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Study on Eye-Head Coordination

—— Using Sports on the Open-Skill Line as Models ——

By *Akihiko Kondoh**

The purpose of this study was to find differences in stimulus-indicating angles and differences in preceding exercise experiences and also to find characteristics of eye-head coordination in the cases where positions of stimulus can be predicted, by the use of equipment to indicate light stimuli, which is a simulate model for sports on the open-skill line, such as soccer, basketball, etc. in which requirement of eye-head coordination is considered specifically important.

The facts obtained under the conditions employed are as mentioned below.

(1) Concerning the differences in the angles indicating stimuli, it was confirmed that the movement patterns were identical although the volumes of movements of the eye and the head differed. As to when the line of vision can reach the target, it was known that it reached at the time when the eyes started their compensatory movements, by which it was made clear that stimulus-indicating positions had no concern with the reaching of the line of vision to the target.

(2) The differences in preceding exercise experiences brought differences to the patterns of reactions as mentioned below. The differences were found in the displacement angles of the eyeballs and in those of the heads when the eyes were fixed on the targets. Those who were experienced in events for which execution of visual sampling was required by the use of eye-head coordination, showed a tendency to gaze at the targets with the displacement angles of their heads made small and with the movements of their eyeballs centered.

(3) As a result of comparison made between the cases where positions were predicted to indicate stimuli and the cases where such positions were not predicted. The results were that a tendency of the time required for the centers of the eyeballs to catch the stimuli having been shortened was noted with the former cases. Such a tendency was caused chiefly by the latency

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including the time required for making discrimination, cognition and decision in the central process.