



## THE EFFECT OF TRX EXERCISES TO IMPROVE ATTENTION CONCENTRATION AND SHOOTING ACCURACY FROM JUMPING FORWARD IN HANDBALL PLAYERS

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### Abstract

The objective of the research is to determine TRX exercises that can enhance attention concentration and shooting accuracy in handball players by jumping forward. The researcher employed an experimental strategy, dividing participants into two groups: an experimental group and a control group. Pre- and post-measurements were utilized due to their alignment with the research's inherent qualities. The research sample was intentionally chosen from the players of Naft Misan Handball Club, consisting of 20 players who participated in the 2023 training season competitions. The sample size consisted of 20 players, who were randomly divided into two groups. The experimental group, consisting of 10 players, utilized total body resistance training (TRX). The control group consisted of 10 participants who underwent traditional exercises. Four players were selected for exploratory studies, and homogeneity measurements were conducted on basic variables such as age, height, weight, and training age. Parity was also assessed in certain physical abilities, including concentration of attention and accuracy of shooting from jumping forward among handball players. Utilizing the TRX attachment tool in junior handball training programs to implement total resistance training is highly successful in enhancing certain physical capabilities and skill performance. Encouraging coaches to incorporate total body resistance training (TRX) into handball training programs. The Iraqi Handball Federation will take action to organize seminars, workshops, and weight courses for coaches. These events will focus on highlighting the significance of incorporating total body resistance (TRX) training and providing guidance on managing training loads effectively.

**Keywords:** TRX Exercises, Attention Concentration, Shooting Accuracy, Jumping Forward, Handball Players.

### Introduction

Physical education serves as a bridge between the educational and scientific fields (Bailey, 2018). Educators examine it via education, sports management, and sports psychology, whereas scientists investigate it through anatomy, physiology, sports medicine, biomechanics, and sports medicine (Hedlund et al., 2018). Physical education holds a significant role in the development of civilizations and serves as an indicator of the progress and advancement of societies in terms of science, intellect, and economy (Habyarimana, Tugirumukiza & Zhou, 2022). The training method of competition is a crucial aspect that has a beneficial and all-encompassing influence on the preparation and development based on advanced and contemporary scientific principles (Browne et al., 2021). Cognitive processes are crucial for referees in several sports events, including youth handball (Płoszaj, Firek & Czechowski, 2020). One of these essential processes is attentional focus, which significantly influences the successful implementation of diverse strategies (Weinberg & Gould, 2023). Additionally, it aids in the rapid development of solutions for the individual outcome of the player (Tirla et al., 2022). Many instances necessitate swift solutions and intense focus in order to devise appropriate resolutions for the situations that arise in the game (Stahlke & Mirza-Babaei, 2022). Therefore, one must prioritize performance and precision in order to achieve a favorable outcome that significantly enhances



destiny (Tanisawa et al., 2020). All of these amounts require attention, concentration, and the ability to monitor the opponent's movements (Howard, Uttley & Andrews, 2018). They also require the ability to focus attention and employ offensive shooting methods in handball (Salih, Saber & Ahmed, 2022). These methods quickly determine the team's results by involving multiple players in the attack process (Lord et al., 2020). After the ball is controlled by team members, it is swiftly moved to the opponent's court to secure the right position for scoring a goal (Siedentop, Hastie & Van der Mars, 2019). The significance of research lies in the crucial role that referees play in ensuring the quality and accuracy of handball players' kinetic duties during a match. Therefore, it is essential to focus on developing and teaching referees effectively and correctly, with a particular emphasis on attention and concentration. This approach aims to enhance the technical performance of players and improve the educational curricula, which are scientifically prepared to enhance concentration, attention, shooting accuracy, and overall physical qualities. Therefore, conducting research to discover contemporary techniques and exercises, like as TRX, that enhance focus and shooting precision in handball is crucial for the advancement of the sport. This research would also help improve the skills of handball referees.

## Search Problem

Based on the researcher's limited experience in playing the game and his consistent involvement in sports activities as well as coaching in the Federation, he observed that numerous players exhibit a lack of precision in executing certain handball techniques. Additionally, he noticed a deficiency in concentration, attention, and accuracy when it comes to shooting in handball. The performance of destiny, concentration, attention, and accuracy of shooting in youth handball is hindered by various variables that impact the development of referee qualities. This is primarily due to the use of traditional exercises that fail to stimulate enthusiasm, impulsiveness, and the player's effort to master them. The researcher aimed to enhance the precision and concentration of handball shooting by implementing targeted workouts designed to improve attention. These activities were specifically chosen to elevate and cultivate the level of focus and accuracy in shooting handball among young individuals.

## Research Objective

1. Develop exercises (TRX) to develop the focus of attention and shooting accuracy of Naft Misan handball players.
2. Identify the effect of exercises (TRX) to develop the focus of attention and accuracy of shooting among Naft Misan handball players.

## Research hypotheses

1. There is a positive effect of exercises (TRX) to develop the focus of attention and accuracy of shooting among Naft Misan handball players.
2. There is a preference for the experimental group of exercises (TRX) to develop the focus of attention and accuracy of shooting among Naft Misan handball players

## Research Areas

**Human Area:** a sample of Misan oil handball players

**Spatial Area:** Hall of the College of Physical Education and Sports Sciences, of University Misan.

**Temporal Area:** Period from (5/1/2023) to (1/4/2023).

## Methodology

### Research Methodology and Field Procedures

### Research Methodology

The researcher picked the experimental research method because it is appropriate for addressing the topic under investigation and is regarded as a critical way for gaining reliable knowledge. The researcher verified



that the control group and experimental group were designed equally, as the experimental strategy is the most suited method for gaining reliable knowledge (Jones, 2022).

## Research Sample

The researcher's work involves selecting a deliberate sample of research participants from the original research community, which is a group of individuals. Naft Misan is a handball team. The total number of players was 20, and they were divided into two groups: the control group and the experimental group. Each group was randomly allocated ten referees. The experimental group and the control group had to be completely identical in every aspect, with the exception of the experimental variable, which has an effect that is unique to the experimental group. This was done to ensure that any differences that were discovered could be attributed to the experimental variable. The researcher performed a parity analysis on members of both groups, and Table (1) shows the equivalency between them.

**Table 1:** Shows statistical parameters (M, SD, T) value and significance of differences between the experimental and control groups in the pre-tests

Variables	Unit of Measurement	Experimental		Control		T	Sig
		M	SD	M	SD		
Attention concentration	Number	7.14	1.34	6.91	1.15	0.335	0.744
Shooting from jumping forward with handball	Degree	5.14	0.69	4.85	0.98	0.775	0.454

\*df (n-2) (20-2=18) and significance level (0.05)

## Devices and tools that are utilised in research, as well as data collection methods:

### Tools used in the research:

(Interview, observation, test, and questionnaire)

Devices used in the research :

1. Plastic cones (20).
2. Stopwatch (6) type (Sony).
3. A Dell Pentium (4) laptop.
4. Whistle.

### Field Research Procedures:

#### Determine the tests:

The primary requirement for the researcher is to select or create multiple assessments to quantify variables associated with the phenomenon being studied. Consequently, the researcher devised a questionnaire to determine the suitable tests for the subject matter at hand. This questionnaire was distributed among a panel of handball experts, consisting of five individuals. After collecting and analyzing the responses, tests that attained an agreement rate of (70%) or higher were chosen. Table 2 provides a visual representation of these selected tests.

**Table 2:** Shows the percentages of expert selection for the tests under study

Variables	Tests	Frequency	Ratio
Attention concentration	Attention Focus Network	4	80
	Landon Loops Test	1	20
Shooting from jumping forward with handball	Aim from jumping forward	4	80
	Correction after handling	1	20

#### Research tests used:

**Firstly: Attention Focus Network Test** (McConnell & Shore, 2011).



The objective of the Grid concentration test is to determine whether or not a player is able to focus their attention without being distracted by other activity. In order for the player to successfully complete this exam, they will have one minute to do so. During this time, they will be required to place a dash (/) on the number that represents the maximum amount of numbers that follow the specific number that has been selected by the tester. Instead of attempting to put a dash (/) on the number (19) first and then (18) seconds later, the tester should, for example, place a dash (/) on the number (18) and then the number (19), and so on. This is preferable to the alternative. This is due to the fact that the starting number is the number 17, and the tester may choose to mark the starting number with the number 18.

The test can also be carried out in a variety of experimental scenarios, such as the performance of the imam of colleagues or by adding some distracting variables, and it can be performed numerous times by adjusting the initial number that is supplied for each subsequent time. This is due to the fact that the numbers, which are all composed of two numbers like (01), (02), (23) and so on, and the test can also be carried out in a range of different experimental settings. It is also feasible to change the numbers that comprise the focus network, and it is also possible to construct a large number of duplicates of these numbers by rearranging the locations that are between them. For the purpose of preventing the laboratory from being habituated to memorising and remembering information on the location of the numbers, this is done .

**Correction:** The correction is determined by tallying the athlete's accurate crossings within the stipulated one-minute test period. Each correctly crossed number earns one point, and the athlete's score increases with greater points.

**Second Test:** Test Name: Close Aim Accuracy Test of Jumping Forward (Shatnawi et al., 2021) .

**Objective of the test:** To measure the accuracy of aiming close to jumping forward

**Tools used:** Ten legal handballs, with a handball goal depicted on the wall including five circles, each with a diameter of 60 cm; four circles are positioned in each corner, while the fifth is located at the centre of the bottom of the crossbar.

**How to perform:** The laboratory is situated with the ball behind a one-meter line drawn on the ground parallel to the wall drawn by the target. Situated seven meters from the wall, the individual is responsible for correcting ten balls to the circles suspended in the goal after taking three steps, jumping, and throwing the ball with the starting circle in the upper right corner, followed by the left, middle, lower right, and lower left corners.

**Registration:** A score is given for each ball that enters the circle and records the correct number of hits.

### **Exploratory Experience:**

The purpose of an exploratory experiment is to provide the researcher with the opportunity to get practical experience in identifying both the disadvantages and the advantages that are encountered throughout the test in order to proactively address them. Prior to beginning the actual investigation on May 1, 2023, the researcher carried out an exploratory experiment on a selected group of Misan oil handball players, which consisted of four persons. The objective of this experiment was to identify the research methodologies and tools that would be most appropriate for use in the future.

### **Pre-tests:**

Before commencing the training curriculum, the researcher administered pre-tests which consisted of an attention concentration test and a handball shooting accuracy test. The hall of the College of Physical Education and Sports Sciences at Misan University was the location where these examinations were carried out at precisely ten o'clock in the morning on June 1st, 2023.

### **Training Curriculum:**

The activities were only carried out during the training sessions that were conducted for the experimental group, specifically in the At four o'clock in the afternoon on October 1st, 2023, the principal component is



scheduled to take place in the hall of the Faculty of Physical Education and Sports Sciences at Misan University. This scheduled event is scheduled to take place. Immediately after that, the researcher proceeded to carry out activities of a similar nature on the research sample, or more specifically, on the experimental group, which was comprised of 10 various people. The workouts were carried out over the course of a period of eight weeks, with three sessions being carried out each week for the purpose of training. During the course of the tests that are being investigated, the sample was put through two measurements: the first one was carried out before, and the second one was carried out after. With regard to the second group, which was comprised of seven individuals, there was no participation in the specific exercises. Their training, on the other hand, was conducted in accordance with the protocol that had been established by the coach of the squad. In addition to this, they were put through two measurements both before and after the tests that were performed on the experimental group. These measurements were taken both before and after the tests. The following observations were taken into consideration by the researcher while they were putting their own workouts into action: the unique exercises were performed at the beginning of the primary component of the training unit. The duration of these workouts changed from week to week, as did the number of training units, which reached to a total of 24 different exercises. Additionally, the number of training units has also altered. Beginning with the second week, the duration of the workouts started to increase, and this pattern continued until the eighth week and beyond. A total of 56 days were spent performing the exercises throughout the course of eight weeks, as shown in Table 3, which indicates that the total number of days spent performing the exercises was 56.

**Table 3:** Shows the time of workouts in one training unit and one week as well as the overall exercise times over eight weeks.

Work / Times	First	Second	Third	Fourth	Fifth	Sixth	Seventh	Eighth	Total exercise time
Workout time in one training module	10 min	13 min	16 min	19 min	22 min	25 min	28 min	31 min	164 min
Workout time per week	30 min	39 min	48 min	57 min	66 min	75 min	84 min	93 min	492 min

#### Post-tests:

On March 15, 2023, the researcher gave post-tests to both the experimental group and the control group who were included in his research sample. After the required eight-week experiment time had been completed, the researcher continued to apply the same methodology that was employed for the pre-tests. The researcher was eager to determine the particular conditions and criteria for both the pre-tests and the post-tests. These conditions and criteria included aspects such as the scheduling, location, and techniques of testing the participants.

#### Statistical means:

To achieve the study's objective, the researcher employed the Statistical Package for the Social Sciences (SPSS-23) to apply various statistical techniques, including percentage law, arithmetic mean, standard deviation, median, t-test for correlated samples, torsion coefficient, t-test for uncorrelated samples, and t-test for two related averages.

#### Results

##### Presentation, analysis and discussion of results:

##### Presentation and analysis of the results of the pre-and post-tests of the experimental group:



After receiving the experimental group's pre- and post-test data from the researcher and statistically processing it, the results are given in Table (4).

**Table 4:** Shows the results of the pre-and post-tests of the experimental group

Variables	Unit of Measurement	Pre-Test		Post-Test		T	Sig
		M	SD	M	SD		
Attention concentration	Number	7.14	1.34	10.5	0.899	5.46	0.000
Shooting from jumping forward with handball	Degree	5.14	0.69	8.28	0.488	12.05	0.000

As a consequence of looking at Table (4), which gives the findings of the pre-test and the post-test for the experimental group, it is evident that the average score on the pre-test was 7.14 degrees, with a standard deviation of 1.34 at the time of the test. This is the case in terms of attention focus. On the other hand, the average score on the post-test was 10.857 degrees, and the normal variation of the scores was 0.899 degrees. The estimated T value of 5.46 was discovered to be lower than the significance level of 0.00, which indicates that it is statistically significant at the 0.05 level for the purpose of statistical analysis. The use of the T-test to samples that had been connected in the past led to the discovery of this. A significant difference in favour of the post-test is suggested by the fact that there are nine degrees of freedom, which indicates that there is a significant difference. During the pre-test for jumping forward in handball, the average score was 5.14 degrees, and the standard deviation was 0.690 degrees. As a consequence of the jumping forward evaluation, this was the outcome. Based on the results of the post-test, the average score was 8.286 degrees, and the standard deviation was 0.488 degrees. All things considered, this constitutes an increase. When the T-test was applied to correlated samples, it was discovered that the computed T value (12,05) was lower than the significance level (0.00). Up to the 0.05 threshold of statistical significance, this demonstrates that the T-value is statistically significant. A significant difference in favour of the post-test is suggested by the fact that there are nine degrees of freedom, which indicates that there is a significant difference.

#### **Presentation and examination of the control group's pre- and post-test results:**

The data for the pre- and post-tests of the control group were unloaded from the researcher, and then they were processed statistically in accordance with the information presented in Table (5).

**Table 5:** Shows the results of the pre-test and post-tests of the control group

Variables	Unit of Measurement	Pre-Test		Post-Test		T	Sig
		M	SD	M	SD		
Attention concentration	Number	6.91	1.15	6.06	0.791	3.78	0.001
Shooting from jumping forward with handball	Degree	4.85	0.69	5.17	0.756	6.00	0.000

The information that is presented in Table 5 pertains to the level of concentration and attention that was present in the control group both before and after the examination. An average focus of attention prior to the test was found to be 6.91 degrees, and it was found that there was a standard deviation of 1.15 degrees linked with that



focus of attention. After the completion of the test, the average level of attention focus decreased to 6.06 degrees, with a standard deviation reading of 0.791. This was the result of the assessment. It was determined that the samples were not significant by applying the T-test to correlated samples, and the T value that was obtained was 3.785. This value was found to be below the significance level of 0.01, which shows that the samples were not significant. The fact that this is the case lends credence to the notion that the difference that was seen is statistically significant at the 0.05 level of significance, with 9 degrees of freedom. Based on the findings of the post-test, it is possible to draw the conclusion that the hypothesis that is being tested is supported by the results. When it comes to the adjustment test for jumping forward handball, the data from the pre-test revealed that the average value was 4.857 degrees, and the standard deviation was 0.690 degrees. This information was obtained from the data. After finishing the post-test, the average value was 5.71 degrees, and the standard deviation was 0.756. This was the most recent information available. There was a significant difference between the T value that was generated for the T-test that included correlated samples and the significance threshold of 0.05, which was 6,000. Based on this, it can be concluded that the T-test was successful. Due to the fact that this is the case, it can be inferred that there is a difference that is statistically significant in favour of the post-test. For the purpose of this test, the degrees of freedom that were utilised are listed in Table 6.

## Results of the post-tests for the experimental and control groups: presentation and analysis

**Table 6:** Shows the post-tests of the experimental group and control group.

Variables	Unit of Measurement	Experimental		Control		T	Sig
Attention concentration	Number	10.5	0.899	6.06	0.791	4.15	0.000
Shooting from jumping forward with handball	Degree	8.28	0.488	5.17	0.756	7.56	0.000

A demonstration of the results of the post-tests that were given to both the experimental group and the control group can be seen in Table (6). The experimental group was found to have a standard deviation of 0.899, which is equivalent to a mean score of 10.85 degrees on the attention concentration network test. This may be demonstrated through the use of statistical analysis. To put this into perspective, the group that was used as the control had a mean score of 6.06 degrees, and the standard deviation was 0.791. When applied to samples that are not related to one another, the T-test can be used to determine whether or not there is a significant difference in favour of the experimental group. If the estimated T value is more than 4.15 at a significance level of 0.05 and with 18 degrees of freedom, this indicates that there is a significant difference in favour of the experimental group. During the course of the trial, the experimental group was subjected to a jumping forward handball adjustment test. The findings revealed that the average angle was 8.286 degrees, with a standard deviation of 0.488 degrees. For the sake of putting this into perspective, the control group had an average angle of 5.71 degrees, with a standard deviation of 0.756%. The T-test indicated significance at a significance level of 0.05 with 18 degrees of freedom if the estimated T value is greater than 7.56 at a significance level of 0.00. This is the case also if the significance level is 0.00. When the T-test is applied to samples that are not known to be linked with one another, this is the situation that arises. As a consequence of this, there is a significant differentiation that is in favour of the group that took part in the experiment.

## Discussion of the results:



As a result of the data that is shown in Table (4), which compares the results of the experimental group for the tests that were investigated as well as their scores before and after the tests. Table (5), which compares the pre-test and post-test scores of the control group for the same tests, and Table (6), which display the post-test scores of both the experimental group and the control group, are carefully examined, it becomes clear that the experimental group demonstrated a more significant degree of progress in comparison to the control group. There was a significant improvement in the outcomes of the experimental group as a result of the increased flexibility of the abdominal muscles, the absence of spinal convexity, the enhanced flexibility of the ligaments, the increased strength of the muscles, and the increased flexibility of the chest muscles. All of these factors contributed significantly to the improvement. The form of the rehabilitation program that was developed and employed further contributed to the development of the abdominal muscles and the flexibility of the body. This was an additional factor that contributed to the growth of the body. Exercises have the ability to impact the release of fluids that are both feeding and laxative for cartilage. This is accomplished by promoting the movement of the joint, synovial portfolios, and lining membranes. This contributes to the smooth and gentle action of the joint, enhances joint mobility, and upgrades and improves the functional state of the circulatory and respiratory systems. Additionally, this leads to gains in joint mobility. Exercising also improves muscle tone and flexibility, which are all elements that contribute to the major influence that workouts have on the joints. workouts also have a significant impact on the joints. According to Mohammed and Kzar (2021), an athlete who possesses profound attention is physiologically capable of regulating the inputs and emotions that influence his state of being while concentrating, and he will also be in command of his motor duties. In addition, he will be able to do his motor obligations with ease. It has been demonstrated through scientific research that this is the case. Trope, Liberman, and Wakslak (2007) provide evidence that enhancing a player's mental and mental capabilities improves his predictability. What they mean by this is that the referee's capacity to envision forthcoming events during the match is improved. Additionally, the referee's capability to execute all fate and responsibilities and maintain balanced control of the course of play throughout the match is developed. The researcher holds the belief that the paramount attribute of this skill is its capacity for precise correction. The execution of diverse exercises pertaining to this skill as well as others cultivates a heightened level of focus in order to effectively execute the technical responsibilities of this skill with exceptional precision. Specifically, accuracy is a fundamental and critical component of the skill of successful correction and must be consistently developed (Wulf et al., 2002; Zimmerman, 2006).

## Conclusions

1. The experimental group of Naft Misan handball players experienced positive effects on attention concentration and handball shot accuracy as a result of TRX exercises .
2. The experimental group of handball players has a distinct advantage in enhancing their attention span and improving their shot accuracy.

## Recommendations

1. We are including TRX exercise components into all training units for various categories, including other training categories.
2. Trainers must rely on the efficacy of these trainings, since they represent a vital training methodology.
3. It is important to focus on this particular group and make an effort to include them in society by providing care and involving them in all sporting activities for their overall growth and development.

## References





1. Al Behadili, H. J. H., & Kasim, M. A. (2022). Developing Ball Dribbling And Passing Skills Using The Integrative And Reciprocal Methods Of Emerging Footballers. *Eurasian Journal of Humanities and Social Sciences*, 11, 76-82.
1. Al Behadili, H. J. H., & Kasim, M. A. (2022). Effects Of A Training Program For The Plyometric On The Harmonic Abilities And Muscular Ability Of Football Players. *European Journal of Interdisciplinary Research and Development*, 6, 60-69.
2. Al Behadili, H. J. H., & Kasim, M. A. (2022). The Implications For Learning Of Transferring On Passing Skills In Junior Football Players. *Open Access Repository*, 8(9), 39-49.
3. Ali, H. F. S., & Kasim, M. A. (2022). The Effect Of An Educational Curriculum Using The Jigsaw Strategy To Learning Skills Of Volleyball For Secondary School Students. *European Journal of Interdisciplinary Research and Development*, 9, 160-168.
4. Ali, H. F. S., & Kasim, M. A. (2022). The Effect Of Using The Cooperative Learning And Blended Learning Method In Improving The Level Of Students Performance In Learning Volleyball For Secondary School Students. *American Journal of Interdisciplinary Research and Development*, 11, 231-242.
5. Bailey, R. (2018). Sport, physical education and educational worth. *Educational Review*, 70(1), 51-66.
6. Browne, P., Sweeting, A. J., Woods, C. T., & Robertson, S. (2021). Methodological considerations for furthering the understanding of constraints in applied sports. *Sports Medicine-Open*, 7, 1-12.
7. Habyarimana, J. D. D., Tugirumukiza, E., & Zhou, K. (2022). Physical education and sports: A backbone of the entire community in the twenty-first century. *International Journal of Environmental Research and Public Health*, 19(12), 7296.
8. Hedlund, D. P., Fletcher, C. A., Pack, S. M., & Dahlin, S. (2018). The education of sport coaches: What should they learn and when should they learn it?. *International Sport Coaching Journal*, 5(2), 192-199.
9. Howard, C. J., Uttley, J., & Andrews, S. (2018). Team ball sport participation is associated with performance in two sustained visual attention tasks: Position monitoring and target identification in rapid serial visual presentation streams. *Progress in brain research*, 240, 53-69.
10. Hussein, A. T., & Kasim, M. A. (2022). The Effect Of Applying The Strategy Of Educational Scientific Pillars On The Level Of Performance Of SWOMe Handball Skills Among Players Misan University. *American Journal of Research in Humanities and Social Sciences*, 15, 51-63.
11. Jabbar, Q. M., & Kasim, M. A. (2023). Social Adaptation And Psychological Adjustment And Their Relationship To Defensive Skills In Volleyball For The Premier League. *European Journal of Interdisciplinary Research and Development*, 12, 134-143.
12. Jones, I. (2022). *Research methods for sports studies*. Routledge.
13. Kasim, M. A. (2022). Effects Of Together Learning On University Students To Achievement Motivation. *Open Access Repository*, 8(05), 57-65.
14. Kasim, M. A. (2022). Evaluation Implementing Cooperative Learning In Physical Education College Programs To Basic Handball Skills Learning In Universities Iraqi. *ResearchJet Journal of Analysis and Inventions*, 3(04), 289-297.
15. Lord, F., Pyne, D. B., Welvaert, M., & Mara, J. K. (2020). Methods of performance analysis in team invasion sports: A systematic review. *Journal of sports sciences*, 38(20), 2338-2349.
16. McConnell, M. M., & Shore, D. I. (2011). Mixing measures: testing an assumption of the Attention Network Test. *Attention, Perception, & Psychophysics*, 73, 1096-1107.



17. Mohammed, N. B., & Kzar, M. H. (2021). The effect of the use of exploratory exercises in improving concentration of attention and skills of chest handling and correction of basketball stability for people with special needs. *Revista iberoamericana de psicología del ejercicio y el deporte*, 16(4), 7.
18. Płoszaj, K., Firek, W., & Czechowski, M. (2020). The Referee as an educator: Assessment of the quality of referee–players interactions in competitive youth handball. *International journal of environmental research and public health*, 17(11), 3988.
19. Salih, M. M. M., Hashim, R. S., & Kasim, M. A. (2021). Forecasting Achievement Sports through Cooperative Learning in Handball Training in Physical Education. *Annals of Applied Sport Science*, 9(3), 0-0.
20. Salih, M. S., Saber, A. A. M., & Ahmed, A. L. M. M. (2022). The effect of an educational program using mental practice to developing the cognitive abilities and offensive skills of handball for students. *Turkish Journal of Computer and Mathematics Education (TURCOMAT)*, 13(03), 799-813.
21. Shatnawi, M. M., Al-Jadaan, D. A. N., Ahmad, M. A., & Al-Saeedin, M. S. (2021). Analytical Study Of Some Biomechanical Variables For The Accuracy Of The Performance Of The Correction Skill By Jumping Forward With A Hand Ball. *Turkish Journal of Physiotherapy and Rehabilitation*, 32(3).
22. Siedentop, D., Hastie, P., & Van der Mars, H. (2019). *Complete guide to sport education*. Human Kinetics.
23. Stahlke, S., & Mirza-Babaei, P. (2022). *The game designer's playbook: an introduction to game interaction design*. Oxford University Press.
24. Tanisawa, K., Wang, G., Seto, J., Verdouka, I., Twycross-Lewis, R., Karanikolou, A., ... & Pitsiladis, Y. (2020). Sport and exercise genomics: the FIMS 2019 consensus statement update. *British journal of sports medicine*, 54(16), 969-975.
25. Tirla, A., Islam, F., Islam, M. R., Ioana Vicas, S., & Cavalu, S. (2022). New insight and future perspectives on nutraceuticals for improving sports performance of combat players: Focus on natural supplements, importance and advantages over synthetic ones. *Applied Sciences*, 12(17), 8611.
26. Trope, Y., Liberman, N., & Wakslak, C. (2007). Construal levels and psychological distance: Effects on representation, prediction, evaluation, and behavior. *Journal of consumer psychology*, 17(2), 83-95.
27. Weinberg, R. S., & Gould, D. (2023). *Foundations of sport and exercise psychology*. Human kinetics.
28. Wulf, G., McConnel, N., Gärtner, M., & Schwarz, A. (2002). Enhancing the learning of sport skills through external-focus feedback. *Journal of motor behavior*, 34(2), 171-182.
29. Zimmerman, B. J. (2006). Development and adaptation of expertise: The role of self-regulatory processes and beliefs. *The Cambridge handbook of expertise and expert performance*, 186, 705-722.