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Cognition at Special Forces Boot Camp: Does High-Intensity Physical Exercise Affect Memorisation?

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Abstract

There is conflicting evidence regarding the effect of acute physical exercise on peoples ability to memorise declarative information. Some studies have found that exercising before learning improves memorisation, while others have found an adverse effect. We measured memorisation in 70 recruits for the Special Forces unit of the Dutch army during their first week of training. Recruits used a computer-guided learning system to study the names of locations on a map directly before and directly after a high-intensity speed march. In the learning session following the speed march, responses were faster but less accurate than before, particularly at the start of the session. We fitted a computational cognitive model of human memory to the responses made in each learning session to obtain a continuous index of memorisation. This index showed a small improvement after the speed march, suggesting that memory representations formed after high-intensity physical exercise were slightly more stable.

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