

# A winning smile can help runners to victory

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Last year Eliud Kipchoge, the fastest marathon runner on the planet, came within 26 seconds of covering the distance in two hours.

With each passing mile, something uncanny would happen to Kipchoge's face: a broad grin, conceived in a deliberate effort to smile away the pain.

A study by British sport psychologists suggests that this tactic makes physical exertion measurably more efficient, boosting a runner's economy by at least 2 per cent. The effect appears to be down to the way that acting out an emotion — even by simply rearranging your expression — can change your mood and even your physiology.

Studies have repeatedly shown that smiling or frowning can make people feel happier and more anxious respectively. One famous 1988 experiment, whose findings have since been contested, even indicated that getting people to hold a pencil in their mouths horizontally was enough to make them laugh harder at comedies.

Noel Brick and his colleagues at Ulster University have discovered that something similar can be induced in seasoned amateur athletes.

For the study, published in the journal *Psychology of Sport and Exercise*, they asked 24 club-level distance runners to run for four six-minute stretches at 80 to 85 per cent of their maximum heart rate, about the intensity at which they would compete in a marathon.

In some of the bursts the runners were asked to form a "real" smile; in others they were instructed to frown, to try to relax their upper bodies by imagining that they were carrying crisps between their fingers, or to think about what they would normally contemplate during a training session.

The scientists calculated the economy of each participant's running by measuring the volume of oxygen they breathed out, which closely tracks the amount of energy expended. They were surprised to find that merely asking people to relax had no effect on their efficiency, but smiling did.

Dr Brick said that this could be because it took several attempts before a relaxation exercise really worked. "The main thought is that smiling would induce a relaxed state without people consciously trying to relax," he added. "The studies that have used relaxation strategies have typically found that it can take up to six practice trials before it becomes really effective."