Imagery Ability and Imagery Use in Triathletes' Strategic Mental Rehearsal Practices

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1 OBJECTIVES

Studies in triathlon research are often seen in the field of physiology, such as that of Ishihara et al. (1996) on exercise intensity and estimating energy expenditure in Olympic-distance triathlons. However, there appears to be no psychological research available focusing on mental rehearsal and imagery ability in triathletes.

A triathlon is a competition demanding a high level of endurance, being a combination of three disciplines; swimming, cycling, running, and the transitions in-between the race components. In addition, because athletes need to contend with external factors such as the weather, flow of the tide, wind direction, and other triathletes, mental rehearsal may be a factor that could affect competitive performance. Therefore, strategic practice of an appropriate type of mental rehearsal may be an essential part of an athlete's pre-race psychological conditioning.

This study explored the relationship between triathletes' imagery ability and what types of imagery they used in their strategic mental rehearsal practices.

2 METHODS

2.1 Participants

A total of 62 members of three university triathlon teams who had experience participating in a triathlon participated in the study. The sample consisted of 52 men (mean age: 20.0 ± 4.0 years) and 10 women (mean age: 20.3 ± 2.7 years).

2.2 Survey Items

- Participant profile

Name, gender, age, years of triathlon experience

- Questions concerning mental rehearsal

Whether they used mental rehearsal; usual imagery content; when and how often each day; during what periods; how often during those periods; for what events; and, when practiced pre-race.

- Japanese Sport Imagery Questionnaire (JSIQ)

We used the JSIQ (Ito, 2013), the Japanese version of the SIQ developed by Hall et al. (1998), to assess the athlete's use of cognitive and motivational imagery. The JSIQ evaluates the use of types of imagery using subscales for Motivational Specific (MS), Cognitive Specific (CS) and Motivational General-Arousal (MG-M) imagery. The MS subscale assesses use of imagery associated with specific goals and ideal outcomes for goal achievement. The CS subscale assesses use of imagery associated with skill improvement and perfect execution to develop skills. And, the MG-M subscale which assess use of imagery concerning coping with and taking control of challenging situations to increase confidence.

- Mental Imagery Experience Diagnostic Test (MIEDT)

This questionnaire was developed by Takano et al., (1996). It consists of 21 items to assess four imagery ability factors: Kinesthetic Sensation, Performance, Surroundings Visualization, and Emotions.

2.3 Procedures

Based on the participants' responses to whether they strategically practiced mental rehearsal, they were assigned to either a "mental rehearsal" (MR) group or "no mental rehearsal" (NMR) group. We then used unpaired t-tests to test for significant differences in mean scores between these two groups for both the JSIQ and MIEDT subscales. We further divided the participants into "high-scoring" and "low-scoring" groups for each MIEDT subscale according to whether their scores were above or below the mean. We then used unpaired t-tests to test for differences in the mean scores for the JSIQ subscales between these two MR groups. The significance level was set at 5%.

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3 RESULTS AND DISCUSSION

3.1 Imagery Ability and Imagery Use in the MR and NMR Groups

A significant difference was found between the MR and NMR groups in their scores for the JSIQ's MS and CS and MG-M subscales with the MR group being higher for each (Fig. 1). The CS result suggested that many of the athletes used cognitive-type imagery in their strategic mental rehearsal practices. On the other hand, in the free responses to the question regarding mental rehearsal content there were no reports of rehearsing corrections in moves or how to cope/what to do when there was an accident or when they were overtaken by a competitor, for which cognitive-type imagery would be effective.

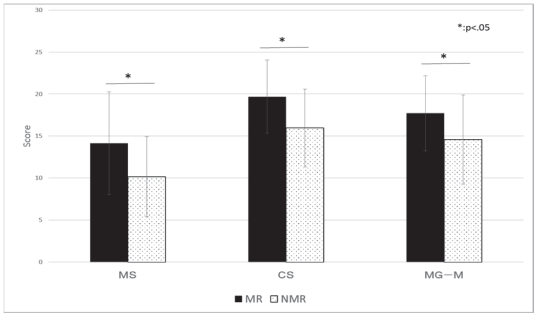

Figure 1: JSIQ subscale scores - MR and NMR groups.

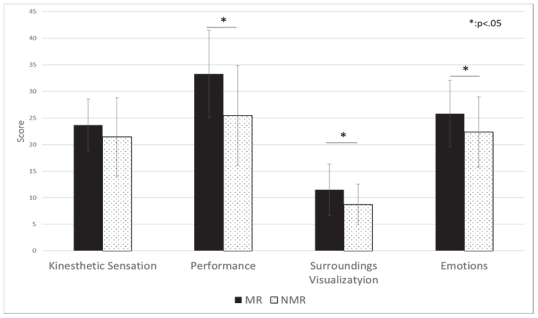

Figure 2: MIEDT subscale scores - MR and NMR groups.

There were also significant differences in the mean scores for the MR and NMR groups in the MIEDT's Performance, Surroundings Visualization, and Emotions subscales, with the MR group having higher scores for each. The athletes who strategically practiced mental rehearsal pre-race appeared to have higher imagery ability in all aspects except in Kinesthetic Sensation, for which no significant difference was shown in the subscale scores. Looking at Fig. 3, within the MR group, compared to the low-scoring group for Kinesthetic Sensation, the high-scoring group had a significantly higher CS subscale score, showing that many of those participants were using cognitive-type imagery. In other words, notwithstanding the fact that athletes able to clearly imagine kinesthetic sensation tended to frequently use cognitive type imagery, in these triathletes' strategic mental rehearsal practices, it was not a necessary condition for doing so.

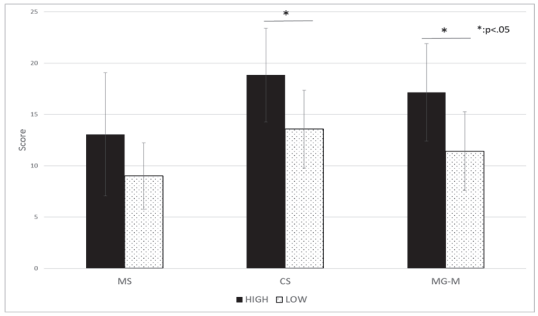

Figure 3: JSIQ subscale scores for high- and low-scoring groups in Kinesthetic.

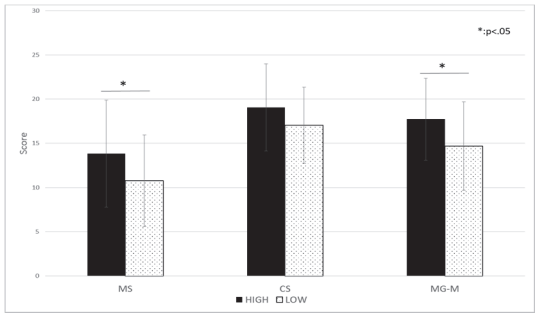

Figure 4: JSIQ subscale scores for high- and low-scoring groups in Performance.

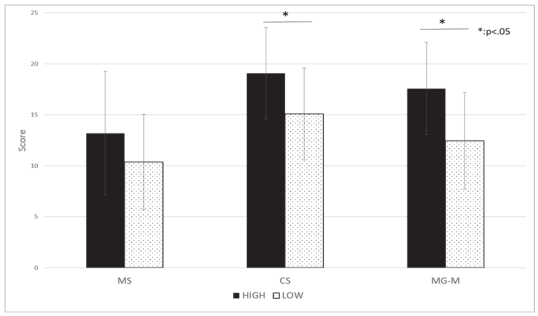

Figure 5: JSIC subscale scores for high- and low-scoring groups in Surroundings Visualization.

Furthermore, in addition to the MR group having significantly higher scores in the MG-M subscale, scores in the Emotions subscale (Fig 2) were also significantly higher. However, no comments

regarding emotions were seen in the answers to the question on usual mental rehearsal content. Moreover, even though many MR athletes scored higher on emotional imagery ability and frequently used motivational- type MG-M imagery, there appears to have been less of a tendency to use the motivational-type MS imagery associated with goal achievement or confidence.

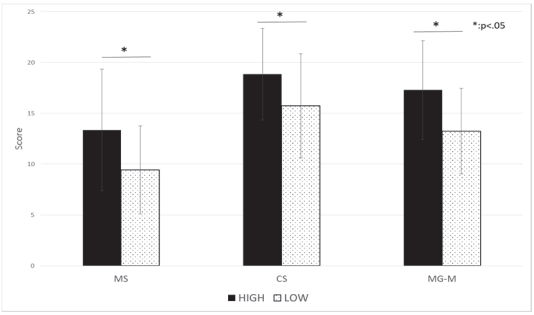

Figure 6: JSIQ subscale scores in high- and low-scoring groups for Emotions.

3.2 High- and Low-scoring in Imagery Ability and Imagery Use

The high-scoring MR group for the Emotions subscale (Fig. 6) had significantly higher scores in the motivational imagery types MS and MG-M. Being able to practice mental rehearsal with emotional imagery may have facilitated the use of motivational-type imagery associated with goal achievement and confidence. Furthermore, the high-scoring MR group for Kinesthetic Sensation had significantly higher scores in the CS and MG-M subscales (Fig. 3) and the high-scoring group in Surroundings Visualization had significantly higher scores in the MS and MG-M subscales (Fig. 5). Thus, among the university students who strategically practiced mental rehearsal, those who scored higher in the Emotions, Kinesthetic Sensation and Surroundings Visualization subscales could be expected to use motivational imagery for specific goal achievement and general confidence maintenance.

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