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Abstract

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Keywords

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An ERP investigation of specific inhibition in experienced table tennis players

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Aims: Inhibitory control has been regarded as a remarkable and central feature of human cognitive ability. Our study aimed to examine the relationship between inhibition and experience, exploring whether it was suitable to measure the general ability of athletes using simple objects in sport psychology. **Method:** With the purpose of understanding the effect of experience, we manipulated independent variables with groups (experienced table tennis players vs. control) and tasks (relevant vs. normal). The stimuli in the relevant task were round in shape, and thus were highly relevant to the experienced table tennis players. Behavioural and electrophysiological data were subjected to repeated-measures ANOVAs, with Task as a within-subjects factor. **Results:** There were no significant effects for behavioural variables. For the relevant task, the amplitude of N2d and P3d were larger for the experienced than control, with no differences in latency. For the normal task, the experienced group showed longer latency than controls with no differences in amplitude. Comparing within group, for the experienced, they showed a shorter and smaller N2d component with a shorter and larger P3d component in relevant compared to the normal task. However, these differences were not found for the control group. **Conclusions:** The results suggest that experience does affect inhibitory processes reflecting in ERPs, with the experienced group being efficient in conflict detection and able to put more resources towards motor related phase when stimuli match their sports experience. However, the advantage seems to disappear in the normal task. The results suggest that people possess specific as well domain-general inhibitory mechanisms. Researchers in sports psychology should be careful to measure the general ability of the athlete through cognitive paradigm as the simple stimulus may relate to their specific training and experience, and thus affect electrophysiological responding.

Keywords: ERPs (Event-Related Potentials), Sport, Inhibition (Psychology), Expertise, N200, P300 event-related potential

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