

Industry Workshop

Workshop Title

Music in neurorehabilitation - Jymmin®: Physiological and cognitive effects of music feedback training

Workshop Responsible

Tom Fritz (Max Planck Institute for Human Cognitive and Brain Sciences)

Speakers

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research group "Music Evoked Brain Plasticity"

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Abstract

"Jymmin" is fun! The sports training program, which uses specially retrofitted fitness equipment to let the users actively control music, alone or in a band, was specifically developed by researchers at the Max Planck Institute for Human Cognitive and Brain Sciences in Leipzig. Results of several studies in recent years have shown interaction effects of physical exertion perception and musical agency, which are potentially beneficial for clinical use. For example, it has been shown that participants playing music with each other on specially retrofitted sports equipment show an elevated mood after ten minutes (Fritz et al., 2013a), positively conditioning physical exertion. This effect is in another population associated with a substantially reduced physical exertion experience and more relaxed muscles during the same music feedback training compared to conventional fitness training (Fritz et al., 2013b). In accordance with the idea of an increased efficiency in endorphin release when combining workout with music-feedback, analgesic effects of Jymmin were observed in another study (Fritz et al., 2018). Such physically vitalizing effects were observed to also correspond to positive cognitive effects at enhancing short term memory capacity in patients with dementia. Jymmin has been shown to be suitable for use in rehabilitation settings, and is popular among patients, probably also due to its positive emotional effects. Neuroscientific research shows that such emotional effects can be enormously beneficial to regain motor control in rehabilitation after stroke through emotional motor control, which cooperates with voluntary motor control in a dual control fashion, such that many muscles can be assessed by both motor systems. Recent technological developments of the Max Planck Science spin-off Jymmin GmbH and THERA-Trainer have allowed for an integration of the Jymmin principle for single player in cycling machines, which will be presented at the conference.