DSS
Department für Sportwissenschaft und Sport

FAU FRIEDRICH-ALEXANDER UNIVERSITÄT ERLANGEN-NÜRNBERG

FaMoS-I

Facilitating Motor Skill Learning by Aerobic Exercise I

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Funding: -

External partners: -



FaMoS
Facilitating Motor Skill Learning by Aerobic Exercise

ACADEMIAE FRIDERICO ALEXANDRINAE SIGILLVM

Background & aims

Motor Skill Practice

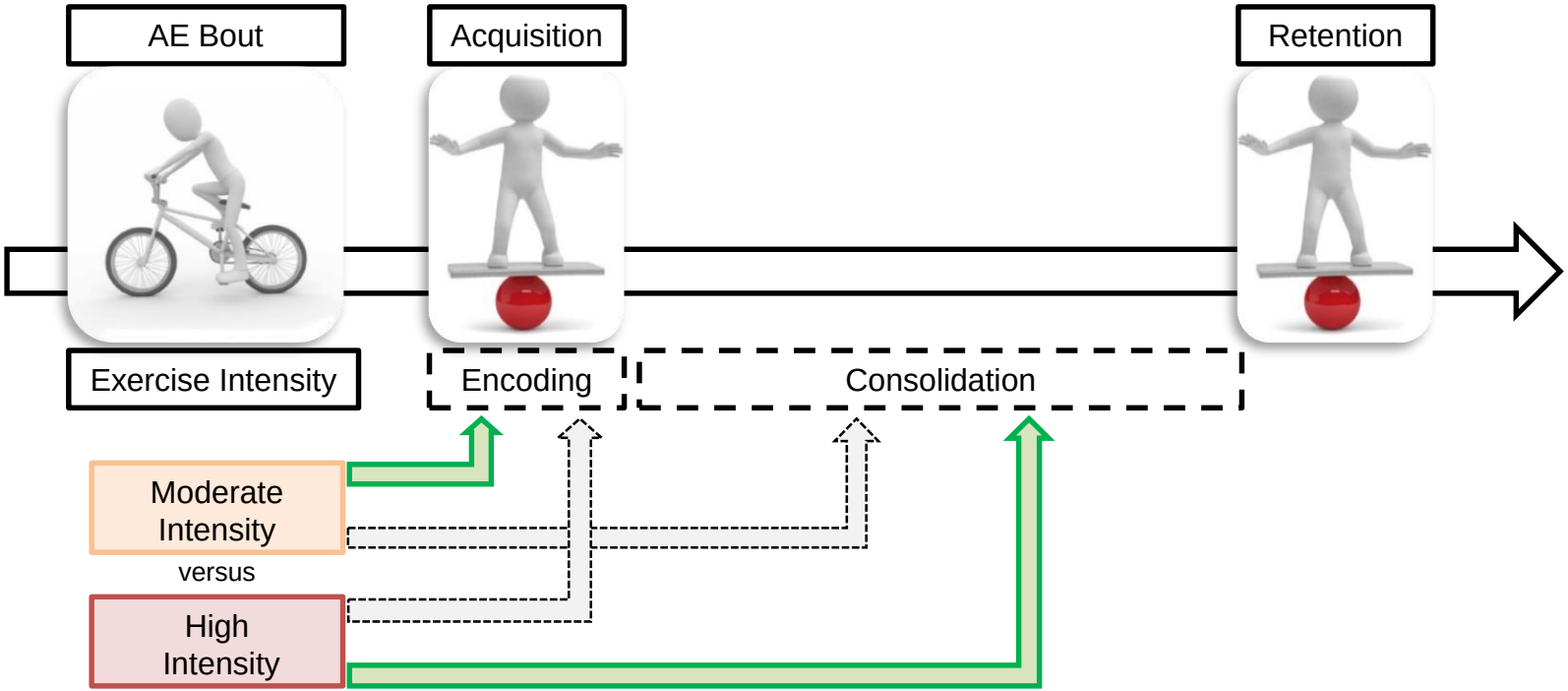
Neuroplasticity:
(Dayan & Cohen, 2011; Hardwick et al., 2013)
- ↗ synaptic plasticity
- ↗ dentritic/spine density
- ↗ neurogenesis

↗ **Motor Learning**

Single Exercise Bout

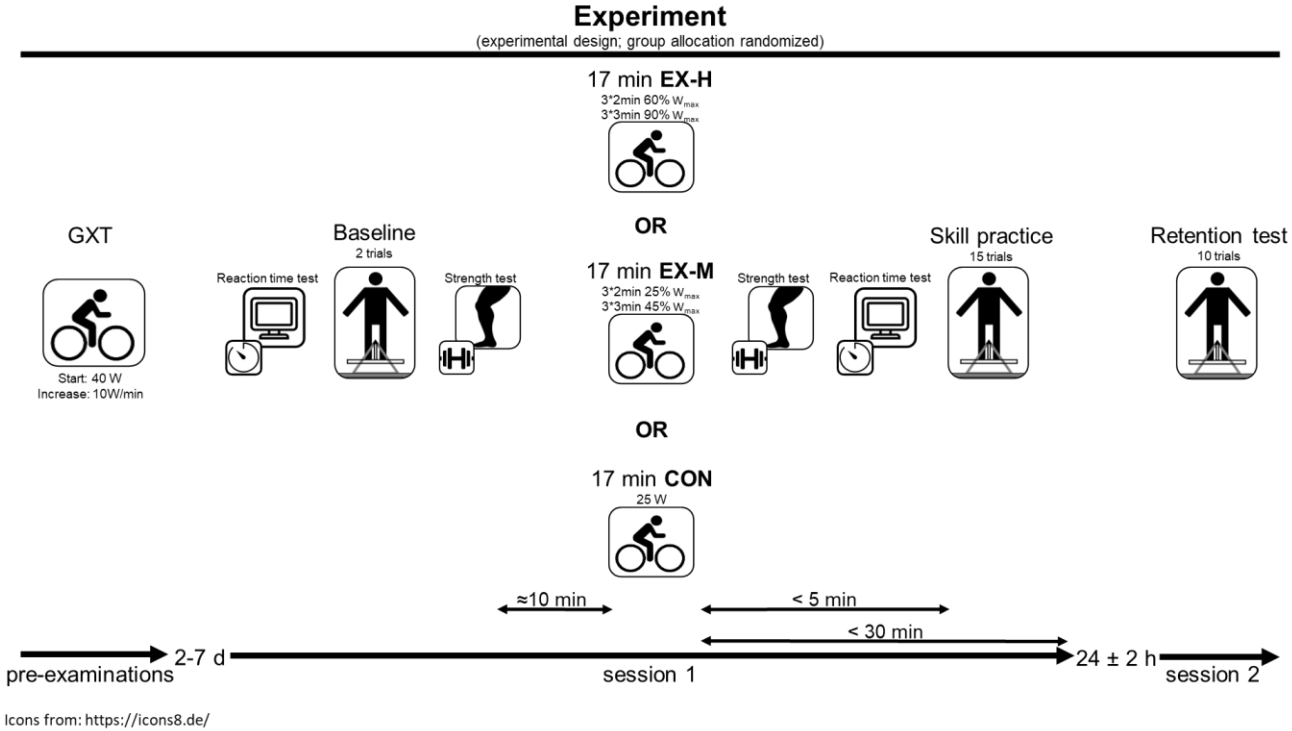
Acute exercise induced brain changes:
(El-Sayes et al., 2018; Taubert et al., 2015)
- ↗ arousal
- ↗ neurotrophic factors (e.g. BDNF)
- ↗ conditions for neuroplasticity
- ↙ intracortical inhibition

Background & aims

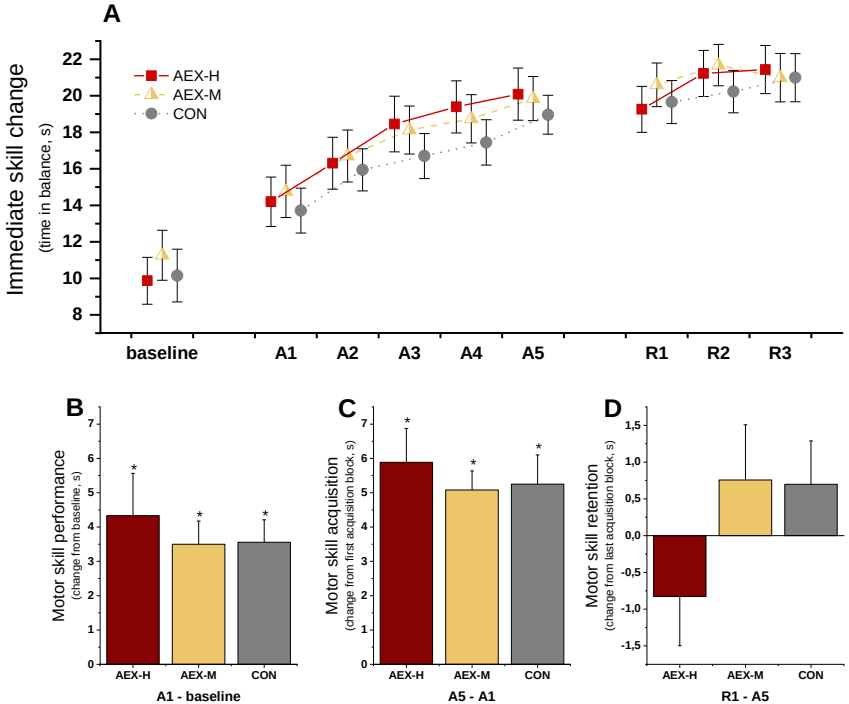


(i.a. Ferrer-Uris et al., 2017 & 2018; Mang et al., 2014 & 2016; Roig et al., 2012; Skriver et al., 2014; Snow et al., 2016; Statton et al., 2015; Stravrinos & Coxon, 2017)

Experimental flow



Findings



Motor skill performance | **(A)** Mean motor skill performance (time in balance) during acquisition and retention (clustered in blocks of three trials); **(B)** immediate exercise effects on skill performance illustrated as change from baseline to first acquisition block; **(C)** online skill learning (acquisition) illustrated as change from first acquisition block to last acquisition block; **(D)** offline skill learning (consolidation) illustrated as change from last acquisition block to first retention block; * indicates $p < .05$; error bars indicate 1 SE.

[Wanner et al., *under review*]