

The Effect of Trans-Cranial Direct Current Stimulation (tDCS) on Cognitive Flexibility and Social Decision-Making in Football Players

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Abstract : The present study was conducted to investigate the effect of the Trans-Cranial Direct Current Stimulation (tDCS) on cognitive flexibility and social decision-making in skilled, semi-skilled and novice football players. The present quasi-experimental pretest-posttest study was conducted on 60 randomly-selected subjects divided into trial and placebo groups (n=30 per group). The trial group received three 20-minute sessions of anodic stimulation at the intensity of 2 mA. The placebo group also received three sessions of sham anodic stimulation. Data were collected using the Wisconsin, Grant and Berg Card-Sorting Test (1948) and the ultimatum game and were then analyzed using the ANCOVA. The results showed significant differences between the skilled, semi-skilled and novice football players in the trial and placebo groups in terms of cognitive flexibility and social decision-making ($P < 0.01$). TDCS appears to be able to improve cognitive flexibility and consequently social decision-making in football players and is recommended to sport psychologists and coaches as a useful intervention to increase cognitive flexibility and improve social decision-making in players.

Keywords : TDCS, cognitive flexibility, social decision-making, skilled, semi-skilled and novice football players

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