

Effects of Psychological Training on Mental Skills with Female Basketball Players

Hassan GharayaghZandi¹, Najmeh Reza Soltani²,
MehrdadKamandani³

1-Assitant professor of Tehran University

2-Master of sport psychology of Tehran University

3-Master of sport psychology of Tehran University

Abstract: *The purpose of this study was to examine the effect of a psychological skills training program on psychological skills of female basketball players. These psychological skills consisted of imagery, relaxation, focusing, refocusing, goal setting, competition planning, fear control, and stress reactions. The sample consisted of 12 semi-elite female basketball players from Nasr team in Tehran city that purposely were selected in 2014 (with the mean age of 23/58± 1/67 years old). All Subjects completed the OMSAT-3 questionnaire that has been confirmed by SanatyMonfared& et al. (2006) in Iran. After giving pre-test, the subjects divided in two experimental and control group, and then 12-weeks interventions (including, imagery, relaxation, goal setting, self-talk, and focus training) were done. After 12 weeks, the subjects of two groups completed the OMSAT-3 questionnaire for post-test. Then, the data were analyzed with descriptive and inferential statistics methods. The result of dependent t-test for comparing the pre-test and post-test scores showed that there is a significant difference between scores of pre- and post-test of experimental group ($t=4/98, p<0/01$). As a result, it is concluded that, these interventions have positive effects on subscales of foundation skills, psycho-somatic skills, and cognitive skills from pre-test to post-test for experimental group versus control group.*

Key words: *Psychological skills, Mental training, Imagery, Goal setting, OMSAT-3 Questionnaire, Basketball*

I. Introduction

Today sport psychology is one of the psychological issues which are interesting for more researchers as well. Psychology and sport had close relations with each other in research fields from 1920 (Gould & Pick). In fact, one of the important dimensions of scientific sport is sport psychology. There is a reduction in the interval between sports heroes into a few milliseconds and millimeter. It seems that today any differences of sport heroes are related to their mental readiness more than before. (Hadi, 2002)

There are different definitions for sport psychology. But according to the most integrated definition it is obvious that scientific study of people and their behaviors are practical application of this knowledge in the field of sports and training. (Gill, 2008). Upon any progress of sport psychology, the important concept is mental skills in performing sport skills. The real concept was fitness of athletes while today mental preparation is really important for sport psychologists, trainers and athletes. (Halvari&Thomassen, 1997). Today there is a considerable progress in functions of professional & Olympic athletes. (Taghian, 2001, Williams & Krane, 2001). Mental training is so much important in psychology. Sport psychologists use various methods such as Relaxation, Imagery, Goal-setting, Self-Talk and Concentration in mental training process. (Smith, Wright & Cantwell).

According to the most researches, it is obvious that those athletes using mental skills have better concentration and higher self-confidence. Furthermore there is an increase in their mental efficacy with little stresses and more successful functions. They have better positive thinking power and make better decisions than other athletes. (Weinberg & Gould, 2011). According to the current votes out of researches, it is obvious that athletic functions may change into some disorders due to distraction of athletes. It is believed that distraction is disordered with lack of concentration in athletes and may cause some negative mental responses.

Therefore the result is wasting of their mental energy. Mental energy is one of the major necessary elements for more concentration in a successful athlete and maintenance of positive mental attitudes. A successful athlete is able to keep its bodily energy through effective concentration and useful techniques. (Hammer et al. 2008)

Some researchers have presented various advantages of combining mental skills training for sport programs of adolescences in the field of stress (Hanton& Jones, 1999) and also psychological characteristics for further functions (Gould, Dieffenbach& Moffett, 2002). There are various involvement techniques within recent two decades for assisting athletes to promote their mental skills and upgrade their functions. (Weinberg &

Williams, 2001). Also it is effective to apply a combination of interventional techniques. For instance, it has been approved in tennis (Daw& Burton, 1994), Cricket (Spittle & Morris, 1997) and Gymnastic (Kazemi, Khabiri and Farokhi, 2003).

Fulgham (1999) has evaluated any usefulness of mental skills trainings (Goal-making &Imagery) on high school athletes. For this purpose, about 11 participants of volleyball were divided into two groups of controls and experimental one. According to the results, it is obvious that imagery and goal-making have significant effects on efficacy of coaches, self-confidence of participants and their attitudes. Nies et al. (1999) compared mental skills (goal –making, positive self-talk and music for mental synergy) on 147 swimmers (105 fast swimmers and 42 endurance swimmers) by the use of a researcher-questionnaire. According to the results, there is not a significant difference between fast & endurance swimmers in benefiting from mental skills. Both groups use enough skills for this purpose. As a result, it is necessary to encourage athletes to increase their sport operations through mental skills. (Fulgham, 1999).

As one of the most common recognition guidelines, self-talk(Edwards et al., 2008) is pointing out to hidden or obvious talks of athletes. It seems that self-talk includes both tools and motivation applications. (Hardy et al. 2004).Motivated self-talk means stating some sentences through enrichment of self-confidence and energy consumption, more efforts and return back of positive mode. On the other hand, self-talk is a tool for making various movements through concentration on technical and applicable aspects of moving skills. (Theodorakis et al. 2000).

Experimental supports are approved for clarifying the value of psychological training. For instance Wanlin& et al. (1997) found out that goal-making by skaters in an age range of 12 to 17 years have resulted in an increase in skate exercises with a reduction in disorder behaviors. (Wanlin et al. 2000).

According to the supporting evidences and with regard to the importance of mental and psychological skills and their effects on mental training of athletes and also lack of Iranian researches in this field, the real purpose of this research is to find out any effects of mental skills and required interactions and comparing them from pre-test to after-test in a female basketball players group. Therefore researchers are intending to find an answer to this question that: What is the effect of 12-weeks psychological interactions on upgrading of basic psychological, physical-mental and recognizing skills of basketball players?

II. Research Method

The research method is semi-experimental with a pre-test and after test plan and both control & test groups. The sample population includes 12 female basketball players and members of Nasr Tehran Club (with an average age of 23.58 ± 1.67). Basketball players had equal averages and equal level of mental skills. Therefore they were distributed randomly in two control & test groups.

OMSAT-3 was a research tool presented by Bosh &Salmela in 2001 (Internal fitness with Chronbach's alpha between 0.68 to 0.88 and inter-classic reliability of 0.78 to 0.96). The mentioned questionnaire could measure 12 mental skills in 3 groups of basic mental skills, mental-bodily skills and recognition skills. Reliability and validity of Persian copy of this questionnaire was evaluated by ShamsiSanatiMonfared in 2006 on 333 athletes of national Iranian clubs. The internal fitness of this questionnaire was 0.37 to 0.71 according to Chronbach's alpha with a reliability of 0.64 to 0.91. According to the findings of Boota&Orlik findings about 3 skills of self-confidence, goal-making and obligations have been classified under the title of basic mental skills. Four skills of reaction to stress, fear control, relaxation and enforcement are included in mental-bodily skills. But concentration, focus training, imagery, mental training and match plan are included in the group of recognizing skills. There are 7 Likert value criteria in this questionnaire for grading as follows: Completely disagree, Disagree, Somewhat disagree, No idea, somewhat agree, Agree and completely agree. The grades are 1 to 7. Of course only four factors find grades conversely such as reaction to stress, stress control, concentration and recycling focus. As a result, the highest grade of questions is 7 and total grade out of 12 mental skills is 28 accordingly.

Upon the presence of second author in exercising and playing sessions of team members, firstly all basketball players received the above-mentioned questionnaires. Then it was possible to analyze crude information by the use of descriptive statistics. Then necessary interactions were applied including imagery, self-talk, relaxation, focus training and refocusing, goal –making and relevant exercises of match plan on control group. That was based upon personal differences and on personal/group forms. Tables 1 & 2 illustrates two samples of training program. After 12 weeks, both groups were evaluated by OMSAT-3 questionnaire. The results were analyzed by conceptual and descriptive method with further comparisons with pre-test factors.

III. Findings

All data were analyzed by the use of descriptive and conceptual statistics. Table 3 illustrates the average and deviation of grades in both control and experiment groups in sub-criteria of OMSAT-3 questionnaire.

Table 1: Daily exercises program of control group

Location: Tehran Nasr Club		Day: Sunday	Time: 15-17	Comments
Introduction	-Review of monthly +Weekly+ Daily goals	5 minutes	lying down or sitting position	
	-Concentration exercise, by Biofeedback (Counting 5*30 seconds Exhale=1)	Inhale &		
	Of heart pulses + Respiratory			
	-Imagery of playing condition by focusing on goal	5 minutes	lying down	
Major part belongs to	Basketball exercises with coach	benefiting from 20	Speech time	
		Positive internal talks athlete		
		At different playing		
		Conditions (20*ST)		
Final part	Relaxation exercises with quiet music	10 minutes	lying down	

Table 2: Daily exercises program of test group

Location: Tehran Nasr Club		Day: Tuesday	Time: 15-17	Comments
Type of exercise	Imagery	Free shoots	External imagery	free shoots internal imagery & free shoot
	PETTLEP		External	

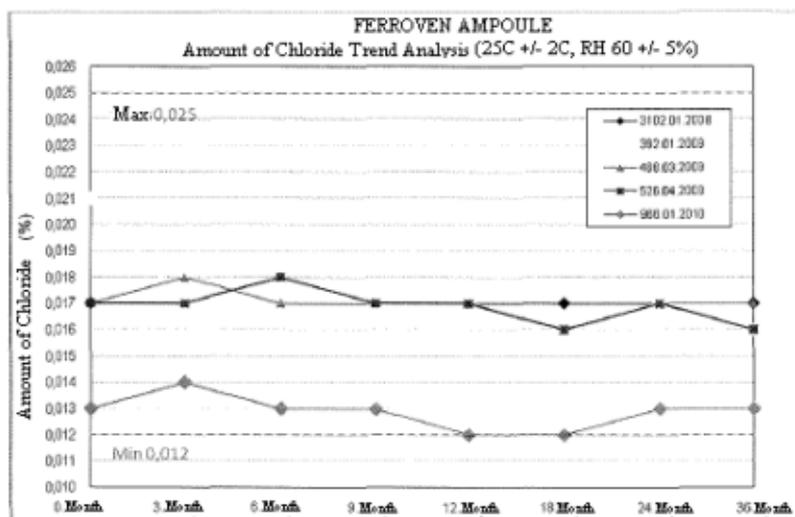


Diagram 1- Comparison of pre-test & after-test averages of both control & test groups

Diagram 1 illustrates a comparison of pre-test and after-test of general average of both control and test groups. For better evaluation of parametric statistics, K-S test was applied in this research. Regarding normal distribution of data, t test was used for comparing of pre-test and after tests grades in experimental group. Also after applying of F Lewin, we used independent t test for comparing of control and experimental groups.

Table 4- Cointegrated t-test for comparing pre-test & after-test grades of experimental group

Group	Test	Mean	Standard Deviation	Freedom degree	t	Significant level
Experimental	Pre-test	19.36	3.22	5	(4.98) [*]	0.001
	After-test	21.75	2.62			

Table 5- Independent t-test for comparing after-test grades of experimental & control groups

Group	Mean	Standard Deviation	Freedom degree	t	Significant level
Experimental	21.75	1.53	10	(0.20)	0.001
Control	21.16	2.62	10		

*p<0.01

IV. Conclusion

The major goal of this research is to find out any effects of psychological interactions on mental training of a female group of basketball players. Also it has been intended to compare these effects on their mental skills. They made considerable progress in various skills including self-confidence, goal-making, relaxation, focusing, imagery, mental training and match plan after some psychological skills within 12 weeks and according to the obtained measures.

According to the classification of psychological skills in third version of OMSAT-3, about 3 skills of self-confidence, goal-making and obligations were classified under the title of basic mental skills. Also we put four skills of stress reaction, fear control, relaxation and empowering in the class of mental-bodily skills. Also we have focusing, imagery, mental training and match plan included in recognition skills group.

As it is obvious in table 3 and diagram 1, mental-bodily skills like relaxation, stress reaction, fear control and empowerment and mental skills like focusing, focus training, imagery, mental training and match plan are included in test group than control one. The differences of pre-test and after-test means in control group is more than test group. Also according to the results of integrated t test for comparing the grades of pre-test and after-test grades in experimental group, it is understood there is a significant difference between pre-test and after test of experimental group (p<0.01). Therefore the findings of the present research may support the same in previous researches by Fulgham (1999), Nies et al. (1999), Triman&Triman (2004) about the effects of mental training on operational & recognition skills. The results of independent t test illustrate that there is not a significant difference between after-test grades of control & experimental groups (p<0.01).

Such a lack of significant relationship is due to an average difference between control & experimental groups because higher average rate of control group in mental-physical skills in after-tests means higher average difference in grades of pre and after tests in experimental group. This means profitable interactions as well.

According to diagram 1 there is an increase in goal-making quantities including basic mental skills from pre-test to after-test. Goal-making has positive effects on psychological / operational skills and goals as it was stated by Wanlin et al. (1977). As a result, it is in compliance with findings of other researchers like Wanlin et al. (1977), Jang et al. (1992) and Fornis et al. (2005). Self-confidence is also another basic mental skill which has been promoted as a result of interactions. As it was illustrated by Willy et al. (1998), high level of self-confidence is related with mental/bodily preparation. By applying of interaction in this research there was considerable changes in stress reaction from pre-test to after test as well. Meanwhile, there was any change in control group. In spite of higher rate of control group in this parameter, but in case of considering mean different of inter-groups, the obtained results are in compliance with the same by Rotlaw& Learner (1993) and in contrast with the same by Fornier, Durand Bosh and Salmena (2005). Also relaxation training is effective on increase of athletes' skill. As it is obvious, other parameters of mental-bodily parameters are under the effects of stress reaction, fear control and enrichment as well. Therefore the mentioned results are in compliance with the findings of other researches (Sadfield&Brono, 1990 Minard, Varoik-Ivans and Smith, 1995)). Since there was specific focus on concentration and focus training, it is obvious that both parameters are modified as well. As a result, this finding is in compliance with the findings of previous researches (Molt &&Hanrahan, 1997, Masters &Agless, 1992, Koocher, Jroomi and Taihani, 1992). As a result, concentration is one of the critical elements in any interfere of mental skills.

Self-talk is a common recognizing guideline with a positive role in promotion of other parameters. Self-talk in this research is mostly for enrichment of self-confidence and energy consumption, increasing the endeavors and return back of positive modes. In spite this, basketball players of testing group experienced instrumental self-talk. As it is obvious, self-talk is effective on self-confidence, concentration and stress reaction. As a result, the effects of self-talk in this research is similar to the same in previous ones (Theodorakis et al., 2000, HatzJeorgiadis et al, 2004, 2009, Goodis et al. 2006, Kolvelonis et al. 2010). There is also some progress in match plan skills. Test group had a considerable progress in this field after the tests with tangible changes in means. Also it was observed by Melt &Hanrahan (1997) in their research.

Regarding the useful obtained results, it is obvious that the present research may enable the coaches, sport psychologists and athletes to make more knowledge about designing and performing mental training programs and make it possible to have more mental preparation due to considerable effects of these trainings. As a result, it is better to encourage athletes to increase their sport operation through mental skills. According to the above-mentioned results, any harmonization between training and exercises of mental skills make better personal / group performances as well. As a result, it is possible to increase their mental preparation and better functions by evaluation the mental skills of them and benefiting from mental trainings.

References

- [1]. Taghian, Farzaneh (2001), "Comparing any mental skills of professional & non-professional volleyball players", Master of Science thesis in Physical Education, TarbiatModarres University, Tehran
- [2]. SanatiMonfared, Shamsi. (2006), Reliability of OMSAT-3 questionnaire and any effects of mental readiness effects on mental skills of participants in Doha Asian Matches, 2006, Research Plan at National Olympic Psychological- Academic Center.
- [3]. Hadi, A (2002), "Comparing any mental skills of professional players in selected sport fields for participation in matches at Boys' High Schools throughout the country, "Master of Science Thesis, TarbiatModarres University", Tehran
- [4]. Couture, R T , Jerome, W , &Tihanyi, J. (1999) Can associative and dissociative strategies affect the swimming performance of recreational swimmers? *The Sport Psychologist*, 13, 334-343.
- [5]. Daw, J., & Burton, D. (1994). Evaluation of a comprehensive psychological skillstraining program for collegiate tennis players. *The Sport Psychologist*, 8, 37-57.
- [6]. Edwards, C., Tod, D., &McGuigan, M. (2008). Self-talk influences vertical jumppformance and kinematics in male rugbyunion players. *Journal of sports Sciences*, 26(13), 1459-1465.
- [7]. Fulgham. A. (1999). Implementing a psychological skills training program in high school volleyball athletes. Department of psychology sweet Briar collage. P: 80-98.
- [8]. Fournier, J. F., Calmels, C., Durand-Bush, N., &Salmela, J. H. (2005). Effects of a season-long PST program on gymnastic performance and on psychological skill development. *International Journal of Sport and Exercise Psychology*, 3, 59-77.
- [9]. Gill, Diane L. (2008). *Psychological dynamics of sport and exercise*. (3rd ed). Diane L. Gill, Lavon Williams. Leeds: Human Kinetics.
- [10]. Goudas, M., Hatzidimitrou, V., &Kikidi, M. (2006). The effects of self-talk on throwing and jumping events performance. *Hellenic Journal of Psychology*, 3(2), 105-116.
- [11]. Gould, D., Dieffenbachia, K., & Moffett, A. (2002). Psychological characteristics and their development in Olympic champions. *Journal of Applied Sport Psychology*, 14, 172-204.
- [12]. Gould, D., & Pick, S. (1995). Sport psychology: The Griffith era, 1920- 1940. *The Sport Psychologist*, 9, 391-405.
- [13]. Halvari, H., & T.O. Thomason (1997). "Achievement Motivation, Sports Related Future Orientation and Sporting Career". *Genetic, Social and General Psychology Monographs*, 123(3), 343.
- [14]. Hammer, M., Stamatakis, E, & Steptoe, A.(2008). Dose response relationship between physical activity and mental health; *The Scottish Health Survey*, Br J Sports Med. Published Online First, doi; 10. 1136.
- [15]. Hanton, S., & Jones, G. (1999). The acquisition and development of cognitive skills and strategies: I Making the butterflies fly in formation. *The Sport Psychologist*, 13, 1-21.
- [16]. Hardy, J., Hall, C. R., & Hardy, L. (2004). A note on athletes' use of self-talk. *Journal of Applied Sport Psychology*, 16(3), 251-257.
- [17]. Hatzigeorgiadis, A., Theodorakis, Y., &Zourbanos, N. (2004). Self-talk in the swimming pool: The effects of self-talk on thought content and Performance on water polo tasks. *Journal of Applied Sport Psychology*, 16(2), 138-150
- [18]. Hatzigeorgiadis, A., Zourbanos, N., Mpoumpaki, S., &Theodorakis, Y. (2009). Mechanisms underlying the self talkperformance relationship: the effects of motivational self-talk on self-confidence and anxiety. *Psychology of Sport and Exercise*, 10(1), 186-192.
- [19]. Kazemi, R. M., Khaberi, M., &Farokhi, A. (2003, November). The effect of mental straining on the performance of elite gymnasts. In Y L Hanin (Chair). Oral presentations.Symposium conducted at the meeting of the 2nd International Congress on Psychology Applied to Sport, Madrid, Spain.
- [20]. Kolovelonis, A., Goudas, M., &Dermitzaki, I. (2011). The effects of Instructional and Motivational Self-Talk on Students' Motor Task Performance in Physical Education. *Psychology of Sport and Exercise*, 12(2), 153-158.
- [21]. Mallett, C. J., &Hanrahan, S. J. (1997). Race modeling: An effective cognitive strategy for the 100m sprinter? *The Sport Psychologist*, 11, 72-85.
- [22]. Masters, K. S., & Ogles, B. M. (1998). Associative and dissociative cognitive strategies in exercise and running: 20 years later, what do we know? *The Sport Psychologist*, 12,253-270.
- [23]. Maynard, I. W., Warwick-Evans, L., &Smith, M. J. (1995). The effects of acognitive intervention strategy on competitive state anxiety and performance in semiprofessional soccer players.*Journal of Sport and Exercise Psychology*, 17, 428-446.
- [24]. Rotella, R.J., & Lerner, J.D. (1993). Responding to competitive pressure. In R.N. Singer, M. Murphey, & L.K. Tennant (Eds.), *Handbook of research on sport psychology* (pp. 528-541). New York: Macmillan.
- [25]. Smith, D., Wright, C., & Cantwell, C. (2008). "Beating the bunker: The effect ofPETTLEP imagery on golf bunker shot performance". *Research Quarterly for Exercise and Sport*, 79 (3), PP: 385-391.
- [26]. Spittle, M., &Morris, T. (1997). Concentration Skills for Cricket Bowlers.
- [27]. *Sports Coach*, 20 (2), 32 Summary and Journal Documentation Service No. 97/06/027 for full paper.
- [28]. Suedfeld, P, & Bruno, T. (1990). Flotation REST and imageryin the improvement of athletic performance. *Journal of Sport and Exercise Psychology*, 12, 82-85.
- [29]. Theodorakis, Y., Weinberg, R., Natsis, P., Douma, I., &Kazakas, P. (2000). The effects of motivational versus instructional self-talk on improving motor performance. *Sport Psychologist*, 14(3), 253-271.
- [30]. Tremayne, P ,&Tremayne, B. (2004). Children and sport psychology. In T Morris & J Summers (Eds), *Sport psychology: Theory, applications and issues* (2nd ed, pp 529-546) Milton, Queensland, Australia, Wiley.
- [31]. Vealey, R. S., Armstrong, L., Comar, W., & Greenleaf, C. A. (1998). Influence of perceived coaching behaviors on burnoutand competitive anxiety in female college athletes. *Journal of Applied Sport Psychology*, 10, 297-318.
- [32]. Wanlin, C. M., Hrycaiko, D. W., Martin, G. L., & Mahon, M. (1997). The effects of a goal-setting package on the performance of speed skaters. *Journal of Applied Sport Psychology*, 9, 212-228
- [33]. Weinberg, R. S., & Gould, D. (2011).*Foundations of Sport and Exercise Psychology* (5th ed),Champaign. IL: HumanKinetics.
- [34]. Weinberg, R. S., & Williams, J. M. (2001). Integrating and implementing a psychological skills training program. In J M Williams (Ed), *Applied sport psychology: Personal growth to peak performance* (4th ed, pp 347-377). Mountain View, CA: Mayfield.
- [35]. Williams, J. M., &Krane, V. (2001). Psychological characteristics of peak performance. In J. M. Williams (Ed), *Applied sport psychology: Personal growth to peak performance* (6th ed, pp. 162-178). Mountain View, CA: Mayfield.
- [36]. Zhang, L-W , Ma, Q-W , Orlick, T , &Zitzelsberger, L. (1992). The effect of mental imagery training on performance enhancement with 7-10 year-old children.