

Mental fatigue can impair physical performance

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People subjected to mentally demanding tasks are likely to find it harder to go on to perform physical exercise, a new study shows.

Researchers at the University of Birmingham's School of Sport, Exercise and Rehabilitation Sciences, measured the effects of cognitive tasks on a group of 16 men and women to examine what happened to their perception of physical exertion. Their results showed that mental fatigued participants had an increased sense of exertion during [physical exercise](#).

The findings, published in the *International Journal of Sports Physiology and Performance*, suggests that taking the effects of mental fatigue into account during training may help athletes perform better.

In the light of their findings, the researchers recommend coaches reduce athletes' exposure to mentally challenging tasks, such as smartphone use, before and during training and competitions. Longer term, they should consider 'brain endurance training' to increase resilience to mental fatigue.

Lead author Dr. Chris Ring said, "We know that the brain plays a part in physical performance, but the specific effects of mental fatigue have not been well understood."

"We know that athletes will often be browsing on their smartphones in rests between competing and training. All of that requires mental effort and our results strongly suggest that athletes and coaches need to better understand the effects of these activities on overall performance."

During the tests, participants completed a 90-minute mental task which involved identifying letter sequences on a screen. They then completed a series of weight lifting repetitions. A [control group](#) watched neutral videos before taking part in the physical task.

In a second experiment, participants completed a series of resistance training exercises, followed by a 20-minute cycling time trial. They

performed cognitive tasks before and between the exercises with a control group again watching a neutral video. After the cognitive tasks participants took an online test to confirm levels of fatigue.

In each experiment, the researchers recorded an increase in perceived exertion—how hard it felt to perform the task—among the mentally fatigued participants. In the second experiment, the researchers also noticed a reduced power in the cycling time trial, and less distance covered among the mentally fatigued participants.

The research team has already started to test the links between mental [fatigue](#) and performance among groups of elite [athletes](#) in 'real world' [exercise](#) scenarios.

More information: Walter Staiano et al, Mental Fatigue: The Cost of Cognitive Loading on Weight Lifting, Resistance Training, and Cycling Performance, *International Journal of Sports Physiology and Performance* (2023). [DOI: 10.1123/ijsp.2022-0356](https://doi.org/10.1123/ijsp.2022-0356)

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