The effectiveness of using Box-to-Box technology to develop some of the composite physical and technical capabilities of footballers

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Abstract

This study aimed to measure the impact of using "Box-to-Box" technology in improving physical and technical abilities for football players under 19 years old at Najma Sinai Sports Club, North Sinia the research highlights the global appeal of football but also offers insight into how advancements in training can help to improve player performance, some teams tend to cling old-school tactics which undermine progress. The study evaluated a 12-week "Box-to-Box" training program using an experimental design with pre and post intervention measurements for 23 players. The results showed that while agility, endurance, speed, and muscle strength test scores significantly improved; passing accuracy and dribbling efficiency were also enhanced during composite skill performance. These findings reaffirm that "Box-to-Box" Training is the way to go for developing key competencies and improving performance, in general. The study suggests including this new technology in traditional training routines, asserting that it has now become essential for player assessment and improvement. It also proposes a wider perspective on the long-term use of "Box-to-Box" technology in different populations and sports, as well as new functional training for specific football positions.

Keywords: Box-to-Box Technology; Composite physical; Technical capabilities; Footballers

1. Introduction

The sports industry, especially the game of football, has witnessed a tremendous upsurge in modern times, so the use of modern technological developments and technologies and their applications in football training is indispensable to keep abreast of developments in the sport, and to achieve the best results at the local and global level. Box-to-Box technology in sports represents remarkable progress in integrating technology with sports equipment and packaging systems. This approach enhances the efficiency and functionality of sports equipment thanks to innovations in the design of packaging solutions [11].

Prowess in physical and technical capabilities which would be the next footballing age version of a complete midfielder, or what is nowadays called Box-to-Box technology. This is the practice of teaching complex skills using novel training paradigms. The changes are physiological, with improvements to the maximum heart rate and running capabilities for a player that must cover wide areas during matches. It increases overall sports performance by comprehensive and very balanced improvement of fitness and technical-acrobatic achievements (i.e. training elements such as with various weighted balls) [7] [9]. Furthermore, new systems in the class of Toca Football

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accelerate gaining advanced technical skills at an early age which providing possibility to develop athletes from young ages [21]. Combining focused micro-movements into education helps develop technical, physiological in addition to mental traits concurrently thereby bettering on-field performance [9]. However, it is vital that the physical training program also takes into consideration the demands for developing growing young athletes rather than pushing them too hard in order to avoid overtraining and long-term success [19].

1.1. Problem Statement

The current research problem stemmed from several sources, including:

1.1.1. Field observation

The study noted a significant gap in football coaching, where a noticeable gap itemized by the study has not been bridged in modern development. This is particularly so in Egypt and the Arab world. Many teams balk when it comes to putting new technology into use though it has so obviously benefited others who have them their livelihoods. It was noted that traditional methods are still extensively used by teams, yet "Box-To-Box" and so on. As body scrambles for breath or jockeys with the ball on sideboards in Hell's Gate galley, these technologies have been increasingly popular for a long time. This note underscores the pressing need, minds beginning to flex towards new levels of achievement that our technology until now.

1.1.2. Results of previous studies

As the increasing speed and intensity of the game require players to play at a high level, both physically and technically proficient, it is suggested by past research that this is imperative. Studies show that development of a unique physical and technical ability is needed in order to play offensive or defensive roles. Box-to-Box players of successful teams, it is claimed in studies, can excel in offensive and defensive areas just as easily. One needs to train hard if one wants to be a good football player, is also an oft-repeated message from research studies [5] [6]. Other research pays special attention to the importance of training programs designed to help develop the physical and technical performance of players [2].

Through the study's attempts to find the secret to the rapid development of football as he works in the field of football coaching In his view, the evolution of technological techniques in footballers' performance needs to be studied and researched, And that Box-to-Box technology has now become one of the most important technology used by the player to weigh his physical, skill, technical and psychological abilities through the smart coach and that this technology has become a reality with the big global teams and hopeful for the Arab ball in general and Egyptian especially So you should not hesitate or delay the use of this technology. Most of the world's teams now have their coaches build their plans on the Box-to-Box quarterback.

There are three reasons for this. First, the scarcity of information on the success and failure experiences in some traditional training methods Second, that most such names weren't even known until we started courses in current methods last year. This is partly based on the belief that it is difficult to hope for superior results whereas, by adapting classic ideas into modem circumstances and through creative experiences, new ideas can also be successful. Exclusive logical explanation: Hence one becomes of small account to address this issue, researchers are researchers of the research entitled "The Study of the Effectiveness of Box-to-Box Technology in Developing Several Corporal Physical and Technical Capabilities of Footballers" by Jilin Institute of Physical Education in China at present we do not know if this technology is reasonable. We different know just that it within reach As the author of the book 'Revolution's in Soccer ' written by the Soccer Education Shop Football Program, the author reporters on questionnaires distributed to 100 players around Italy This study aims to explore the function of this kind of product, How to redress the constraints inside today's training methods and to improve the level of all football players at once instead of just a few elite players. [13] [14]

1.2. Aim of the Research

The research aims to: know the impact of using Box-to-Box technology to develop some of the physical and technical capabilities of footballers, by developing the physical, technical and tactical capabilities of footballers at Box-to-Box Center.

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1.3. Research Hypotheses

• There are statistically significant differences between tribal and post measurements of the research group in some physical abilities (agility, performance tolerance, speed of performance, transition speed, flexibility, precision, muscle strength) in question for the under-19s footballers (participants) and for dimensional measurement.

• There are statistically significant differences between tribal and post measurements of the research group in some technical capabilities of "composite skill" (receipt, then running with the ball, passing, receiving, dribbling, passing, receiving, then running with the ball, aiming, receiving, passing, receiving, and then correcting) under research for footballers under 19 years (participants).

2. Literature Review

Theoretical framework and previous studies:

- **First axis – Box-to-Box technology**

By using the Box-to-Box technology in football training, it has great potential to improve physically and technically for players. At the same time, improve a teenager's physical fitness and some cognitive skills which is really important for learning football [10].Other than merely teaching correct shooting form, it's rather effective to practice your precision-target movements using other ball sizes and weights [9].Integrating novel technologies into training has been linked to more efficient skill acquisition, Now as can be seen in the example of considerable physiological improvements in players [21].The measures we propose are efficiency, efficacy, and effectiveness, and they stress the importance of combining physical and technical training to produce optimal soccer players [16].Yet, as is known to all, there have been some research showing that traditional training methods still have significant overlap with what modern technology accomplishes in terms of actual physiological effect for athletes [20] [21].Thus, while there are many benefits from using Box-to-Box technology such as those described above, a mixed approach, one that integrates both traditional methods and modern technology may bring the greatest benefits for player development.

- **Second axis – The composite physical and technical capabilities of footballers**

For football players, the physical sophistication and technical abilities are indispensable to their performance and enhancement. Among them, fitness skills include strength, agility, endurance, and technical proficiency Vocational courses are typically designed to improve these skills The result of such a training method, for example, is that young players can perform sit-ups for longer, do speed dribbling more easily [4] [5] Programs that develop both kinetic and mental skills have also been shown to play a significant role in improving success rates for young athletes [6] On the technical side, technologies that aid training like the ball delivery machine have been found to make it easier for intensive practice and also allow players to learn micro-skills which are essential in obtaining technical proficiency [8] A differentiated training method also makes it possible for physical and technical skills to evolve at their own pace, according to the particular requirements of each player. In doing so, overall performance all around is improved. [17] However, in the event that too much emphasis is placed on physical and technical education alone, it becomes necessary to consider psychological development as well in order to enhance overall performance. This is because thinking under pressure and judgement on the field could affect your future [18].

Table 1: Recent Studies on using Box-to-Box technology to develop some of the composite physical and technical capabilities of footballers

Author	Methodology	Results	Comment
O.G. Kanishchev, Zhanneta Kozina, V.M. Grynyova, Vitalii Masych [3].	Divided 22 young football players (10-12 years old) into control and experimental groups; experimental group used balls of varying weights and diameters to develop precision-target movements.	Experimental group showed significant improvements in technical skills, physical fitness, and psychophysiological indicators compared to the control group.	The methodology positively influenced the overall preparedness of athletes, enhancing their technical, physical, and psychophysiological capabilities.
Zhanneta Kozina, Oleksiy Vasyutin, Valery Ganin,	The study analyzed literature from Scopus, Web of Science, and PubMed, focusing on	Identified effective technologies included: 1) Ball-based exercises for accuracy and cognitive skills; 2)	The review emphasizes the importance of integrating motor and cognitive skill development,

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Author	Methodology	Results	Comment
Maksym Zhylin [10].	randomized control studies from 2020-2023. Criteria included efficiency, integrality of impact, and accessibility of technologies. 4360 sources initially selected, with 30 selected for detailed analysis.	"Feeling of the ball" technology for movement accuracy and cognitive perception; 3) Plyometric exercises in water for body control and speed-power abilities. Football itself was highlighted as a tool for combined skill development.	offering practical technologies and methods suitable for young football players in Ukraine.
Wonwoo Ju, Dominic Doran, Richard Hawkins, Mark Evans, Andy Laws, Paul S. Bradley [8].	Analysis of 244 English Premier League players using tracking data and video to code physical-tactical actions. Players categorized into 5 general roles and 11 specialized positions.	- COP covered more high-intensity distance in actions like 'Break into Box,' 'Run in Behind/Penetrate,' and 'Close Down/Press' (ES: 0.6–5.2, $P < 0.01$).	Wonwoo Ju, Dominic Doran, Richard Hawkins, Mark Evans, Andy Laws, Paul S. Bradley
Sport Performance & Science Reports [12].	Analysis of running energetics for box-to-box midfielders using performance data.	Highlighted variability in physical and energetic demands among box-to-box midfielders.	Emphasizes the need for individualized training and tactical approaches, rather than a one-size-fits-all strategy.
Rob Mackenzie, Christopher J. Cushion [12].	Critical review of existing literature on performance analysis (PA) in football, evaluating methodologies, variables, and implications for practice.	Found an overemphasis on predictive and performance-controlling variables; recommended a new approach focusing on athlete and coach learning.	Highlights the need for future research to consider social and cultural influences on PA and its application in coaching.
Victor Dulceata [6].	Use of GP Sports SPI IQ devices on players, which include GPS, gyroscope, magnetometer, accelerometer, and heart monitor, to track physical performance metrics like distance, speed, and acceleration.	Real-time tracking helps coaches assess player effort, strengths, and weaknesses during training sessions by measuring various performance metrics.	The technology provides valuable insights for tailoring training to individual players, enhancing their performance through data-driven decisions.
Iván Asín-Izquierdo et al [1].	Analysis of mechanical and physiological demands in football small-sided games (SSGs) using GPS/GNSS technology, heart rate monitoring, and player self-perceived effort across various configurations.	SSGs with 3 vs. 3 format showed higher mechanical responses on larger pitches and without goalkeepers, while 6 vs. 6 format had higher velocities on longer pitches and shorter durations. 3 vs. 3 SSGs demonstrated superior internal and external workload responses.	Highlights the importance of using technology to tailor training tasks to the complexity of football, with varied SSG configurations affecting player workload differently.
Alexander B. T. McAuley et al [15].	Genotyped 53 male U13-U18 players for 8 SNPs; used linear regression to analyze associations between SNPs and technical skills (dribbling, passing, shooting).	Specific SNPs (ADBR2, BDNF, DBH, DRD1) were linked to improved dribbling and shooting skills. Total Genotype Scores explained up to 40% of variance in performance assessments.	Indicates that genetic variation may influence technical skills in youth football, highlighting the need for further exploration of these genetic markers.

3. Materials and Methods

This section provides a comprehensive and detailed overview of the study methodology, including a description of the research approach, the scope of the study, the participants, data collection tools (measurement instruments), and the data utilized in the study.

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3.1. Research approach

To achieve research objectives and validate assumptions, the study used the experimental curriculum using tribal and post-group measurement to suit the nature of the research.

3.2. Scope of the study

a. Spatial field: The U19 soccer team - Najma Sinai Sports Club - Al-Arish City - North Sinai Governorate.

b. The program was implemented: at the Najma Sinai Sports Club in Al-Arish, North Sinai Governorate during the preparatory period for the 2023/2024 sports season. The program was divided into three levels:

- Level I: weeks (1:4) and (4) include daily training units per week, with a total of (16) daily training units per week.
- Level II: weeks (5:8), number of daily training units ranging from (4:5) units per week, and total (20) daily training units per week.
- Level III: It comprises weeks (9:12), the number of daily training units ranging from (4:5) units per week, and a total of (20) daily training units per week, making the total number of daily units throughout the program (56) a daily training unit, and applied to the basic research group during the period from Saturday 5/8/2023 to Friday 27/10/2023. Annex (4).

3.3. Participants

- The study selected the research participants of footballers under 19s at the Najma Sinai Sports Club in Al-Arish, North Sinai governorate, in a deliberate manner due to the availability of the study participants at the club and registered with the Egyptian Football Federation in league (section II) for the 2023/2024 sports season, the participants size has reached (23) player and selected (8) players to conduct the basic study (midfielders and midfielders from U19 football players at Najma Sinai Sports Club) The study relied on the tribal and post-group measurement (basic research participants) and 10 footballers under the age of 19 registered at Al Mansoura Sports Football Club (Al Arish) were selected to conduct the reconnaissance study, and from outside the basic research participants, the study excluded the number of (3) Players "goalkeepers" according to the requirements of their position, and number (2) players for irregular training.
- Participants size: It was 23 players and they were classified which described in table 2.

Table 2: Description of participant's study

Clubs	**Basic Study**	**Exploratory study (Unmarked Group)**	**Excluded from training**	**Total**
	Tribal and remote measurement of one group (distinctive group)			
Sinai Star Sports Club	8		5	23
Al-Mansoura Sports Football Academy Al-Arish Branch	-	10		

The study homogenized the primary research participants (moderate participants study) in the growth rate variables in question which described in table 3.

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Table 3: Moderation of the selected study participants in the basic variables n = 8

Statistical Indicators / Variables		Measurement Unit	Arithmetic Average	Broker	Standard deviation	Torsion coefficient
growth rates	Age	Year	18.87	18.240	1.52	1.26
	Length	Meter	174.13	175.0000	2.85	-1.6
	Weight	kg	73.94	74.2000	2.24	-.35
	Training Age	Month	22.52	21.014	0.47	0.58

Table 3 shows that the calculation average values of the variables in question are between (18.87 and 174.13) while the standard deviation values are between (.47 and 2.85) and the twist factor is between (-.35 and 1.26), all of which are between ± 3 and very close to zero, confirming the homogeneity and moderation of the participants in the variables in question.

3.4. Data Collection Tools (measurement instruments)

a. Tools and devices used in research: (kg calibrated medical balance), rest meter for measuring height (cm), stop clock for measuring time for the nearest second, tape measuring/cm, football field, football balls, coins, medical balls, Swedish seats

b. Composite Skill Performance Reference Survey: Its results were selection (receipt, then run, then scroll, dribble, then scroll, receipt, dribble, correction, receipt, scroll, receipt and correction) under consideration.

c. Physical tests under consideration: (agility, performance tolerance, performance speed, transition speed, flexibility, accuracy, muscle strength).

d. Survey: This study was conducted from Saturday 29/7/2023 to Friday 4/8/2023 on the survey participants with the aim of:

• Ensure the validity of the tools and devices used.

• Determination of the intensity, repetitions and rest periods appropriate to the training provided as well as the time taken for the training modules.

• The results of the survey resulted in the following: (validity of the tools and devices used-determination of the severity of the exercises under the training program developed for the research group in question and the repetitions, intersectional rest periods, between groups and the time taken for the training modules).

e. The study conducted the basic research experiment as follows:

• Conducting tribal measurement of the participants in the variables in question during the period from Thursday 3/8/2023 to Friday 4/8/2023.

• Application of the basic experiment on the research participants during the period from Saturday 5/8/2023 to Friday 27/10/2023 and for the period of (12) week and (4:5) daily training units per week for the research group, and during the application of the training program to the research group the study took into account the number of units and the time of the training module and the content of the preparatory, main and closing segment, and through the results of the survey and according to the training bases and scientific references, research and related studies under consideration that the researchers had been able to use according to the nature of the performance of the game and the age, The severity of the training and the time distribution of the program parts, content and components of the training load.

• Dimensional measurements: The dimensional measurements of the research group were carried out from Saturday 28/10/2023 to Sunday 29/10/2023 for the same variables measured in tribal measurement and under the same conditions, except for age, height and weight.

• Statistical processors: The SPSS Social Science CNC statistical program package has been used in statistical processors of aggregated data for research.

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f. Honesty and fortitude of the physical and skill tests under consideration.

• Verification: The study has validated a sample representative of the original community and from outside the sample of basic research in the variables under consideration during the period from Sunday 30/7/2023 to Monday 31/7/2023 which described in table 4.

Table 4: Significance of the statistical differences (Man and Teni) between both the distinctive group and the unmarked group to calculate the honesty of the physical and skill tests of the footballers under 19 years in question n = 10

Variables	Test		Unit of measure	The group is distinctive		Unmarked Group		Ye value
				Average grades	Total grades	Average grades	Total grades	
Physical Tests	Agility		Number	4.10	20.50	6.90	34.50	2.41
	Bearing Performance		Number	5.40	27.00	5.60	28.00	2.55
	Speed Performance		w	3.60	18.00	7.40	37.00	3.24
	Transition speed		w	7.40	37.00	3.60	18.00	2.78
	Flexibility		CM	4.70	23.50	6.30	31.50	2.47
	Accuracy		Number	5.00	25.00	6.00	30.00	2.49
	muscle strength	Vertical jump of stability	CM	7.90	39.50	3.10	15.50	2.35
		Broad jump of stability	Meter	7.70	38.50	3.30	16.50	3.01
Skill Tests	Pick up, run, scroll		Time	5.40	27.00	5.60	28.00	2.85
			Accuracy	5.30	26.50	5.70	28.50	3.23
	Receive then dodge then scroll		Time	3.80	19.00	7.20	36.00	2.87
			Accuracy	4.10	20.50	6.90	34.50	2.70
	Receipt and dribble and then straightening		Time	5.40	27.00	5.60	28.00	3.05
			Accuracy	6.00	30.00	5.00	25.00	3.45
	Receipt and Pass		Time	5.40	27.00	5.60	28.00	2.25
			Accuracy	5.30	26.50	5.70	28.50	2.25
	Receipt and correction		Time	3.80	19.00	7.20	36.00	3.26
			Accuracy	4.10	20.50	6.90	34.50	3.76

The value of a tabular at 0.05 = 5

Table 4 shows differences of statistical significance between the distinctive group and the non-distinctive group in physical tests and composite skill performance ranging from (2.25, 3.76) which is greater than (j) the calendar value of (5) at an indicative level (0.05) indicating the veracity of the physical tests and the combined skill performance in question.

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• Stability: The study used the method of applying the test and then re-applying it after a number (7) days of the first application during the period from Saturday 29/7/2023 to Friday 4/8/2023. The participants size (10) of players from the football junior under 19 years and registered at the Al-Mansoura Sports Football Academy branch Al-Arish, where the study found the stability of the individuals of the exploratory participants which described in table 5.

Table 5: Indication of the statistical differences (correlation coefficient) between the first application and the second application in the physical and skill tests of the footballers under 19 years in question n = 10

Variables	Test		Unit of measure	First Application		Second application		Correlation coefficient
				Q	± P	Q	± P	
Physical Tests	Agility		Number	7.00	0.817	7.600	0.516	0.791
	Bearing Performance		Number	15.70	0.823	16.80	0.789	0.614
	Speed Performance		w	13.54	0.349	13.71	0.454	0.711
	Transition speed		w	4.78	0.477	4.94	0.503	0.741
	Flexibility		CM	26.30	1.70	27.40	1.897	0.680
	Accuracy		Number	2.90	0.316	3.015	0.316	0.713
	muscle strength	Vertical jump of stability	CM	36.82	0.287	37.002	0.538	0.705
		Broad jump of stability	Meter	2.18	0.0324	2.627	0.208	0.685
Skill Tests	Pick up, run, scroll		Time	4.65	0.688	4.880	0.654	0.765
			Accuracy	1.10	1.449	2.301	1.075	0.698
	Receive then dodge then scroll		Time	5.00	0.435	5.200	0.389	0.672
			Accuracy	1.60	1.174	2.400	0.966	0.625
	Receipt and dribble and then straightening		Time	4.26	0.484	4.610	0.484	0.678
			Accuracy	1.45	1.449	2.201	1.075	0.790
	Receipt and Pass		Time	4.65	0.688	4.580	0.655	0.748
			Accuracy	1.85	1.449	2.533	1.075	0.735
	Receipt and correction		Time	5.00	0.435	5.247	0.389	0.734
			Accuracy	1.60	1.174	2.250	0.966	0.656

Value (t) tabular at an indicative level of 0.05 = 0.464

Table 5 shows that the correlation coefficient for composite physical tests and skill performance may range from 0.791 to 0.614, which is greater than the scale value (R) of 0.464, indicating the stability of the tests in question.

4. Results and Discussion

This section provides an analytical overview of presenting and discussing the study results, including the presentation of the results for each hypothesis along with their interpretation and discussion.

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- Results of the first research hypothesis were summarized in Table 6.

Table 6: Indicative statistical differences using Wilcoxon's test between tribal and post metric measurement Research Group on Physical Tests and Muscular Strength in Question (n = 8)

Statistical Indicators / variables		Unit of measurement	Number of signals		Average grades		Total grades		Calculated value (Z)	Significance level
			-	+	-	+	-	+		
Agility		Number	0	8	0	4.5	0	36	2.60-	0.01
Performance Tolerance		Number	0	8	0	4.5	0	36	2.62-	0.01
Fast Performance		w	0	8	0	4.5	0	36	2.53-	0.01
Transition Speed		w	0	8	0	4.5	0	36	2.52-	0.01
Flexibility		CM	0	8	0	4.5	0	36	2.71-	0.01
Precision		Number	0	8	0	4.5	0	36	2.82-	0.01
muscle strength	**Vertical jump of stability**	CM	0	8	0	4.5	0	36	2.52-	0.01
	Broad jump of stability	CM	0	8	0	4.5	0	36	2.52-	0.01

For single-party testing: the value (z) tabular is approximately (2.33).

For the two-end test: the value (z) of the tabular is about (2.576).

Table 6 on statistical differences using Wilcoxon's test between tribal and post-metric measurement of the physical test research group shows that the value of (z) calculated for the physical tests in question ranged in value from (2.82 to 2.52), all of which are greater than the value (z) of the table at an indicative level (., 005), as shown in the same table, muscle strength test values have reached (2.52) All are statistically relevant, indicating statistically significant differences in both physical tests and muscle strength and for the benefit of dimensional measurement.

- Results of the second research hypothesis were summarized in Table 7.

Table 7: Indicative statistical differences using Wilcoxon's test between tribal and post metric measurement for the research group in the composite skill tests in question (n = 8)

Statistical Indicators / variables	Unit of measurement	Number of signals		Average grades		Total grades		Calculated value (Z)	Significance level
		-	+	-	+	-	+		
Pick up, run, and scroll.	Time	0	8	0	4.5	0	36	2.55-	0.01
	Accuracy	0	8	0	4.5	0	36	2.83-	0.01
Receive then dodge then scroll	Time	0	8	0	4.5	0	36	2.27-	0.01
	Accuracy	0	8	0	4.5	0	36	2.52-	0.01
Receipt and dribble and then straightening	Time	0	8	0	4.5	0	36	2.58-	0.01
	Accuracy	0	8	0	4.5	0	36	2.60-	0.01
Receipt and Pass	Time	0	8	0	4.5	0	36	2.82-	0.01

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	Accuracy	0	8	0	4.5	0	36	2.86-	0.01
Receipt and correction	Time	0	8	0	4.5	0	36	2.72-	0.01
	Accuracy	0	8	0	4.5	0	36	2.55-	0.01

For single-party testing: The value (z) tabular is about (2.576).

For the two-end test: the value (z) of the tabular is about (2.807).

Table 7 indicating statistical differences using the Wilkxon test between tribal and post measurement of the research group in composite skill tests shows that the value of (z) calculated for the composite skill tests in question ranged in value from (-2.55 to 2.86), all greater than the value (z) of the table at an indicative level (., 005), which indicates that there are statistically significant differences in all the skill tests in question and for the benefit of dimensional measurement.

- **Discussion of the results of the first hypothesis:**

Results from table 6 showed statistically significant differences at (0.05) level between both tribal measurements and dimensional measurements of the research group in the physical abilities and muscle strength tests in question and in favor of dimensional measurement, with a value ranging from (2.82 to 2.52) and all of them are greater than the value of the tabular (z) at an indicative level (., 005), as shown in the same table, muscle strength test values were 2.52.) All of them are statistically functional, indicating that there are statistically significant differences in both physical tests and muscle strength and for the benefit of dimensional measurement.

This highlights the effectiveness of Box-to-Box technology exercises in improving these capabilities. This is consistent with previous studies that have shown that technology requires a high level of physical abilities and technical skills, as well as tactical intelligence, which contributes to improved performance on the field.

The study attributed this progress to the diversity of Box-to-Box technology exercises, which target all fitness components, including endurance and speed. The studies mentioned, such as those conducted by Hughes and Cleaver, support these findings, noting that Box-to-Box workouts improve fitness, stamina and tactical skills. Players' performance in endurance tests after 12 weeks of training emphasized the effectiveness of the training program in improving physical and skill performance, which is in line with the results of previous studies on the relationship between physical abilities and skill performance.

It is evident that box-to-box training has become imperative to improve the fitness, stamina and tactical skills of footballers of different age levels including running long distances and moving fast to be able to be in the right place and time, in addition, the rate of progress in the physical and skill level of players has become steady and not constant through the measurement phases of the training program and this is consistent with the results of this study.

In the opinion of the study, box-to-box exercises, fitness plays an important role in the player's preparation skillfully as the practice of exercises and exercises that develop fitness elements is accompanied by a high level of performance of the player for various basic football skills. Therefore, stresses that physical and technical fitness cannot be separated at any time of the match and thus achieves the first imposition.

- **Discussion of the results of the second hypothesis:**

At (0.05), Table 7 shows that there are statistically significant differences between both the tribal mensuration and post-inspection of research group numbers concerning composite skill performance measures. Inside question:

For each item tested, the standardization value of dimensional mensuration was (-2.55 to 2.86) which exceeds "z" table (,) 005 rough level, indicating all skill tests in question and all dimensional measures will definitely be different statistically.

Someone is going to have a ball and not just stand around. Well, the players had the ball most of time but did not score. It indicates that there are statistically significant differences in all question skill tests and for dimensional measurement against tale value (z) of.005 level.

The other abilities listed --behemoth teams, outside backs, etc.--were still unbridgeable level. But how to improve those is to end up winning lose- lose war on whether it is possible.

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The study attributed this improvement to the higher level of pregnancy over the course of (12) The week of the program performance period by increasing the volume and then increasing the intensity. The study also attributes this improvement to the training method followed and the Box-to-Box exercises that helped in the transition of the training effect of the physical abilities in question by repeating the composite skill exercises that were gradually increased until they reached semi-competition and hence the second imposition.

5. Limitations

There are limitations in this research. Firstly, the small participants that have been selected from among just eight young athletes involved in football makes it impossible to generalize anything we've discovered here to a broader population. Secondly, artificially restricting player's ages to between 18 and 19 years doesn't represent all-age players in junior football altogether, either. Thirdly, since the study was carried out within one group only, various biases might skew any results obtained; these could relate to styles of coaching, facilities for training available or characteristics of Players. Fourthly, 12 weeks may be too short a period to observe whether Box-to-Box training system can have lasting impacts on player performance in football. Fifthly, this study emphasized specific physical abilities and their combined skill performance indicators, but factors affecting the game such as intelligence, awareness and psychology were not measured. Sixthly, the absence of a control group prevents us from claiming conclusively that the Box-to-Box training system alone improved the results. Likewise, the conclusions from this study are only for soccer and may not be generalized to other sports. Some future work could notably be larger numbers of trainees, inclusion of different age groups, introduction of a control group comparison, more widespread outcome measures and exploration into how widely applicable Box-to-Box training technology is in any other team sports.

6. Conclusion and future work

A. several major conclusions have been made by the statistic Mathis. These conclusions are as follows:

- Impact of Physical Abilities Exercises: The physical abilities exercises used in the study showed a statistically significant positive effect on both the time and accuracy of physical performance, as evidenced by the measured outcomes.
- Performance Training involving Composite Skills: Focusing on composite skill performance trained effect the people in this group were made a notable improvement in both totally time and accuracy of these skills, which rose to substandard for semi-competitiveness.
- Major Performance Differentials: This study shows that there were significant differences at the 99. 9 percent confidence level between the original tribal and in some ways hostile tests which measured physical abilities, as well as composite skill performance dimensions.
- Box-to-Box Training Technology: The application of Box-to-Box technology was a veritable boon for developing key composite physical and technical capabilities in footballers. Players using this training method achieved higher levels of performance, helping to make the team a winning one, and scoring opportunities for others. These same players showed greater participation both offensively and defensively, with improved touches on the ball, passes, runs made or attempted against themselves and tackles (all positive occurrences) recorded at higher rates along with an increased number of penalties won in comparison too opponents objectives scored.
- Overall Performance Improvement: Research indicates that Box-to-Box technology can effectively raise the overall performance level of football players, and should be introduced into the fabric of training schedules.

b. Based on the results of this study, the following areas for future research are recommended:

- Exploring Box-to-Box Technology: Further investigation of its long-term effects on player performance across different levels of football and across nationalities, we will look at the intensity or frequency of training variations.
- Comparison Studies: Comparative studies will be conducted between two groups of footballers being generally similar except that one was trained using Box-to-Box technology and the other was under traditional methods, to evaluate relative effect.
- Expand to Other Sports: We should look at Box-to-Box training in other sports, and if you get similar increases across different types of participants whether it enhances both physical and technical capacity in those.

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- Specialized Exercise Formulation: Take off with designs for new exercises aimed at specific positions or skills in football based on Box-to-Box technology which mirror to some extent the eventual actual match, keeping them appealing and varying at all times.
- Integration of Technology with Training: New training technologies (e.g. body-borne fitness calculators, video analysis) in conjunction with Box-to-Box technology investigation on how to use them to provide player's feedback.
- Psychological and Emotive Elements: Consideration of the psychological and emotional effects on players when using Box-to-Box technology, including aspects such as motivation, teamwork and confidence, a complete picture of benefits so to speak.

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