

スポーツ科学研究, 11, 69-130, 2014 年

## The role of vision in suppressing the rotational vertigo in figure skaters and ballet dancers

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Why don't ballet dancers and figure skaters feel dizzy with spinning? The aim of this study is to answer this question. Subjects were 8 figure skaters, 8 ballet dancers, and 8 control subjects who have no experience of figure skate nor ballet. They sat in a revolving chair that rotate at 0.37 rps for 50s. There are three tasks: (1) wearing a blind goggle (B task), (2) not focusing on any objects (NF task), and (3) focusing on a ball fixed in front of the subject (F task). Each tasks were conducted in directions of clockwise and counter-clockwise (CW and CCW). The order of three tasks and directions of rotation was randomized. To analyze the nystagmus during and after the rotation, electro-oculogram was recorded with

electrodes attached to the lateral side of both eyes. The magnitude of after-nystagmus in the NF task in the ballet dancers was significantly smaller than that of the control in the direction of CW ( $p < 0.05$ ). In contrast, the magnitude in figure skaters was smaller than that of control in the direction of CCW ( $p < 0.1$ ). The main direction of rotation in classical ballet is usually CW, whereas that of figure skating is CCW. Thus, we speculate that athletes could habituate to rotation with their daily practices, but the habituation occurs only for the direction of rotation that they are doing practice. As a basis of this habituation, some inhibitory mechanism would be activated that suppressed the after-nystagmus and rotational vertigo.