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High Definition Direct/Alternating Current Stimulation of Spinal Cord in Supporting Balance and Sensitivity: A Randomised Placebo-Controlled Trial

Veldema Jitka[1], Steingräber Teni[1], von Grönheim Leon[1], Klemm Michel[1], Straub Jan[1], Sasse Lea[1]
[1]Faculty of Psychology and Sports Science, Bielefeld University, 33615 Bielefeld, Germany;
jitka.veldema@uni-bielefeld.de; teni.steingraeber@uni-bielefeld.de; leonvongroenheim@gmx.de; michel.klemm@uni-bielefeld.de; jan.straub@uni-bielefeld.de; lea.sasse@uni-bielefeld.de

Extended Abstract

Spinal networks are crucially involved in sensorimotor control [1], but the existing neuromodulation research neglects these regions [2]. This crossover-study investigates and compares the effects of three different high definition direct/alternating current stimulation protocols over Th8 in supporting balance and sensitivity. Overall, fifty-eight healthy young subjects were included. Twenty minutes of 1.5 mA high definition (i) anodal direct current stimulation, (ii) cathodal direct current stimulation, (iii) alternating current stimulation and (iv) sham stimulation were applied in a randomized order. The balance performance (Y Balance Test [3]) and the sensitivity (Monofilament Test [4], Tuning Fork Test [5]) were tested for both legs immediately prior and after each intervention. Numerous significant intervention-induced differences were detected by each assessment. Anodal direct current stimulation was most effective in supporting balance performance, while alternating current stimulation induced the greatest sensitivity benefits. Our results support further investigations of these protocols. Alternating current stimulation should be tested by patients suffering from sensitivity deficits.

References

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