

The Effect of Psychological Skills Training on Emotion, Self-Esteem, Flow and Perceived Performance of University Player

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The purpose of this study was to examine the effect of psychological skill training on emotion, self-esteem, flow, and perceived performance of a collegiate baseball player. The subject of this single-case experimental study was a collegiate baseball athlete who returned to the field after rehabilitation due to injuries during exercise. For the study, four measures (positive/negative emotion scale, self-esteem inventory, exercise flow scale, and perceived performance inventory) were developed and utilized to verify the effectiveness of the psychological skill training program based on previous studies, expert opinion, and interview data of research participants. The psychological skill training program in this study consisted of following four: (1) relaxation training, (2) image training, (3) self-esteem training, and (4) routine training. The training was conducted in eight sessions (about 60 minutes per session) after the baseline phase. The results of this study were as follows. First, it was confirmed that the psychological skill training program improved the positive emotions and reduced the negative emotions of the player. Second, the participant in the study felt that his self-esteem has enhanced through this training program. Third, the training program contributed to fostering the athlete's exercise flow. Lastly, the participant recognized the improvement of performance through this training program.

Key words: psychological skill training, emotion, self-esteem, exercise flow, perceived performance

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Introduction

Psychological interventions in applied sports psychology typically occurred through the model of psychological skills training, referring to the “systematic and consistent practice of mental or psychological skills for the purpose of enhancing performance, increasing enjoyment, or achieving greater sport and physical activity satisfaction (Weinberg, 2019). The systematical review or meta-analysis studies on the effectiveness of psychological skills training have generally revealed some positive effects. Also, Greenspan and Feltz (1989) provided an overall examination of the effectiveness of psychological skills training used with athletes.

Psychological skill training was defined as all mental strategies and coping styles that were implemented for the purpose of resolving obstacles in sports performance and achieving peak performance. Reviews documenting the effects of specific psychological skills training (e.g., goal setting) in relation to sport performance and psychological outcomes have yielded positive results (Kyllo & Landers, 1995; Rumbold, Fletcher, & Daniels, 2012). In particular, in the case of image training, which is a training method performed in the head as if in reality or imagining a scene of correct exercise by mobilizing all senses without physical or outward activity, facility problems, athlete's physical condition, climatic conditions, helps to prevent regression of motor function even when training is not possible due to other reasons such as COVID-19 condition (Vealey, 1986).

Psychological skills training programs that have been confirmed to have a positive effect on the psychological skills and performance of athletes included imagery, routines, concentration, goal setting, and relaxation (Gould & Weinberg, 1995; Vealey, 1998). The sports events in which psychological skill training has been verified include fencing (Shin, Choi & Kwon, 2009), shooting (Kim & Shin, 2010), archery (Choi & Song, 2017), judo (Lee, 2015), and golf (Choi & Lim, 2012; Kerry, Boyun, & Ye, 2018), tennis (Shin & Lee, 2009), bowling (Cho, Oh & Lee, 2014), table tennis (Lee & Roh, 2015), and badminton (Jung & Kim, 2015). As for team sports, the positive effect of psychological skill training was confirmed in ice hockey (Shin, Yook, Ko, 2016), soccer (Cho & Um, 2008) and baseball (Park, Kwon & Lee, 2012).

Accordingly, single-case experimental designs (SCEDs) offer a viable means of maintaining scientific area in applied settings while providing a platform for examining the idiographic processes and outcomes of psychological skills training intervention effects across time with individuals and groups (Meredith et al., 2018; Morgan & Morgan, 2009). A unique feature of SCEDs was the capacity to conduct experimental investigations with one or a few cases and the ability to rigorously evaluate individual factors and effects of interventions between baseline and post intervention phases (Kazdin, 2011).

On the other hand, self-esteem (Kim, Shin, 2021), emotion (Lee, Shin, 2020), flow(Yoon & Lee,

2017), and perceived performance (Shin, 2020) of university players affected psychological skills and performance. Therefore, The purpose of his study was to examine verify the effect of psychological skill training on emotion, self-esteem, flow and perceived performance in university baseball players who returned to the field after rehabilitation after sports injuries by using single-case experimental designs.

Methods

1. Participants

The participant of this study consisted of a baseball player of university located in Busan. The participant was male, position was pitcher and academic grade were in their 3rd grade. The injury site was chronic pain in the shoulder region. His athletic career started as a pitcher in elementary school. The study participant was experiencing psychological difficulties due to anxiety, low self-confidence, and fear of re-injury while returning to the sports field after rehabilitation. To solve psychological difficulties, participant voluntarily participated in psychological skill training program. The research purpose and research procedure were explained to the researcher and informed consent was obtained.

2. Measures

Four measures(positive and negative emotion scale, self-esteem inventory, exercise flow scale, and perceived performance inventory) were used to verify the effectiveness of the psychological skills training program . The measures used in this study were used after the content validity was verified through the expert meeting and then modified to fit the purpose of the study.

1) The Positive Affect and Negative Affect Schedule (PANAS)

The Positive Affect and Negative Affect Schedule (PANAS) developed by Watson, Clark & Tellegen (1988) to measure the degree of positive and negative emotions of participants in this study was analyzed by Lee, Kim & Lee (2003). It was used after modifying it according to the purpose of this study. This measure consisted of 19 items with 2 sub-factors, 9 items for positive emotion and 10 items for negative emotion with 5-point Likert scale.

2) Self-esteem inventory

Rosenberg Self-Esteem Scale (RSES)(Rosenberg, 1965) was used self-reported scale assessed

participant global self-esteem. The self-esteem inventory used in this study consisted of 9 items, 2 sub-factors, 5 positive items and 4 negative items with 5-point Likert scale.

3. Exercise flow inventory

The exercise flow inventory was modified and supplemented with the scales developed by Kanungo (1982) according to this study, and consisted of 12 items testing the overall degree of flow in the exercise performance process.

4. Perceived performance

Perceived performance is even more difficult to assess as it consists of many different components. Perceived performance inventory developed by Mamassis and Doganis(2004) was adjusted to baseball in this study. Perceived performance inventory was a set of 8 questions, each related to a different aspect of baseball players performance. Specifically, each participants were asked to appraise his or her performance on a five point scale (1 being “not good at all” and 5 being “very good”) on the following aspects: 1) his or her physical feelings; 2) quality of technique; 3) timing and rhythm; 4) concentration; 5) amount of effort exerted; 6) mental attitude and thoughts; 7) level of self-confidence during the match; and 8) comparison of his or her performance with what he or she was expected to play. An overall performance score was obtained from the sum of all these 8 items.

5. The psychological skills training

The psychological skill training program was conducted in 8 sessions after the baseline phase, and the psychological skill training program was conducted for about 60 minutes per session. The psychological skills training program used in this study was based on previous studies (Gould & Weinberg, 1995; Han, 2017; Lee, Kwag, 2018; USOC sport psychology staff, 2003, Vealey, 1994; Weinberg, 2019), expert opinion (two professors majored in sport psychology, one baseball coach) and interview data of research participant. The psychological skill training programs in this study were relaxation training, image training, self-esteem training, and routine training

Before the first session, two baseline test were made, and in the first session, orientation for the entire program was conducted. In the second session, relaxation training was conducted. The relaxation training was conducted by modifying the progressive relaxation training and breathing method introduced by the USOC sport psychology staff (2003) to suit the research participants.

After training on the concept, importance, and implementation method of relaxation training, training was conducted so that it could be applied to practice and competition. In the third session, image training was conducted. For image training, image training to feel basic sensory image training

and technical image training to image detailed baseball techniques were provided.

In the 4th session, when the technical image training was mastered, competition image training was conducted to visualize the successful completion of the entire competition. When the competition image training was mastered, image control training was conducted to positively correct negative images or negative competition contents. Also, in the 4th session, a psychological variables were conducted to measure the effect of psychological skill training. In the 5th session, self-talk training was conducted. The thoughts, words, and actions that are helpful to the player's emotions, cognition, behavior and performance were identified and stated in short sentences. He created a self-talk that was helpful for his pitching and applied it to practice and competition. In particular, participant wrote a self-talk that was helpful for myself in situations such as when I made a mistake, when I was anxious, or when I couldn't concentrate.

In the 6th session, routine training was conducted. In routine training, after training on the importance of routine in pitching, participant analyzed the contents of previously learned relaxation training, image training, and self-esteem training and their own competition routine to help them have an optimal psychological state. The study participants made and trained their own competition routines. In the 7th session, participant practiced their own routines by dividing the situation in detail, such as the pre-performance routine, concentration routine, and mistake overcoming routine. In the 8th session, feedback was given to the participant on the overall psychological skill training program, and a strategy for practicing psychological skill training in future training and competitions was established. In the 8th session, a psychological skills test was conducted to measure the effect of psychological skill training.

6. Data analysis

In this study, a single-case experiment design was used to measure the effect of psychological skill training that helped to improve the psychological skills and perceived performance of study participant. A single case study was conducted with one person or a small number of cases, and the study subject itself was the subject of control and treatment of the experiment. In this study, psychological measurement was performed twice before psychological skill training (baseline measurement), and a psychological test was conducted to measure the effect of psychological skill training in sessions 4 and 8.

Results

Table 1. The emotion change by psychological skills training application

	Baseline 1	Baseline 2	4th session	8th session
Positive emotion	2.75	2.78	3.03	3.22
Negative emotion	2.33	2.32	2.25	2.16

1. The effect of psychological skills training on emotion of participant

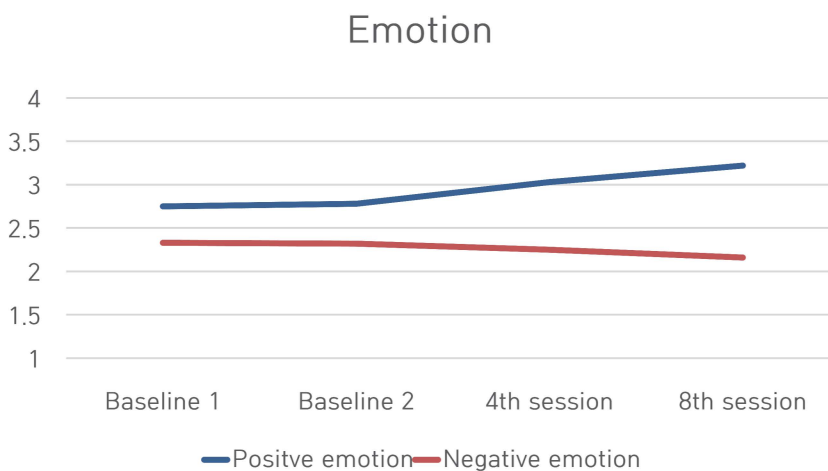


Figure 1. The emotion change by psychological skills training application

According to psychological skill training application, positive emotion of study participant was improved to baseline 1 (2.75), baseline 2 (2.78), 4th session of psychological skills training (3.03), and 8th session of psychological skills training (3.22). On the other hand, according to psychological skill training application, negative emotions of study participant was reduced to baseline 1 (2.33), baseline 2 (2.32), 4th session of psychological skills training (2.25), and 8th session of psychological skills training (2.16).

Table 2. The self-esteem change by psychological skills training application

	Baseline 1	Baseline 2	4th session	8th session
Self-esteem	2.72	2.73	3.36	3.60

2. The effect of psychological skills training on self-esteem of participant

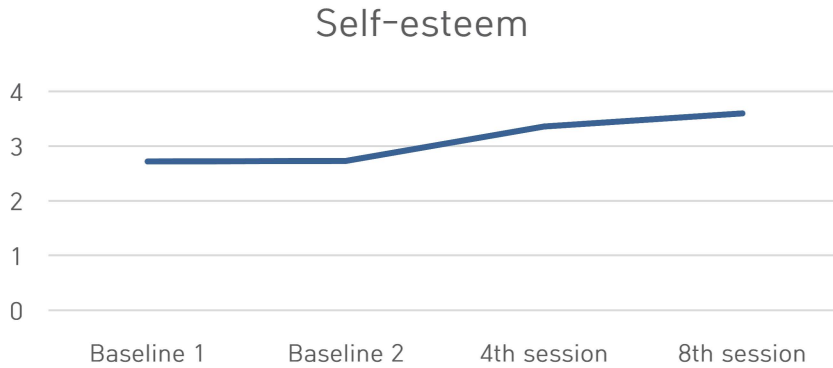


Figure 2. The self-esteem change by psychological skills training application

According to the psychological skills training application, the self-esteem of the study participant was improved to baseline 1(2.72), baseline 2(2.73), 4th session of psychological skills training(3.36), and 8th session of psychological skills training(3.60).

Table 3. The exercise flow change by psychological skills training application

	Baseline 1	Baseline 2	4th session	8th session
Exercise flow	2.67	2.70	3.05	3.25

3. The effect of psychological skills training on exercise flow of participant

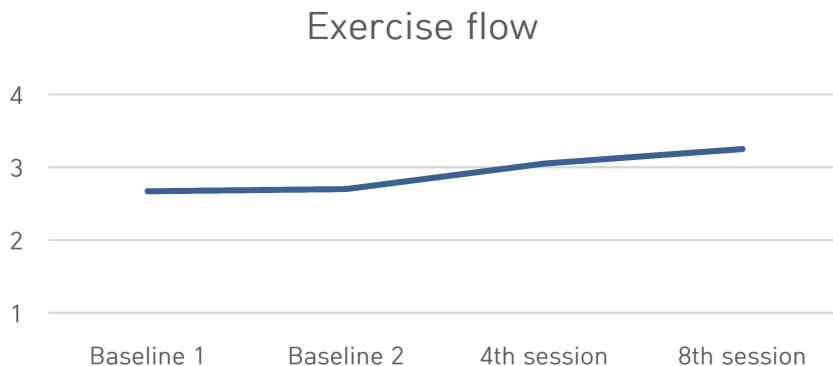


Figure 3. The exercise flow change by psychological skills training application

According to psychological skill training application, exercise flow of study participant was improved to baseline 1 (2.67), baseline 2 (2.70), 4th session of psychological skills training (3.05), and 8th session of psychological skills training (3.25).

4. The effect of psychological skills training on perceived performance of participant

Table 4. The perceived performance change by psychological skills training

	Baseline 1	Baseline 2	4th session	8th session
Perceived performance	3.00	3.03	3.42	4.00

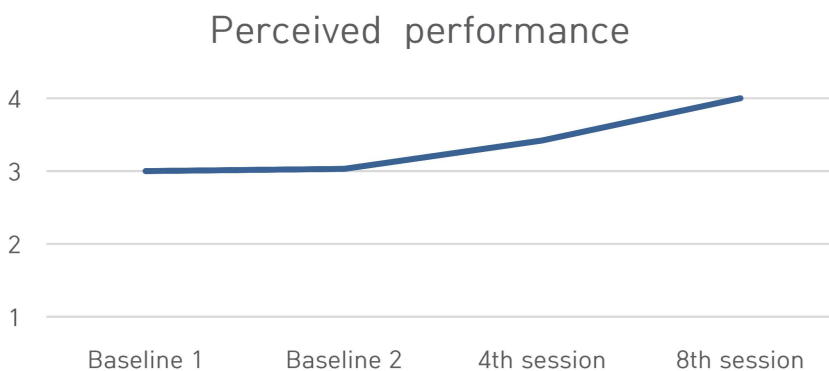


Figure 4. The perceived performance change by psychological skills training

According to the psychological skills training application, the perceived performance of the study participant was improved by baseline 1 (3.00), baseline 2 (3.03), 4th session of psychological skills training (3.42), and 8th session of psychological skills training (4.00).

Discussion

The purpose of his study was to examine verify the effect of psychological skill training on emotion, self-esteem, flow and perceived performance in university baseball players who returned to the field after rehabilitation after sports injuries by using single-case experimental designs. The psychological skill training program used in this study was composed of 8 sessions by integrating previous research, expert opinions, and player interview data. This psychological skill training program consists of relaxation training, image training, magnetization training, and routine training. The results of this study

were as followings.

First, it was confirmed that the psychological skill training program improved the positive emotions of the player and reduced negative emotions. The results of this study supported previous studies (Lee, Oh & Jung, 2019; Lee & Ryu, 2020) that psychological skill training had a positive effect on emotions. Athletes' emotions can influence their cognition, behavior and performance. In this regard, it is necessary to develop a psychological skill training program for more than 6 months for more research participants and to investigate the effect on emotion.

Second, the psychological skill training program was found to increase the player self-esteem. Although there were some research results (Kim & Kim, 2013; Park & Chang, 2013; Yang, Shin & Him, 2015) that psychological skill training was effective in improving athletes' confidence, studies on the effect on self-esteem seldom published. In this regard, it is judged that a study is necessary to statistically confirm the effect of psychological skill training on the self-esteem of athletes.

Third, the psychological skill training program was found to increase the athletes' exercise flow.

Kwon, Lee & Lee (2011) argued that if there was a significant relationship between psychological skills, performance among exercise flow. In addition, it was confirmed that exercise flow for college athletes was related to achievement goal orientation and exercise adherence (Yoon & Lee, 2017). However, this study is the first to investigate the effect of psychological skill training on athletes' exercise immersion. In this regard, it is necessary for follow-up studies to identify the effect of psychological skill training on athletes' exercise flow by securing more research participants.

Fourth, the psychological skill training program was found to improve the player perceived performance. The results of this study supported previous studies (Feltz & Landers, 1983; Ma & Kim, 2011; Yang, Shin & Him, 2015) that psychological skill training had a positive effect on performance. However, it is difficult to actually measure the performance of a baseball pitcher. Pitcher-related performance measurement factors include winning, pitches, ERA, and on-base tolerance per inning, but it may vary depending on the opposing team, defense, referee, and environmental factors. In this regard, it is necessary to investigate the effect of psychological skill training by including both actual performance and perceived performance from a longitudinal perspective.

Meanwhile, until now, psychological skill training has been mainly conducted for athletes. However, Han (2012) needs to be expanded to target athletes of various levels because the effects of psychological skill strings were effective not only for athletes but also for the leisure participants. Second, research is needed to develop a non-face-to-face psychological skill training program and analyze its effects in preparation for when face-to-face training is difficult due to COVID-19. Third, in order to statistically and validly analyze the effect of psychological skill training, it is judged that it is necessary to secure a period of 6 months or more for more athletes,

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