EFFECTS OF TRAINING IN SPECIAL VISUAL AND TYPICAL SITUATIONS ON ACQUISITION AND LEARNING OF BASKETBALL LAY-UP THROW SHOOTING IN DIFFERENT LEVEL OF PSYCHOLOGICAL PRESSURE

Sima Mokari Saei[1], Fatemeh Sadat Hosseini[2] and Malek Ahmadi[3]

[1,2]Urmia University, Iran
[3]Islamic Azad University, Urmia, Iran

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Abstract
The main purpose of this study was to determine of training in special visual and typical situations on acquisition and learning of basketball Lay-up throw shooting in different level of psychological pressure. In this research, four groups of 15 people were trained in three Lay-up throw shooting of basketball in four conditions. The first group practiced at full hall lighting (normal visual condition) with stressful situation, the second group in full hall lighting (Normal visual conditions) with normal situation. The third group with artificial light (special visual condition) with stressful situation and the fourth group with artificial light (special visual condition) with normal situation in the dark with a special laser spotlight that was able to focus on a particular area and light was only displayed on the basket and the basket was restored, practices and the rest of the gym was dark. For data analysis, two-way variance analysis with repeated measurements was used for independent groups at the level of ≥ 05%. The results showed that in the test of acquisition and retention, the performance of subjects under normal visual conditions without stress was better than other groups. However, in the Transfer test, the performance of the subjects under normal conditions of vision with stress was better than other groups.

Key words: *specific vision, normal vision, lay-up shot, basketball, psychological pressure.*

Introduction

Basketball has become one of the most popular team sports all over the world today (Chan, 2005). Among the basic skills of this discipline, the lay-up shot is one of the most decisive and winning the game in basketball (Raol et al., 2002).Some have tried to find better ways to learn and increase the percentage of free shots. In line with these efforts, some basketball coaches recommend that players practice the special precautions (light focusing on the basket) to increase the accuracy of free throws, and claim that this practice method leads to more concentration. This method is considered to be somewhat important, as some professional basketball players claim, the high precision of their free throws in NBAs was due to training in this situation (Kozar, 2002).They assume that each variable of practice that improves performance will also increase learning. The question that arises in this regard is the high accuracy of these athletic basketball athletes really in the throw because of the advantage of their exercises in a variety of visual conditions? The main goal to do skillful exercise is to acquire the ability to execute skillfully and transfer these qualities and characteristics to the competitive environment and to achieve optimal performance in the competition. The context or underlying conditions of the environment (such as light, sound, etc.) are also important factors in the effectiveness of the exercise, which most instructors and athletes do not pay enough attention to in the training environment. In terms of human performance, the visual system provides information about the movement of objects in the environment.

To meet the visual environment's needs, a large part of the motor system is activated (Schmidt & Lee, 2004). If the visual system is impaired or defective, doing the simplest tasks will also be difficult. In sports environments where individuals and objects frequently travel in complex and complex paths, the need for visual information is primarily a priority. Now, if you have a special visual condition in the throw shot, do these training conditions really help you to learn how to throw and increase the accuracy of it? And, is the possible effectiveness of these training methods comparable to the existing research and is supported and supported? Research has shown that in the initial stages of targeting for the implementation of a basketball free throw, the duration of staying on the target position (basket) should be long. It was also found that skilled athletes almost doubled to the basket before the ball was thrown (Vickers, 1996). Therefore, if one can create visual conditions in the training of beginner subjects (972 vs. 357 milliseconds), the player who learns to focus more time on the basket, it is likely that these conditions can increase the accuracy of free launches. Harle and Vickers have conducted research on this hypothesis. In this study, special regional visual conditions are defined from basketball basket or basketballتخت which the player is staring at during the free throwing process and received visual feedback during the training. The results of this study showed that exercising under these visual conditions caused a 62 to 66 percent improvement in the accuracy of free throws during the season.

This increase in precision in targeting was accompanied by an increase in the time of observation and visual focus at the stage of readiness for launching, and it was shown that players who were practicing under special conditions remained longer in the basket before successful shots. Researchers have attributed the improvement in performance and the ability to change the pre-throw pre-launch time to the focus of visual observation toward signs of target action (Harle and Vickers, 2001). One of the variables that influence the learning is environmental conditions. Moradi et al. (1395) showed that when subjects are tested in a light environment different from that of the workout environment, they become meaningful and when they are tested in the same environment, they are superior to those in the same Conditions are practiced. Salehi et al. (2015), in practicing special visual conditions in the implementation of basketball free throwing skill, showed that only when one could expect a special training condition would lead to a better learning of sports skills, with sensory-motor conditions and similar processing to the practice condition. Other studies have also shown that the duration of visual focus is an important factor in the optimal performance of skilled billiard sports players (Williams et al., 2002), the shooting of the pistol (Jannell et al., 2000), the receipt of the volleyball service (Vickers and Adolf, 1997), the golf course (Vickers, 1996).

There is an important hypothesis in the field of learning motor skills called the feature hypothesis (specialty) that provides different predictions about the training conditions. The specific purpose of this is that performance under test conditions is most likely to be optimal when the conditions for entering information into the information processing system or the conditions in which a skill is practiced is similar to that of the test. In the mid-twentieth century research on the transfer of cognitive skills, this theory is generally confirmed, and in general, it has been shown that the more similarities between the transfer test and the acquisition stage of the skills are greater, in this context, Proteau in a study on the study of the hypothesis of the effects of the practice of the exercise called on a group to practice a target task in conditions where light was only focused on the goal. The findings of this study showed that adding light (changing the sensory-motor information of task execution) leads to performance decline.

According to this finding, if the main information sources used in the learning process were to be removed or changed, the decision-making authority would face difficulties, resulting in a loss of performance (Proteau, 1992). The reason for these effects from the behavioral point of view is that at the beginning of the training, sensory information from the vision and deep receptors have separate memory structures. If at this stage one of them is corrupted or deleted, another source is used to process the information. But with the continuity of practice, vision and the sense of movement are integrated; a representation between the dominant sense forms (Proteau, 1992). Therefore, at the advanced stages of the exercise, the defect in one of them may lead to a loss of performance. Kahn and Franz, from the control point of view, have stated that in the learning process, using sources that provide optimal performance from other available sources of sensory information (optics, motion, hearing, tactics) is dominated by other sources. In the event of the deletion or alteration of this dominant source, performance decline occurs (Kahn et al., 2004).Therefore, it seems that the transfer of the characteristics gained in the training with the rate of change in the pattern of basic skills, on the one hand, and the dependence of the implementation on the sources of sensory-motor information. Czech et al. (2008) believed that a better athlete's performance from a certain point than elsewhere was likely to accrue the coordinates and characteristics of the field of action (such as the coordinates of the earth and the signs on the ground) in this position or A better learning of the parameters related to that skill in a given domain.

In other words, according to Czech et al. (2008), special training is likely to result in special skill due to the familiar field of vision that the subjects have. On the other hand, the dynamic view system of human motor control is a complex system that is considered in similar ways to any nonlinear complex biological system, which means that behavioral changes do not follow a linear progression over time (Tagard, 2005).They believe that control is needed to interact between smaller systems (the nervous system, muscle, skeletal system, etc.). These smaller systems do not have any general commanders, but their priority is from the special signs of information collected from the environment. Coordination of smaller systems is considered as self-organized. Since the additional light factor can act as an environmental limiter, but the human system is capable of producing and executing movements by communicating environmental factors, because it is a dynamic system that interacts with environmental factors.

With regard to what was reviewed, on the question posed in the study, it may be said that special vision conditions (visual guidance to the basket) in the practice of lay-up basketball shooting may improve the acquisition and learning of throwing. However, when creating special visual conditions, the sensory-motor conditions of the throat throwing environment change in three steps of the basketball, one must consider the problems of changing the pattern of abilities and also integrating the sense of movement with these visual conditions, and in assessing the effectiveness of this method, the effects the training feature is also considered. However, when creating special visual conditions, the sensory-motor conditions of the throat throwing environment change in three steps of the basketball, one must consider the problem of changing the pattern of abilities and also integrating the sense of movement with these visual conditions, and in assessing the effectiveness of this method, the effects, the training feature is

also considered. Therefore, if darkening of the training environment and light shine on the target (basket) of the special visual conditions for the practice of basketball lay-up shooting, different predictions regarding the effectiveness of this particular training situation on the accuracy of the throwing of the three basketball steps are raised. According to the viewpoint on the relationship between focal focus, visual attention to signs of action targeting is predicted by increasing the accuracy of the implementation of free shot throwing (Harle& Vickers, 2001). Exercise under special visual conditions increases accuracy and learning the more effective the lay-up basketball throwing skill. In contrast, according to the views on the training feature (Kahn and Frank, 2004; Proteau et al., 1992), it is expected that exercising under special visual conditions would reduce the accuracy of lay-up basketball throwing under normal conditions. Our other prediction is that the practice only improves the more effective learning of the throwing of the basketball three-shot shot, which has the same test conditions as the training conditions.

The variable is another of the stresses and stresses that enter the athletics in the athletic field during the tournament and affect their performance in such a way that the neuromuscular coordination of the movement is likely to be affected by this phenomenon and the implementation the athlete is taken out of the optimal mode. Shojaei et al. (2012) showed that the implementation of the free shot of basketball can be overshadowed by stressful situations. Stress is one of the factors that affect athlete's behavior and performance. Athletes are not only subject to different stresses, but their response to these stresses is different (Enshel, 2006).Athletic exercise presents an athlete with a variety of physical and psychological stressors. The dynamic and competitive environment of exercise does not only have positive and constructive impulses, but affects the athlete as well as many stressful stimuli. Research findings have shown that the inability to deal with sport stresses is detrimental to the athlete's personal performance and satisfaction (Enshel, Williams & Williams, 2000; Marc, 2006).

Some athletes adapt to stressful situations, while other athletes may be struggling with stressors. It has been happening many times that high-tech athletes who exhibit their ability to perform at high levels in training and have good recessions, but during the tournament due to the high stress resulting from the atmosphere of the competition from the viewer, Coach, referee and opponent, they cannot be able to show their abilities because of their inability to deal with stress or to use an ineffective coping style, and even a record that Have repeated the exercises (Bashghi, 2007).Stress from competition not only disturbs the athlete physically, but also cognitive processes such as attention and concentration, and prevents him from focusing (Enshel, 1990).Now, with these descriptions, the researcher intends to examine these predictions in the present study, after two groups of individuals will be practicing separately in the visual (focused on the ring) and normal (full light) modes of exercise Acquire and learn to shoot three-step basketball shots in stressful situations in tests with normal and specific visual conditions. Regarding the literature of this study, one of the factors that cause stress and anxiety is the financial motivation and self-personality (Woodworth 1899). Therefore, in order to create stress and stress conditions, the participants use the Erlenship method (2006), which is both a financial incentive and an incentive for better implementation, since individuals are compared in a virtual way to their performance. The better result is given to the thrower.

Materials and method

The present study was conducted with 60 healthy female students. These people did not have any background and knowledge of the lay-up basketball throwing, and volunteered (with written consent) in this study. The task in question will be to take three steps in basketball. For this run, the person must stand three paces from the start of the shot and move in lay-up basketball throwing, aiming at the goal and with his superior hand. The lay-up basketball throwing scale was used to evaluate the precision of throwing the shot. Prior to the experimental work, in a briefing session, the three-pitch basketball skill was taught by a trained coach in both verbal and skill display. The method of scoring was explained by the researcher and gave the participants 20 minutes of training. At the end of the meeting, each participant individually performed ten shots as pretest. Then the participants will be ranked according to pre-test scores and will be replaced in four groups of 15.

The first group practiced at full hall lighting (normal visual condition) with stressful situation, the second group in full hall lighting (Normal visual conditions) with normal situation. The third group with artificial light (special visual condition) with stressful situation and the fourth group with artificial light (special visual condition) with normal situation in the dark with a special laser spotlight that was able to focus on a particular area and light was only displayed on the basket and the basket was restored, practices and the rest of the gym was dark. Each of the four groups trained ten sessions in three blocks of ten with their special experimental conditions (pairs) from 18:00 to 20:00 (acquisition stage). The total score of these shots was recorded as the performance of the individual. The resting distance between each block is 10 minutes and every effort will be ten seconds. Immediate retention tests were done after the completion of the third training sessions, the sixth session, the ninth session and the 12th session of the acquisition test. Four groups participated in four tests (lay-up basketball throwing in normal vision and throw in a special vision with stressful conditions).In these tests, all the conditions, except the light of gym, were similar to training sessions.

In these four tests each participant made 10 shots for each situation in lay-up basketball throwing. Five shots to avoid drops due to warming and 10 main shots with the results recorded. To avoid fatigue, about 10 minutes were restored between these two tests. The retention test was carried out with 48 hours delay with the same acquisition test conditions. A transfer test took place after two hours of the test, in real time, by holding a match between the teams. During the competition, for each player, one registrar was appointed to record the three steps and how to throw scores. To create stress and stress conditions for participants during the tests, the Erlenship method (2006) was used, which is both a financial incentive and an incentive for better performance, since individuals will be virtualized to compare their performance. The better result was given to the thrower.

Statistical method

To compare the performance of the groups, two-way analysis of variance analysis with repeated measurements was used for independent groups. In statistical analyzes, the significance level was considered to be P <0.05.The statistical population of this study was all female students studying at Islamic Azad University of Mahabad, in the amount of 10,000 people in the second semester of the academic year of 2016-17.

Sample

The statistical sample of this study was among female students of Azad University of Mahabad, who in the second semester of 2016-17, selected physical education courses 1 and 2, and their age ranged from 19 to 22 years old, with a range of 155 to 170 participants in the range of 60 Selected. Participants had no information about the objectives of the study before the company was run and tested. Using the first test (10 shots in three steps) among eligible applicants, 60 participants were selected according to the research goals and the four groups of 15 were replaced. The first group was in normal visual environment under stressless conditions, the second group was in normal visual conditions under stressful conditions, the third group underwent a special visual environment under stressless conditions, and the fourth group underwent a stress-induced visual environment. Participants had no information about the objectives of the study before the company was run and tested.

Results

Table 1. Individual characteristics in four groups of subjects.

Factor/ group	1	2	3	4
Age (Yrs)	23±2.09	24.2±4.1	22±3.43	23. 3.8
Height (M)	169 ± 3.31	171 ± 2.61	170 ± 1.75	170 ± 1.6
Weight (Kg)	69± 2.45	67± 3.18	68± 4.32	68 ± 3.1

Table 2. One-way ANOVA results to compare acquisition rates in groups.

Variables		N	M	SD	F	Sig.
Aquisition	Normal vision without Stress	15	16.27	2.520	10.255	.000
	Normal vision with stress	15	14.73	2.052		
	Specific Vision without Stress	15	12.20	2.274		
	Specific Vision with Stress	15	12.73	2.187		
Retention	Normal vision without Stress	15	14.27	1.668	8.992	.000
	Normal vision with stress	15	15.33	2.743		
	Specific Vision without Stress	15	11.93	2.120		
	Specific Vision with Stress	15	12.07	1.981		
Transfer	Normal vision with Stress	15	11.93	1.885	11.476	.000
	Normal vision without stress	15	14.13	2.120		
	Specific Vision with Stress	15	14.73	1.759		
	Specific Vision without Stress	15	11.33	1.846		

The results of table 1 shows that in the acquisition and retention test, the performance in normal conditions without stress is better than other groups. However, in the transition test, normal stress group is in better condition than other groups.

Discussion and conclusion

In the acquisition and retention phase, the findings of this study showed that the subjects' performance in conditions of normal vision without stress is in better condition than other groups. Extremely stress-free groups showed better performance. The findings also showed significant improvement in skills in all four groups at the acquisition and retention level. In other words, in the present study, the change in the rate of progress of the three-step basketball shootout skill for each of the four groups is in accordance with the power law practice law of Snoddy (1926) (Magil, 2011).The findings of this study are based on the findings of the research by Proteau et al. (1987), Wright and Shea (1991), Proteau and Carnahan (2001), Proteau and Isabel (2002), Proteau (2004), Rubin et al (2005) Associates (2007), Isabel and Proteau (2007), Katch and Schmidt (2008), Krigelson et al. (2009), Abdoli et al. (2010), Salehi et al. (1392), Tucson (2010), Supporting HemayatTalab and Mohammadzadeh, 2016) and was inconsistent with

the results of Whitting and Saulsburg (1992), Franks and Romano (1993), Leader and Singer (1994), Bennett and Davis (1995), Trier High and Proteau (1998), Thermobile et al. (2001) Robin et al. (2000), Hansen et al. (2004). At the stage of transfer phase, the findings of this study showed that the performance of subjects under normal visual acuity with stress was better than other groups. In this test, in contrast to the acquisition and retention tests, stress groups showed better performance than those without stress. The findings of this study are based on the findings of the research by Proteau et al. (1987), Wright and Shea (1991), Proteau and Carnahan (2001), Proteau and Isabel (2002), Proteau (2004), Rubin et al (2005) Associates (2007), Isabel and Proteau (2007), Katch and Schmidt (2008), Krigelson et al. (2009), Abdoli et al. (2010), Salehi et al. (1392), Tucson (2010), Supporting Hemayat Talab and Mohammadzadeh, (2016) and was inconsistent with the results of Whitting and Saulsburg (1992), Franks and Romano (1993), Leader and Singer (1994), Bennett and Davis (1995), Trier High and Proteau (1998), Thermobile et al. (2001) Robin et al. (2000), Hansen et al. (2004). Based on the hypothesis of the specificity of performance under test conditions, it is likely that it will be optimal when the conditions for entering information into the information processing system or the conditions in which a skill is practiced is similar to that of the test. Thorndike also believed that the learning skill from one position to another was dependent on the number of common components of the two situations.

In a study of the effects of the practice, Proteau asked a group to practice a goal-oriented task in conditions where light was focused only on the goal. After a while, these individuals were tested in full light conditions. The findings of this study showed that adding light (changing the sensory-motor information of task execution) leads to performance decline. Based on this finding, he stated that he had already learned in his skill, if the sources of the main information used in the learning process were removed or changed, the decision-making authority of the problem faces a problem, the result of which The loss of performance (Proteau, 1992).The reason for these effects from the behavioral point of view is that at the beginning of the training, sensory information from the vision and deep receptors have separate memory structures. If at this stage one of them is tampered with or deleted, another source is used to process the information. But with the continuity of practice, vision and the sense of movement are integrated, a representation between the dominant sense forms (Proteau, 1992).Therefore, at the advanced stages of the exercise, the defect in one of them may lead to a loss of performance. Kahn and Franz, from the control point of view, have stated that in the learning process, using sources that provide optimal performance from other available sources of sensory information (optics, motion, hearing, tactics) is dominated by other sources. In the event of the deletion or alteration of this dominant source, performance decline occurs (Kahn et al., 2004).Therefore, it seems that the transfer of the characteristics gained in the training with the rate of change in the pattern of basic skills, on the one hand, and the dependence of the implementation on the sources of sensory-motor information.Based on the viewpoint of the specificity of each skill learned, it is shown with a series of sensory-motor information that has been acquired during the exercise (Proteau, 1992, Wright and Shea, 1994).Research has shown that proprietary information (such as visual and visual feedback) is crucial for sustaining performance in retention tests during training, but when this information is deleted in the test tests or new features are added to the situation, performance Changes.Kiche et al. (2008) believed that a better athlete's performance from a certain point than elsewhere would be due to accustoming to the coordinates and characteristics of the field of action (such as the coordinates of the earth and the signs on the ground) in this position or A better learning of the parameters related to that skill in a given domain.

In other words, according to Kiech et al. (2008), special training is likely the subjects have the same result in special skill due to the familiar field of vision that. They tested this and showed that familiar backgrounds could be one of the reasons for creating special skills in skills.The other variable was stress that showed a significant difference in the acquisition, retention, and transfer tests. In the acquisition and retention tests, the performance drop and performance test had a positive effect on performance.Stress is one of the factors that affects athlete's behavior and performance. Athletes are not only subject to different stresses, but their response to these stresses is different (Enshel, 2006).The dynamic and competitive environment of exercise does not only have positive and constructive impulses, but affects the athlete as well as many stressful stimuli.

On the other hand, performance and sport success are largely influenced by common stressors such as physical or psychological errors. Research findings have shown that the inability to deal with sports stress is detrimental to athlete's performance and satisfaction(Enshel, Williams and Williams, 2000; Marc, 2006).Some athletes adapt to stressful situations, while other athletes may be struggling with stressors. Stress from competition and competition not only disturbs the athlete physically, but also cognitive processes such as attention and concentration, and prevents him from focusing (Enshel, 1990). According to a specific viewpoint, it can be argued that the same environmental conditions would have an impact on the performance of athletes, since Thorandike also believed that learning from the classroom to the outside environment would be transmitted when the two situations were the same. The findings of this research confirm the hypothesis of the principle of the specificity of the exercise in the field of learning and motor control.

References

Czech, D.R., Plozay, A., & Burke, K.L. (2004). An examination of themaintenance of preshot routines in basketball free throw shooting. *Journal of Sports Behavior, 27*(4), 323-329.

Harle, S.K., & Vickers, J.N. (2001). Training quiet eye improves accuracy in the basketball free throw. *The Sport Psychologist, 15*(3), 289-305.

Magill, R. (2004). *Movement Learning and Concepts and Applications*. Physical Education Research Institute.

Moradi, J., et al. (2016). *The effect of natural and artificial light on learning a soccer skill: the study of the specificity of the practice.* The Ninth International Congress Of Physical Education And Sports Science.

Schmidt, R.A. & Lee, T.D. (2011). *Motor control and leaning: A behavioral emphasis*. Champaign, IL: Human Kinetics.

Thorndike, E.L. (1913). *Educational Psychology*. New York: University Press.

Shojaei, M., et al. (2011). *The effect of age and skill level on kinematic and kinetic kinetic indices of free throw in stressful conditions.* Tehran University of Science and Research.

Proteau, L. (2005). Visual afferent information dominates other sources ofafferent information during mixed practice of a manual aiming task. *Experimental Brain Research, 67*, 103-161.

Vickers, J.N., Rodrigues, S.T., & Edworthy, G. (2000). Quiet eye and accuracy in the dart throw. *International Journal of Sports Vision, 6*, 30-36.

Williams, A.M., Singer, R.N. & Frehlich , S.G. (2002). Quiet eye duration, expertise, and task complexity in a near and far aiming task. *Journal of Motor Behavior, 34*, 197-207.

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Correspondence to:
Fatemeh Sadat Hosseini
Urmia University, Iran
E-mail: fhosseini2002@yahoo.com