ORIGINAL ARTICLE

The effects of Mindfulness-Based Cognitive Therapy (MBCT) on cognitive skills in young soccer players

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Abstract

The aim of this study was to examine the effect of Mindfulness-Based Cognitive Therapy training on mental skills of young soccer players. For this purpose, 30 soccer players were assigned to an experimental group of 15 players (intervention based on Mindfulness) and control group of 15 players that participations' age ranged from 17 to 20 years old in provincial competitions in the year 2017-18. Athletes in the experimental group participated in MBCT course over eight weekly sessions of 2 h each. The control group did not receive any intervention. Before and after interventions Ottawa mental skills assessment tool questionnaire (Omsat-3) were used to collect data. The results of MANOVA showed that significant improvement in all sub-scales scores; Focusing (P=0.001), Refocusing (P=0.001), Imagery (P=0.001), Mental practice (P=0.001), and Competition planning (P=0.001) in the experimental group than control group. According to these findings, we concluded that Mindfulness-Based Cognitive Therapy training is appropriate to improve the level of cognitive skills of soccer players.

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Keywords mindfulness • cognitive skills • Ottawa mental skills assessment tool actions • soccer players.

Introduction

Professional athletes are usually motivated to perform at an optimal level in order to have a clear mind and only that take the move in the moment. Although this process seems simple, but athletes often need to skillfully control their minds to succeed. Practicing mindfulness techniques can be a way through which athletes can fight the effects of damage and distractions in exercise. In particular, mindfulness may be a way to help athletes to know more about external and internal stimuli, and to allow interventions that accompany their performance do not respond. Modern approaches to studying mindfulness are rooted in Eastern philosophy and psychology of consciousness.

A mindfulness exercise approach was introduced in the 1970s by Kabat-Zinn after establishing a stress relief clinic at the Massachusetts Medical Center. Mindfulness is a way to pay close attention to the experiences of the present moment in the instantaneous form. Concurrent research has been considered, so that it has been used in the study of mindfulness and interdisciplinary interventions in a variety of clinical and normative populations. Over the past forty years, mindfulness in the field of clinical psychology has been developed, along with initial interventions focused on the practice of traditional meditation mentality (Kabat-Zinn, 2005). Mindfulness provides a special quality of conscio-

usness that is guided by satisfaction (Brown & Ryan, 2003). An ordinary description, entitled "Awareness through consideration of the goal, is at the present moment and without judgment for the experience of detection" (Kabat-Zinn, 2003). Intervention of mindfulness exercises can be formulated in a wide range of studies, such as those with chronic stress and chronic pain (Kabat-Zinn, Lipworth, & Burney, 1985), depression (Eberth & Sedlmeier, 2012; Khoury et al., 2013; Zeidan, Grant, Brown, McHaffie, & Coghill, 2012) and Anxiety (Roemer, Orsillo, & Salters-Pedneault, 2008). Insomnia (Garcia, Kozasa, Tufik, Mello, & Hachul, 2018) practical obsessions (Baltzell & Akhtar, 2014). This kind of intervention has focused on shaping individual attention for the momentary experience and commitment in consciousness without external and internal judgment and physical experiences at the moment (Kabat-Zinn, 2005), in order to develop a new and neutral way towards thoughts, feelings and difficult emotions (Bernier, Thienot, Codron, & Fournier, 2009). In general, the mindfulness strategy to raise awareness of people's engagement without judging, internal experiences that occur at any moment, such as physical emotions, cognition, and excitements and environmental stimuli, including sight and sound, have reported (Baer, 2003; Birrer, Röthlin, & Morgan, 2012).

According to the relationship between mindfulness and other traditionally measured exercise skills, Kee and Wang (2008) find a relationship between tendency to have mindfulness and the use of more attention control, emotional control and self-control in the athlete's student population. Bernier et al. (2009) demonstrated the effect of the intervention on the basis of mindfulness on the activation of skills, which was promoted as "a process whereby individuals raised their physiological and mental states to concentrate on situations where energy was needed to increase their motivation" were defined in the elite young golfers. In addition, similar studies have also added an increase in golfers' advance performance periods as they showed that they are more closely related to the exterior and interior data before their shoot (Durand-Bush, Salmela, & Green-Demers, 2001).

Mindfulness has important implications for sports psychology. This new intervention has been developed in applied psychology over the past ten years, and has recently focused on the center of mindfulness interventions and performance enhancement among athletes. At present, theoretically, interventions are in the middle of the psychology of sports literature. In the review of the history of recent literature, the study of mindfulness interventions in sports psychology studies concluded that a strong theoretical foundation and empirical support were obtained (Gardner & Moore, 2012). Mindfulness focuses on improving the performance of psychological skills training at attention and optimal performance (Moore, 2009). An increasing number of studies have shown the empirical evidences of this intervention in sport, which are discussed below.

By developing an intervention called mindfulness acceptance commitment, Gardner and Moore (2004) introduced the first research in sports psychology to introduce mindfulness as a way to increase exercise performance. Moazam (2015) during a research showed that mindfulness exercises can be effective in enhancing free throwing skills. Nabilpour and Aghababa (2015) found a significant relationship between mental toughness and some subscales of mindfulness and physiological profiles among young soccer players. In another research, Zadkhosh, Gharayagh Zandi, and Hemayattalab (2018) indicated that neurofeedback and mindfulness exercises reducing anxiety and increasing the performance of athletes.

In general, research on mindfulness and sports is in the early stages. Today there are empirical evidence that mindfulness may affect performance (Gardner & Moore, 2012). In addition, there is no evidence that professional athletes use their own mindfulness processes, and there is no data to explain how it is optimal for athletes to use mindfulness processes.

Considering the many studies that have been done on the effect of psychological training on athletes, studies show this point that athletes need more training in their cognitive skills than other skills (Vaez Mousavi, Shams, Bahrami, Farsi, & Abdoli, 2015). On the other hand, studies on mindfulness interventions show the effect of these exercises on the cognitive dimension of individuals. In addition, quantitative studies have been done on the effect of mindfulness exercises on athletes, and considering the effect of mental fitness on the performance and performance of athletes, and since dynamics and presence at the moment are an important factor in controlling competition and achieving the desired outcome at the end of a race. Therefore, the present study aims to investigate the effect of mindfulness training on the cognitive skills components of young soccer players. The question expressed in this study

is whether mindfulness trainings can increase cognitive skills level of soccer players?

Method

The present study is a quasi-experimental study. The statistical sample of this study was 30 soccer players of Sari city with age range of 17 to 20 years old in provincial competitions in the year 2017-18 (who exercise soccer at least 3 years). Samples were randomly divided into two groups of 15 (experimental and control). The experimental group was trained by mindfulness based cognitive therapy trainings and no training was provided to the control group. A questionnaire for assessing mental skills of athletes (Omsat -3) was used to collect information. The number of mindfulness training sessions was eight sessions (weekly one session) and each session was two hours (Segal, Williams, & Teasdale, 2018).

A mindfulness-based cognitive therapy training program is a group intervention that takes place in groups of 9 to 31 people practicing meditation in the mind through a course of weekly classes within eight weeks. During these eight weeks, there are weekly meetings that take two hours. Nonetheless, most treatment efforts are carried out outside the sessions, where clients try to use guided meditation and develop awareness of daily life. While this meditation takes place in mindfulness training 15 to 30 minutes. The most used informal meditation is a three-minute breathing space that lasts only 3 minutes and can be reduced to one minute in an emergency. What is needed for meditation is patience, endurance, and commitment. Meditations are not complex and in their accomplishment is not a question of success or failure (Williams & Penman, 2011). Through mindfulness actions, participants learn to clearly see patterns of mind and recognize when their mood begins to collapse, without adding to the problem or trying to prevent painful thoughts and feelings. Participants create the capacity to provide unpleasant feelings, thoughts and feelings, and they are able to communicate with them without feeling that they should suppress, flee or fight with them. They learn to communicate with the moment, without looking into the past or worrying about the future. The follow-up process was conducted as follows (Teimouri, Ramazani, & Mahjoob, 2015).

Session 1: Automatic pilot

At first, the mindfulness Group had an initial acquaintance with the intervener and his colleagues. The meeting was briefed on the upcoming program for members. Explained about the practice of traditional mindfulness meditation. Then, in relation to the cognitive errors, an explanation was made and then eating a raisin with mindfulness training took place. The meeting outlined the goals and expectations of members for the program. Teaching and practicing body scan meditation. The practice of home was presented, i.e. body scan meditation and eating with mindfulness.

Session 2: Removing obstacles

The meeting began with a review of the previous session assignments and the obstacles to its implementation and explanations to overcome the barriers. The continuation of cognitive errors was then followed by body scan and breathing mindfulness meditation exercises. As a homework, body scan meditation examination and three-minute breathing, along with mindfulness and focus on continuous daily activities such as brushing with attention and focus.

Session 3: Breathing with Mindfulness (physical movements using this technique)

The content of the third session was motor exercises with mindfulness; therefore, the session was initiated with ten minutes breathing, followed by sitting meditation and members discovered their wandering thoughts through body scan and breathing meditation. Then it was discussed about the pleasant experiences of the day. Training and practice walking with mindfulness.

Session 4: Stay at the moment

In the content of this meeting was staying at the moment. The session began with body scan meditation. Then 5 minutes to see or hear with mindfulness (consciousness of breathing, organs, sounds, thoughts and informed choices), and discovering unpleasant experiences as well as recording pleasant and unpleasant events. Then, the three-minute breathing exercise took place when we were having difficulty feeling. As a homework was presented breathing meditation with mindfulness and mindfulness walking.

Session 5: Allowing and Accepting

The fifth session began with the acceptance and allowing of sitting with meditation. Then three minutes breathing was done and problem-solving skills were taught as follows: 1. Correct approach to problem; 2. The exact definition of the problem; 3. Get multiple solutions; 4. Evaluate the solutions

obtained; 5. Develop a practical plan for implementing the solution. The homework was a sitting meditation and breathing normally for three minutes.

Session 6: Thoughts do not have a real origin

Sixth week were done with thoughts that have no real origins and by reviewing the problems of people during the homework and the emotions and excitement that they had during the exercises. The body scan exercise was conducted and a review of the topic of unrealistic thoughts. Mindful breathing and identifying activities that keep being in the moment. The three-minute breathing homework, sitting meditation, and awareness and daily experiences were recorded.

Session 7: How to best care for ourselves?

Seventh session was done with content how to best care for ourselves with sitting meditation or four-dimensional meditation. Then the discovery of the relationship between mood and activity and the preparation of a list of desirable daily activities and activities that give an unpleasant feeling to the individual. Discussions about how useful activities can be enhanced and activities that keep us away from being in the moment. The session was followed by a three-minute breathing exercise, and the design of a problem during exercise and discovering its effect on the mind and body. Homework was a three-minute breathing exercise for an unpleasant event and a new everyday activity mindfulness.

Session 8: Conclusion

The eighth week session was completed with a three-minute breathing meditation. Then, what was learned over the course was reviewed. Then, questions were raised about the whole sessions, such as whether the individuals reached their expectations during the course.

The third version of the Ottawa Mental Skills Assessment Tool, was designed in 2001 by Professor Durand-Bush et al. (2001). Iranian version of questionnaire, validated by Sanati Monfared (2006), she conducted a research on 333 athletes from the Asian Games in Doha, 2006. The validity of the records was 69 to 99 percent, and the reliability of questionnaire was 99 and 76 percent. This questionnaire evaluates 12 mental skills in 3 groups of foundation skills, psychosomatic skills, and cognitive skills.

The questionnaire contains 48 questions that assess 12 mental skills each with four questions. Each question has seven options based on the Likert scale as follows: Strongly disagree - Disagree - More or less disagree – Neither agree nor disagree - More or less agree - Agree - Strongly agree. Each option is also awarded from one to seven points, respectively. Of course, there are four questions: stress response, fear control, focusing, and refocusing are inversely rewarded. As a result, the highest score for each question is seven and the sum of the highest scores for each of the 12 mental skills is 28. In this research we evaluated cognitive skill factors (focusing, refocusing, imagery, mental practice, and competition planning).

Data was analyzed using SPSS software, version 22. A two-way group by intervention analysis of covariance (ANCOVA) was used to compare the effects of two groups.

Results

As shown in Table 1, to evaluate the significance of these changes in different groups, mixed analysis of variance was used. It can be stated that the main effect of intervention has been due to significant changes in the levels of cognitive skills.

Table 1. Tests of within-subjects contrasts

Factor	Source	df	Mean sq.	F	p	η^2
	Focusing	1	116.033	27.317	.001	.494
Focusing	Focusing * Group	1	32.033	7.541	.010	.212
	Error (Focusing)	28	4.248			
	Refocusing	1	83.333	9.701	.004	.257
Refocusing	Refocusing * Group	1	160.167	13.053	.001	.318
	Error (Refocusing)	28	8.590			
	Imagery	1	108.300	30.985	.001	.525
Imagery	Imagery * Group	1	40.833	11.683	.002	.294
	Error (Imagery)	28	3.495			
	Mental practice	1	112.133	45.025	.001	.617
Mental practice	Mental practice * Group	1	34.133	13.706	.001	.329
	Error (Mental practice)	28	2.490			
	Competition planning	1	182.533	52.726	.001	.653
Competition planning	Competition planning * Group	1	70.533	20.374	.001	.421
	Error (Competition planning)	28	3.462			

As shown in Table 2, the main effect of intervention on the levels of cognitive skills of athletes was significant and the interactive effect of intervention in mindfulness group was significant on cognitive skills levels. The following Table 2 shows the difference between the mean of mindfulness and control groups in the pretest and posttest, it was found that there was no significant difference in the level of cognitive skills in the control group over time and intervention. But in the mindfulness group, the level of all sub-scales scores; Focusing (P=0.001), Refocusing (P=0.001), Imagery (P=0.001), Mental practice (P=0.001), and Competition planning (P=0.001) has been significantly increased, respectively.

Table 2. Tests of between-subjects effects

Factor	Source	Type III Σ^2	df	Mean sq.	F	p	η^2
	Intercept	13717.40	1	13717.40	611.929	.000	.956
Focusing	Group	21.675	1	21.675	.967	.334	.033
	Error	627.667	28	22.417			
	Intercept	10378.80	1	10378.80	852.052	.000	.968
Refocusing	Group	34.133	1	34.133	2.802	.105	.091
	Error	341.067	28	12.181			
	Intercept	17112.40	1	17112.40	2109.543	.000	.987
Imagery	Group	25.208	1	25.208	3.108	.089	.100
	Error	227.133	28	8.112			
	Intercept	15686.53	1	15686.53	2291.997	.000	.988
Mental practice	Group	40.833	1	40.833	5.966	.021	.176
	Error	191.633	28	6.844			
	Intercept	14213.63	1	14213.63	1014.311	.000	.973
Competition planning	Group	7.500	1	7.500	.535	.471	.019
	Error	392.367	28	14.013			

Discussion

The purpose of this study was to investigate the effect of a period of mindfulness-based cognitive therapy on cognitive skills of young soccer players. The results of this study showed that mindfulness trainings for athletes had a significant increase in level of cognitive skills of soccer players.

There are limited researches in the field of mindfulness meditation training with different goals and plans. Therefore, different results have been obtained, some of them are in line with the results of this study and some are in contradiction with the results of the present study.

Considering the few studies that have been done in the field of mindfulness in sport, and although other studies have different goals, results of this research is similar to research findings such as Aherne, Moran, and Lonsdale (2011); Kabat-Zinn et al. (1985); Kee, Chatzisarantis, Kong, Chow, and Chen (2012); Moazam (2015); Nabilpour and Aghababa (2015); Scott-Hamilton, Schutte, and Brown (2016); Thompson, Kaufman, De Petrillo, Glass, and Arnkoff (2011); Zadkhosh et al., (2018). According to Scott-Hamilton et al. (2016), the effect of eight weeks of mindfulness training reduced sport anxiety, and facilitating athletic experiences on competitive cyclists. In another research, Zadkhosh et al. (2018) studied the effect of neurofeedback and mindfulness trainings on the performance and anxiety of young soccer players. The results of this study showed the positive effect of neurofeedback and mindfulness exercises on anxiety reduction and increasing exercise performance of players. Kee et al. (2012) also examined the effect of nine weeks of Mindfulness training on 32 males, which results show the positive effects of mindfulness induction motor control and balance the experimental group compared to the control group. In one of the first researches in the field of sports, Kabat-Zinn et al. (1985) studied the effect of mindfulness meditation on academic and Olympic rowers, whose results reflected the improvement of athletic performance. On the basis of the results obtained from the present empirical study it may be concluded that mindfulness exercises effects on mental skills of athletes i.e. focusing, refocusing, imagery, mental practice, and competition planning and the use of this practice protocol in sports psychological interventions in athletic teams can be explained and justified. In addition, effects of mindfulness can be studied on other psychological aspects of athletes. Therefore, the use of this program is recommended to group and individual sports by sports psychologists and mental skill trainers.

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