The journal « sports creativity »

Volume: (16) / N°: (01)-(2025), p 474-493

Theoretical study on physical qualities and motor qualities.

دراسة نظرية حول الصفات البدنية والصفات الحركية.

Houiche Zakaria[1] . Abdelkebir Kamel[2]

[1] University of Constantine 02 / Emile: zaki.eps@hotmail.fr

[2] University of Algiers 03 / Emil: Kamel18021979@gmail.com

Received: 01/01/2025 Accepted: 24/03/2025 Published:01/06/2025

Abstract:

Through the conflicts that occurred over various terms in the sports field, we tried through oure search to shed light on the terms physical traits and motor traits, through the concept, types, importance, and extent of their impact on sports performance. We discussed some types of muscular strength such as strength endurance , speed strength , Explosive strength, general strength , specific strength, relative strength, and absolute strength. We also discussed transitional speed , motor speed , reaction speed , static flexibility , dynamic flexibility , general agility and special , general cordination and special .We also tried to compare them through similarities and differences.

Keywords: physical qualities, motor qualities.

ملخص:

من خلال التضاربات الحاصلة حول مختلف المصطلحات في المجال الرياضي حاولنا من خلال بحثنا هذا تسليط الضوء على مصطلحي الصفات البدنية والصفات الحركية ، من خلال المفهوم والأنواع والأهمية ومدى تأثيرها على الأداء الرياضي ، حيث تطرقنا إلى بعض أنواع القوة العضلية كتحمل القوة والقوة المميزة بالسرعة والقوة الانفجارية والقوة العامة والخاصة والقوة النسبية والقوة المطلقة ، وأيضا تناولنا السرعة الانتقالية والسرعة الحركية وسرعة رد الفعل والمرونة الثابتة والمتحركة والرشاقة العامة والخاصة والتوافق العام والخاص.أيضا حاولنا المقارنة بينهما من خلال أوجه التشابه والاختلاف.

الكلمات المفتاحية: الصفات البدنية ، الصفات الحركية.

Corresponding author **Houiche Zakaria**-mail: , zaki.eps@hotmail.fr

1- Introduction:

Physical and motor qualities are among the important topics in the sports field, as they have been and still are the focus of discussion and controversy about defining their components and how to distinguish between them. If we look closely at motor and physical traits, we will find that some of them are closely related to the physiological and physical condition, and others depend on the central nervous system. And the peripheral for movement control. On this basis, the scientist (Calahou) developed the capabilities that depend on the physiological sufficiency of physical capabilities and include (strength, speed , and endurance). As for the abilities that are not subject to change in the physiological state, but rather in the ability to control movement, this ability depends on investing in motor sensation and using the central and peripheral nervous system in order to control motor abilities and includes (balance, coordination, motor accuracy, agility, motor flexibility) (Abdul Razzaq, 2009, p. 170).

We will discuss them in detail:

1- The physical characteristics under study:

1-1- power:

Muscular strength is the ability of the body's muscles to generate an amount of force in a short period using energy that does not depend on oxygen, using exercises to strength en muscles, in crease their size and density, expand cells, and build muscles. Muscles and the tissues connected to them, the more flexible the body is and the less exposed it is to danger. It also helps control weight in the long term, as the tissues surrounding the muscles can burn more calories than fat even during periods of rest. (Yassin, 2008, p. 161)

He defines it (Al-Mashhadi 2014): "It is the force that a muscle produces as a result of one or several muscle contractions, or it is the individual 'sability to produce the maximum possible force, and it constitutes one of the necessary elements of performance." (Al-Mashhadi, 2014, p. 159). **Operational definition**: It is the ability of the body's muscles to produce sufficient energy during their maximum contraction to resist various external loads.

1-1-1- The importance of strength: Some skill movements cannot be performed dun less there is a certain level of strength. Developing strength may positively affect the effectiveness of the long-term training system. (Al-Mawla, 2008, p. 48)

- It contributes to performing any type of physical effort in all sports, and the percentage of its contribution varies according to the type of performance.
- It contributes to the appreciation of other physical fitness elements such as (speed, endurance, and agility), so it occupies a large space in sports training programs.
- It is considered an important determinant in achieving athletic excellence in most sports. (Hammad, 2001, p. 167) Muscular strength is considered one of the most important physical qualities because of its great effectiveness in public life and in the field of physical education in particular, which has prompted manyre searchers in this field to make it a subject of their studies and research, such as Larson, Yokem, Fleischman, and Hara. , Matveev, Satsiorsky, Mateusz, Clark, Bucher, Curten, Wilgors, Cruz, Beer, and others. (Ali, 1999).

1-1-2- Types of force:

According to "Mufti Ibrahim Hammad" 2010, "muscular strength can be divided in to three different divisions as follows: (Hammad, 2010c, 191).

A- According to the nature of the type of force produced by the muscle: maximum force, force characterized by speed, explosive force, endurance. Strength .

B- According to the nature of the effect of muscle strength exercises on the players' muscles: general strength, specific strength.

C- According to the nature of the force produced by the muscles: absolute strength, relative strength. **A-**

According to the nature and type of force produced by the muscle:

A-1- Maximum force: It is the greatest force that an athlete obtains through muscle contractions. (Luc Cayla ,2007, p. 101) (, Martin, 1993) believes that "maximum strength is the values of muscular strength that can be developed according to the requirements of isometric contraction and according to slow movements" (Hussein, 1998a, 368). Ibrahim Muhammad She hat defines it as: "It is the greatest force that a player can exert with maximum voluntary effort." (Shehata, 2003, p. 250).

A-2 - Endurance of force: Defined by Abu Al-Ala Ahmed Abdel Fattah, quoting (Tuckson), itis: "The ability of a muscle or muscle group to performs veral tasks." Contractions against resistance for a period of time, or maintaining isometric contraction for the long period of time." (Abdel Fattah, Sayed, 2003, p. 141) According to Youssef Kamash: "It is the ability to resist fatigue in the event of muscular contraction for the longest possible period." (Kammash, Saad, 2006, p.

43) As for R. TAELMAN, he defines it: "It is the ability of the body's systems to resist fatigue during continuous effort, which his characterized by its long periods and it sconnection to the muscular levels." (Taelman.R, 2000, p26) It is defined by (Hussein Ali): "The athlete'sability to performont in effort for a relatively long period with out the level of strength significantly decreasing as a result of fatigue." (Al-Ali, Shaghati, 2010, p. 192).

A-3- Power characterized by speed: Power characterized by speed can be defined according to (Vaignac and Hara): "It is the ability of the muscular and nervous ssystems to over come an external resistance or resistances with the highest possible speed of muscle contraction." (Le Gallais Daniel, 2007, p02). It is defined as: "the individual'sability to over come various resistances in a high incremental process and a high speed of movement." (Abdullah, 2008, p. 04). It is the ability to repeated y over come resistance using high motor speed, where the amount of force is less than the maximum, and the amount of speed is al so less than the maximum, even if it is very high, where the force characterized by speed is represented by repetition with ou thaving to wait a while for the strength to accumulate, and an example of this is fast running. (Abbas Abu Zaid, 2005, p. 270) Bastawisi Ahmed believes that strength characterized by speed is a marriage between muscular strength and speed to form quick strength or the term ability as we find it in many references and which is comm. Only used in the sports community. (Ahmed Bastawisi, 2014, p. 74).

A-4- Explosive power: According to Ali Fahmi Al-Beik (2002): "It is the ability to conquer or over come less than maximum resistance, but in the fastest possible time." (Muhammad Al-Beik, 2002, p. 118) Harrah defines it as: "the individual'sability to over come resistance using high motor speed, which his a combined element of strength and speed." (Al-Aqidi, 2007, p. 133) It is defined

as the ability to produce the maximum muscle force for one time and for the shorte period of time, and it is defined by (Maud & Foster): "It is the maximum force in a single contraction generated by a muscle or muscle group at a high rate of speed." Maud, Foster, 2006, p. 119. (Explosive strength his a characteristic resulting from the connection between maximum strength and maximum speed. It is subject to the conditions of maximum strength training and differs from it in terms of performance time, as it is performed in the shortest possible time. (Ahmed Suleiman, 2004, p. 154)

The difference between explosive force and force characterized by speed:
- Some scientists and specialists believe that the number of repetitions of force characterized by speed is between 10 to 15 seconds, while explosive force is at the maximum speed and strength possible in one moment from 2 to 3 seconds. Both traits work under the control of the central nervous system through rapid motor programming. (Ahmed Bastawisi, 2014, p. 76
The researcher believes that the difference lies in that the explosive force is a single muscle contraction in a very short period of time, while the force characterized by speed is in successive muscle contractions for a specific period of time. Like wise, the first depends on maximum speed and strength, while the second depends on speed and strength less than the first.

B- According to the nature of the effect of muscular strength exercises on the players' muscles:

B-1- General strength: It is the ability to overcome all types of resistance in a satisfactory manner, and general strength is the basis for specific strength, and circuit training is considered a very effective method for developing and maintaining general strength. It is concerned with all the systems that are considered the basis of muscular strength programs, which are developed during

the initial preparation stage or in the first years of the beginning of the player's training, and the low level of general strength is an influential and determining factor for all stages of the player's progress. (Al-Fateh, 2002, pp. 103-10) General strength his the basic rule for all strength training programs, and it is mainly in the first stage (preparation stage), and also in the first 2 to 3 years in planning strength training for the competition athlete. (Tudor O. Bompa , 2007, p23.)

B-2- Special strength: Special strength is the physical strength that appears in the specialized sports field, and it is one of the performance and movement requirements for sporting vents. (Laith Ibrahim, 2007, p. 112) It means what is related to the muscles specific to the activity (muscles involved in performance) and is related to specialization in performance, that is, to the type of sporting activity, as this type of strength is linked to the nature of the activity for each sport, such as the special strength of a handball player, games Powers...etc. (Al-Fatih, 2002, pp. 103-104)

C- According to the nature of the force produced by the muscles:

C-1- Relative strength: means the strength that the athlete possesses in relation to his body weight, which his the ratio resulting from dividing the maximum force by the body weight. Relative strength appears clearly for athletes whose performance requires moving their body, such as gymnasts and jumpers. Relative strength equals absolute muscle strength divided by body weight, and there are some types of sports that require the greatest possible force to be exerted with out much need for body movement or control to a great degree, such as (weight lifting, throwing). (Al-Fartousi et al., pp. 241-242)

C-2- Absolute strength: means the force that an individual athlete can producer gardles of his body weight. In a broadersense, it is the athlete'sability to exert

maximum force regardless of body weight. Through this concept, Reaching high levels in sports (weightlifting, wrestling, shot put) requires a great achievement of this strength, and it can be measured by using a dynamometer or lifting a weight once. The increase in this type of strength is linked to an increase in weight, as the physiological section of the muscles increases with it.

1-2- Speed:

Speed is considered a physical variable and one of the important and basic components of physical performance, which is linked to the sequence of muscle contraction processes, and plays an important and fundamental role in all sporting activities. Speed varies from one individual to an other according to certain factors and is mainly linked to other physical components such as agility. Flexibility, strength and compatibility. (Al-Hawi, 2002, p. 144) Nasr al-Din Sayyed defines it: "It is the ability to move the limbs of the body, part of the body's levers, or the body as a whole in the shortest possible time." (Sayed, 2003, p. 62)

Procedural definition: It is the ability to cover a certain distance in the shortest possible time and depends physiologically on the fast white muscle fibers that contribute to speed races.

1-2-1- The importance of speed:(Barrow) points out that speed is an important component in many motor activities and is one of the factors for successful performance. Larsov, Jochem, and Butcher considered it among the components of physical fitness, and in this sense it is: - an important component of many aspects of physical performance in different sports.
It is considered one of the success factors for many motor skills. (Mahmoud Amira, Mahmoud Hassan, 2008, p. 192).

1-2- 2- Factors that affect speed :

- Neuromuscular compatibility.
- Strength and muscular ability (strength characterized by speed).
- Flexibility and elasticity of joints and muscles.

Speed is affected by the genetic factor that controls the formation of the ratio of fast and slow muscle fibers. (Hamdan, Abdul Razzaq, 2001, p. 31)

1-2- 3- Types of speed:

A- Transitional speed: This means trying to move or move from one place to an other with the highest possible speed, and this means trying to over come a certain distance in the shortest possible time. (Majeed, 1991, p. 319) It is closely related to the amount of muscular force exerted by the athlete, in which the center of gravity moves from the movement of the limbs continuously, such as the movement of swimming, rowing, running, and cycling. The speed of movement is of great importance, both in repetitive symmetrical movements as well as in various sports such as Handball and others. Abu Al-Alaa defines it as: "the ability to move from one place to an other in the shortest possible period of time." (Abdel Fattah, 1998, p. 189). While running, the body makes a great effort to over come several forces, including: natural internal forces and factors represented by the bones and muscles, others such as neuromuscular coordination, and externl factors such as over coming the resistance of gravity and air resistance.

B- Motor speed (performance speed): It is the speed of muscle contractions while performing a movement. In order to improve performance speed, there is the possibility of improving the number of movements, and at the same time increasing the area of completion. For example, if the athlete covers a certain distance quickly, he can increase the pace of the step with Maintain its length.

Increase the length of your steps and maintain the same running rhythm. (Bayer, 1993, p302) and (Kharibet 1997) believes: "Motor speed is affected by every part of the body by the nature of the work required and the direction of the movement performed." (Majeed, 1997, p. 79) It is divided in to: **Single movements:** the speed of kicking the ball, the speed of jumping, or performing a punch. **Complex movements:** speed of receiving and passing the ball, speed of approaching and jumping. **C- Speed of reaction time (response):** Reaction time means that it is the time that elapses between the beginning of the appearance of a stimulus and the occurrence of a response to this stimulus. When the stimulus occurs, it flows to wards the sensory organs that receive it in the player, such as the ear or the eye, and this stimulus stimulates them and then The internal processes inherent in the player begin as the nerves transmit the translation of this stimulus to the central nervous system and from there to the muscles that perform the required response. (Abdul Amin, 2014, p. 59).

2- The motor characteristics under study:

2-1- Flexibility: Most definitions of flexibility agreed that it is the ability to move with in a wide range of motion, that is, it is the range of movemental lowed by the body's joints. This range can be measured in linear units (centimeters - inches - feet). It seems that there is a difference among training scholars regarding the specificity of this characteristic, meaning that there is no specification of the levels of flexibility in general. Each joint of the body has it sown distinct range of motion, and itis not possible to judge the level of general flexibility of any individual's joints by measuring the range of motion of one or more of its joints. Flexibility does not necessarily exist in all joints of the body in the same

proportions and the same standard. (Talha et al., 1997, p. 245). Abu Saleh defines it: "It is the ability of the joints, muscles, and connective tissues to move to the widest an atomically possible range. Muscles are characterized by softness and elasticity, meaning they are able to beleng then during pulling." (Ayesh, 2009, p. 57)

Procedural definition: It is the athlete's ability to stretch ore long ate the joints, muscles, and tissues to the greatest possible extent with out feeling pain or in jury, and it is self-perpetuating, meaning he does it him self, or with external assistance through a colleague or auxiliary means.

2-1-1 Types and divisions of flexibility:

A- Static flexibility: This is the ability of the individual athlete to assume a specific physical position at the maximum extent of the joint and to remain stable in this position. It is al so called negative flexibility.
B- Mobile flexibility: This means the ability of the individual athlete to perform movements over the full range of the joint in a dynamic, moving manner. It is called positive flexibility. (Mahmoud Amira, Mahmoud Maher, 2008, p. 203)

2- 1- 2- The importance of flexibility:

- It works with other physical qualities to prepare the athlete physically and motorically.

- It helps reduce injuries and facilitates the return of affected joints to their normal movements.

- It contributes to saving energy and reducing performance time.
– Helping make movements appear more beautiful and effective. (Amorrah, 2017, p. 51)

- Larsen and Jochem believe that the impact of an individual's adaptation in many aspects of physical activity is determined by the degree of overall flexibility of the body or of a particular joint, and good flexibility or a wide range has a prominent place physiologically and mechanically.

(Hasnain, 1996, p. 22)

2-2- Agility: Agility is considered one of the complex physical components, and a great deal of difference has been identified in clarifying its concept due to its close relation ship with other physical components. Larson and Jochem define it as: "the individual'sability to change the position of his body, whether on the ground or Up in the air". (Al-Hawi, 2002, p. 150).

Hashim defines it, quoting Imova: "It is the ability to quickly and easily master new movements and learn quickly in executing them, as well as the speed of rebuilding motor activity in proportion to the requirements of changing positions in order to obtain ideal solutions during performance. on the difficulty of performing the motor task. Accuracy of motor performance, duration of performing the motor task. (Iscarud, 2008, p. 91).

Procedural definition: It is the ability to control body movements with appropriate flow and rhythm and change their direction quickly, whe ther on the ground or in the air, to accomplish a specific motor task.

2-2-1- Types of agility: Ozol in differentiates between the divisions of agility in terms of their relationship to the activity practiced in to:

A- General agility: It is the ability to perform a motor task characterized by diversity and difference with accuracy and fluidity in various sporting activities. (Al-Hajj, 2005, p. 115) To develop general agility, researchers advise the following:

- Training on various devices develops compatibility, which his very important for developing agility.

- Playing sports that require quick response.

B- Special agility: means the athlete'sability to change and modify the method of movement execution effectively in the specialized sporting activity with the best efficiency. (Hadi, 2005, p. 53).

The most important ways to develop special agility:

- Training in unusual conditions, such as jumping over cultivated lands.
- Running towards the wind.
- Training in an open field, such as jumping over holes.
- Training within close movements with in the performance, such as sideways running. (Al-Bashtawi, 2005, p. 240).

2-2- 2- The role and importance of agility: Loman believes that agility contributes greatly to the acquisition and mastery of motor skills, and he agrees that the more agility a player has, the more quickly he can improve his level of performance. (Mahmoud Amira, Mahmoud Maher, 2008, p. 215)

- It plays an extremely important role in athletics competitions and team sports, as the player who acquires this trait is distinguished by the quick ability to under stand movement and learn new techniques. (Ali, 2009, p. 71)

Johnson and Nelson point out that agility is an important component of physical fitness because it intersects with the components of muscular strength, motor speed, reaction speed, accuracy, and compatibility. (Jawad, 2004, p. 118)

2-3- Motor coordination: Harmony plays a major role in our lives in general, and is of great importance in achieving motor skills. Osama Kamel defined it: "It is the individual'sability to integrate movements of different types into one frame

work." William defines it as: "the ability to coordinate and integrate independent motor systems and different en sory means and methods in to elaborate motor patterns." Shehab believes: "Motor coordination is speed, control, kinetic sensation, balance, agility, and accuracy in performance through organizing a chmember of the athlete's body to carry out it sown activity while maintaining effort while performing the skills." (Ahmed, 2011, p. 05).

Procedural definition: It is the athlete'sability to combine different types of movements and accomplish them in the shortest possible time, and it depends on speed and accuracy of completion, as well as on the efficiency of the neuromuscular system.

2-3-1- Types of coordination: There are types of motor coordination, the most prominent of which are: (Zaid, 2008, p.)

A - General coordination: General coordination is observed when performing basic motor skills such as walking, running, and jumping.

B- Special compatibility: It is the type that is consistent with the type and nature of the activity or game being practiced.

C- Limb coordination: It appears in the motor performance that requires the use of the hands together or the feet to gether, and the overall coordination of the body, which appears in the movement of the entire body and reflects the general activity of the body.

2-3-2- The importance of coordination:

- Its importance is highly ghted in complex movements that require moving more than one part of the body at the same time. This importance also doubles if these parts work in different directions.

Coordination is considered a physical and motor ability. - It helps to master technical and tactical performance. - It helps the player to avoid expected mi stakes.

- It help shim perform difficult and fast at different levels. – They need the player to agree, especially in sports that require movement control. Its importance appears when the athlete moves his body through the air, as in jumping or performing on a trampoline. (www.sport.ta4a.Net 05-13-2016) - The importance of compatibility is not limited to the sports field only, but the individual needs it in his general life, such as walking and driving cars, as the latter requires compatibility between the eyes, arms and feet. (Shaghati, 2014, p. 379)

3-**The difference between physical and motor qualities:**

Motor qualities are defined as: "characteristics that a person acquires from the environment or that are present, such as flexibility, agility, and balance, for which training and practice are the basis and develop according to the individual's physical, sensory, and cognitive ability."

As for physical characteristics, they are defined as: "the abilities that are mainly related to the physiological state. We find that speed is related to the type of muscle fibers, while endurance is related to the circulatory and respiratory system, while strengh this related to the number of stimulated motor units and the cross-section of the muscle, and finally flexibility is related to the elasticity of the tissue around the body." joint to determine the range of motion of the joint. (Abdul Razzaq, 2009, p. 170).

Procedural definition: The researcher believes that the difference between physical and motor characteristics lies in that the former has a relationship or

connection to the physical condition and physical capabilities of the athlete, that is, it can be measured by the amount of movement, for example in carry in gweights, how much mass an athlete can carry, or how much a runner can cover a certain distance. In the shortest time.

As for the motor qualities, they are closely linked to the central nervous system, which gives commands to the muscles via the spinal cord, which in turn performs the movement in a correct and precise manner, that is, how the movement is accomplished. So, the first we express in quantity and the second we express in quality.

In various competitions, we find players with special needs who suffer from mental deficiency and have good physical qualities, but they find a problem in achieving the motor qualities, and this is due to the deficiency in the components of the nervous system. Finally, it can be said that both have a strong relation ship with the performance of various skils among young people. (Rateb, 1999) adds: "There is an interconnected relation ship between each of the motor traits and physical traits on the one hand and the young person'sabilities to acquire motor skills on the other hand, so that if the youngster's level improves in a certain type of trait, its effect is reflected in the other abilities, meaning An other, if the young person has a good level in terms of motor qualities, this will help hi macquire motor skills, and the young person who is characterized by weakness and decline in the level of motor qualities will negatively affect his efficiency and motor fitness."

Al-Diri (1999) also confirms: "Motor and physical qualities are related to each other, because they have a main goal in serving physical fitness programs directed to wards the balanced growth of the child to meet the requirements of daily life and his motor activities at school or in free time." (Al-Saffar, 2009, p. 100)

List of references:

1- Abdul Razzaq Asaad Hussein Ahmed. The effect of small games on developing the most important physical and motor abilities of children aged (7-8 years). Journal of Physical Education Sciences. Iraq. Volume 2(2). (2009). p. 170.

2- Abdullah Dhamia Ali. The effect of two proposed training approaches to develop some physical attributes specific to handball. Physical Education Sciences Center. Iraq. Volume 1 (7). (2008). p. 04.

3- Abu Zaid Imad Al-Din Abbas. Planning and scientific foundations for building and preparing a team in group games, theories - applications. Cairo .(2005)

4- Ahmed Bastawisi. Foundations of developing muscular strength in the field of events and sports. Cairo: Modern Book Center. (2014).

5- Abdel Fattah Abu Al Alaa. Sports training and physiological foundations. Helwan University: Dar Al-Fikr Al-Arabi. (1998).

6- Abdel Fattah Abu Al-Alaa Ahmed, and NasrEl-Din Ahmed. Fitness physiology. Cairo: Dar Al-Fikr Al-Arabi. (2003).

7- Abdel Amin Khazal. Football training physiological and technical requirements. 1st edition, Amman: Arab Society Library for Publishing and Distribution. (2014).

8- Ahmed Rana Shehab. Suggested exercises to develop motor coordination and the performance level of defensive steps skills for basketball players. Unpublished research. Baghdad University. (2011). p.05.

9- Ahmed Suleiman Hashem Ahmed. The effectiveness of performing the vertical jump test from different positions. Al-Rafidain Journal of Sports Sciences. Mosul. Volume 10(33) . (2004). p. 154.

10- Al-Bashtawi Muhammad Hussein, and Al-Khawaja Ahmed Ibrahim. 1st ed. Jordan: Wael Publishing House. (2005).

11- Al-Hawi Yahya Al-Sayyid Ismail. The sports coach combines the traditional method and modern technology in the field of training. 1st edition. Egypt: Arab Center for Publishing. (2002). 12- Al-Hajj bin Qasid Ali. Evaluating programs for preparing junior football players at the level of some Algerian football schools. Published doctoral thesis. Algeria University. (2005).

13- Al-Fatih Wagdi Mustafa, Mr. Muhammad Lotfy. Scientific foundations of sports training for the player and coach. Egypt: Dar Al-Huda for Publishing and Distribution. (2002)

14- Al-Fartousi Ali Samoum Ali and others. Measurement, testing and evaluation in the sports field. Baghdad: Al-Muhaymin Press. (2015).

15- Ali Adel Abdel Basir. Sports training and integration between theory and practice. Cairo: Al-Kitab Publishing Center. (1999).

16- Al-Ali Hussein Ali, and Shaghati Amer Fakher. Sports training methods and strategies. Baghdad: Al-Nour Office. . (2010).

17- Ali Musa Majed. Modern sports training. Amman: Printing and Publishing House. (2009).

18- Al-Mashhadi Raed Abdel Amir, and Al-Jubouri Nabil Kazem. Psychology of handball. 1st edition. Iraq: Dar Degla Publishers and Distributors. (2014).

19- Al-Saffar Nashwan Mahmoud Daoud. The effect of a program using exploratory games in developing motor fitness among first-year primary school girls. Journal of Physical Education Sciences. Iraq. Volume 2(2). (2009). p. 100. 21

20- amorra Yazid. Providing a test battery and setting standard levels to evaluate the elements of physical fitness among handball players. Unpublished LMD third-year doctoral dissertation. Institute of Physical Education and Sports. University of Algiers 3. (2017).

21- Ayesh Abu Saleh Ali, and Bin Qasim Hamada Ghazi. Health and Fitness, 1st edition. Riyadh: Obeikan Bookstore. (2009).

22- Bompa, Tudor O. Training training. Paris: original editions. (2007).

23- Bayer, Claude. Hand-Ball. La Formation Du Joueur. Paris: 3rd edition, Vigot. (1993).

24- Cayla, Jean-Luc, Rémy Lacrampe . Manuel Pratique De L'entrainment. Paris: Editions Amphora (2007).

25- Hadi Fathi Ahmed. The extent of the impact of competitive football training on the Yemeni social and cultural dimension. Published doctoral thesis. Algeria University. Algeria. (2005).

26- Hammad Mufti Ibrahim. Modern sports training. Planning, implementation and leader ship. 2nd ed. Egypt: Dar Al-Fikr Al-Arabi. (2001).

27- Hammad Mufti Ibrahim. The comprehensive reference in sports training (scientific applications). 1st edition. Cairo: Dar Al-Kitab Al-Arabi. (2010).

28- Hamdan Sari Ahmed, and Abdel Razzaq Norma .Fitness and health. 1st edition. Amman: Wael Publishing House. (2001).

29- Hassanein Muhammad Sobhi. Factorial analysis of physical abilities in the fields of physical education and sports. 2nd edition. Cairo: Dar Al-Fikr Al-Arabi. (1996).

30- Iskarud Imova I. Encyclopedia of applied xercises for all sports. (Hassan Hashem Yasser. Translator). 1st edition. Cairo: Arab Thought Publishing House. (2008).

31- Ibrahim Laith. Special strength and its relationship to the strength and accuracy of shooting during different levels of physical effort for young handball players aged 17-20 years. Journal of Physical Education Sciences. Volume 02 (03. (2007) p. 112.

32- Jawad Ali Salloum .Tests, measurement and statistics in the mathematical field. Al-Qadisiyah University. Iraq: (2004).

33- Osama Kamel'ratib. Motor development (an introduction to the integrated development of children and adolescents). Cairo: Dar Al-Fikr Al-Arabi. (1999).

34- Shaghati Amer Fakher. Sports training science, youth training systems for higher levels, 1st edition. Jordan: Al-Rowad Publishing House. (2014).

35- Shehata Muhammad Ibrahim. Contemporary gymnastics training. Cairo: House of Contemporary Thought. . (2003).

36--Taelman.R. Football Nouvelles Techniques d'trainement .Paris: (2000).

37- Talha Hossam El-Din and others. The Scientific Encyclopedia of Training: Strength, Ability - Strength Endurance - Flexibility - 300 Illustrated Exercises. 1st Edition. Cairo: Al-Kitab Publishing Center. (1997).

38- Yassin Ramadan. Sports psychology. 1st edition. Amman: Dar Osama for Publishing and Distribution. Dar Al-Fikr Al-Arabi. (2008).

39- Zaid Nahida Abd. Basics in motor learning. Najaf: Dar Al-Diyaa for Printing and Publishing. (2008).

40- http://www.sport.ta4a. Net (2016, May 13). Retrieved on January 14, 2018 from .