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The effect of caffeine gum on the performance of recreational runners taking part in parkruns

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Laboratory-based studies have clearly established that caffeine supplementation has ergogenic effects(1), but it is unclear to what extent these effects translate to the field setting(2). We conducted a series of cross-over studies to establish the effect of caffeine gum on the performance of recreationally trained runners taking part in parkruns. Parkruns are free to enter, timed, 5 km running events held in numerous parks around the UK every Saturday morning(3).

A total of 36 recreationally trained runners (M = 31, F = 5) capable of running 5 km in < 25 min were recruited to 3 studies taking place at Sheffield Hallam parkrun. For each study, 6 runners were allocated into a randomised, placebo-controlled, cross-over intervention with caffeine gum as the active treatment (300 mg; Military energy gum, Marketright Inc., USA) and 6 were allocated into a non-intervention group. The purpose of the non-intervention group was to adjust for the effect of variable weather conditions on performance. Runners in the randomised cross-over interventions chewed caffeine gum or placebo gum for 5 min, starting 30 minute before each 5 km parkrun. Finishing time and ratings of perceived exertion (RPE) were recorded. A primary statistical analysis used the data from the cross-over interventions alone. The effect of caffeinated gum on performance and RPE were analysed using paired samples t-tests. A secondary statistical analysis used the non-intervention group data in an attempt to adjust for effect of changing weather conditions on performance times. The times of each runner in the 3 cross-over interventions were divided by the mean time of the associated group of non-intervention runners to produce a ratio. The ratio data was then analysed using a paired samples t-test. The study was approved by the Ethics Committee of Sheffield Business School, Sheffield Hallam University and the Research Review Board of parkrun.

Of the 36 runners recruited to the 3 studies, 29 completed both runs (14 intervention runners and 15 non-intervention runners). The primary statistical analysis revealed that caffeine gum improved 5 km parkrun performance by a mean of 17·28 s (95 % CI 4·19, 30·37; $P = 0{\cdot}014$) and decreased RPE by 1·21 (95 % CI 0·30, 2·13; $P = 0{\cdot}013$). Adjusting the finishing time data using the mean times of the non-intervention groups attenuated the statistical significance ($P = 0{\cdot}037$).

In conclusion, caffeine gum evokes a modest improvement in 5 km running performance in recreational runners taking part in parkrun events. Moreover, the improved performance is accompanied by a reduction in RPE.

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3. www.parkrun.org.uk