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Effects of Caffeinated Chewing Gum on Repeated Sprint Performance in Recreationally Active Individuals

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Caffeine is frequently consumed by athletes as an ergogenic aid during training and competition. It has been shown to improve performance in moderately intense-long duration endurance exercise. The mechanisms to explain caffeine's performance enhancing effects include improving nervous system activation, muscle contraction, and fuel delivery to the muscle. However, the effects of caffeine on singular or repeated bouts of short term high-intensity exercise are less clear. **PURPOSE:** To investigate the effects of caffeinated chewing gum on performance during repeated high-intensity sprints in active individuals. **METHODS:** Six recreationally active subjects (Age = 21 ± 1 yr) completed two high-intensity experimental sessions, consisting of two sets of 60 meter sprints with three sprints per set. Caffeine (240 mg) or placebo was administered via chewing gum following the first set of sprints of each experimental session. Middle 20 meter sprint times, post sprint heart rates and post sprint ratings of perceived exertion (RPE Scale 1-10) were measured. **RESULTS:** There were no significant changes in 20 meter sprint times between the two experimental conditions across the six sprints; 2.69 ± 0.08 secs (placebo) vs. 2.74 ± 1.6 secs (caffeine). However, sprint times were maintained in the caffeinated trial when compared to the placebo condition across the six sprints. There was a trend for post sprint heart rates to be lower following the fourth sprint performed (144 ± 13 bpm placebo vs. 125 ± 11 bpm caffeine, $P = 0.07$) but the effect did not carry over into the fifth and final sprint. There was a trend for RPE to be lower following the fifth sprint (6.33 ± 0.5 placebo vs. 4.83 ± 0.3 caffeine, $P = 0.06$) and it was significantly lower (6.5 ± 0.5 placebo vs. 5.1 ± 0.4 caffeine, $P \leq 0.05$) following the final sprint. **CONCLUSIONS:** The acute ingestion of caffeine via chewing gum appears to maintain speed during repeated, high-intensity sprints in recreationally active individuals. Furthermore, caffeinated chewing gum seems to lower post sprint heart rates and ratings of perceived exertion. Further research with additional subjects is needed to ascertain if caffeinated chewing gum taken during the later stages of high-intensity exercise helps to maintain exercise performance and attenuate fatigue.