

# The effect of Psychological skills training (goal setting, positive self-talk and Imagery) on self-confidence of adolescent volleyball players

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## Abstract

**Purpose:** Considering the increasing emphasis on the importance of psychological skills and its various applications in teaching and learning and improving exercise skills, the purpose of this study was to assess the effect of Psychological skills training (goal setting, positive self-talk and Imagery) on self-confidence among adolescent volleyball players.

**Material:** For this purpose, 30 out of 100 male volleyball players in Sarakhs city were selected by simple random sampling method. They were divided into two groups: control (N = 15) and experimental (N = 15). Control group and experimental group participated in regular physical activity but experimental group moreover followed psychological skill training program. Psychological skills training included 24 sessions, each week 3 times. First, Ottawa's Assessment Skills Questionnaire (OMSAT\_3) was applied for screening mental skills levels. Then, before and after the intervention of the psychological training program (24 sessions) Trait and State self-confidence questionnaires from subjects were collected. To calculate the mean difference between groups, one-variable covariance statistical method was used and hypothesis testing was performed at a significant level ( $p < 0.05$ ).

**Results:** The results of the study showed that the Psychological skills training program had a significant effect on state and trait self-confidence among adolescent volleyball players ( $p < 0.05$ ).

**Conclusions:** Psychological skills training associated with technical and physical training should be used by coaches for attaining optimum self-confidence and peak performance of athletes.

**Keywords:** psychological, skills, training, trait, self-confidence.

## Introduction

Performance enhancement in sports environments depends on athletes' self-confidence, motivation, and optimum performance [1]. It is noteworthy that sport-confidence is one of the most common mental factors, which results in sports achievements; the term self-confidence here refers to a successful implementation of a relatively specific action that can assess the optimism philosophy of that performance. For example, the one may have high confidence in driving, but low confidence in directing the golf ball toward the hole [2]. Volleyball is one of the beautiful and attractive sports with particular popularity among adolescents. Successive victories in this sport depend on different factors such as physical readiness, technique, tactics, and mental readiness; hence, the use of psychological skills enhancement techniques to provide optimal situation for athletes is of great importance [3]. In addition, past performance dependent innate resources, mastery of skills, coach leadership style, ability display, and physiological and psychological readiness are considered as the most important self-confidence resources [4]. Numerous interventional methods are employed to improve self-confidence, sport skills performance, and satisfaction in athletes, and the important role of such techniques in the improvement of athletes' performances are noted in different studies.

Here, cognitive strategies, by the use of effective patterns including self-talk, targeting, relaxation, and motivation regulation, had positive impacts or caused useful changes. Targeting is particular type of such techniques; evaluation of its qualitative and quantitative impacts on skills performances and improvement of self-confidence are of great importance. Based on the targeting studies, target is a powerful tool with direct/indirect impacts on behavioral changes [5]. Target has 2 important properties; first, it is direction-oriented and the athlete formulates his/her own target toward something, and the second, it has intensity and strength and may be very or relatively important to the athlete [6].

Recently, researchers combined self-talk with mental skills and reported positive outcomes in athletes' performances [7]. Positive self-talk is referred to an internal conversation can be done loudly or in silence though which the person teaches or strengthens him/herself [8]. Self-talk can be performed during, before, and even after a sport performance, comes from thoughts, usually happens unconsciously and emotionally, and can affect athletes performance. The popularity of self-talk is because of its association with sport performance. A set of studies indicated that positive self-talk is associated with performance development. A study by Hardy et al., showed that positive self-talk can increase self-confidence and anxiety control [9]. On the other hand, there are some factors, which is believed that may

increase self-confidence and improve sport performance; for example, successful performance, emotional and physiologic arousal, positive emotions, attention and concentration, targeting, and imagination of which sport imagination like physical exercises can establish a model of skills in the central nervous system [10], because imagination is the symbolic review of a physical activity without any clear muscular movement [11]. Nevertheless, neuroscience researches evaluated the activity of brain during the imagination procedure, which may provide useful knowledge about the imagination process [12]. Imagination can be used to learn skills and techniques (specific-cognitive) as well as strategies or tactics (general-cognitive); in addition, it may be employed to manage motivations and emotional excitements [13]. Sport Imagination is a common ability that athletes use at different levels in order to enhance different aspects of their performances such as refining and improvement of skills, regulation of excitements and levels of activation, management of cognitive aspects, and motivators [14]. In other words, Imagination is the visualization or cognitive review of a movement without physical performance. The benefits of sport Imagination are learning the skills, improving the injuries, rehabilitation activities, readiness for the optimal sports performance, and self-confidence increase [15]. It is very important to consider that there is no distance between imagination, and sport performance and self-confidence increase. Both refer to the cognitive processes that people build to judge their ability for the successfully performance of a sport goal [16]. Bases on many benefits of mental skills training on motor function, the question is: "Does targeting, positive self-talking, and imagination practices affect state and trait confidences?"

Since a very few studies were conducted on the effect of mental skills training on state and particularly trait confidence, it is expected that the results of the current study be used as an important cognitive strategy in the promotion of athletes and sport community in different competitions and sport fields.

### Materials and methods

**Participants.** The study population included 100 male adolescent volleyball players from Sarakhs, North Khorasan Province, Iran. A total of 30 individuals from the study population were enrolled in the study using the simple random sampling method and allocated into 2 groups of case and control each with 15 subjects. All subjects and their parents signed the informed consent on the basis of participation in mental skills training program.

**Research Design.** The current quasi-experimental, case-control study was conducted based on a pretest-posttest design. The Ottawa Mental Skills Assessment Tool (OMSAT-3), trait confidence and state confidence questionnaires were used as data collection instruments in the current study. OMSAT was performed to screen subjects before mental skills training intervention; the questionnaire evaluates subjects in 3 cognitive, behavioral, and emotional aspects. The Trait Sport Confidence Inventory was developed to assess how confident athletes

generally feel, when they compete in sport. Items on the inventory ask the participants to compare themselves to the "most confident athlete you know" [17]. The inventory consists of 13 items, with no subscale components, utilizing a 9-point Likert scale anchored by 1 (low) and 9 (high). Trait sport confidence scores are obtained through a mean score or a summed score by adding up scores for the 13 items. Cronbach's alpha coefficient was measured as .93 for the TSCI, with test-retest reliability in two studies of .83 and .86, respectively [17].

Vealey's State Sport Confidence Inventory is a 13 question instrument which measures state sport confidence before sport competition. To aid in the conceptualization of sport-confidence, Vealey perused the literature on self-efficacy, perceived competence, and performance expectancy. Sport-confidence was defined "as the belief or degree of certainty individuals possess about their ability to be successful in sport" [17].

### Exercise program

Psychological skills training involved goal setting, positive self-talk and Imagery and included 24 sessions, each week 3 times and each session 20 minutes. This training has been done before physical and technical training. Experimental group participated both Psychological skills training and physical and technical training but control group only participated in physical and technical training.

### Procedure

Before intervention of Psychological skills training, demographic Questionnaire and Trait Sport Confidence Inventory were distributed among subjects (experimental and control group) around 24 hours before the first competition. State Sport Confidence Inventory (SSCI) were administered among volleyball players in experimental and control group within 30 minutes prior to the start of the competition. After intervention of Psychological skills training, once again volleyball players in both experimental and control group completed Trait Sport Confidence Inventory around 24 hours before the first competition and completed State Sport Confidence Inventory (SSCI) around 30 minutes prior to one of the important competition.

**Statistical Analysis.** The descriptive statistics was used to express frequency, figures, mean, and standard deviation (SD) of the study variables. To indicate differences and analyze mean values of the study variables in both the case and control groups in inferential statistics, the univariate covariance method was used. The Shapiro-Wilk test was used to evaluate the normality of data distribution and the Levene test was performed for the homogeneity of variances. Data analysis was done with SPSS version 16.

### Results

Based on the results of the Shapiro-Wilk test in the current study (Table 1), distribution of data was normal for all variables in both pretest and posttest ( $P < 0.05$ ).

Based on Table 2, the mean scores of state confidence in the control and experimental groups were respectively 74.4 and 74.2 for pretest and 66.80 and 89.90 for posttest.

The mean scores of trait confidence in the control and experimental groups were respectively 66.00 and 66.40 for pretest and 68.50 and 78.80 for posttest.

Based on the results of Table 3, the assumption of variances equality was considered in both the study groups ( $P > 0.05$ ).

According to Table 4, there was a significant difference between the state confidence scores of the experimental and control group in the current study ( $P < 0.05$ ). In other words, mental

skills training significantly improved the state confidence in the experimental group subjects ( $P < 0.05$ ).

Based on Table 5, after the elimination of pretest effects, as an auxiliary random variable, the mean score reduced from 89.93 to 78.40, although the posttest scores differences between the groups was still significant, which

can be attributed to the role of independent variable, mental skills training program, in increasing the state confidence in the case group subjects.

According to Table 6, there was a significant difference in the trait confidence scores between the study groups. In other words, mental skills training program significantly improved trait confidence in the experimental group subjects ( $P < 0.05$ ).

**Table 1.** Result of Shapiro-Wilk test

Group	Variables	Sig.
Control	Pre-test Trait Self Confidence	0.87
	Pre-test State Confidence	0.40
	Post-test Trait Self Confidence	0.50
	Post-test State Confidence	0.17
Experimental	Pre-test Trait Self Confidence	0.46
	Pre-test State Confidence	0.19
	Post-test Trait Self Confidence	0.73
	Post-test State Confidence	0.90

**Table 2.** The mean scores of state confidence in the control and experimental groups

Variables	Control Group(15)		Experimental Group(15)	
	Pre-test	Post-test	Pre-test	Post-test
State Self Confidence	74.40±10.60	66.80 ±10.10	74.20 ± 11.10	89.90 ± 13.10
Trait Self Confidence	66.00 ±7.80	68.50 ± 9.10	66.40 ± 7.30	78.80 ± 6.60

**Table 3.** Levene's test for variances homogeneity

Dependent variables	Levene's Statistic	Sign.
State Self Confidence	0.002	0.96
Trait Self Confidence	2.81	0.10

**Table 4.** Results of Covariance Analysis to Compare State Confidence Changes between the Study Groups

Source Changes	Sum Squares	Degree of freedom	Mean Squares	F	Sign.
State Self Confidence	856.73	1	856.73	7.71	0.01*
Group(Independent Variable)	4025.38	1	4025.38	36.22	0.00*
Error Variance	2999.93	27	111.109	-	-
Sum	192244.00	30	-	-	-

**Table 5.** Adjusted Mean after Eliminating the Effect of Pretest

Mean	Mean Standard Error	Confidence Interval	
		Lower Bound	Upper Bound
78.40	1.92	74.45	82.34

**Table 6.** Results of Covariance Analysis to Compare State Confidence Changes between the Study Groups

Source Changes	Sum Squares	Degree of freedom	Mean Squares	F	Sign.
Trait Self Confidence	31.48	1	31.48	0.480	0.49
Group(Independent Variable)	779.73	1	779.73	11.89	0.02*
Error Variance	1770.65	27	65.58	-	-
Sum	165396	30	-	-	-

**Table 7.** Adjusted Mean after Eliminating the Effect of Pretest

Mean	Mean Standard Error	Confidence Interval	
		Lower Bound	Upper Bound
73.66	1.47	70.63	67.70

Based on Table 7, after the elimination of pretest effect, as an auxiliary random variable, the mean score reduced from 78.80 to 73.66, although the posttest scores differences between the groups was still significant, which can be attributed to the role of independent variable, mental skills training program, in increasing the trait confidence in the experimental group subjects.

**Discussion**

Results of posttest analysis of covariance (ANCOVA) showed a significant difference in state confidence between case and control groups, which indicate the effect of physical and mental skills training on state confidence in the case group subjects; the results of the current study were in agreement with those of Abdoli et al., since due to the nature of volleyball, adolescent volleyball players encounter stressful situations during the game in which should respond them with strategies and skills; hence, their state confidence is improved. In fact, in sport achievements, skills and skillful performance can improve self-confidence in athletes [18].

Results of a study by Fulghan et al., showed that the mental skill training programme consisting imagination and targeting improved self-confidence and attitude of athletes; the results were consistent with those of the current study [5]. In addition, Hossinian indicated in his study that mental skills training programme, particularly positive self-talk training, had positive impacts on the reduction of social skills (performance phobia, social phobia, and performance avoidance), which improved self-confidence that was in adverse relationship with anxiety. It seems that the lower the anxiety, the higher the self-esteem [19].

A better explanation is that mental skills can improve focusing, attention, attention management, mental performance, and increase decision-making power, which in turn the athlete feels less anxiety and emotion; the conclusion was in agreement with those of Weinberg and Gould as well as Hatzigeorgiadis in a study on the motivational impact of self-talk on self-confidence, anxiety, and performance of juvenile and adult male athletes [5,20]. Results of the mentioned studies showed that the mental training package (imagination and self-talk) has more positive results and leads to the centralization of attention and changing attitudes in athletes; in addition, it controls the situation of trainee after the intervention and can increase self-confidence, manage emotions, and reduce cognitive anxiety in the trainee. Most of the psychological interventions deal with targeting; it is noteworthy that most of the psychological interventions applied to the US Olympic athletes dealt with targeting [21].

All in all, based on the results of different studies it can be concluded that state confidence is under the influence of different factors as well as a set of mental skills that affect the attitude of athletes, control of feelings, improvement of self-control, etc. in addition, it seems that relaxation let the athletes to learn stress coping strategies and control and maintain their confidence under stressful conditions. Hence, it is reasonable that such factors along skills and technical excellences, sport achievements, spending a lot of hours to exercise, the quality of exercise, or successful exercises can significantly affect the state confidence of athletes in tournaments and even cause fluctuation around their state confidence. In fact, sport state-confidence is the belief or a degree of certainty of a person in a special moment about his/her ability to success in sports. Hence, self-confidence fluctuations cause appropriate or inappropriate performance in sports. Higher degrees of state confidence may reduce anxiety in athletes and improve their performances.

The second objective of the current study was to evaluate the effect of mental skills trainings on trait confidence in male adolescent volleyball players. In this regard, results of ANCOVA posttest indicated a significant increase in the level of trait confidence in the case group than the control group. In other words, physical and mental skills trainings significantly increased trait confidence of male adolescent volleyball players. Results of the current study was consistent with those of Wilson et al., that considered focus on task, mastery of skills, new skill improvement, focus on the goal, mental and physical readiness, ability display, and social support as the factors and sources of self-confidence increase. Experimental researches also showed that promotion and creation of self-confidence improves the performance; the evidence not observed in the control groups. It seems that athletes with higher degrees of confidence show more interest to hard tasks. Athletes with adequate self-confidence and -control usually have positive self-expectations, which in turn increases their ability to deal with stressful factors [22]. Results of the current study were also in agreement with those of Krane and Williams; they showed in a study that athletes with more success also have higher self-confidence, self-regulation, self-arousal, better focus, controlled but not coerced attitude, positive thoughts and imaginations, and more wills and commitments. In other words, self-confidence relatively comes from personal features and different factors such as type of sport and personal features significantly affect self-confidence and the way of dealing with anxiety. In agreement with the results of a study entitled “Comparison of Trait and State Anxiety with Self-confidence in Male Athletes”, controversies over inheritance and environment as the

factors affecting mental health still remain in place; anxiety and self-confidence as 2 mental factors affecting athletes' performance are under the influence of different factors [23]. Since the level of state confidence depends on trait confidence and competitive orientation and as state confidence significantly increased after mental skills training interventions, the significant increase of trait confidence after mental skills training intervention is reasonable. In the current study, subjects attended a 24-session training course of targeting, positive self-talk, and imagination and it seems that the acquired skills could change their attitude and improve positive psychological factors as well as trait and state confidences.

## Conclusion

Based on the results of the current study, acceptable levels of trait and state self-confidence play an important role in the success of athletes. Since mental skills training program, particularly targeting, positive self-talk, and imagination, had significant positive effects on trait and state confidence of male adolescent volleyball players in the current study, it is suggested to include such training and practicing programs along physical and skills practices on the agenda of sport coaches to create the degree of self-confidence necessary for peak performance.

## Conflict of interest

The authors declare that there is no conflict of interest.

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