

The Impact of Controlling the Repetition of Training Load Through Performing Skill Exercises on the Performance of Youth Academy Athletes in the State of Djelfa

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Abstract:

The aim of the study was to investigate the impact of controlling the repetition of training load through performing skill exercises on the performance of youth academy athletes in the state of Djelfa. We employed an experimental approach to achieve the study objective. The research sample was randomly selected from players of the sports academy, totaling (18) players. The sample underwent skill exercises according to a training program for a duration of (10) weeks, with (3) sessions per week. Among the data collection tools used were a set of football skill tests. The results revealed:

Significant differences between pre-test and post-test measurements for the control group in the level of performance of skill abilities for youth academy athletes in Djelfa.

Significant differences between pre-test and post-test measurements for the experimental group in the level of performance of skill abilities for youth academy athletes in Djelfa.

Significant differences between the control and experimental groups in post-test measurements in the level of performance of skill abilities for youth academy athletes in Djelfa.

Keywords: Training Load, Skill Exercises, Youth Sports Academy.

1-Introduction:

It is important to note the difference between modern scientific athletic training and other similar activities, as there are many activities practiced under the name "sports practice" that do not use the scientific principles of athletic training. These activities rely on implementing spontaneous training units that are not derived from a scientific training plan. Progress in the levels of players executing these activities is often attributed more to factors of maturation and physical and functional development than to the impact of the activities themselves. (Mufti Ibrahim Hamad, 2008, p. 21).

Biological systems can adapt to heavy loads larger than the requirements of normal daily activities. Training loads should be gradually increased to help the body adapt better and avoid injuries. The variety in the type, volume, and intensity of training allows the body to recover to achieve excessive compensation, and the increase in load should continue progressively, allowing adaptation to occur. Otherwise, the effect of training will plateau at a certain point and will not allow the player's performance to develop further. (Nabila Abdel Rahman, and Salwa Azaldin Fukri, 2004, p. 119)

From a physiological perspective, training load is the amount of impact exerted on the organs and systems of the body as a result of specific muscle work, reflected in internal organs through functional responses, meaning functional responses whose repetition leads to relatively chronic adaptation (Al-Hasnawi, Ahmed Yousif, 2014, p.47).

To control training load, it is necessary to follow scientific principles and rules using methods and techniques that serve training objectives. Controlling load through repetition entails using the intermittent training method, involving a series of repetitions with rest intervals (recovery periods) between each repetition, according to developmental trends. The importance and nature of rest period timing complements the player's ability to repeat training sets (such as walking, light running, leg swings, arm swings, etc.) before fatigue sets in. Using simple exercises (light running) helps eliminate lactic acid build-up in the muscles, reduces fatigue, and aids in replenishing energy sources consumed during performance, thus enabling high-intensity repetition for relatively short periods (Al-Bassati, 1998, p.88).

The results of the research conducted by Khalid K. Al-Hawari (2022) indicated that football coaches face many obstacles that hinder their ability to properly and optimally prepare players. The obstacles related to resources and equipment were found to be at the forefront, followed by obstacles related to players' lifestyles. Additionally, obstacles related to the players themselves within the team were identified. Furthermore, the findings of a study by Mahmoud Mahfouz (2023) highlighted the contribution of the perceived exertion measurement session method in reaching the optimal and suitable training for middle school football players.

Thus, the importance of the study lies in preparing a training program to control the repetition of load effectively, by performing skill exercises for young football players, by answering the following question:

-Does controlling the repetition of training load through performing skill exercises affect the young athletes of the sports academy in the state of Djelfa?

-Several sub-questions stem from the above question:

-Are there statistically significant differences between pre-test and post-test measurements for the control group in the level of skill performance abilities for young athletes of the sports academy in the state of Djelfa?

-Are there statistically significant differences between pre-test and post-test measurements for the experimental group in the level of skill performance abilities for young athletes of the sports academy in the state of Djelfa?

-Are there statistically significant differences between the control and experimental groups in post-test measurements in the level of skill performance abilities for young athletes of the sports academy in the state of Djelfa?

2- General objective of the study:

-To investigate the differences between pre-test and post-test in the level of performance of skill abilities among athletes in the sports academy in the state of Djelfa.

-To develop a training program utilizing the principle of training load repetition by conducting skill exercises for in the sports academy in the state of Djelfa province and assess its effectiveness.

-To attempt to demonstrate differences between the research groups in post-test measurements.

3-Research Hypotheses:

1.1. General Hypothesis:

Controlling the repetition of training load through performing skill exercises affects the young athletes of the sports academy in the state of Djelfa.

2.1. Specific Hypotheses:

There are statistically significant differences between pre-test and post-test measurements for the control group in the level of skill performance abilities for young athletes of the sports academy in the state of Djelfa.

There are statistically significant differences between pre-test and post-test measurements for the experimental group in the level of skill performance abilities for young athletes of the sports academy in the state of Djelfa.

There are statistically significant differences between the control and experimental groups in post-test measurements in the level of skill performance abilities for young athletes of the sports academy in the state of Djelfa.

4- The methodological procedures used in the study:

4-1-Methodology:

Due to the nature of our topic, we employed an experimental methodology, utilizing experimental designs for both experimental and control groups.

4-2-Research Sample and the society:

The research society was identified as athletes from sports academy in the state of Djelfa province. The study sample consisted of 18 players, selected purposively for reasons that serve the research procedures.

4-3-Sample Equivalence:

We identified the variables (ball control and dribbling, ball control and dribbling ability, passing accuracy) to ensure the equivalence of the research sample by calculating the values of the coefficient of variance in the variables used in the research.

4-4-Identification of Variables and Measurement Methods:

-Independent Variable: Training Load

-Dependent Variable: Skill Exercises

4-5- Research Tools:

Skill Tests:

A set of skill tests was used as a tool for data collection in this study:

Ball Dribbling Test with (10) markers.

Objective: To measure ball control and dribbling ability.

Specifications: Ten markers are set up with a height of (150) cm between each marker, with a distance of (2) meters between the fifth and sixth markers from the quarter to the right and left, and a distance of (4) meters between them, while the distance for the remaining markers is (2) meters.

Recording: The best time for two attempts is recorded, going and returning.

Ball Dribbling Test with (5) markers.

Objective: To measure the ability to control the ball and dribble.

Specifications: Five markers are set up with a distance of (9) feet between them and between the first marker and the starting line.

Recording: The laboratory calculates the average total time the player takes for the two attempts.

Medium Passing Accuracy Test.

Objective: To measure medium passing accuracy.

Passing towards three circles drawn on the ground with diameters successively (3-5-7) meters.

Grades are given successively (3-2-1), and at a distance of (25) meters, the laboratory passes the ball, and records the best attempt of the two attempts (Al-Nuaimi, Dargham, & Jasim Med, 2007, p. 191).

Scientific Basis of the Tests:

Validity:

To ensure the validity of the physical tests and the proposed training program, the researchers utilized content validity (expert judgment) by presenting them to a group of specialists in the field of sports training and psychology. Subsequently, their opinions were taken into consideration through modification, deletion, and addition of suitable content.

Reliability:

To verify the reliability of the skill tests, the researchers employed the method of test application and retesting on a pilot sample outside the study sample consisting of (06) football players. The time interval between the two applications was one week, and the Pearson correlation coefficient was used to indicate the relationship between the first and second applications. The results of Table (01) demonstrate this.

Table N° 01: Reliability Coefficient for the Skill Abilities under Study among Youth Football Players (n= 06).

Skill Abilities	Unit of Measurement	Reliability Coefficient	Self Validity
Ball Roll Test (10) indicators	Seconds	0.82	0.91
Ball Roll Test (5) indicators)	Seconds	0.89	0.94
Average Pass Accuracy Test	Degrees	0.86	0.93

From the results in Table (01), it is evident that the reliability coefficient for the skill variables ranged between (0.82-0.86), while their self-validity values ranged between (0.91-0.94). All of these values were statistically significant, indicating the stability of the skill tests under study and their suitability for achieving the study objectives.

5- Presentation and Analysis of Results

5-1-Presentation of the results of the first hypothesis:

Table N° 02: Shows the means, standard deviations, and values (T) in the pre- and post-tests of skill assessments for the control group.

		Pre-test	Mean	Standard deviation	T test		Significance
					T	sig	
Ball Roll Test (10) indicators	Pre-test	20.3	0.441				
Ball Roll Test (5 indicators)	Post-test	22.8	0.261	4.998	0.00		significant
Average Accuracy Test	Pre-test	11.7	0.972				
Ball Roll Test (10) indicators	Post-test	12.1	1.05	0.697	0.496		significant
Ball Roll Test (5 indicators)	Pre-test	15.5	1.13				
	Post-test	15.3	1.58	0.343	0.736		significant

(Level of significance:0.05, df= 8 ,T=2.306)

Through Table (02), we observe:

For the ball dribbling test among (10) indicators, the computed T value (4.998) is greater than the tabulated value (2.201) at a significance level of (0.05). The sig value is (0.000), which is less than the alpha value (0.05). This indicates statistically significant differences between the pre-test and post-test measurements for the control group in the medium pass accuracy test.

For the ball dribbling test among (5) indicators, the computed T value (82.922) is greater than the tabulated value (2.201) at a significance level of (0.05). The sig value is (0.000), which is less than the alpha value (0.05). This indicates statistically significant differences between the pre-test and post-test measurements for the control group in the ball dribbling test among (5) indicators.

Regarding the medium pass accuracy test, the computed T value (82.922) is greater than the tabulated value (2.201) at a significance level of (0.05). The sig value is (0.000), which is less than the alpha value (0.05). This indicates statistically significant differences between the pre-test and post-test measurements for the control group in the medium pass accuracy test.

5-2-Presentation of the results of the second hypothesis:

Table N° 03: Shows the means, standard deviations, and T values for the skill tests pre-test and post-test for the experimental group.

		Pre-test	Mean	Standard deviation	T test		Significance
					T	sig	
Ball Roll Test (10) indicators	Pre-test	20.78	1.39				
Ball Roll Test (5 indicators)	Post-test	24.11	0.782	6.255	0.000		significant
Average Accuracy Test	Pre-test	13.11					
			0.781	2.889	0.011		significant
Ball Roll Test (10) indicators	Post-test	14.33	1.000				
Ball Roll Test (5 indicators)	Pre-test	16.33					
			1.32	4.927	0.000		significant
	Post-test	19.11	1.05				

(Level of significance:0.05, df= 8 ,T=2.306)

Through Table (03), we observe:

Regarding the ball dribbling test among (10) indicators, the computed T value (82.922) is greater than the tabulated value (2.201) at a significance level of (0.05). The sig value is (0.000), which is less than alpha (0.05). This indicates the presence of statistically significant differences between pre-test and post-test measurements of the experimental group in the test of average passing accuracy.

Concerning the dribbling test among (5) indicators, the computed T value (82.922) is greater than the tabulated value (2.201) at a significance level of (0.05). The sig value is (0.000), which is less than alpha (0.05). This indicates statistically significant differences between pre-test and post-test measurements of the experimental group in the dribbling test among (5) indicators.

As for the test of average passing accuracy, the computed T value (82.922) is greater than the tabulated value (2.201) at a significance level of (0.05). The sig value is (0.000), which is less than alpha (0.05). This indicates statistically significant differences between pre-test and post-test measurements of the experimental group in the test of average passing accuracy.

5-3-Presentation of the results of the third hypothesis

Table N° 04: Shows the means, standard deviations, and T values in the skill tests in the post-measurement of the two groups.

			Mean	Standard deviation	T test		Significance
					T	sig	
Ball Roll Test (10) indicators	The control group		22.89	0.782			
Ball Roll Test (5) indicators	the experimental group.		24.11	0.780	3.355	0.010	significant
Average Pass Accuracy Test	The control group		12.11	1.05			
Ball Roll Test (10) indicators	the experimental group.		14.33	1.000	8.000	0.000	significant
Ball Roll Test (5) indicators	The control group		15.33	1.58	9.430	0.00	significant
	the experimental group.		22.89	0.782			

(Level of significance:0.05, df= 16 ,T=2.120)

Through Table (04), we observe:

Regarding the ball dribbling test among (10) indicators, the computed T value (82.922) is greater than the tabulated value (2.201) at a significance level of (0.05). The sig value is (0.000), which is less than alpha (0.05). This means there are statistically significant differences between the control and experimental groups in the post-measurement in the test of average passing accuracy.

Concerning the dribbling test among (5) indicators, the computed T value (82.922) is greater than the tabulated value (2.201) at a significance level of (0.05). The sig value is (0.000), which is less than alpha (0.05). This means there are statistically significant differences between the control and experimental groups in the post-measurement in the dribbling test among (5) indicators.

As for the test of average passing accuracy, the computed T value (82.922) is greater than the tabulated value (2.201) at a significance level of (0.05). The sig value is (0.000), which is less than alpha (0.05). This means there are statistically significant differences between the control and experimental groups in the post-measurement in the test of average passing accuracy.

6- Discussion and interpretation of the results:

6-1-Discussion and Interpretation of the First Hypothesis:

Examining the results in Table (02) reveals statistically significant differences between the pre-test and post-test measurements for the control group in the skill tests (ball dribbling test among (10) indicators, dribbling test among (5) indicators, average passing accuracy test). Through presenting the results of the

control group for both pre-test and post-test measurements, we found statistically significant differences between pre-test and post-test results in the level of skill performance for athletes at the Sports Academy in El Djelfa. This is attributed to the participants not being exposed to the content of the applied program.

6-2-Discussion and Interpretation of the Second Hypothesis:

By presenting the results of the experimental group in both pre-test and post-test, significant differences were found in the skill tests (ball dribbling test among (10) indicators, dribbling test among (5) indicators, average passing accuracy test). Researchers attribute this improvement to the proposed program and its diverse and varied exercises, as well as ensuring adequate rest intervals between exercises and sets. The observed development in the experimental group is attributed to the training doses that include the proposed exercises and the effect of progressively increasing the components of the training load, in addition to the execution time of the skill exercises and the precise determination of the relationship between these components for individuals in the experimental group, which contributed to increasing adaptability capabilities. This aligns with the findings of Essam Abdelkhalek (cited by Sinan, 2014) that using training loads leads to a proportional fatigue process, corresponding to the level of that load.

6-3-Discussion and Interpretation of the Third Hypothesis:

The results of the tables indicate significant differences between the control and experimental groups in the post-test, favoring the experimental group in the skill tests (ball dribbling test among (10) indicators, dribbling test among (5) indicators, average passing accuracy test). Researchers attribute this development in control over load repetition during training sessions and within the proposed program to the regulated training doses included in the program, which had a significant impact on the internal muscle structure due to continuous muscular fiber interaction with resistances, resulting in muscle efficiency development functionally to enhance muscle strength, speed, and endurance against muscular fatigue. This aligns with findings by Ahmed Abdul Zahra Abdullah (2013) in his study. Furthermore, the gradual increase in training intensity demonstrates a high degree of physical and physiological adaptation, as indicated by Rasha Talib Dhaab and Zeinab Mazhar Khalef (2013) and Azhar Mohammed Jasim (2013). It is essential to employ the principle of gradual progression in the training process to preserve the athlete's body from fatigue and stress, as emphasized throughout the organized, appropriate, and regulated training program, in addition to utilizing rest intervals between repetitions and training sets, as referenced by Risan Khribat concerning Plato and others, cited by Sinan Abdul Hussein Ali.

Conclusion:

Based on our research and the results obtained, after discussing various relevant studies and the theoretical background we have gathered, which covered various aspects of the research, the following conclusions have been reached:

There are statistically significant differences between the pre-test and post-test measurements for the control group in the level of skill performance for athletes at the Sports Academy in El Djelfa.

There are statistically significant differences between the pre-test and post-test measurements for the experimental group in the level of skill performance for athletes at the Sports Academy in El Djelfa.

There are statistically significant differences between the control and experimental groups in the post-test measurements in the level of skill performance for athletes at the Sports Academy in El Djelfa.

Finally, we offer some scientific and practical suggestions that we consider of great importance for coaches, officials, or the coaching staff alike:

-Attention should be given to the psychological aspects of players before, during, and after training sessions and competitions.

-Training programs for young athletes should be carefully planned and supervised by specialists with precision and care.

-Similar research should be conducted for other age groups and different sporting events.

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