The Psychological Intervention Program for the Disabled Shooting Athletes in Korea

Jung-Taek Shin
Dong Eui University
Busan, South Korea

S. Roger Park, PhD
Sport and Physical Education, Gonzaga University
Spokane, WA 99258-0025.

Hak-Duck Kim
Dong-Eui University
Busan, South Korea

Abstract

The purpose of this study was to examine the effect of a psychological training program on competitive trait anxiety of challenged shooting team athletes during the sporting recoevery rehabilitation process. Subjects were 10 challenged athletes in a shooting team (6 male and 4 female) with ages that ranged between 20-40 years. Eight athletes were myelopathic and 2 were amputees or otherwise challenged. They were described by disability classifications as 6 SH1-C, 2 SH1-B, and 2 SH2-cb athletes. They received 5 different psychological intervention programs (goal setting training, relaxation training, imagery training, self confidence training, positive, and self-talk training). Effectiveness of the intervention programs was evaluated through the competitive trait anxiety Inventory and ACSI-28. The results indicated that a psychological intervention program decreased competitive trait anxiety of disabled shooting athletes in a sporting rehabilitation process. Furthermore, a psychological intervention program increased psychological skills level of disabled shooting athletes in a sporting rehabilitation process.

Key words: psychological intervention program, competitive trait anxiety, psychological skills

Introduction

Highly motivated athletes train rigorously in order to compete at peak levels of performance during competitive events. Maintaining peak performance during training and competition requires a high level of conditioning that can lead to physical injury. Ekstrand, Gillquist & Blanke (1982) defined sports injuries as those suffered during training or competition, which require medical treatment prevent athlete participation in training or competition for one week or longer. Fuller et al, (2006) defined an injury in football (soccer) as "any physical complaint sustained by a player that results from a football match or football training, irrespective of the need for medical attention or time-loss from football activities. An injury that results in a player receiving medical attention is referred to as a "medical-attention" injury and an injury that results in a player being unable to take a full part in future football training or match play as a "time-loss" injury." (p. 84) Sports injuries can be classified as sports wounds and sports disorders: sports wounds refer to injuries resulting from a onetime occurrence of extreme external force, physical contact, collision, etc, whereas sports disorders refer to a specific symptom described as chronic because of its continual or repeated presentation at, one or more, specific physical sites during sports activities. If an athlete continues training or competing without successful treatment of the sports injury, the injury may become chronic, thereby degrading athletic performance to a level that may ultimately force the athlete to cease sporting activities.

Furthermore, Hamson-Utley (2008) noted that "negative psychological responses to injury often result in a lack of rehabilitation adherence or prolonged recovery rates, prompting those who work with injured athletes to look for additional strategies to improve the overall rehabilitation process." (p.258)

In this respect, successful rehabilitation from sports injuries is important for athletes in terms of their personal life as well as their performance. The fields of sports medicine, rehabilitation medicine, adapted physical education, exercise physiology, and sports psychology, are replete with studies focused on injury prevention, physical rehabilitation methods, and duration of rehabilitation. There is little discussion about the psychological changes that injury-rehabilitated athletes experience upon returning to competition. Physical recovery means the complete medical treatment of physical injury, while sporting recovery means recovery to pre-injury competitive performance levels. Most athletes are slower to return to full sporting recovery than physical recovery (Ramirez, Alzate & Artaza, 2004).

Le Mot (1994) and Morry (1997) focused on the psychological changes exhibited by athletes during a recovery period. They noted that the emotions of athletes in the recovery process appeared to follow a U shaped cycle. Specifically, the negative emotions of athletes increase immediately after an injury, but then decrease over time. It has been found that negative emotions, fear of recurrence, and performance anxiety increase again when physical recovery is completed and the athletes return to the sports field (Ramirez, Alzate, & Artaza, 2003, 2004; Shin, 2008; Tracey, 2003). Athletes who lack effective coping skills for these negative psychological emotions may experience decreased levels of performance, suffer a recurrence of injury, or even leave the sporting arena altogether. Numerous research has been reported that anxiety and negative stressors are widely reported psychological issues that accompany athletic injury (Morris, 2005; Murphy, 2005; Wiese-Bjornstal et al., 1998). These investigations and observations strongly suggest developing a psychological intervention program to reduce negative psychological emotions experienced among athletes returning to competition after a physical recovery.

Depauw and Gavron (1995) indicated that physically challenged and non-challenged athletes returning to competition share the negative psychological emotions and Sherrill (2004) also showed psychological types among challenged and non-challenged athletes are very similar to each other. These results were found by comparing the psychological characteristics of two groups of athletes in consideration of gender, sports types, technical standards, sports conditions, etc. However, challenged athletes are more likely to experience greater negative psychological effects from livelihood fear, career problems, social prejudice, andlow social support, and lack of facilities than non-challenged athletes. South Korean challenged athletes, who have suffered sports injuries and are undergoing physical rehabilitation, are burdened not only by rehabilitation expenses, but also by the socio-environmental factors noted. These elements spur most challenged athletes, even when suffering injuries to some extent, to engage in competitive sports wherever possible despite medical advice against doing so. This often causes challenged athletes to encounter enormous psychological difficulties during training or competition, whether or not they have completely recovered from injuries after medical treatment. Ramirez et al (2004) argued that challenged athletes have tremendous difficulties achieving peak performances in competition, as they experience greater levels of stress from negative psychological factors such as fear of injury recurrence and performance anxiety, even when completely recovered from physical injuries. Thus, the purpose of this study was to examine the effect of a psychological training program on competitive trait anxiety of challenged shooting team athletes during the sporting recovery rehabilitation process.

Method

1. Subjects

Subjects were 10 challenged athletes in a shooting team (6 male and 4 female) with ages that ranged between 20-40 years. Eight athletes were myelopathic and 2 were amputees or otherwise challenged. They were described by disability classifications as 6 SH1-C, 2 SH1-B, and 2 SH2-cb athletes. The athletes competed in an event that consisted of R1 and R7 50M air rifles' three postures, R2 air rifle incidence, R8 air rifle three postures, P1 air pistol, P2 air pistol, and mixed P4 50M free pistol.

2. Psychological intervention program

The psychological intervention program was implemented over eight sessions (Table 1).

The number and content of the psychological intervention sessions were determined by interview results with the athletes and followed counseling content as outlined by challenged athlete experts and other sports authorities. The program selected for this study was determined by evaluating successful intervention programs from previous studies that focused on injury rehabilitation of challenged and non-challenged athletes. The program was further scrutinized and approved by sport psychologists and a professors specializing in the area of sports injury and injury rehabilitation. The program implemented in this study included goal-setting training, relaxation training, imagery training, self-confidence training, and positive self-talk training. Sessions were conducted at the practice sites and 70-90 minute sessions consisted of instructions, practices, question and answer sessions. The sessions were fully integrated with the existing training and practice modes of the team.

Goal-setting training involved an instruction about the methods and importance of the training involved. After the instruction, the athletes were asked to read an article that described various methods of training and the importance of each method. The subjects established performance goals in accordance with the manual developed by Orlick (1986), which explained period and goal-setting type, and required the athletes to utilize training diaries as aids to achieving their performance goals. The diaries contained technical goals, imagery goals, self-description goals, imagery training achievement evaluations, self-confidence achievement evaluations, and methods for assessing the degree of personal satisfaction each athlete derived from training.

Relaxation training was designed to control excessive tension and anxiety faced by the athletes, and guide them into a state of physical relaxation and mental comfort. This was accomplished by positioning each athlete in a comfortable sitting or supine posture and instructing them to inhale deeply, and then slowly exhale while relaxing their body and feeling it relax. However, the maximum benefits of relaxation training are accomplished over long periods of practice and cannot be achieved by athletes recently introduced to this training. In order to minimize this obstacle the athletes initially engaged in complete basic relaxation training. Later, they practiced the technique continuously, with sessions performed during practice and immediately before competition.

Table 1. Psychological intervention program

Period	Content	Relevant Literature
Prior Period	* Literature consideration, psychological examination, and interviews with athletes and leaders * Analysis of the shooting items for challenged athletes and the characteristics of challenged shooters	Kim, et al. (2008); Jang, D. S. (2005); Jeong, J. E. (2006)
Problem Diagnosis	* Athlete specific psychological analysis based on prior work * Precedent studies of psychological technical training Psychological analysis of athletes and interviews with leaders Decisions of six psychological intervention programs based on data	
1st Session	* Distribution of questionnaires * Implementation of orientation * Lecture: Explanation of intervention programs and the importance of psychological intervention training for subjects	Mamassis & Doganis (2004); Kim, et al (2008); Jang, D. S. (2005)
2nd Session	* Education: Methods and importance of goal setting training * Practice: Goal setting	Loehr (1991), Jeong, J. E. (2006)
3rd Session	* Lecture: Methods and importance of relaxation training * Practice: Relaxation training practice (Implemented every session after the 3rd session)	Loehr (1938); Jeong, J. E. (2006)
4th Session	* Lecture: Methods and importance of imagery training * Practice: Practice of imagery training (Implemented every session after the 4th session)	Kim, et al (2008); Jeong, J. E. (2006)
5th Session	* Lecture: Methods and importance of self-confidence improvement * Practice: Practice of methods for self-confidence improvement training	Kim, et al (2008); Jeong, J. E. (2006)
6th Session	* Lecture: Methods and importance of positive self-description training * Practice: Practice of positive self-description training	Kim, et al (2008); Jeong, J. E. (2006)
7th Session	* Inspection of six psychological intervention programs * Distribution of questionnaires and evaluation of training programs (Interviews)	

The time to reach relaxation decreased from approximately 40 minutes at the outset of training, to approximately 10 minutes by mid phase of the training. Imagery training was introduced with an instruction that first explained its importance and then described methods to realize it. While each athlete was engaged in imagery training, he/she was instructed to visualize each element of his/her competition and every action they would perform during their practice time at the shooting range. In addition, the practice activities of each athlete were videotaped and that footage was compared to the activities of the best competitors. These comparisons helped the athletes identify flaws in their techniques and initiate corrective adjustments. Athletes employed imagery training immediately before practice and competition on a systematic basis as they traveled to the practice and competition venues. We combined imagery training with relaxation training in every session.

The self-confidence improvement training utilized journals in which each athlete wrote about the various methods he/she might use to increase their self-confidence. Subsequently, we instructed the athletes to recall the feelings they experienced when they successfully completed previous tasks. This exercise provided a self-confidence baseline that provided a measurement of increased self-confidence levels. Then, we explained to the athletes how to write a success diary and confirmation cards, evaluated their performances, explored controllable and non-controllable factors, and discussed efficient behavior. Using positive thinking in this fashion ensured continued improvement of their self-confidence levels. Finally, the athletes receiving self-confidence training coupled with positive self-praise training reestablished confidence in their abilities by resolving issues of self-doubt, which resulted in poor shooting performances. For the positive self-description training, we attempted to impart a sense of unity and camaraderie with the subjects by sharing our thoughts and experiences about the importance of positive self-description and thinking. We also outlined theoretical explanations for the experiences. In addition, we had the athletes write down their individual confirmations so that they could change their negative self-descriptions into positive ones. We empowered them to do so by having them discard their negative psychological aspects using the thinking interruption mode.

3. Measures and Procedures

Sport competitive trait anxiety (SCAT) and athletic coping strategy inventory (ACSI-28) were utilized to analyze the effectiveness of the intervention program for the challenged injured athletes in rehabilitation. In addition, a survey (Smith et al., 1990; Smith et al., 1995) was used to measure the anxiety levels of challenged injured athletes during injury rehabilitation, and the original form of ACSI-28 was created to measure psychological coping skills of sports athletes. Lower sections of this instrument combined seven factors, Coping With Adversity, Peaking Under Pressure, Goal Setting/Mental Preparation, Concentration, Freedom From Worry, Confidence and Achievement Motivation, and Coachability. Available responses ranged from point 1(being as 'not at all') to point 4(being as 'very much likely'). The efficacy of the intervention programs using the qualitative data collected from questionnaires and interviews has been conducted with challenged athletes in the shooting team. The athletes consented to the interviews, which were documented. Experts composed the interview transcripts and questionnaires in order to assure the credibility and validity of the results.

All statistical computations were performed using SPSS/PC Version 14.0. A paired –T Test was performed to examine the effects of intervention program on competitive trait anxiety and psychological coping skills of athletes during an injury rehabilitation process. All the data sets have been recorded and transcribed verbatim and the interpretational analysis was conducted to reveal patterns and relationships (Glaser & Strauss, 1967; Tesch, 1990).

Results

1. Quantitative effects of intervention program

1) Sport competitive trait anxiety

Table 2 showed the psychological intervention program significantly decreased sport competitive trait anxiety of challenged shooting athletes in a sporting rehabilitation process (t=2.50, p<.05).

Table 2. Paired t test on competitive trait anxiety

	Pretest		Posttest		
	M	SD	M	SD	t
Competitive trait anxiety	2.07	.14	2.02	.17	2.50*

$p^{*}<.05$

2) Psychological skills

Table 3 indicated the psychological intervention program significantly increased the coping skills, peaking under pressure, and confidence and achievement motivation of challenged shooting athletes in a sporting rehabilitation process with *t*s=-3.15, 4.09, & -2.50, *p*s<.05, respectively while significantly decreasing worry with *t*=4.69, *p*<.01.

Table 3. Paired t test on psychological skills

	Pretest		Posttest		
	M	*SD*	*M*	*SD*	*t*
Coping with adversity	2.44	.26	2.51	.22	-3.15*
Peaking under pressure	2.37	.22	2.42	.21	-4.09**
Goal setting/mental preparation	2.72	.19	2.73	.17	-.26
Concentration	2.63	.12	2.62	.09	.55
Freedom From Worry	2.56	.18	2.48	.16	4.69**
Confidence and achievement motivaion	2.66	.09	2.72	.10	-2.50*
Coachability	2.41	.13	2.42	.14	-1.31

$p^{*}<.05$, $p^{**}<.01$

2. Qualitative analysis of psychological intervention program

The participants reported whether or not the intervention program was effective for successful recovery during a rehabilitation process. They are also asked to evaluate the effectiveness of the intervention program as the following scale indicates: "very effective" (*n*=4), "mostly effective" (*n*=5), & "slightly effective" (*n*=1). When the athletes were asked if they would participate in such a program, their responses were as followed: "will participate" (*n*=5), "will surely participate" (*n*=5). Finally, all of the athletes responded affirmatively that they would recommend this program to other athletes: "will recommend" (*n*=6), and "will likely recommend" (*n*=4). The recognition of challenged shooters of the psychological intervention program can be also seen in Table 4. Analysis of the data generated from the questionnaires indicated that challenged shooters participating in this psychological intervention program reaped mostly positive effects in terms of their competitive trait anxiety levels and psychological coping skills.

Table 4. Interview data

When I first sustained the injury, everything went black. I thought my career as an athlete ended, and I couldn't perform anymore. So I became lethargic and helpless. Meanwhile, I started psychological skill training and eventually realized that everyone could be injured and what I had to do was to concentrate only on my rehabilitation program. Then, I could have positive mind that the crisis can become an opportunity thanks to the psychological skill training. As a result, I successfully recovered and returned to the field. (Challenged athletes B)

When I got the injury, I pretended to not to be worried but I was very psychologically anxious because I reinjured the same part. I had been fear of a re-injury and it became the case. While the psychological skill training, I got to know that an injury can happen to anybody in sports and what I can do is to fully prepare to prevent an injury and cope with it well if it happens. (Challenged athletes A)

At the beginning of the rehabilitation process, negative thoughts dominated myself. I was anxious and fear and wondered why I had to be there. But the psychological skill training gave me a chance to look back at myself. About why I play my sport, what is my goal, and what I will do for my life, kind of things...I made a huge progress in terms of not only physical but mental. Ironically, my injury helped me grow with thanks to the psychological skill training. (Challenged athletes C)

I feel myself to have developed with self confidence training and self talk training in a positive way. My coaches and pees complimented for that. (Challenged athletes D)

Discussion

The main purpose of this study was to establish a prestigious psychological intervention program that would help resolve the psychological problems of 10 challenged athletes in a shooting team engaged in training and competition with complete or partial physical recovery after medical treatment for injury. The discussion based on the results of this study is as follows. First of all, the psychological intervention program has been proven to be effective enough to reduce the competitive trait anxiety of physically challenged shooters (Bum, Morris & Andersen, 1996; Jeong, Jae-eun, 2006; Ju, Jin-man, 2003; Kim, Jong-gu, 2002; Mun, 2007). The current psychological intervention program are used only for the non-physically challenged athletes in the shooting team, but this study opened the door by indicating that the program should be extended and available to the physically challenged athletes. Furthermore, this study found that the psychological intervention program had positive influences on psychological coping factors such as, awareness control ability, and stress solution, worry, and self - confidence/achievement motivation as well as a psychological coping skill training would improve imagery, relaxation, and emotion control abilities of athletes (Jeong, Jae-eun, 2006; Lee, Gyu-hwan, 2004). Although previous studies verified that psychological intervention programs were effective only for non-challenged athletes, this study is meaningful and valuable in a sense that this study showed that the psychological intervention program can be effective to challenged athletes as well. Accordingly, it is desperately necessary to develop psychological intervention programs that can decrease the psychological stress experienced by post-injury challenged athletes during sporting recovery.

As Yu, Ji-yun (2004) argued, the middle and high school athletes are often exposed to sport injury due to excessive training, and that a considerable number of athletes often return to training and competition without complete recovery, thereby causing a second injury. Such studies show that even challenged athletes often return to competition as early as possible and frequently well before they have completely recovered from injury. Investigators, sports administrators, and leaders will need to work together to prevent and resolve such problems in the future. The most significant finding of this study is that participation in a psychological intervention program is critical and effective for the physically challenged and non-challenged elite athletes. However, follow-up studies need to be done to establish the prestigious psychological intervention programs for the challenged athletes in terms of the athletes' traits, sports types, and post-rehabilitation psychology, etc. In addition, as Mamassis and Doganis (2004) proposed, intervention programs could provide maximum benefits when implemented with all athletes on the long-term and a regular basis. This study has a limitation that the researchers could not control the rehabilitation period and returning time after injury, physical conditions of the athletes, and injury forms. Finally, it is necessary to confirm the effects of psychological intervention in challenged athletes with studies using specific control groups.

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Appendix. The analysis on evaluation questionnaire of psychological intervention program

N	Question	Answer	Frequency	Ratio (%)
1	Do you think this intervention program was effective?	① Not effective	0	0.0
		② Slightly effective	1	10.0
		③ Mostly effective	5	50.0
		④ Very effective	4	40.0
2	What would you do if you were given the opportunity to participate in the psychological skill training program again?	① Will not participate	0	0.0
		② Will make a decision if the opportunity arises	0	0.0
		③ Will participate	5	50.0
		④ Will surely participate	5	50.0
3	Would you recommend participation in the psychological training program to other athletes?	① Will not participate	0	0.0
		② Will recommend	6	60.0
		③ Will actively participate	4	40.0