ÖGP

ÖSTERREICHISCHE GESELLSCHAFT FÜR
PSYCHOLOGIE

Contribution ID: **222**   Type: **Posterpräsentation**

Transcranial alternating current stimulation supported arithmetic learning: Sex differences in tACS-effects

Tuesday, 6 September 2022 13:00 (1 hour)

Transcranial alternating current stimulation (tACS) is a promising tool to support arithmetic learning, and as theta-band activity has been linked to arithmetic processing we investigated the effects of theta-tACS on the acquisition of arithmetic knowledge. Participants were randomly assigned to one of two groups (sham-stimulation; n=25; 12 female or theta-tACS; n=25; 13 female) and solved five blocks of a novel arithmetic task, consisting of procedural and fact learning problems. For procedural learning, accuracy and calculation times were calculated. For fact learning we assessed the number of repetitions needed to learn and the power law exponent α for calculation time changes. Stimulation was applied during blocks 2 – 4. Analyses showed an interaction between stimulation-group and sex in the α-parameter ($F(1, 45)$=7.564; p=.009; $\eta p2$=.114) whereby only males profited from tACS (sham: M=-0.42; SD=0.11; tACS: M=-0.54; SD=0.15; p=.035). These results show that tACS can support the acquisition and application of novel arithmetic fact knowledge, albeit the effects seem to be sex specific.

Primary author: MOSBACHER, Jochen (Universität Graz)

Co-authors: WEHOVZ, Michael (Universität Graz);   MOSHAMMER, Arnulf (Universität Graz);   BINDER, Mira;   Dr PUSTELNIK, Kolja (Universität Göttingen);   BRUNNER, Clemens (Universität Graz);   VOGEL, Stephan (Universität Graz); HALVERSCHEID, Stefan (Universität Göttingen);   GRABNER, Roland (Universität Graz)

Presenters: MOSBACHER, Jochen (Universität Graz);   WEHOVZ, Michael (Universität Graz);   MOSHAMMER, Arnulf (Universität Graz);   BINDER, Mira;   Dr PUSTELNIK, Kolja (Universität Göttingen);   BRUNNER, Clemens (Universität Graz);   VOGEL, Stephan (Universität Graz);   HALVERSCHEID, Stefan (Universität Göttingen);   GRAB-NER, Roland (Universität Graz)

Session Classification: Postersession 2

Track Classification: Biologische Psychologie und Neurowissenschaften