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Improvement in peripheral visual attentional performance in professional soccer players following a single neurofeedback training session

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## INTRODUCTION:

The effectiveness of EEG-neurofeedback (EEG-NFB) in modulating cognition has been the subject of much research for several years, particularly concerning attentional functions in healthy subjects and those with attentional deficits. However, its effectiveness on sports performance remains poorly studied, and its use is not widely practised among athletes, notably because of its questionable accessibility and effectiveness. This study aims to show that this technology can be accessible and that Alpha EEG-NFB is immediately effective. Fifteen professional soccer players took part in this study. **METHODS:** 

Using a novel EEG headset installed in less than one minute and new processing software, the players performed three sessions of two different peripheral attentional tasks: immediately before, immediately after and one month after a single Alpha EEG-NFB training session. **RESULTS:** 

The results showed a significant effect on both tasks immediately after EEG-NFB training, with an immediate performance increase of more than 30% that remained at 20% one month later. CONCLUSION:

This study, the first to use this headset and software, shows that improvement in sports performance can be related to cognitive performance, especially peripheral visual attentional functions. Furthermore, it demonstrates that the EEG-NFB is accessible and effective for high-level athletes. This simple paradigm could supplement existing rehabilitation approaches depending on the individual's needs and abilities to alleviate persistent spatial attention deficits.

Topic: Sport Technology

Presentation

Poster

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