



SPECIAL EXERCISES COMPOSITE AND THEIR IMPACT ON THE DEVELOPMENT OF BALANCE AND THE SKILL OF THE INDIVIDUAL DEFENSIVE WALL BY JUMPING HIGH AMONG MISAN NAFT PLAYERS IN HANDBALL

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Abstract

The objective of the study was to determine the influence of specialised compound exercises on the enhancement of balance and the ability of individual defensive wall players to jump higher in Naft Misan handball. The researcher employed an experimental approach that was suitable for the study's nature. The sample comprised 20 players from Anbar Sports Club, who were deliberately selected and divided into two groups: a control group and an experimental group, determined by lottery. Each group consisted of 10 players. The exploratory experiment was conducted, followed by the tribal tests, and finally the main experiment, which lasted for 8 weeks with 3 training units per week. The researcher considered the training level, age stage, and physical and skill abilities of the sample. The obtained results were processed using appropriate statistical methods. The researcher concluded that the special compound exercises applied to the research sample had a significant impact on the development of balance and defensive wall skill in high jump players of Naft Misan handball.

Keywords: Special Exercises, Composite, Balance, Individual Defensive, Jumping High.

Introduction

The countries of the world are striving to achieve scientific advancement and training methods to provide teachers with simplified knowledge, curricula, and concepts (Tan, 2021). This is done to prepare and enhance sports performance, aiming to reach higher levels (Hardy, Jones & Gould, 2018). Based on Siedentop, Hastie, and Van der Mars's 2019 research, there has already been a discernible enhancement in the general level of sports, which calls for the introduction of measures that are capable of effectively addressing this development. According to Pangrazi and Beighle (2019), in order to meet the requirements of contemporary educational standards, it is essential to develop school teams that are staffed with players who have participated in extensive and organised training programs since they were children. These programs should cover various aspects such as physical fitness, skills development, strategic planning, intellectual growth, psychological well-being, and teamwork (Maleté et al., 2022). By doing so, a foundation of talented students can be built for the future (Ronkainen & Ryba, 2020). The correlation between fundamental skills and the capacity to maintain a harmonious relationship is crucial in the training process (Lisinskiene, 2018). It is imperative for the individual's defensive prowess to possess a solid foundation in the skill of leaping high in defense (Nayyef, Khalil & Abd Al_Hadi, 2023). This proficiency empowers the athlete to execute a diverse range of defensive maneuvers, enabling them to engage in multiple activities and ultimately ascend to the pinnacle of their performance (Mujika et al., 2018). The significance of this research lies in the researcher's endeavor to design intricate exercises aimed at assessing their influence on an individual's ability to maintain balance and execute high jumps as a defensive wall in the game of handball. Handball is a prevalent sport in Iraqi schools, with



regular school competitions. This study represents a modest contribution by educational professionals to enhance the educational process and achieve the desired standards. The individual's defensive prowess is demonstrated by their ability to jump to great heights. Based on a comprehensive understanding of the significance and function of the skill of high jumping in individual defensive wall techniques, the researcher aimed to design intricate exercises that enhance the development and proficiency of this skill. The goal was to assist club coaches in elevating the performance level of their teams, improving results, and making a positive contribution to overall motor function and performance development.

Search Problem

Players must possess a specific level of balance since there is a strong connection between their abilities and their ability to maintain equilibrium (Jadczyk et al., 2019). This balancing ability is dependent on the technical components of developing and improving motor skills (Paillard, 2019). Furthermore, in regards to sports training, the utilization of diverse training techniques and the development of technical skills present a genuine opportunity to enhance one's level of abilities, particularly in terms of motor coordination and balance (Appelbaum & Erickson, 2018). This could be attributed to the underutilization of teachers in developing the ability to balance, as well as the presence of weaknesses in the individual's defensive wall's jumping capabilities (Ishac, 2018). The researcher believes that improving the skill of the individual defensive wall to jump high is crucial for training and has a significant impact on reducing time and effort required for the educational process.

Research Objectives

1. Setting special exercises composite and their impact on developing balance and the skill of the individual defensive wall by jumping high among Misan Naft players in handball.
2. Identifying complex exercises and their impact on developing balance and the skill of the individual defensive wall by jumping high among Misan Naft players in handball.

Research Hypothetically

1. There are differences that are statistically significant between the results of the pre-test and the post-tests that were administered to the experimental group, and the findings of the post-tests are more favourable.
2. There are differences that are statistically significant between the results of the post-tests that were administered to the experimental group and the control group, and the experimental group was found to have a higher score.

Research Areas:

Human Area: Players of Naft Misan Club, which numbered (20) players.

Time Area: 20/9/2022 to 1/ 12/2022.

Spatial Area: Hall of the Faculty of Physical Education and Sports Sciences.

Methodology

Research Methodology

The study approach must be suitable for the nature of the problem and well-articulated (Jones, 2022). As a result, the researchers decided to go with the experimental approach because it was suitable for the subject matter that they were investigating. The participants were divided into two experimental groups that were comparable to one another.

Research Sample

According to Ericsson and Harwell (2019), the sample is a subset that is made up of individuals that are representative of the initial population or model that the researcher is focussing their entire study and effort on. The research sample consisted of 20 handball players from the Misan Nift team, deliberately selected. The players were divided into two groups, namely the control group and the experimental group, with 10



players in each group. It was ensured that the two groups were equivalent in all aspects, except for the experimental variable that only affected the experimental group. This was done to isolate and measure the impact of the experimental variable. The researcher demonstrated the equivalence of the two groups by doing a parity analysis on the individuals who were a part of both of the groups that are presented in Table 1.

Table 1: Shows the statistical characteristics (arithmetic mean, standard deviation, computed value (t), and significance of the differences that were observed between the control group and the experimental group in the pre-tests.

| Variables | Unit of Measurement | Control | | Experimental | | T |
|---------------------------------------|---------------------|---------|------|--------------|------|-------|
| | | M | SD | M | SD | |
| Ability to balance | Second | 90.86 | 1.69 | 89.26 | 1.95 | 0.682 |
| Single defensive wall by jumping high | Degree | 3.90 | 0.84 | 3.70 | 0.94 | 0.804 |

*df significance level (0.05).

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

Tools used in the research:

Arab and worldwide sources, as well as an international information network named the Internet, exploratory experience, tests and measurements, statistical means of the SPSS system, and personal interviews are all examples of research methodologies that are significant.

Devices used in the research :

PC with a Dell Pentium four processor. We have a scale, ten handballs, a scale, a Canon 2900 laser printer, and two stopwatches from Sony.

Field Research Procedures:

Determine the tests:

The most essential thing that he requires is for the researcher to prepare a form in order to select the appropriate tests for the skills that are being investigated. This form was then presented to a group of experts in sports training and handball tests together with their number (4) Annex (1) and (2). Following the collection and unloading of the forms, tests were chosen that achieved a percentage of agreement of seventy percent or higher, as shown in table (2).

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

| Skills | Tests | Repetition | Percentage |
|---------------------------------------|---------------------------------------|------------|------------|
| Ability to balance | Metatarsal Stand Test | 3 | 75% |
| | Walk on balance beam | 1 | 25% |
| Single defensive wall by jumping high | Defensive firewall speed | 1 | 25% |
| | Single defensive wall by jumping high | 3 | 75% |

Search tests:

First: Fixed Balance Tests

Test Name: Metatarsal Stand Test (McPoil et al., 2008) .

Purpose of the test: To assess static balance, the laboratory is positioned on the ground utilising a metatarsal.

Necessary tools: a stopwatch or a wristwatch with a second hand .

Performance Description: The tester assumes a unilateral stance, preferably with an elevated foot, and positions the second foot adjacent to the inner side of the supporting leg's knee.



- ❖ When the beginning signal is provided, the laboratory rises its posterior off the ground and seeks to maintain stability for as long as possible without changing the extremities of its foot or making touch with the ground.

Test instructions:

- ❖ Performs the test without shoes.
- ❖ Hands should be maintained securely in the centre.
- ❖ In the event that the tips of the foot are shifted out of place or if the ground is touched with the heel of the foot, the probationary period will come to an end.
- ❖ Performance allows three attempts.

Test Management :

Arbitrator: initiates the signal, oversees performance, and computes duration.

Recorder: Calls on testers and records the results.

Calculation of grades: The time that begins at the instant the butt is raised off the ground and continues until certain performance errors and loss of balance are made is the time that is used to compute the best time for three attempts.

Second: The test is an individual defensive wall by jumping high

Purpose of the test: to measure the performance of an individual defensive wall by jumping high (Pehar et al., 2017).

Tools used: (6) handballs, (2) flags.

Method of performance: Player A passes to Player B who aims between the flag and the defending player (E) so that the level of shooting is slightly higher than his height, then player (D) passes to the aiming player (C), who aims between the opposite flag and the defending player (E) and slightly higher than him, each shot is matched alternately, that the defending player (E) makes an individual repelling wall by jumping high .

Test conditions:

- ❖ The shooter should not enter the 9 m area.
- ❖ Aiming slightly above the height of the guns.
- ❖ Taking into account the rotation in receiving and aiming between the rear attackers.
- ❖ The defender's commitment to the repelling wall by jumping high and moving quickly to standby mode after completing the block.

Scoring: Each successful single defensive wall with a high jump is awarded a score.

Exploratory Experience:

A sample of six players from the Naft Misan Handball Club participated in an exploratory experiment that was carried out on Thursday, March 10, 2022. This was done prior to the researcher doing his research in order to select research methodologies and tools.

Pre-tests:

At precisely ten o'clock in the morning on October 10, 2022, the researcher carried out the pre-tests (balance ability and an individual defence wall by jumping high) in a private hall located within the College of Physical Education at Misan University. These tests were completed prior to the beginning of the training curriculum.

Training Curriculum:

The following delineates the procedures employed in compound exercises aimed at enhancing balance and the capability of an individual defensive wall to effectively contest high-jumping players of Naft Misan Handball Club:



1. Composite Exercise Target Balance Ability and Individual Defensive Wall Jump High .
2. The duration of the training lasted (8) weeks.
3. The number of training units that are completed each week is three. According to the program, training sessions are held on Sundays, Tuesdays, and Thursdays each week.
4. Compound exercises vary in harmony and balance ability. And an individual defensive wall by jumping high players of Naft Misan handball club.
5. A break is given between the exercises prepared by the researcher.

Post-tests:

The researcher administered post-tests to both the experimental and control groups of his research sample on Friday, 11/25/2022. He used the same methodology as the pre-tests, following the completion of the prescribed 8-week experiment period. The researcher ensured that all conditions and requirements for the pre-tests were met during the post-test phase, including considerations of time, location, and testing methods .

Statistical methods

The researcher used the statistical bag for social sciences (SPSS 23) in order to accomplish the goal of the study. This bag included the following statistical tools: 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 and analysis of the results of the pre-test and post-tests of the experimental and control groups, analyzing and discussing them:

The researcher purposefully administered the tests to the primary research sample, which consisted of ten players for each of the two groups (the control group and the experimental group as well).

Presentation and analysis of the results of the pre-test and post-tests of the group Balance ability and an individual defensive wall by jumping high Naft Misan Handball Players :

After the researcher had unloaded the data for the pre-test and post-tests of the experimental group, and after the data had been processed statistically, the results are given in Table3.

Table 3: The result of the pre-test and post-tests of the experimental group shows the balance and an individual defensive wall by jumping high for the players of Naft Misan Handball Club

| Variables | Unit of Measurement | Pre-Test | | Post-Test | | T | Sig |
|---------------------------------------|---------------------|----------|------|-----------|------|------|-------|
| | | M | SD | M | SD | | |
| Ability to balance | Second | 89.26 | 1.59 | 72.38 | 1.13 | 7.84 | 0.000 |
| Single defensive wall by jumping high | Degree | 3.70 | 0.94 | 4.20 | 1.03 | 9.39 | 0.000 |

***df (10-1=9), statistically significant at the level of significance $\geq (0.05)$**

The results of the pre-test and the post-test that were administered to the experimental group are presented in Table 3, which illustrates the results of the tests. When compared to the pre-test, the test revealed the ability to retain an average score of 89.26 points, with a standard deviation of 1.59. According to the findings of the post-test, the standard deviation was 1.13 degrees, and the average score was 72.38 degrees across the entire exam. The value of (T) that was produced (7.84) was found to be lower than the significance threshold (0.00), and it also had a degree of freedom (9). This was determined through the utilisation of the T-Test rule for correlated samples. Consequently, the difference is statistically significant, which lends support to the post-test evaluation. When jumping high, the average angle that was reached in the pre-test of the individual defensive wall test was 3.70 degrees, and the standard deviation was 0.94 degrees. Following the completion



of the post-test, the average angle was found to be 4.20 degrees, with a standard deviation worth 1.03. The value of (T) that was acquired was found to be 9.39, which was found to be below the significance level of 0.00 and with a degree of freedom of 9. This was discovered through the application of the T-Test law for correlated samples. Therefore, the difference that was found is statistically significant and can be considered to be in favour of the post-test.

Presentation and analysis of the results of the pre- and post-tests of the control group Ability Balance Individual defensive wall by jumping high.

After the researcher had unloaded the data for the pre- and post-tests of the control group, Table 4 displays the statistical processing that was performed on the data.

Table 4: The result of the pre-and post-tests of the control group shows the ability to balance an individual defensive wall by jumping high.

| Variables | Unit of Measurement | Pre-Test | | Post-Test | | T | Sig |
|---------------------------------------|---------------------|----------|------|-----------|------|------|-------|
| | | M | SD | M | SD | | |
| Ability to balance | Second | 90.86 | 1.06 | 88.74 | 1.65 | 2.33 | 0.000 |
| Single defensive wall by jumping high | Degree | 3.60 | 0.84 | 3.90 | 0.56 | 3.54 | 0.000 |

***df (n-1) (10-1=9), statistically significant at \geq significance level (0.05)**

Table 4, which presents the results of the pre-test and post-test for the control group in the experiment, reveals that the average score for balance ability in the pre-test was 90.86 degrees, with a standard deviation of 1,06. This information is presented in reference to the experiment. This information is presented in the context of the experiment. The table makes this quite evident to the reader. A drop in the average balancing ability score to 88.74 degrees was seen in the post-test, with a standard deviation of 1,065. The computed value of T (2.33) was determined to be below the level of significance (0.00) with 9 degrees of freedom when the T-Test was applied to samples that appeared to be connected with one another. In light of this, it can be concluded that the difference is statistically significant and that the post-test stands to benefit. A standard deviation of 0.84 was found to be associated with the average angle of 3.60 degrees that was reached in the pre-test of the individual defensive wall test when jumping high. A standard deviation of 0.56 was observed in the post-test, which showed that the average angle had increased to 3.90 degrees. The value of (T) that was produced, which was 3.54, was found to be below the significance level of 0.00 when the T-Test law was applied to correlated samples. The degree of freedom was nine. The outcome of the post-test is supported by the fact that the difference that was found is statistically significant.

Presentation and analysis of the results of the post-tests of the experimental and control groups of the binding amount on the kinetic and balance and test the individual defensive wall by jumping high handball

The data that was received from the researchers about the two-dimensional tests that were carried out on both the experimental and control groups was first unloaded, and then the data was processed statistically in line with the information that was shown in Table 5.

Table 5: Shows the post-tests of the experimental and control groups' balance ability and individual defensive wall test by jumping high handball

| Variables | Unit of Measurement | Control | | Experimental | | T | Sig |
|--------------------|---------------------|---------|------|--------------|------|------|-------|
| | | M | SD | M | SD | | |
| Ability to balance | Second | 88.74 | 1.65 | 72.38 | 1.13 | 4.74 | 0.000 |



| | | | | | | | |
|--|--------|------|------|------|------|------|-------|
| Single defensive wall by jumping high | Degree | 3.90 | 0.56 | 4.20 | 1.03 | 5.66 | 0.000 |
|--|--------|------|------|------|------|------|-------|

***df (n-2) (20-2=18), statistically significant at \geq significance level (0.05)**

In Table 5, the results of the post-tests that were administered to both the experimental group and the control group are illustrated. The experimental group's arithmetic mean was 72.38 degrees, and their standard deviation was 1.13 degrees. This was determined by the test of their ability to maintain a balance. Those in the control group, on the other hand, had an arithmetic mean of 88.74 degrees and a standard deviation of 1,065. When the T-Test rule is used to samples that are not associated with one another, if the computed value of (T) is 4.72, which is lower than the significance threshold of 0.00, and if there is 18 degrees of freedom, this shows that the difference is statistically significant and favours the experimental group. The experimental group achieved an average angle of 4.20 degrees during a vertical leap test that was designed to evaluate an individual's capacity to protect themselves against a wall. The standard deviation value for this test was 1.03. The control group, on the other hand, had an average angle of 3.90 degrees, with a standard variation of 0.56 degrees when compared to the other groups. In the event that the estimated T-value is 5.66, which is lower than a significance level of 0.00, and there are 18 degrees of freedom, then this indicates that there is a significant difference in favour of the experimental group from the control group. When the T-test is applied to samples that are not correlated with one another, this instance of the scenario takes place.

Discussion of the Results

It is evident that the experimental group exhibited a greater degree of progress than the control group based on an examination of the data presented in Table (3), which details the pre- and post-test scores of the investigated tests, Table (4), which details the post-test scores of the same tests, and Table (5), which compares the post-test scores of the experimental and control groups. In contrast to the control group, which adhered to the exercises prescribed by the team coach without utilising specialised exercises to construct an individual defensive wall through high jumping and balance, the experimental group achieved superior level development. Reverting to the results presented in tables (3), (4), and (5) serves to reinforce this discourse. Based on the consistent participation of the control group in the training units and the logical and objective rationale for the appearance of these differences—namely, the exposure of group members to a set of research variables consisting of applied vocabulary integrated into a training curriculum and organised in accordance with these variables—the researcher concludes that the development of the control group was due to its regularity in the training units. These disparities were more effectively illustrated through statistical analyses of the outcomes of the post-tests in comparison to the pre-tests due to the group's members' implementation throughout the training curriculum. As the ultimate culmination of all the abilities executed by the handball player, this development is ascribed to this particular skill by the researcher on account of its significance in the overall training process. Furthermore, players' and spectators' ardour for the ability to score is the most essential attribute of this skill (Moskowitz & Wertheim, 2011; Papineau, 2017). This is because it is the sole means by which the net can be shaken, inducing in all involved the exhilaration of triumph and the thrill of competition. Furthermore, the successful execution of these skills relies on the consistent coordination of neuromuscular movements. These skills are implemented through repetitive exercises, which not only enhance performance but also provide an exciting experience for players. This helps to prevent boredom that can arise from repetitive exercises. Additionally, the appreciation for movement and motivation are crucial factors in the learning and mastery of these skills (Fernández-Gavira et al., 2021; Mitchell, Oslin, & Gryphon, 2020). The researcher posits that the primary attribute of the correction skill is the precision and successful



achievement of its goals. This is accomplished by fostering a strong focus on executing the technical responsibilities of the skill with great accuracy. Accuracy is a crucial and significant component of successful correction and should consistently be cultivated and improved (Formenti et al., 2019; Mitchell, Oslin & Gryphon, 2020).

Conclusions

1. The suggested technique, which incorporates the utilisation of compound exercises, equilibrium, and defensive abilities inside the exercises, has a beneficial influence on the research variables.
2. The growth of harmonic abilities, specifically balance ability, is evident in the post-test results.
3. There has been a significant improvement in the post-test scores for the skill of individual defensive wall by jumping high in handball.
4. There are notable disparities between the pre-test and post-test results of the research variables, specifically in the ability to maintain balance and the individual's defensive wall by jumping high in handball.

Recommendations

1. An individual's defensive prowess in handball is enhanced by focusing on building talents, balance, and jumping high.
2. Concentrate on instructing the player in the skills of balance and its various forms when facing an opponent and in circumstances that closely resemble actual gameplay.
3. When designing harmonic activity programmers, it is important to incorporate various types of exercises that promote balance. This is crucial for the comprehensive development of physical, motor, skill, and psychological abilities.
4. Conduct additional research to determine the impact of combining exercise, balance, and skills on those not included in the current study, considering different age groups and both genders.

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