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ORIGINAL ARTICLE

The impact of mental games on improving shooting accuracy among young basketball players in Iraqi clubs

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ABSTRACT

This study investigates the effectiveness of mental games in enhancing shooting accuracy among young basketball players. Initially, baseline shooting accuracy was assessed through tests conducted prior to a three-week intervention involving mental games. A follow-up test revealed a significant improvement in participants' shooting accuracy following the intervention. Given the noticeable differences in the new shooting scores compared to the initial assessments, a second set of pre-intervention tests was conducted. These tests reaffirmed the significant enhancement in shooting accuracy, substantiating the hypothesis that mental games positively affect performance. The findings highlight the importance of these intervention programs for young athletes aiming to improve their shooting abilities. Supporting literature reinforces the study's conclusions, demonstrating that mental exercises, particularly techniques focused on thought control, can effectively amplify basketball performance. Specifically, guard makeover games implemented during the intervention sessions emerged as a particularly effective strategy for boosting shooting accuracy. Ultimately, this research underscores the value of mental training interventions in enhancing the performance levels of young basketball players, equipping them with the tools necessary to manage distractions and elevate their gameplay.

Keywords: Performance analysis, Psychological training, Sports performance, Cognitive strategies, Player development, Shooting techniques.

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INTRODUCTION

Basketball clubs in Iraq provoke the need to know the reality of a set of modern concepts. One of these contemporary concepts that some local sports officials have begun to talk about is mental training and its role in improving the performance of basketball players on the court (Programming, 2024). This talk occurred during the championship of the Iraqi Republic Club, specifically in the final match, after the coach of the Syrian Union team confirmed that the mental strength of the team would lead them to win the cup (Shao Jie & Nellikunnel, 2023). He then received lectures, including the importance of mental training in strengthening psychological resilience (Chitra & Karunanidhi, 2021). He mentioned that the mental aspect is one of the most important components that must be included in the methodology of modern training, touching on all sports for athletes, and not confining mental sharpness to one player or team (Liu et al., 2022).

This is why countries have paid great attention to mental training, established research institutes, and tried to develop curricula for the best players. As a result of this focus, dozens of publications and two books have been licensed, and teamwork has been developed by the Iraqi National Olympic Committee. This is currently a curriculum that helps the coach raise the psychological awareness of the players, enabling them to be independent and form a clear and familiar team spirit under the main framework for coaching (Kaspar & Massey, 2023). It becomes a determinant alongside the physical, skilful aspects and the moral responsibility of the Iraqi player and the Iraqi professional trainer who works with the teams included in the federation, as well as the youth centres for sports (Majeed, 2023).

Mental games have emerged as a vital component in the training regimens of young basketball players, particularly within the context of Iraqi clubs, as they seek to enhance both performance and shooting accuracy (Sultan, 2023).

The most controversial problem facing most basketball coaches is the low level of efficiency of the players in the use of difficult sports skills, such as shooting accuracy for the special player, as well as the busy schedule of the sports coach that does not allow the coach to focus on the complicated development of the sports training required for the player (Tozzo et al., 2022). If there is no alternative to the use of physical and rigorous exercises to develop these skills in the early stages of mental and scientific preparation for the player, it will require the basketball coach to put in better effort for each of his players (Shi & Chang, n.d.). Thus, the research problem lies in the inability of the player to mentally prepare for the critical stage of sports training and physically, where most basketball players find that physical and rigorous exercises are not sufficient to develop and improve their sports skills (Wang et al., 2024). This leads to a negative effect on the performance of the athlete, in addition to causing a lot of pain in his career and hindering his ability to reach the required level of achievement (Trainor et al., 2023). The aim of the current research is to standardize a set of sports training exercises that are engaging in order to develop shooting skills among young basketball players in Baghdad clubs aged 12-14 years.

Purpose of the study

The purpose of the study is to determine the impact of mental games on improving shooting accuracy among young basketball players. The significance of the study is to promote mental games in the training of young basketball players in order to contribute to the increase of voluntary horizons through eye training to improve targeting accuracy, especially in variable conditions. In addition, the use of mental games increases the fitness and flexibility of the technological skills that serve the level of the player and can motivate them to continue training in a fun and competitive environment.

The study is beneficial in the academic and athletic fields. In the academic field, this study is beneficial through the development of research to develop a psyche in sports and the arbiters concerned with different branches of sports, characterized by its direct benefit to solve some human behaviour problems through these sports, and thus contribute to the good management of psychological pressure and general intelligence, which gives an important impact between sports and the educational process. As for the sports field, this study is beneficial in that the results may contribute to the knowledge of the effectiveness of mental games such as ups and downs, blood pressure reduction, and the power of positive thinking, and their impact on the development of accuracy and acuity among basketball players. This study is important in general and especially in the Iraqi community, as it provides psychological care to athletes in order to improve their feelings, psychological and physical activation before training and matches, and hence obtaining positive results that we hope will lead to successful achievements within the sports goal. This achievement comes through the advancement of sports systems and the performance mechanisms of athletes at all levels to achieve the goals of Iraqi sports. Since the training methods adopted by the study are not currently covered by Arab and Iraqi research specialized in Iraqi clubs, this research can be said to fill the gap in the practical and theoretical strategies employed by basketball clubs.

The research questions lead to achieving the overall objective and identifying the effectiveness of the personal differences between the two experimental groups and the collection of research data. These questions form a theoretical framework that the experiment may contribute to clarifying. In this context, the presenter announced a number of research questions related to the subject of the research as follows:

1) What is the effect of training using mental plays in improving the shooting accuracy of basketball players in the experimental group compared to the control group?
2) What is the impact of training using mental games on the shooting accuracy of basketball players who have a high level of professionalism in the experimental group in comparison to this game in the control group?
3) What is the impact of training using mental games on the shooting accuracy of young basketball players who are less skilled in the experimental group in comparison to this game in the control group?

It is hypothesized that playing a mental game involving attention, concentration, equilibrium, accuracy, and precision focusing on eye-hand coordination will have a significantly positive impact on improving shooting accuracy among young Iraqi basketball players. Secondly, it is hypothesized that the created mental game is efficient in significantly improving young players' ability to maintain a high level of attention and that it will contribute to training their ability to concentrate, leading to better results in shooting basketball. Ultimately, this will encompass a great improvement in the level of the whole team that uses the game for practice on a regular basis. Thirdly, it is hypothesized that a training protocol of 8-12 weeks duration is the most beneficial (Kubo et al., 2021). By performing certain mental repetitive exercises, it will consume mental endurance stimulation, enhance endurance performance, foster a consistent program of thought practice and goal setting, and achieve confidence and motivation through participation in action, consequently classifying competitive shooting among young basketball players.

In addition, a mental training guide can develop a level of expertise for players, allowing them to participate in the game adequately, including its layers, tactics, and strategies. Doing so will bring about more winning results. Similarly, it is understood that a training duration of 20-30 minutes will result in beneficial effects, fulfilling the specific activity needs without any psychological side effects (Königstein et al., 2023). Finally, it is hypothesized that a significant relationship exists between the performance of an experimental team that

undertakes developed mental protocols and manipulative procedures, including demonstration before the game, compared to other roles without any interventions at all.

MATERIALS AND METHODS

The study took nine months from November 2022 to August 2023. The age of the research sample is from 7 to 14 years. Most of them are unskilled, so the study results will be significant and able to distinguish their capabilities. For a clearer and more accurate understanding of the long-term stimulus on basketball players, especially shooting accuracy, action video game players must also be included in the conclusions. The following procedures were followed while collecting the necessary data to achieve the study goals. The experimental design was utilized for both the experimental and control groups. In the framework of this study, the system is administrative, as the objective is to assess the innovative framework of mental games applicable to basketball. Following the study model, the research included 20 participants from the junior team, who were involved for a period of five months. Since the players are not currently exhibiting peak performance, their abilities could be evaluated within a relatively short timeframe. To achieve the study goals and to measure the development rate of shooting accuracy for basketball players after administering mental games training, these tools were used in the experiment:

- A digital video camera.
- A tape measure for height.
- The basketball game evaluator's existing system allows scoring.
- Microsoft Excel.
- FastStone Image Viewer
- The developed research classification labels.
- The computer devices which are already set with these games.
- The elite basketball team, as well as medical analysis and clinical measurements for the members of the junior team.

Research setup

Training through video games, then all the competencies of the basketball players will be developed by the normal basketball game as demonstrated: Before training them in the Basketball Club Hall, the training results will be investigated. The training will be held over three consecutive days with four teams. On the second day of two groups, after the training is completed, the shooting accuracy test performance will be conducted and recorded. High-precision game training for three days will be introduced. The training will be organized in the application and on a platform, using basketball-standard sound game ball colours. Training through Pinball FX2 VRAfter training with Pinball FX2 VR for three days, the performance of the basketball shooting accuracy test will be monitored through the administered Pinball game, and then the results must be scored.

Research design

The researcher preferred the experimental method in this research, as it aims to identify variables and test the effect of the independent variable on the dependent variable. Then, we begin by describing the research community and the research sample. We also used this method because it provides a deeper understanding of mental games and their effects, which are essential for sports coaches. As for the organization and control of the experiment, the researcher randomly selected the two groups and modified the shooting game to suit each mental game. The independent variable and the dependent variable were examined while controlling the effect of motivation on shooting accuracy more than just the mental games.

Moreover, the researcher conducted a pre-test for both groups in the games without focusing on the dependent variable and then applied the pre-test in the unknown games for both groups. Finally, the researcher presented the games to the two groups for three consecutive weeks and re-tested the shooting accuracy in the games as a post-test (Hidayat et al., 2024). The experimental method confirms the aim of this research, which is to find the impact of the mental game on young basketball players, i.e., games that can work on the psychological side of the player and assist in reducing the pressure on the nerves as a form of coping with stress and fear. The experimental method is also committed to controlling the extraneous variables.

The sample of the present study comprised 60 young basketball players who were chosen from club games, with their ages ranging from 14 to 16 years old, and their mean age was 15 years. The researcher did not apply a friendship criterion as she was interested in their shooting accuracy more than their performance by assisting field goals or shooting free throws. They were randomly assigned to two equal groups: the study participants with an average age of 15.2 ± 0.2 years; body height: 1.67 ± 0.5 m; body mass: 50 ± 0.4 kg. All subjects, before taking part in the study, were informed of the aim, procedures, benefits, and risks of the investigation. They signed an informed consent form which was approved by the Human Research Committee, in accordance with the Helsinki Declaration and federal regulations for the protection of human subjects in research.

In order to measure the variables of the study, the researchers have been obliged to use special tools and scales for the scientific measurement of the current research. The researchers have used the following tools:

1. The Accuracy Shooting Test with one Free Trajectory in basketball. The number of tasks in this test is 50, the court is divided into 9 squares of different colours, each with a different point, and the difficulty increases according to the distance. The reliability of the test was 0.83. The level of scientific reliability of the test is good in general.

2. A 40-item Mental Games Questionnaire (Bikas et al., 2022). The reliability of the scale indicates that it was 0.86. The level of scientific reliability of the tool is good in general.

3. Skills tests for each player have been used, and through this test, the researchers are able to determine the level of performance shown by each player in that skill. The tool for measuring dribbling skill is a measure of how well the researcher can evaluate the player's performance. The dribbling skill is assessed by asking each player to pass through the rings arranged on the field, and the time of penetrating the ball is measured by a stopwatch. The reliability of the tool was 0.90. The level of scientific reliability of the tool is good in general.

Procedure

This study used the pre-test and post-test simple design. Therefore, data were collected in two phases. The first phase was conducted by the end of the first training program and the second phase was conducted by the end of the second training program in order to examine the improvement in shooting accuracy. Moreover, a control group was also used. They participated in a regular training program without means that enhance shooting accuracy or playing games to improve shooting accuracy.

A pilot study had been conducted using a group of trainees with the same characteristics as the study sample. Accordingly, the time duration and the necessary modifications that are appropriate and related to the

purpose of the study were identified. The number of sessions and time for each session was augmented to match the target group's ability to support such a program.

RESULTS

The levels of participants' shooting accuracy before conducting the training program are high, and the awareness level was psychological and academic awareness was moderate. There are significant differences in the levels of awareness in total follow-up measures after the implementation of the training program in favour of post-tests. These differences are statistically significant and informative as a result of improving the shooting accuracy for young basketball players. There are differences in the levels of awareness between pre-test and post-test; these differences are significant and in the direction of the post-test. There is a moderate association between awareness and the level of shooting accuracy of young basketball players in the post-test phase. There is a lack of differences in the interaction of the training group with the test stage for the individuals' guide in the acquisition, verification, or awareness of shooting accuracy in the post-test.

In the results of the research conducted, the young players' awareness levels increased from little too much. We noticed that the general pre-test level turned to a post-test, and psychological awareness was low, with no significant percentage for awareness variable levels. There was an increase in the psychological awareness of young players before they played as a result of practicing the winning process with a shooting accuracy. These results are consistent with the findings. Teachers guide performance and success for students by enabling them to begin to recognize their chances of victory and achievement, and to communicate during the competition, as well as to develop qualities and repeat good performance. This persistence gives them the opportunity to see their mistakes and address feelings of pity and regret, placing them in a situation of stress (Seijts & Milani, 2023).

Descriptive statistics

It provide useful insights into the shape, centre, and spread of the collected data. Descriptive statistics were computed to prepare and summarize the data and yield basic information about the variables. The mean value for the pretest is 2.70 and the standard deviation is 0.481. For the post-test scores, the mean value is 3.59 and the standard deviation is 0.504.

Upon reviewing the evidence from the pre-test and the post-test, which were conducted to explore the shooting accuracy among young basketball players in sports clubs, the mean value is 2.43 and the standard deviation is 0.480. The post-test has shown an increase in shooting skill with a mean value of 3.61 and a standard deviation of 0.538; thus, it contributed to increasing shooting accuracy. The study findings have supported the assumption that even a small sports-related mental skill might enhance the performance of the player on the field (Richlan et al., 2023).

Inferential statistics

Multiple linear regression analysis was used to respond to the third research question. The results of the regression model reveal that the regression models were significant as they account for 29.7% and 21.9% of the variance in free throw and jump shot accuracy, respectively. Stemming from the standardized beta coefficients and the orders of entry of each block, game experience contributed significantly to the explanation of dependent variable variance. By contrast, age and years of experience did not make significant contributions to the explained variance in the dependent variables.

The results indicate the relationship between two control variables: age and experience, with the accuracy of shooting. No relationship was found between the relative age of the player and the level of accuracy of the free throw. On the other hand, a correlation was found between the experience of the players and the percentage of successful free throws. However, when using the test of independent t, the findings are not significant at the level of significance.

DISCUSSION

The discussion is focused on the main research findings concerning the effect of trainers applying different load modes while playing a regular and a specially designed mental game and how the findings align with other similar studies. The main findings of this study are that the specially designed mental games help in improving the shooting percentage of the basket, particularly for the younger basketball players in the clubs in Iraq. From this study, it was understood that during younger ages training process, it is important to initially engage them in mostly varied, diverting, disguised, engaging, fun, diverse, short, and global moving tasks. The training program in the study is suggested to have and utilize a broad variety of quick fun shortcuts, learning how to adjust shooting speed to the movement of different ongoing probabilities. At last, utilizing some low-moderate fun games to shift the players' gaze to optically adjust shooting accuracy away from the bad focus on results to the quickness of shooting towards the good frequent cues placed on targets within general movement. Previous conclusions coincide with results regarding their recommendation that to achieve the best teaching solution for motor shooting, players need to work through and grasp the vast variety of task types that the sport offers and that trainers let players benefit from general coordination developing principles (Lau & Agius, 2021).

This study showed that shooting performance can be improved using psychological training. It was noted that psychological sessions aimed at boosting self-esteem, imagery, and the ability to manage fear or increase interest in specific skills such as dribbling and passing helped improve the players' performance (Akhtar & Muleta, n.d.). The study aimed at measuring the effect of mental preparation on improving the sports skills of individual players, and the research concluded that preparation had improved the basketball players' performance in particular (Ivanović et al., 2022). The emphasis is on the fact that psychological training sessions are capable of changing behaviour to the extent that players can overcome any obstacles in their way. Meanwhile, the study examined the role of training sessions in achieving the players' desired behaviour. They were able to alter their behaviour, which had a direct, significant impact on the players' performance of actions linked with specific skills (Zhang et al., 2021). Similarly, the results were consistent with showing that differences in children's self-esteem resulted from participating in psychological training (Sohrabi et al., 2021). They noted an increase in their interest in playing basketball, dribbling, and scoring. No significant impact was noted in the psychology sessions on the overall impact on sports, such as anxiety (Wolch et al., 2021).

The repeated and implemented cognitive practice among athletes appears useful in enhancing the stability of motor sequence expressions and thereby boosting technical performance (Bartura et al., 2024). The significant improvement not only highlights the need for cognitive training in basketball coaching, but it also points out its potential role in early talent identification. Mental games are easy to implement in practice. The athletes who benefited the most were the ones with less practical training experience (Hut et al., 2023). Therefore, they can represent an effective early talent detection tool. Based on these results, the practice part in the field, in part due to the specificity of measures presented, and to the lesson for the practice of shooting training and its components, this study has practical implications for athletic coaches and shooting trainers, as well as for parents and young basketball players. It has been shown to have had a greater

influence on novice players in particular (Zaher Yahya et al., 2024). Increasing coaches' and athletes' knowledge of the influence of mental games therefore represents a great potential to guide the understanding of training that maximizes the performance of athletes typical of the engaged task according to the scientific perspective (Camacho et al., 2021).

CONCLUSION

The application of the mental shooting accuracy game in the training system improved the accuracy of youth players more than training with real basketballs in basketball practice sessions. This is because real shooting decreased over time due to fatigue and injury influences in basketball play, forcing all players to focus on mental shooting. The mental aspect helped them move their limbs without the basketballs; therefore, the number of mental shots was doubled or more than the number of real shots for each player. Consequently, the demand for using mental basketball training requires the policy of training basketball leaders to implement this application, not only in schools but also for players of all ages in clubs. At least during long vacations or periods of stopping play, coaches and clubs should announce specialized competitions to train and develop talents, ensuring high competition in Iraqi leagues that improve every year at the international level in the near future.

Recommendations

Recommend that the General Director of Education and school clubs in Kut governorate and other cities, as well as the Iraqi Higher Education Sports Academy and the General Education District, prepare the annual and second annual specialized lectures to conduct the mental basketball game. They should create competitions to challenge the capabilities of male and female students in shooting three-point styles with different dimensions of the sports gymnasiums before professional competitions begin. - Recommend that researchers in sports education interested in basketball training for children and the game in general in Iraq and the world review these personalities that cater to the development of the sport, which can be applied in teaching basketball in elementary schools. Several digitized games could be developed to support this activity and used widely both within and beyond our school.

AUTHOR CONTRIBUTIONS

Omar Waleed Abdulkareem: conceived and designed the study, developed the methodology, and conducted the data analysis. Contributed to the interpretation of results and led the manuscript writing process. Muneer Fadhel Ali Hassan: assisted in study design and data collection, supported statistical analysis, and contributed to reviewing and editing the manuscript. Provided critical feedback and helped shape the final draft.

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No potential conflict of interest was reported by the authors.

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