



THE IMPACT OF SPECIFIC EXERCISES ON VOLLEYBALL PLAYERS' ABILITY TO IMPROVE THEIR SPEED AND QUICKNESS

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ABSTRACT

Background. Due to the fact that these are the player's own position changes, its important to work on improving these skills whether it be starting them or making sure we achieve those top levels of performance achievable. This is what the game is based on, along with a lot of basic technical skills — the player must move purposefully and variationally in as little time and with as little effort as possible. It also allows the player to toggle back and forth between offensive and defensive tasks. Knowledge of his work is part of success and part greatness. **Objectives.** The objective of the study is to develop training programs that can enhance agility and skill performance of junior volleyball players and determine how exercises enables junior volleyball players to increase their agility and skill performance. **Method.** By the trial method, the researcher had established comparable groups that were appropriate for the situation's kind. The study group consisted of players from Babylon Sports Club participating in the Iraqi Junior Volleyball League Championship for the period of 2024–2025. The participants were divided into two groups: The experimental group used workout sessions to increase speed and skill for hitting the volleyball, while the control group did not perform anything. This experimental group consisted of six junior volleyball players in addition to the team trainer. **Results.** This indicates that agility training improved performance of the skills. The researcher believes that it was the players' adherence to a standardized science-based training program that improved their performance on skill. Performance level indicates that this results in physical improvements and leads to the progress of volleyball-specific physical abilities. **Conclusion.** The study concluded that the recommended exercises have an effect in exercise volleyball spiking skills and agility skills volleyball spiking.

Keywords; certain exercises, volleyball players, increase their speed, agility.



A. INTRODUCTION

Apart from any other games, volleyball imparts its players with numerous convergent physical, mental, energy as well as social benefits. So, without going too deep into the weeds, but this sport has come a long way in just the past few years from a world perspective and Olympic level. This is primarily because the advanced countries have studied and learned about a number of factor and variable in to the sport Because in volleyball you can only earn points under certain conditions, you will need to focus on particular physical skills at particular points during your training so that you are developing the most important things for getting points and winning games. Individuals with these skills possess what is known as special physical abilities.

Any sport requires agility because the ability to change directions quickly determines how well you do. The vast majority of sports require athletes to use their entire bodies, which means they must continuously adapt by accelerating or decelerating and changing direction on the fly. In most games, the ability to change direction quickly is more important than to just run straight ahead. Because of this, a lot of teachers and players are searching for fast and simple solutions to get faster and quicker. Of all the attacking skills, spiking is probably the most popular one since it allows teams to outdo each other. It's also believed to be the most powerful weapon in direct strikes. Whenever your players spike well, then your team wins the match because spiking successfully gives a straight point to the team. (Obaid and Radhi, 2020). It is the most important attacking aspect of the game because it contributes to scoring, which is also due to its physical and energetic traits and capabilities.

The other team players are also confused because it happens so fast they have no time to defend the spinning ball. It's an offensive tactic designed to penetrate the defensive line of the opponent with way more power than other offensive tactics or abilities. This is a great example of spiking and showing how important will it be to develop the physical skills necessary for this skill, which contributes significantly in increasing the level of performance of this skill, especially for young players. (2025) Saleem Radhy et al. Because of this, this skill begins to emerge in addition to some other physical skills that also influence the quality of spiking along with other technical and tactical factors. And due to this we can work on these abilities and emphasize the most required ones while ensuring that we attain our best performance in those skill. The fact is that the involuntary and passive swaps between offense when you are near with total ball control and defense that constitutes it requires a lot of internal basic technical quality corresponding to the exact same actions in paced pace less than a second or two focus on less movement more effort. It's also the foundation of a solid house, and it balance on that team's quality and performance depends.

Research problem

He has now worked up the ball for a new field researcher and, by watching games in general, found that the skill levels of overwhelming the beating were coming down. Perhaps the team players struggled to transition from jumping to changing direction throughout the unrelenting pummeling. To overcome this issue, the researcher developed fitness training in volleyball for class players to enhance their physical and skill aspect of overwhelming beating technique. Healthier Routines for Rising Volleyball Players Understanding the impact of workouts on craft development and fitness advancement for developing volleyball players. Integration of practice in signaling speed improvement and Skill performance for Hard Hit Volleyball

B. METHOD

Due to the nature of the problems, an experimental method and a comparison group strategy have been used by the researcher.

Research on communities and samples

The subject of this study includes Babylon Sports Club junior volleyball players who are in the Iraqi Junior Volleyball League Championship for the 2024–2025 season. Here's how they were divided up:

The trial team consisted of six junior volleyball players. They did drills to enhance their speed and skill performance as spikers.

The control group (n=6) consisted of the team coach's way that was used 6 junior volleyball players.

Equivalence and Homogeneity of the Two Research Groups' Samples

Consistency of the Study Sample:

The researcher indexed the skewed coefficient for uniformity sample members as shown in Table (1). This was done by calculating the factors, which consisted of age, height, weight and professional ability of the skill.

Table 1. Gives some idea of how similar the group people are, as per their age, length and weight.

No.	Factors	Measuring Unit	Insensitive	Typical Deviation	Skewness
1	Length	cm	176.82	4.75	2.68
2	Mass	kilogram	72.64	3.40	4.68
3	Chronological Age	year/month	17.91	0.89	4.97
4	Training Age	year	5.54	0.92	16.61

As seen in Table (1), body size factors were collinear among all subjects within the study group. The coefficient of variation ranged between 2.68 and 16.61 indicating that the study group was homogenous. This amount is less than 30%. A lower-number with a coefficient of variation number that is similar or less than a 30% means the people in the study group are All The Same. This indicates that the sample is assumed to be normally distributed.

Sample Equivalence

A pretest was performed on the study sample to check whether both research groups were similar in some of the physical factors. As shown in the table below, we summarize some sample baseline characteristics between the experimental groups and control group. Certain physical factors were similar between the experimental and control study groups at pretest, shown in Table 2.

Table 2. Comparison of physical variables explored

No.	Factors	Group Under Experimentation	Group Under Control	T Value	Type Sig
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		Arithmeti c mean	Typical deviation	Arithme tic mean	Typical deviation	Calculat ed	
1	T-teas	9.72	0.28	10.12	0.98	0.96	non sig
2	Diagonal Spiking	13.67	2.27	15.56	2.14	1.48	

The comparison of the explored physical variables (Table (2)) related to the Qatari spiking skill controlling group and experimental group did not show a big difference. The computed t-value was lower than that in the table which was at 0.05. It was between 0.32 and 0.47. This demonstrates that both study groups did the same pre-test.

Methods of Collecting Information and Data:

sources: - Arabic, other languages and internet. - People interviews. - Observation with studying movement.- Statistically working. – Measurements and tests; research previously done or completed before.; - Employs sources for support.

Equipment and Tools Used

– Several tools. –Tools you are training with all their components. One (1) digital watch — one (1) Japanese-made CASIO Exilim video camera capable of recording 300 frames per second — one HP laptop. You will need the following computer software and programs: - Kinovea (organizer for motion) – metal tape measure – height and weight measuring device, if available; 10 balls — A volleyball court that is allowed.

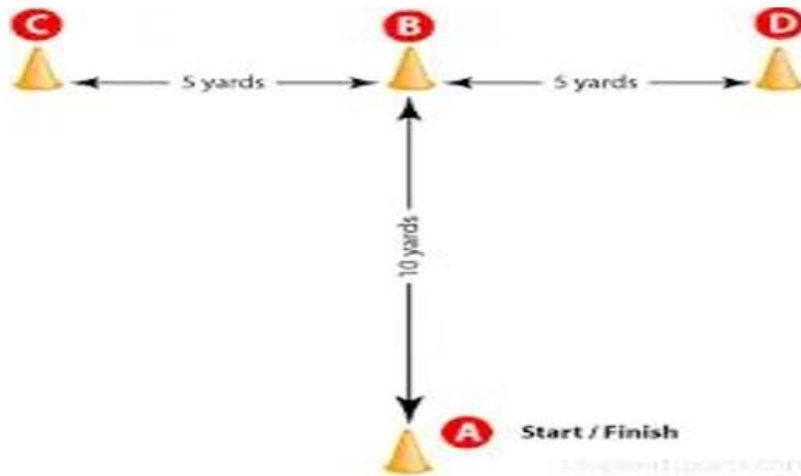
Identifying Tests

In order to identify the best tests surrounding that specific method they wanted to examine, the researcher had searched through various sources. The purpose of this step was to ensure the accuracy and objectivity of tests' results

Like anything in life, tests are part of a scientific study. That is especially true of volleyball, in which the sport has seen a great deal of progress in recent years. It must be emphasised that all of the findings for sample members were obtained in practice conducive environments.

Test 1: Agility T-test (Reiman, M. and Manske, Robert , 2009):

To conduct the test, you will need to set up an area where there will be four different marked cones that participants must run towards — forwards, side to side and backwards which creates a simulation of athletic type movements. Arrange 4 cones such that cone A is 10 yards from cone B, and back to cone B is 5 yards away from cones C and D. The tester starts at cone A and sprints to touch the top of cone B with his right hand. Next they skip to the left and touch cone C with their right hand, then the right to touch cone D and finally they turn left and with their left hand they touch cone B. The tester then runs back to cone A, where they stop the stopwatch and call it a day. To earn a point, the tester has to cross their steps, with one foot over te other during a shift. That can happen if they don't drive with their balance or place their hand on the top of the cones. Choose your best three attempts that work out.



An example of a speed test is visible in **figure 1**.

Test to evaluate Diagonal Spiking Accuracy (Muhammad Subhi Hassanein; Hamdi Abdel Moneim. 1999) is the second test. What the Test Is For: To assess your ability to attempt a diagonal spike in a linear way. - Ten volleyballs, one volleyball court and two practice boxes In one exercise box, the inner corners are 5 cm from side and end lines in a court corner. The other one has the set up as it appears in Figure 3. - Skills requirements: - The coach spikes ball from position of 2 and long lateral pass of the examinee letter from position of 3. Modeling the person being tested as X, they must spike five times back rank (A), and another five front rank (B). Example: You get ten right attempts. That's how it should be when you score, as per the scoring rules. - For recording: When a ball falls on the rank after a good kick, four points are given to you.

1. Each correct hit that puts the ball over into the target zone fakes 3 points.
2. You earn two points for each good hit that sends the ball to zone (A) (red stars in zone) or (B) (blue stars in zone).
3. You score one point for every good shot which sends the ball to zone (C).

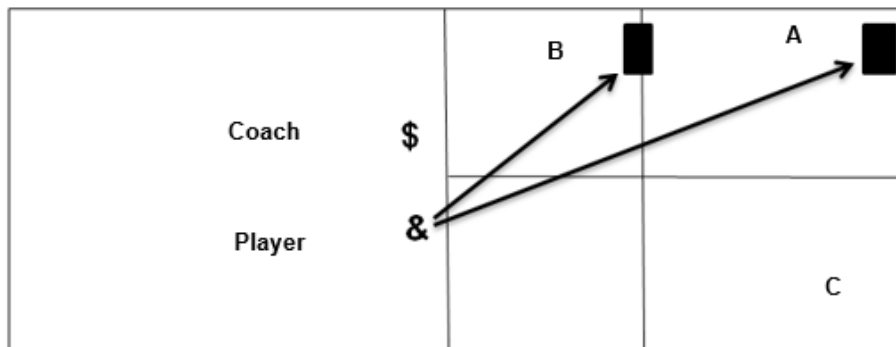


Figure 2. Show Diagonal Spiking Accuracy Test

Exploratory Studies

1. Exploratory Study:

The dates were from January 5, 2025 to January 14, 2025 ($t(12)=21$) and the researcher observed a sample of 12 volleyball players which belonged in the club's under-19 team (not included in the main research sample). This was an exploratory study. The aims of the study were as follows: (1) to determine psychometric values of validity and reliability for each of the tests examined; (2) to identify potential issues in administering the proposed tests within the study methods, and (3) to establish optimal order for conducting these tests.

Findings from this study were as follows

2. Scientific Conditions for Tests:

- **Validity Test:** The researcher tested the content validity of the tests. This centered around how well the test accurately and consistently measures what it was designed to measure, in order to reach its objective. The correctness of the content is checked using questionnaires sent to experts in volleyball tests. We selected tests with the highest rate of agreement. **Stability Test:** The researcher calculated the stability coefficient of the research tests on the exploratory study sample by using the test-and-retest method three days apart. The reliability rate for the tests examined can be seen from Table 4. **neutrality Tests:** Foundational to a controlled test is a high level of neutrality. Objective tests are those that can be understood easily as a result of clear instructions from the test administer and fair scoring. A test is highly objective if three different judges would get the same answers to it regardless of how different they are from one another. They (Dhoqan Obaidat et al., 1988) said Objectivity means the test term and the score are well known to everyone. Photographs are taken from identified places using cameras and location numbers as reference. No doubt this is true, nor is the use of precise and uniform implements for skill analysis.

Table 3. Shows the scientific conditions for tests

No.	Tests	Unit of measurement	Stability	Objectivity
1	T-test	Degree	0.95	0.93
2	Diagonal Spiking	Degree	0.94	0.91

Main Experimental Procedures

1. Pre-Measurements

The researcher evaluated the mobility test and crushing strike on January 15, 2025 using the main research group for the preliminary test of their research variables.

Implementation of the Training Program:

The subjects of the study group trained on Ghazl El Mahalla Club fields, during the available time from 15th January 2025 and until April 15, 2025. The program was conducted 3 times a week for 12 weeks (120-minute training units).

2. Post-Measurements

On April 18, 2025, subsequent to the training program utilization period being completed, the investigator conducted postmeasurements following similar strategy as premeasurements.

Methods of Statistics

The study utilized SPSS (statistical analytical software) with the following tools:

C. RESULTS AND DISCUSSIONS

Results

Results of the volleyball speed and (hitting skill tests were obtained before and after) given experiments for the experimental group and control groups, with explanation:

No.	Factors	Prior To The Test		After The Test		Calculating The Mean Of The Difference	Differences ' Standard Deviation	T Value Computed.
		Arithmeti c Mean	Typical Deviatio n	Arithmeti c Mean	Typical Deviatio n			
1	T-Teas	9.73	0.28	8.09	0.36	1.64	0.29	12.65
2	Diagona l Spiking	13.67	2.27	17.83	1.95	4.16	1.91	4.87

At level of significance 0.05 and degree of freedom 5, the table t-value was 2.57of (Table3).

This is what Table (5) shows

T-calculated in the purchased normalcy (C) for all obtained components, because of high, was higher than tabular t table row at alpha=0.05 so that there are significant variations about experimental group result for pre-test and post-test average on component's agility with spiking skill as well as on post-tests approach.

According to the researcher, this is due to agility training that was specific in the fact that it encompassed more types of activity and incorporated a physical dynamic performance component with skill and tactical performance. Because of the difference in rates of growth between pre- and post-test, it is clear to see that this allowed experimental group to perform better on the spiking skill tests. As the physical aspect improves, consequently the performance of players in terms of strategy and skills will also improve during real volleyball matches.

Therefore, the scholar believes that the more a teacher uses agility training, and through which dynamic synchronization is enhanced, then the performance of skills will be improved by it. That is because it makes controlling the body, especially foot movements easier. Which allow the individual to remain optimal positions and perform at their max.

The researcher believes that these results are due to the well-organized agility training program, as well as the fact that sample age and their training level have been considered in determining the amount of training given. Working with agility ladders was another important component of him improving his dynamic speed for the thrown skill, he also says.

Such agility training works more muscle groups than other types of training and produces bigger gains, Robert Lindsey says. The arm and leg muscles, on the other hand, will

help yet be more accurate when using tools like hoops or floor ladders. Furthermore, using variation, change, and various forms in training kinetics speed for diverse abilities also adds up to the level which has an impact on the development of skills level (Robert Lindsey, 2009).

Results of the control group's pre and post-test measures for mobility factors and volleyball hitting skills are reported, reviewed and discussed.

Table (6) indicates the difference in speed and volleyball-spiking ability from pre-test to post-test for each participant in the control group.

No.	Factors	Prior To The Test		After The Test		Calculating The Mean Of The Difference	Differences ' Standard Deviation	T Value Computed.
		Arithmetic Mean	Typical Deviation	Arithmetic Mean	Typical Deviation			
1	T-Teas	10.12	0.98	12.89	0.86	2.77	0.95	7.14
2	Diagonal Spiking	15.56	2.14	16.77	1.92	1.21	0.85	3.49

At significance level 0.05, the t-table value: is 2.57 as you can see;

Discussions

The post test speed variable results of the control and experimental groups volleyball hitting skill have been presented, evaluated, and discussed.

Statistical analysis of speed and volleyball hitting skill on post-test shows that the experiment group and control group are different.

No.	Variables	Post-Test For The Experimental Group		Post-Test For The Control Group		T Value Calculated
		Arithmetic Average	Typical Deviation	Arithmetic Average	Typical Deviation	
1	T-Teas	8.09	0.36	12.89	0.86	11.51
2	Diagonal Spiking	17.83	1.95	16.77	1.92	2.87

The t-table indicated a t-value of 2.23 ($\alpha = 0.05$, $df = 10$).

The expert says this effect could be explained with the specially designed training that combined physical agility and movement exchanges in the spiking skill, which proved to be more effective for the experimental group than control group performance after made respective tests. This is because this type of exercise involves various activities requiring the participant to alter their location, velocity and direction abruptly due to very rapid and unpredictable changes in these actions while moving. It also features strength, speed, balance and agility workouts that will improve any junior volleyball player's hitting technique.

Dynamic speed reaction level is improved when doing spiking skill due to quickness training, said the expert.

This indicates that the physical skills assayed improved following agility training, providing support that it enhances physical attributes. According to the researchers, the

physical performance of the sample of participants in this study has improved through adherence to a prescribed training program specifically developed according to scientific measures for enhancing physical performances.

To help players get in better sporting form, sports training uses practical means to develop regimens within the fitness and build-up skills. Mufti Ibrahim Hammad In 2001 It is good because when you train agility and never interrupt your performance, improvement will occur since the physical skills become more skilled.

This indicates that agility training improved performance of the skills. The researcher believes that it was the players' adherence to a standardized science-based training program that improved their performance on skill. Performance level indicates that this results in physical improvements and leads to the progress of volleyball-specific physical abilities.

suggests that improving sport-specific physical skills increases a sport's performance level and accuracy of skill execution. In 2001, Mufti Ibrahim Hammad commented

Flexibility: An athlete should be exposed to a wide variety of physical capabilities and must learn to implement those skills in many different scenarios. This makes them more agile. Abdul Haq, Imad, and Abu Areeda, Fayez. (2004) It requires strength to reach the apex point for spiking. A player with stronger leg muscles will jump higher, and hit the ball farther, as well as more accurately. And you need to have well-developed muscles in your throwing arm with which to hit a fast and hard ball and end the attack once and for all, making it impossible for the other player to stop. In 2021, Zaki Muhammad Hassan

Since agility is a great part of the game – one of the main physical skills volleyball players need to develop. (Hamad Subhi Hassanein and Muhammad Subhi Hassanein). 1997) A player can also do the skill well by improving their speed, reaching to the ball as fast as possible and kicking it at that specific time.

Agility enables a player to rapidly shift their body arms up and down on the surface or in mid-air to send at temporarily get rid of (catch) the ball. This is one of the key abilities in volleyball, particularly regarding movements that require you to alter your body direction or position when airborne or on a surface (Chafidz et al., 2023; Custodio et al., 2024; Suniga et al., 2025). That's because the speed training targets multiple muscle fibers, the expert explains. This aligns with the findings of a study by Vanwassenhove et al. (2010), where it was proven that the training course made players in the experimental group jump farther and be a more agile.

Agility ladder training helps running, hopping and hopscotching game improves, says Matthew Schirm. They need to practice all of these skills because the player needs to be willing to undergo a change and improve his/her performance. All the skills work different motor units, vital for the sculpting of sports skills. They are also super important to break the work back into sets and rounds so that the player can chase the best outcome possible. Matthew Schirm (2017).

The program is said to take its forms through agility training and features exercises aimed at improving speed. These exercises lead to a better passive contraction of muscles because multiple sense organs are activated that can synergistically work together and increase the number of kinetic units present in the muscle controlling such joints. There are moves in the exercises that are also used in contests. Velmurugan and Palanisamy support this statement by explaining that agility training increases the number of active kinetic units, as muscle spindles are stimulated which causes released kinetic units to be highly tense and

more receptors are activated resulting in greater force output. Written by Velmurugan G. & Palanisamy A.

The selected exercises made it easy for the player to blend in a serious environment full of excitement. Never once did he or she appear bored or tired during a performance. Another aspect that aided the improvement of speed was the number of times the workouts were performed. That aligns with what was stated earlier, that "The coach needs to prescribe as many reps on any exercise to develop the desired quality." (Sulaiman Saleh Matin 4, 2004) When it comes to speed, the experimental group was also faster than the control group. The difference, the expert said, is due to differences in the exercises and a series of timed moves to be performed that links them together. Then, "adopting the principle of gradual progression from simple to complex in performing specific agility exercises helped in developing this quality because a player can get better at it faster if he is already agile." " It is the top class since we need not forget that the fundamental educational principle of step by step from simple to complex 7561, till completion, because then finally a player must deconstruct it. 2005 by Issam Abdul Khaliq

D. CONCLUSION AND RECOMMENDATIONS

Conclusion

The subjects gained proficiency executing the drills outlined in their prescribed agility training protocol. The improvements were found includemuscle strength, speed and agility The study group of Qataris who excelled at spiking on the agility training part of the suggested training program led to better results in agility testing Speed training can directly impact a person physical abilities - transition speed when running one arm attack strength/body weight speed.

Recommendations

With various suggestions and recommendations as follows: (a) Conducting a specific type of physical training according to the physical needs of the skills without any intervals or pauses between sets, (b) Solving problems with speed training that affect players' agility in playing, (c) Making progress in mastering volleyball techniques through speed training, (d) Recommendations for conducting an exercise program at work to promote better understanding of volleyball play through study exploration regarding functional anatomy; (e) Utilizing proffered programs to shape different classes but helping young pupils wise their regular sessions academy during the session period.

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F. AUTHOR CONTRIBUTION STATEMENT

All authors contributed to this research

G. REFERENCE

- Abdul Haq, Imad, and Abu Areeda, Fayez. 2004. The Effect of Using Circuit Training on Developing Agility among Sixth Grade Students. *Journal of the Association of Arab Universities*, Amman, Jordan.
- Dhoqan Obaidat et al. (1988). *Scientific Research – Its Concept – Tools – Methods* (Amman, Dar Al Fikr for Publishing and Distribution), p. 158.
- Chafidz, R., Juli, C., 'Ala, F., & Troyanovska, M. (2023). Application of speed and agility training: How do they affect dribbling skills in soccer? *Tanjungpura Journal of Coaching Research*, 1(3). <https://doi.org/10.26418/tajor.v1i3.69561>
- Custodio, J. M., Shukla, M., Tulyakul, S., & Taiar, R. (2024). How ladder drill V-pattern and snake jump exercises impact the agility of basketball players. *Tanjungpura Journal of Coaching Research*, 2(1), 30–36. <https://doi.org/10.26418/tajor.v2i1.72008>
- Issam Abdul Khaliq. 2005. *Sports Training: Theories and Applications*, 12th ed., Cairo, Manshaat Al-Maaref.
- Matin Sulaiman Saleh. 2004. The Effect of Using Floor Exercises on Developing Coordination and Kinetic Response Time among Intermediate School Female Students, Master's Thesis, University of Diyala: College of Physical Education.
- Matthew Schirm (2017): Plyometric Agility Drills, <http://www.livestrong.com/article/144577-plyometric-agility-drills/>
- Mufti Ibrahim Hammad. 2001. *Modern Sports Training: Planning, Implementation, and Leadership*, Second Edition, Dar Al Fikr Al Arabi, Cairo, pp. 21-22.
- Muhammad Subhi Hassanein, Hamdi Abdel Moneim. 1997. *Scientific foundations of volleyball and methods of measuring evaluation (physical, skill, cognitive, psychological, and analytical)*, Kitab Center for Publishing, Cairo, p. 19.
- Muhammad Subhi Hassanein; Hamdi Abdel Moneim. 1999. *Scientific Foundations of Volleyball and Measurement Methods*, (Cairo, Kitab Publishing Center), p. 206.
- Radhi, M. N., & Obaid, S. H. (2020). The Effect of Functional Exercises in Some Biomotor Abilities and Metabolism Rate for Volleyball Young Players. *Indian Journal of Forensic Medicine & Toxicology*, 14(4), 2614-2619.
- Reiman, M. and Manske, Robert. (2009). *Functional testing in human performance*. Human Kinetics. USA.
- Robert Lindsey (2009): Agility Ladder Exercises & Drills. Retrieved from <http://www.power-systems.com>.
- Saleem Radhy, S., Aboodee Hussein, A., Kadhem fairouz, H. A., Mohammed Karim, G., & Nasser Radhi, M. (2025). The effect of special exercises in developing some bio-kinetic abilities and improving the performance of the volley in tennis for players. *Retos*, 68, 1644–1653. <https://doi.org/10.47197/retos.v68.114658>
- Suniga, J. P. C., Custodio, J. M., Roldan, P. J. B., Shlool, H. A., & Abumoh'D, M. F. (2025). How effective is circuit training on physical fitness? A high-intensity study in the sport of futsal. *Tanjungpura Journal of Coaching Research*, 3(1), 32–40. <https://doi.org/10.26418/tajor.v3i1.88062>
- Vanwassenhove, Amy; Messer, Amy J; Linden, Darl Vander Cronin, Brian; and Mizner, Ryan 1. 2010 . Changes in jumping and agility tests following sports performance training in youth athletes: a retrospective study. *Medicine & Science in Sport & Exercise* 42 (5) supplement 1, may , mp717.

Velmurugan G. & Palanisamy A. (2012): Effects of Saq Training and Plyometric Training on Speed Among College Men Kabaddi Players, Indian Journal of Applied Research, Volume: 3, Issue: 11, 432.

Zaki Muhammad Hassan. 2021. Functional training and its effectiveness in developing offensive and defensive skills in volleyball players, Beni Suf Journal of Physical Education and Sports Sciences, p. 20.