Journal of Namibian Studies, 33 S3 (2023): 3681-3697 ISSN: 2197-5523 (online)

The Effect Of A Proposed Training Program According To The Method Of Integrated Learning (Physical, Technical And Tactical) On The Improvement Of Some Physical Demands For Football Players U21

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Abstract:

This research aims to propose a training program using the integrated training method to develop certain physical attributes (endurance, speed, strength) for football players U21 during the competition based on scientific bases.

The research staff hypothesized the influence of the combined training method positively on the development of certain physical qualities (endurance, speed, strength), and taking into account the nature of the research and the method used. the two samples were chosen by the intentional method, where the control and experimental samples were from the same team, where the training program was applied to the experimental sample, which contains 22 training units at a rate of four units per week for a period of six weeks. and the time of the training unit lasted on average 90 minutes. after emptying the data and statistical processing, the proposed training program using the integrated training method obtained a positive evolution between the pre and post tests in favor of the experimental group.

the proposed training program using the integrated training method obtained a positive evolution in the results of the post-tests between the two control and experimental groups and in favor of the experimental sample.

This indicates the effect of the training program on the development of the level of certain physical attributes (endurance, speed, strength) among the research sample based on the results of the study, the researchers suggested the need to use the integrated training method within the training program due to its positive impact on the development of physical qualities in football, and emphasizing the scientific foundations when developing the training program.

Keywords: integrated training, physical qualities (endurance, speed, strength)

Introduction:

The field of training has been affected in recent years by the scientific and technological revolution, since the training process has taken a form, structure and organization consistent with the state of the new development of methods and means used in the training process. There was a need to choose the best and most recent methods adapted to the specialized activity, with the aim of achieving and investing in the specificity of training related to the type of activity in order to obtain a direct effect to increase skills, physical, functional, tactical, psychological and mental (Stølen, Chamari, Castagna and Wisløff, 2005).

The development that has taken place at the international level of the football teams, which we touched in a spectacular way during the last World Cup, is the result of harmony and physical, skillful, tactical, and functional integration; this harmony and integration did not appear spontaneously and randomly, but rather are the result of coaches' dependence on the science of sports training based on other sciences that reach the best levels and results because "it has been scientifically proven that the response of the body's systems to sports training is of particular importance to know the extent of physical and functional improvement of athletes as well as the state of creativity, innovation and development in the methods and means of sports training through the use of the foundations and principles of sports training and the scientific planning required to prepare complete training programs (Roth and Osbahr, 2018).

This is what prompted us to approach this study, namely the development of certain physical qualities necessary for football (endurance, speed, strength) for footballers under the age of 21 by building a training program in a modern way, which is integrated in training , that is to say integrating the physical, skillful, tactical and psychological aspects.

Search problem:

Sports training has become a process aimed at improving the level of the player through planned indicators with the aim of developing his competence to meet the modern requirements of the football game and as a basis for developing a high physical form that qualifies him to perform the skill performance and tactical tasks in a more efficient and positive way for what is required by the performance during the match and the motor activity of the football player during matches and training. It is not only a set of skills as much as it is a multiple, connected and interdependent motor performances and an organized organic relationship that is part of a dynamic system subject to the principle of feedback communications (feedback), and we can ensure that the functional performances of the players are maintained with a degree of stability, stability and precision in the right direction of performance, Especially in changing and sudden situations (Nuñez, Suarez-Arrones, de Hoyo, & Loturco, 2022).

From the foregoing, it is clear that the development of physical attributes when training in competitive situations similar to what happens in matches is an important issue, since these exercises can help to develop skills and raise the level of physical performance of the players.

The impact of the integrated training method on the development of certain physical qualities (endurance, speed, strength) in tootball players U 21 in competition, so we can ask ourselves the following questions:

General question:

Does the integrated training method affect the development of certain physical attributes (endurance, speed, strength) for football players U 21?

Sub-questions:

Are there statistically significant differences between the pre-tests and the post-tests of the experimental sample in the physical tests?

Are there statistically significant differences between the post-tests between the experimental sample and the control sample?

The Research Hypotheses:

General hypothesis:

The integrated training method has a positive effect on the development of certain physical attributes (endurance, speed and strength) for football players U 21.

Sub- hypotheses:

* There are statistically significant differences between the pre and post tests of the experimental sample in the physical tests under study and in favor of the post tests.

* There are statistically significant differences between the post-tests between the experimental sample and the control sample, in favor of the experimental sample.

Research objectives:

- The research aims to identify the impact of the integrated training method on the development of certain physical attributes (endurance, speed, strength) of football players U 21 during a competition.

- Design of a training program using the integrated training method to develop certain physical attributes (endurance, speed, strength) for football players U 21.

The importance of research:

-This research can be of a great importance both from a scientific and practical point of view. From the scientific point of view, it can be considered as a contribution to the enrichment and enhancement of the university's library in order to help trainers and researchers. As for the practical side, it may be possible to benefit from the results of this study by modifying the image of training for this age group, and by following the methods i.e: The appropriate scientific method in the construction of training programs focused on the development of physical attributes, in order to prepare a good, complete and balanced group of young people, according to the characteristics and requirements of growth and the physiological adaptations of the body organs for this age group.

Basic study:

Research methodology:

The research approach differs according to the themes and the problems posed, and the researchers have chosen the experimental approach, by the nature of the problem posed, which aims to measure the effect of a training program proposed in football, by applying it to an experimental sample.

Research community and sample:

The research community represented the players of Ittihad Tebessa ust club, active in the third national amateur division the 2022/2023 sports season .The research sample included 20 players U 21, divided into two groups, "control and experimental"

Variants	Unit of measurement	Experimental sample		control sample		calculated T	tubular T	Significance of differences
		x	y	x	y			
Length	cm	177.76	6.52	177.21	5.49	0.84	2.101	non-significant
Weight	kg	68.42	5.25	67.44	4.45	0.35		non significant
Navatte test	m	557.45	32.78	579.04	54.58	0.79		non-significant
Speed test 40m	S"	6.05	0.29	5.98	0.38	0.31		non significant
The Sargent test	cm	35.76	5.75	34.22	5.64	0.83		non significant
Medical ball Test 3kg	m	6.65	0.68	6.98	0.69	0.13		non significant

Table (01) shows the degree of homogeneity between the two samples at the significance threshold 0.05 and at the degree of freedom 18

Research areas:

Time domain: The experiment was conducted during the 2022/2023 sports season, during the first round of the competition.

Spatial field: the experimental sample was worked on at the stadium, 04 march 1956, Wilaya of tebessa, Algeria.

The human field: The research sample included 20 actors divided as follows:

10 players represent the experimental sample to which the proposed training program was applied.

10 players representing the control sample who were left to train under the supervision of their coach.

Search tools:

1. Arab and foreign sources and references:

In order to fully understand and theoretically familiarize themselves with the subject of the research, the research staff relied on all the

sources and references available in Arabic and foreign languages, in addition to scientific journals and forums, as well as on the Internet. in the field of sports training have also been used and invoked.

2. Physical examinations:

One of the most important methods used in the field of sports training, especially in experimental research as a basis for objective evaluation, since it is considered one of the most effective ways to obtain accurate results, and therefore the researchers relied on a battery of standardized tests. Tests that measure the physical aspects of the players, and these tests have been presented to experts for arbitration.

3. Exploratory experience:

In order to avoid mistakes, and to reveal the aspects and difficulties of the research.

4. Sports equipment consisting of:

• 20 legal football balls.

• 30 people.

* Tape measure with a plastic type diameter.

* Medical scale.

• 02 stop-watshes to measure the time.

* whistle.

* Bras in different colors.

• 2 medical balls of 3 kg.

5. statistical tools :

Among the most important statistical tools used in this research are :

* SMA

* The standard deviation.

* Pearson simple correlation coefficient.

* Self-honesty.

* Student's T-test for two linked samples.

* Student's T-test for two unrelated samples.

Test specification:

After the sample members have warmed up well with the help of the trainer, the following tests begin:

First: 40m speed test

* Objective of the test: to measure the transition speed of the player.

* Tools used: The race track is marked with a start line, a finish line, a stopwatch and a whistle.

* Working method: The player stands at the starting line and takes the high starting position after hearing the signal, the player runs at full speed until he crosses the finish line.

Note: Each player is allowed two attempts, with a rest period in between, and the best attempt is recorded.

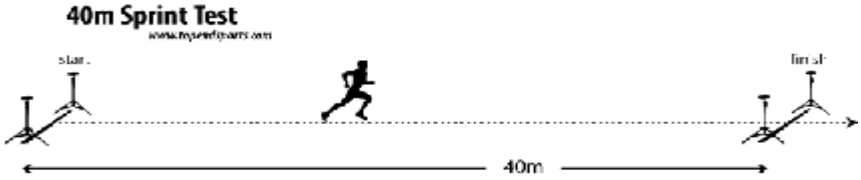

Figure 01 shows the 40 meter speed test

Second: the medical ball thrust test 3 kg

* Objective of the test: to measure the explosive force of the upper limbs.

* Tools used: 3 kg medical balloon, tape measure.

• Working method: The tester stands on a straight line drawn on the ground and pushes the medical ball with both hands with bent legs.

* Recording: The distance between the drawn straight line and the place where the ball falls is measured and the number is recorded.

Note: Each player is entitled to two tries, the best of them being scored.

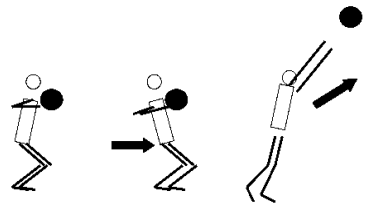

Figure 02 shows the thrust test of the 3 kg medicine ball

Third: Sargent test

* Objective of the test: to measure the explosive strength of the muscles of both legs.

* Tools used: chalk, tape measure, blackboard.

* Working method: A board is placed next to the tester and he extends his arm to mark the point he reaches with a chalk. At the signal, the tester takes a jumping position to reach the highest possible point and marks on the board the maximum height reached by the tester.

* Recording: The distance between the first and second signals is measured, the number is recorded, two attempts are given to the player and the best one is calculated.

Note: Each player is entitled to two tries, the best of them being scored.

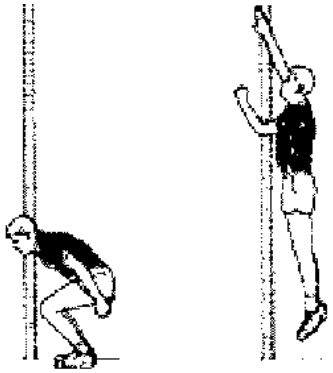

Figure 03 shows the Sargent test

Fourth: Navatte 20 m test

* Objective of the test: to measure aerobic endurance.

* Tools used: timers, indicators.

* Working method: The tester places himself on the starting line and, at the whistle, begins to run back and forth over a distance of 20 meters for 3 minutes.

* Recording: You calculate the number of times to and from, then multiply by 20, thus obtaining the distance traveled.

Note: Each player is entitled to one attempt.

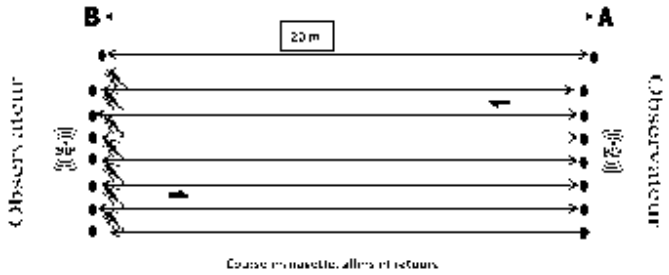

Figure 04 shows the NAVATTE test at 20 meters

Scientific basis of the test :

	Sample size	Degree of freedom	Statistical significance	tubular R	Stability of the test	Truthfulness of the test
Navatte 3 D	05	18	0.05	0.68	0.83	0.90
Speed 40m					0.93	0.92
Sargent					0.91	0.96
Push the medical ball 3kg					0.84	0.91

Table (02) shows the stability and validity of the tests at the significance level 0.05 and at the degree of freedom 18

View and discuss search results:

View and analyze the results of the post-tests for the two research samples:

View and analyze the results of NAVATTE tests:

	Post test			Calculated T	Tabular T	Statistical signification
	Sample size	x	y			
The experimental sample	10	693.33	37.33	4.18	2.101	significant
The control sample	10	634.29	46.11			

Table n ° (03) represents the comparison of the results of the post-test for the two research samples to the Navatte test

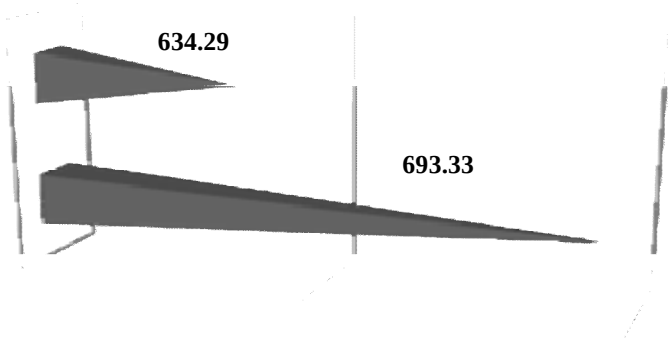

Figure No. 05: shows the difference between the post arithmetic averages of the two research samples in the Navatte test

By observing the results of the table above, it becomes clear to us that:

The experimental group obtained an arithmetic mean of 693.33 and a standard deviation of 37.33, while the control sample obtained an arithmetic mean of 634.29 and a standard deviation of 46.11. The calculated value (T) was 4.18, which is higher than the table (T) estimated at 2.101, and it is at the level of significance is 0.05 and the degree of freedom is 18, and this means that there is a statistically significant difference in favor of the experimental sample, and this indicates the effectiveness of the proposed program in the development of the tolerance trait.

View and analyze the results of the speed test at 40m:

		Post test		Calculated T	Tabular T	Statistical signification
	Sample size	x	y			
The experimental sample	10	5.51	0.18	3.03	**2.101**	significant
The control sample	10	5.71	0.36			

Table n° (04) represents the comparison of the results of the post-test of the two research samples in the 40 meter speed test

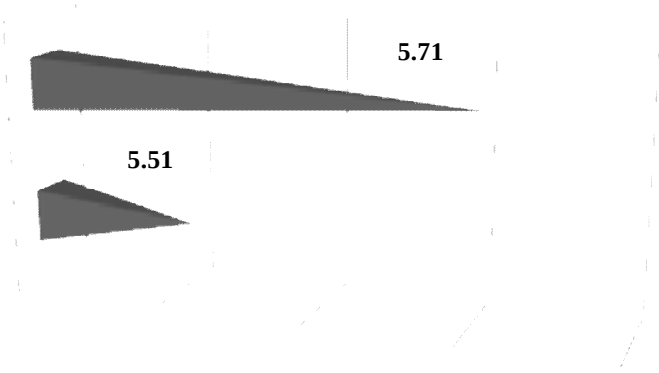

Figure No. 06: shows the difference between the post arithmetic averages of the two research samples in the 18 meter speed test

By observing the results of the table above, it becomes clear to us that:

The experimental group obtained an arithmetic mean of 5.51 and a standard deviation of 0.18, while the control sample obtained an arithmetic mean of 5.71 and a standard deviation of 0.36. The significance is 0.05 and the degree of freedom is 18, which means that there is a statistically significant difference in favor of the experimental sample, which indicates the effectiveness of the proposed program in the development of the speed characteristic.

View and analyze Sargent test results:

		Post test		Calculated T	Tabular T	Statistical signification
	Sample size	x	y			
The experimental sample	10	44.1	5.39	4.42	2.101	significant
The control sample	10	38.9	5.74			

Table n° (05) represents the comparison of the results of the post-test for the two research samples with the Sargent test

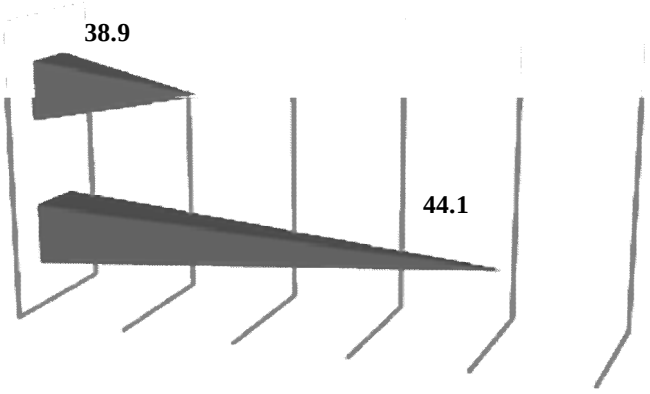

Figure No. 07: shows the difference between the post arithmetic averages of the two research samples in the Sargent test

By observing the results of the table above, it becomes clear to us that:

The experimental group obtained an arithmetic mean of 44.1 and a standard deviation of 5.39, while the control sample obtained an arithmetic mean of 38.9 and a standard deviation of 5.74. The significance is 0.05 and the degree of freedom is 18, which means that there is a statistically significant difference in favor of the experimental sample, which indicates the effectiveness of the proposed program in the development of the strength of the lower extremities.

View and analyze the results of the 3 kg medicine ball push test:

		Post test		Calculated T	Tabular T	Statistical signification
	Sample size	x	y			
The experimental sample	10	7.97	0.59	5.19	2.101	significant
The control sample	10	7.54	0.73			

Table n ° (06) represents the comparison of the results of the post-test for the two research samples in the thrust test of the 3 kg medicine ball push

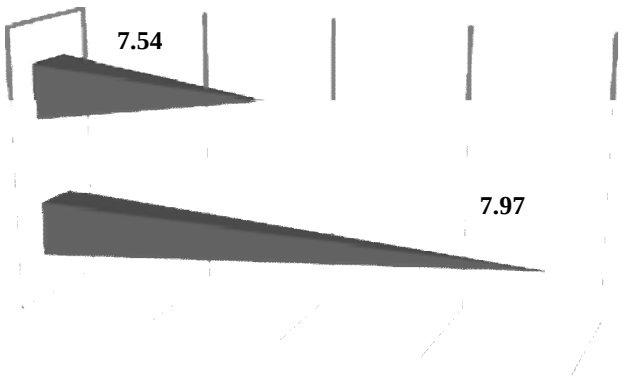

Figure No. 08: shows the difference between the post arithmetic averages of the two research samples in the 3 kg medicinal balloon test

By observing the results of the table above, it becomes clear to us that:

The experimental group obtained an arithmetic mean of 7.97 and a standard deviation of 0.59, while the control sample obtained an arithmetic mean of 7.54 and a standard deviation of 0.73. The significance is 0.05 and the degree of freedom is 18, which means that there is only a statistically significant difference in favor of the experimental sample, which indicates the effectiveness of the proposed program in the development of upper limb strength.

Discuss research results:

The researchers collected data using the tools and means of data collection used in this study, based on these data and based on the presentation, analysis and discussion of the research extracted from the statistical analysis of the results of the research sample, examining the most important results. It seems clear that the research sample obtained significant differences. In the arithmetic means of pre- and post-tests, they are in favor of post-tests, as shown in the tables and graphs above. The researchers attribute these differences that appeared between the pre and post tests in the experimental group to the good organization and planning of the units of the program and the sequence of its application, as well as to the relevance of the training methods based on codified scientific foundations, taking into account individual differences, in addition to continuing the training process, which contributes significantly and effectively to the improvement of certain basic physical abilities. This is confirmed by (Smpokos, 2018) that "sports training in football must be carried out with an organizational process and good planning, and on scientific bases that work to develop and positively influence the level of football players".

The researchers also attribute the differences that have appeared in the results of the physical tests to the long duration of application of the program

The trainings based on the repetitive method, which relied in their application on controls of the training load (intensity, volume, rest, repetition) were appropriate between the exercises and the groups of the training unit. it has also been proven (Shalar, 2019) "The training load is the main pillar on which it depends Sports training through its components in terms of (intensity, volume and rest). He also attributes the programming of the exercises implemented and their adequacy to the level of the players' abilities, which contributed to the improvement of certain physical abilities.

This is consistent with what has been discussed by (Nicholson B, 2020) that there should be a programmed organization that ensures a better physical level, as the factor that appears that the amount of development is the adequacy of the proposed exercises to the level and abilities of the players.

(Bezodis IN, 2018) adds that the scheduled training exercises have a significant impact on increasing the physical fitness of the players in different positions. The rest between the groups which was sufficient allowed the players to recover well thanks to the return of the pulse, because all this contributed to the performance of the player. continuity of performance, and (Gomez-Piqueras, 2019) showed that interval training reduces the speed of fatigue, because the muscle stock of (ATP) is compensated during the recovery period, by the oxygen system, while there is no rest in the continuous load method to compensate (ATP) in recovery, and this explains why the athlete is able to perform intermittent work more efficiently than working with the continuous load method, because the volume of the heart stroke is usually higher during the recovery period than during training, which means the increase in the amount of blood that the heart pushes with each stroke, The more blood the heart pushes, the greater the amount of oxygen for work, and interval work is more effective than continuous work, because the recovery periods allow the heart to reach the highest level of blood pumping while there is a rest period at the end. of continuing education (Di Salvo, 2013).

The researchers indicate that the familiarity of the trainers with these theoretical and applied aspects regarding recovery and recovery operations is of great importance in the rationing and scheduling of recovery sessions to overcome the fatigue stage, which may be one of the most important points that contribute to the decline in the level of physical fitness of the players.

The researchers point out that the coaches ' knowledge of this theoretical and applied aspect in terms of recovery and recovery

operations is of great importance in rationing and programming recovery classes to overcome fatigue, which may be one of the most prominent points that contribute to the decline in the level of physical fitness of players.

The researchers point to what the West has achieved in this field, the results of which have emerged at a high level, as we watch very high-format matches during Continental and international competitions, where most clubs match the phases of the matches without the appearance of fatigue or great fatigue, unlike what we see in the fields of Arab and Algerian football in particular, therefore it was necessary to keep up with the age of development and technology and try to employ it in our clubs to improve the level at all levels in the world of the round ball.

Conclusion :

Within the limits of the research procedures, and in the light of its objectives, and thanks to the statistical analysis of the results obtained. the following conclusions could be drawn:

1. The training program prepared by the trainer of the control group did not give the expected results, because it is irregular and does not rely on scientific bases in the development of training programs.

2. The proposed training program using the integrated training method has achieved a positive evolution between the pre and post tests and in favor of the experimental group in the physical tests, in order to adapt it to this age group in terms of intensity and volume of training and the number of repetitions, in addition to that integrated training is considered a training for what happens during the matches, which creates in the player a kind of adaptation and a good behavior when repeating the same situations.

3. The control and experimental samples achieved positive development between the pre- and post-tests in the physical tests, but the development of the control sample was normal as a result of practice, while the development of the experimental sample was relatively clear, and the difference between the two means indicates the percentage of the difference.

4. The proposed training program using the integrated training method allowed a positive evolution of the results of the post-tests between the control and experimental groups, in favor of the experimental sample. This indicates the effect of the training program on the development of the level of certain physical characteristics of the research sample.

General conclusion:

Achieving the best results and reaching the highest sports levels is not only a coincidence, but it is also the result of continuous, controlled and precise work that always pushes us to find appropriate ways and solutions and to discover new methods that develop physical, skill, tactical, psychological and mental abilities. Football is a popular sport that attracts the eyes of millions of people and attracts the hearts of the masses because of its art and the joy of watching, in addition to the role it plays in consolidating relations between countries and the masses, and contributing to raising the economy of these countries.

Noting the increase in the number of sports teams and the multiplicity of age groups, especially after Algeria applied and adopted the professionalism policy in the sports field, while sports facilities and structures remained as they were before and after the application of the professionalism policy, who created a kind of congestion of football stadiums during training sessions and in an effort to solve this problem; the researchers suggest that the proposal of a training program depends in its content on integrated training and its impact on the development of certain attributes in football.

The latest in the world of training due to the presence of all levels of physical-technical-plan-mental-psychological achievement in a single training session in conditions similar to the competition; this raises the level of physical fitness and performance to reach the highest levels of sporting success.

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