximal force increased to 48.9 kg ( $\sigma = 11.5$  kg). The average total work during the initial measurement was 3573.3 kg.s ( $\sigma = 810.2$  kg.s), with caffeine supplementation there was an increase to 3700.8 kg.s ( $\sigma = 865.7$  kg.s). The average work performed above critical strength during the initial measurement was 1242 kg.s ( $\sigma = 726$  kg.s), with caffeine supplementation there was a decrease to 1215.2 kg.s ( $\sigma = 456.1$  kg.s). The average critical force during the initial measurement was 15 kg ( $\sigma = 5.9$  kg), increasing to 15.9 kg ( $\sigma = 5.3$  kg) with caffeine supplementation.
- Conclusion:** we found that the results of these tests were not conclusive enough to say with confidence that caffeine clearly increases isometric flexor performance of the finger flexors in sport climbers.
- Keywords:** sport climbing, climbing performance, caffeine, critical strength