

UC Merced

Proceedings of the Annual Meeting of the Cognitive Science Society

Title

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

Permalink

<https://escholarship.org/uc/item/6rp9s65w>

Journal

Proceedings of the Annual Meeting of the Cognitive Science Society, 42(0)

Authors

van der Velde, Maarten
Sense, Florian
Borst, Jelmer
et al.

Publication Date

2020

Peer reviewed

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

Maarten van der Velde

University of Groningen, Groningen, Netherlands

Florian Sense

University of Groningen, Groningen, Netherlands

Jelmer Borst

University of Groningen, Groningen, Netherlands

Ruud Den Hartigh

University of Groningen, Groningen, Netherlands

Maurits Baatenburg de Jong

Ministry of Defence, Roosendaal, Netherlands

Hedderik van Rijn

University of Groningen, Groningen, Netherlands

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.