

LATERALISED PERCEPTUAL SKILL IN HANDBALL AND CRICKET

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Introduction

Left-handers are often over-represented in interactive sports (Grouios, 2004). One of the explanations for this phenomenon is a strategic advantage due to a negative perceptual frequency effect (Brooks, Bussière, Jennions, & Hunt, 2004). According to this hypothesis, left-handed athletes, who are still rare in interactive sports, might have an advantage as their competitors are unfamiliar with the way a left-hander acts in a game. At least two interacting advantages might be differentiated: (1) tactics (e.g. left-hander serve in tennis) or (2) techniques (e.g. different spin bowling in cricket). The aim of these two experiments is to determine the role of perceptual pre-experience on performance in throwing prediction.

Method

The factor pre-experience was realized in two different dimensions. For experiment 1, expertise was administered while for experiment 2 the level of familiarity was used. In both experiments, the task was to react on ball throwing athletes. In experiment 1, $n = 13$ skilled goalkeepers and $n = 30$ novices were asked to respond as quickly and accurately as possible to handball penalty throws to one of the four corners of a goal. Overall, 196 video scenes from two left- and two right-handers were presented in three different temporal occlusion conditions. Half of the sequences were mirrored along the horizontal axis, so that left-handers were presented as right-handers. In experiment 2, $n = 31$ German novices participated. They accomplished a shorter handball task (traditional German sport) and an additional cricket task (unknown sport in Germany) both with 24 video sequences. For both tasks mirrored sequences were administered as well as normal ones.

Results and discussion

For experiment 1, significant differences between skilled goalkeepers and novices were found ($F(1,41) = 9.62$, $p < .01$, $\text{Eta}^2 = .19$) as well as differences between temporal occlusion conditions ($F(2,82) = 5.89$, $p < .01$, $\text{Eta}^2 = .13$) for reaction time. For reaction accuracy differences were observed for laterality of presented throwers ($F(1,41) = 6.01$, $p = .02$, $\text{Eta}^2 = .13$), temporal occlusion conditions ($F(2,82) = 27.37$, $p < .01$, $\text{Eta}^2 = .40$), and interaction of expertise and temporal occlusion conditions ($F(2,82) = 26.65$, $p < .01$, $\text{Eta}^2 = .39$).

In experiment 2, descriptive differences concerning handedness of thrower were higher for handball than for cricket. Throw directions of right-handed athletes were better anticipated than those of left-handed throwers. Only the differences for handball reached significance ($F(1,30) = 3.77$, $p < .05$, $\text{Eta}^2 = .11$).

Overall, the results of the two presented experiments support the negative frequency hypothesis (Brooks et al.,

2004). Therefore, enhancing the level of perceptual familiarity with left-handed opponents might reduce their strategic advantage in interactive sports.

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