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The relationship of some physical abilities to the level of technical performance of disabled long jumpers, category 36CP

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Abstract

Through the two researchers monitoring the level of technical performance of the 36CP disabled long jumpers, it was found that they did not achieve good results in the past championships, and through that we felt that there was a training problem among the long jumpers and we wanted to diagnose the weakness that led to the level of performance not being at the desired level, so the researchers resorted to solving the problem by conducting some tests for the elements of physical fitness (maximum speed, muscular strength of the legs, muscular strength of the abdominal muscles). From this, the two researchers want to delve into this experiment to find out the reality of the physical elements. Which is related to the level of technical performance of long jump players, as well as to contribute to supporting and strengthening the training process in the governorate and the country through research. The research aims to identify the relationship between maximum speed and muscular strength of the legs and abdomen and the level of technical performance in the effectiveness of the long jump for the research sample. The two researchers chose the research sample intentionally, and it was represented by the 36CP long jump players for the disabled, who numbered (5) players. The tests under study were conducted on them, the two researchers conducted the main experiment on Saturday, February 13, 2023 at three o'clock in the afternoon on the research sample, which numbered (5) players in the athletics field / College of Physical Education and Sports Science/ University of Baghdad. The two researchers used the SPSS statistical package to analyze the data and obtain the results. The two researchers concluded positive results in studying some of the physical abilities (maximum speed and muscular strength of the legs and abdomen) that were used in the research, and this achieves one of the sustainable development goals of the United Nations in Iraq which is (Good Health). The two researchers recommend expanding scientific studies and developing various tests to measure various physical characteristics. There is an interest in studying new variables affecting the level of technical performance of long jumpers.

Keywords

physical abilities, long jump, disabled people with category 36CP.

Introduction:

Athletics events are among the distinguished events, as interest among the developed countries of the world has increased excessively towards achieving more sporting achievements, so all the necessary energies and experiences have been prepared to achieve the goal of reaching an advanced sporting level and thus raising the reputation of the country. The process of preparing athletes prepares them to compete

in competitions with high efficiency, and this requires serious work to achieve this.

Because sports training is an organized and comprehensive process that aims to raise the efficiency and ability of the various systems and organs of the body to meet the requirements of sports activity through the implementation of schooled and planned training units to qualify athletes to compete in competitions with high efficiency, the long jump event is one of the

competitions that requires a certain level of physical fitness as its elements are controlled by in the level of performance for this competition, we can say that the long jumper must have a high level of muscular ability in the legs and abdomen, and that the arena and field game is one of the games that require the player to focus and desire to perform because its activities are linked to different muscle groups, so coaches try to follow the best ways to learn all the skills in the arena and field. From this, the importance of research emerged in knowing the extent of the importance of using the physical requirements represented by maximum speed, muscular strength of the legs, and muscular strength of the abdominal muscles and their relationship to the level of technical performance for this event. The research problem was revealed through the two researchers 'follow-up of the level of achievement of the players. The long jump for the disabled, category 36CP, said that they did not achieve good results in the past championships, and through that, the two researchers felt that there was a training problem among the long jumpers and wanted to diagnose the weakness that led to the level of performance not being at the desired level. Therefore, they resorted to solving the problem by conducting some tests for the elements of physical fitness (maximum speed, muscular strength of the legs and abdomen). From this, the two researchers want to delve into this experiment to determine the reality of the physical elements and their relationship to the level of technical performance of long jumpers. The research aims to identify the relationship between maximum speed, muscular strength of the legs and abdomen, and the level of technical performance in the long jump event for the research sample. The hypotheses were that there is no statistically significant relationship in some physical abilities to the level of technical performance of long jumpers in the 36CP category. The research areas were represented by (5) long jumpers for

the disabled, category 36CP, for the period from 2/4/2023 to 4/8/2023 in the athletics stadium / College of Physical Education and Sports Sciences / University of Baghdad.

Method and procedures:

The method is the method that leads to the research goal from beginning to end with the aim of obtaining sample results. The two researchers used the descriptive approach to suit the nature of the research problem to be solved with the research population and sample. The two researchers chose the research sample in an intentional way and it was represented by disabled long jumpers, category CP, The number of players (5) represents 85% of the original community. Means, devices and tools. Arabic sources. Tests and measurement. Stopwatch. Athletics track. Measuring tape. The two researchers scanned many sources and references because these tests must be according to precise scientific foundations in order to achieve the purpose for which these tests were developed. These tests were presented to experts and specialists. The two researchers conducted the exploratory experiment on 2/6/2023 on two players (2) from outside the research sample of disabled long jumpers, category 36CP, where the tests under study were conducted on them. The aim of the exploratory experiment was the extent to which the players understood the vocabulary of the tests, knowing the time spent in executing the tests, and identifying the difficulties faced by the two researchers and the work team when conducting the test. The two researchers conducted the experiment. Main: Saturday 2/13/2023 at three o'clock in the afternoon on the research sample, which numbered 5 players in the athletics field / College of Physical Education and Sports Sciences / University of Baghdad. The two researchers used the SPSS statistical package to analyze its data and obtain the results.

Table (1)
It shows the homogeneity of the research sample members

Variables and measurements	measuring unit	Asthmatic mean	Median	Standered deviation	Coefficient of torsion
Bloc	kg.	72,417	72,500	2,429	-0,09
height	cm.	178	179,250	5,641	-0,665
Training age	year	2,742	2,516	1,321	0,513

Scientific foundations of tests:

Reliability: The stability of the test means that it gives the same results when the test is repeated more than once for the same sample members on two different days. Therefore, the two researchers applied the tests on 2/9/2023, and the

same tests were repeated on 2/11/2023, that is, with an interval of two days from the test. the first. To find the reliability coefficient of the tests, the Sirman-Brown equation was used for correction, and it was proven that the tests have a high degree of reliability, as shown in Table (2).

Table (2)
Shows the reliability coefficient of the tests

The tests	Measurement unit	Calculated value of stability coefficient
Top speed test	Sec.	0.87
Muscular strength of the abdominal muscles	Meter	0.91
Muscular strength of the leg muscles	repetition	0.82

Objectivity:

The objectivity of the test means that the test is not affected by changing the arbitrators, or that the test gives the same results regardless of who is conducting the arbitration, that is, freedom from bias or fanaticism and not introducing personal factors of the tester or arbitrator, such as his opinions, personal whims, and personal inclinations.

First - 30m sprint test (11)

Test purpose: to measure maximum speed in running.

Necessary tools: An athletics track no less than (100) meters long and (6) meters wide, (2) stopwatches.

Description of performance: The test begins with each tester taking a standby position behind the first line, and when permission is given to start, the tester runs at an increasing speed, reaching its maximum range at the second start line. Each tester is assigned an observer who takes his place at the second start line. The

observer stands, raising one arm, and when the tester interrupts the second start line: The observer lowers his arm down quickly. When the timekeeper starts the clock with this signal, and when the tester crosses the finish line, the timekeeper stops the clock with this signal. When the tester crosses the final line, the timekeeper stops the clock and calculates the time it takes between the signal given by the observer and the timer line crossing the finish line.

Grade calculation: The best attempt is recorded.

-Secondly - the long jump test from stability

Test purpose: To measure the muscular ability of the legs in the forward long jump.

Necessary tools: A suitable place for jumping, with a width of (1.5 m) and a length of (3.5 m), taking into account that the appropriate place is level, a measuring tape, and colored pieces of chalk.

Description of performance: The tester stands behind the starting line with the feet slightly apart and parallel so that the balls of the feet touch the starting line from the outside. The tester begins by swinging the arms backwards with the knees bent and leaning forward slightly then he jumps forward for the maximum possible distance by extending the knees and pushing with the feet while swinging the arms forward.

Calculating grades: The measurement is from the starting line to the last part of the body by touching the ground towards this line, and the laboratory is credited with the grade for the best attempt (1).

Third: Sitting from a lying position (with legs extended) (11)

Test purpose: To measure the muscle strength of the abdominal muscles and legs.

Necessary tools: A cloth rug for the laboratory to lie on.

Description of performance: When the tester is given the start signal, he bends the torso to take a tall sitting position while keeping the knees extended.

Calculating the score: The number of repetitions that an individual can complete is calculated.

_Display and analyze the results of the maximum speed and muscular strength tests for the research sample

Table (4)

It shows the arithmetic means, standard deviations, t-value, and level of significance that were applied to the individuals in the research sample

.Seq	Statistics Tests	Measurement unit	Asthmatic mean	Standered deviation
1	Run 30m	.Sec	0,425	0,044
2	Standing long jump	Meter	15,02	0,426
3	Sitting from lying position test (with legs extended)	Repetition	16,67	0,614

Below the significance level (0.05)

Table (3) shows us the results of the tests for maximum speed and muscular strength, as it shows that the arithmetic mean for the 30-meter speed test was (0.425), with a standard deviation of (0.044), and that the arithmetic mean for the long jump from a

standstill is (15.02), and its standard deviation is (0.426) and the arithmetic mean of sitting from lying position is (16.67) and its standard deviation is (0.614).

Results:

Discussing the results of the maximum speed and muscular strength tests for the research sample

Table (5)

It shows the value of the correlation coefficient and the significance of the correlation between the maximum speed variable and the muscular strength of the abdominal muscles and legs of the individuals in the research sample

Variables	Calculated value	Sig	Significant value of the correlation t	Sig	Significant type
maximum speed	0,843	0,024	4,955	0,001	Sign

Muscular strength of the abdominal muscles	0,685	0,036	2,972	0,028	Sign
Muscular strength of the leg muscles	1.59	0.26	1.76	0.23	Sign

Discussion:

The results that appear in Table (5) for the test of maximum speed and muscular strength of the muscles of the legs and abdomen show that there was a significant difference between muscular strength and maximum speed, as maximum speed plays an important and effective role in the long jump competition for the disabled. This is what was confirmed by the study of (Rand and Suhad) (that maximum speed includes many elements of physical fitness, such as strength, speed, endurance, flexibility, and agility. Muscular strength also represents the main basis on which athletic achievement depends. The results show that the exercises were appropriate to the level of the sample according to scientific foundations and their implementation correctly leads to... athletic development (12) and this is what the study (Israa and Asmaa) indicated (that endurance strength is the body's ability to resist fatigue during effort, and the results also showed that there is a significant difference between muscular strength and achievement, as the limit of muscular strength has a role in the achievement process. The athlete in the long jump competition, and the maximum speed is the maximum capacity or energy of the athlete's body during the gradual exercise, which reflects this on the athletic achievement that is achieved. The training program that used various high-intensity methods and the regulation of the rest period (1) and quoted from the study of (Israa and Amer) ((The increase in volume and intensity, each according to the intensity, enabled the athlete to perform the process of gradualness and undulation through the experimental method. The response of the sample to the special exercises gave a positive result in developing maximum speed) (2). This is what was indicated by the study (Ibtisam, Israa,

and Suhad) (that The importance of these characteristics when repeating performance, which requires combining speed of performance and the ability to resist fatigue that accompanies repeated performance because it depends on the reserve and speed of providing anaerobic energy (5). As confirmed by the study of (Adel Al-Dulaimi) (the development of working muscles due to training intensity to which these muscles are exposed, which is related to the required force, the work of which can be developed through the use of exercises (8) and this is what was indicated by the study (Intithar) (Exercises that carry the characteristics of strength and speed help the player to create various exercises in performing skills which works on high concentration to carry out duties in the ability to repeat the performance of great force and great speed at the same time (4) and quoting from the study of (Sarah and Iman) (Sports training has taken an organizational structure that is consistent with the new development that uses modern, scientific methods that are far advanced instead of traditional methods, relying on new methods according to a codified method (7) and this is what was indicated by the study (Diana and Aseel) (that the response of the research sample to the specific exercises items gave positive results in the development of maximum speed in general and approach speed in particular through proportionality with... Performance (6) and this is what was confirmed by the study of (Intithar et al.) (The diversity of exercises in terms of the intensity chosen and their suitability as well as the appropriate rest that led to their development) (3) and quoting from the study of (Jumana and Zainab) (All Movements with the legs, which are the decisive factor for the jumping distance, which depend mainly on the force they exert quickly and in a short time,

especially movements against resistance (10), and this is what the study of (Hadeel and Suhad) indicated (that developing the strength characterized by speed using high speed can work on... Generating additional speed and endurance for the flexor muscles in the arm and feet, and allocating additional times for training in a manner commensurate with high-speed performance, commensurate with high-intensity motor skills, while working on adapting her training program for vertical jumping (9).

Conclusions:

1. Positive results emerged in the study of some of the physical abilities (maximum speed and muscular strength of the legs and abdomen) that were used in the research.
2. It appeared that there is a correlation between the maximum speed and the technical performance of the 36CP long jump athletes for the disabled.
3. The researchers concluded that the relationship between the muscular strength of the abdominal muscles and the legs has an impact on the level of technical performance of the disabled long jumpers, category 36CP.

Recommendations:

1. The two researchers recommend expanding scientific studies and developing different tests to measure various physical characteristics.
2. Interest in studying new variables affecting the level of technical performance of long jumpers.
3. Conducting studies to determine the relationship of some physical abilities to various other activities.

Author's declaration:

Conflicts of interest: None

We confirm that all tables and figures in this article are ours and written by the researchers themselves.

Ethical-Clearance: this manuscript approved by local ethical committee of physical education and sport sciences college for women on (June /2023)

Author's contributions:

All contributions of this study were done by the researchers (F.M. and I.J.) who get the main idea and work on writing and concluding also with number of experts, Huda Badawi (Physical Education and Sport Sciences College for Women/ University of Baghdad) in Statistics, Haifaa Ahmed in revision, Nour Riadh in translating, Nasser Yasser in proofreading

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علاقة بعض القدرات البدنية بمستوى الاداء الفني للاعبى الوثب الطويل للمعاقين فئة CP36

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مستخلص البحث

تضمن البحث على مقدمة بالبحث واهميته وكذلك تضمن مشكلة البحث التي تنص على(من خلال متابعة الباحثان لمستوى الاداء الفني للاعبى الوثب الطويل للمعاقين فئة CP36 وجد انهم لم يحققوا نتائج جيدة في البطولات الماضية ومن خلال ذلك شعر بوجود مشكلة تدريبية لدى الوثب الطويل و اراد ان يشخص الضعف الذي ادى الى ان يكون مستوى الاداء ليس بالمستوى المطلوب , لذا لجأت الباحثتان الى حل المشكلة بأجراء بعض الاختبارات لعناصر اللياقة البدنية (السرعة القصوى , القوة العضلية للرجلين , القوة العضلية لعضلات البطن) ومن هذا تروم الباحثتان الخوض في هذه التجربة للوقوف على حقيقة العناصر البدنية التي له علاقة بمستوى الاداء الفني للاعبى الوثب الطويل , وكذلك للمساهمة في دعم وتعزيز العملية التدريبية في المحافظة والبلد من خلال البحث ويهدف البحث الى التعرف على العلاقة بين السرعة القصوى والقوة العضلية للرجلين والبطن ومستوى الاداء الفني في فعالية الوثب الطويل لعينة البحث . كما تمثلت فروض التعرف على العلاقة بين القوة العضلية لعضلات الرجلين والبطن ومستوى الاداء الفني لفعالية الوثب الطويل لعينة البحث و هناك علاقة ارتباط معنوية بين السرعة القصوى ومستوى الاداء الفني لفعالية الوثب الطويل لعينة البحث . كما تمثلت مجالات البحث لاعبو الوثب الطويل العدد (5) للمعاقين فئة CP36 للفترة من 2023/2/4 الى 2023/4/8 في ملعب العاب القوى / كلية التربية البدنية وعلوم الرياضة / جامعة بغداد . قامت الباحثتان باختيار عينة البحث بالطريقة العمدية وقد تمثلت بلاعبى الوثب الطويل للمعاقين فئة CP و البالغ عددهم (5) لاعبين يمثلون بنسبة (85%) من المجتمع الاصلي، حيث اجريت عليهم الاختبارات قيد الدراسة وكان الهدف من التجربة الاستطلاعية مدى تفهم اللاعبين لمفردات الاختبارات ومعرفة الوقت المستغرق في تنفيذ الاختبارات والتعرف على الصعوبات التي تواجه الباحثتان وفريق العمل عند اجراء الاختبار، قامت الباحثتان بأجراء التجربة الرئيسية يوم السبت 2023 /2 /13 في تمام الساعة الثالثة عصرا على عينة البحث والبالغ عددهم (5) لاعبين في ملعب العاب القوى / كلية التربية البدنية وعلوم الرياضة / جامعة بغداد ، استخدمت الباحثتان الحقيبة الاحصائية SPSS لتحليل بياناته والحصول على النتائج . واستنتجت الباحثتان نتائج إيجابية في دراسة بعض القدرات البدنية (السرعة القصوى والقوة العضلية للرجلين والبطن) التي استخدمت في البحث و ظهرت ان هناك علاقة ارتباطية بين السرعة القصوى والاداء الفني لدى لاعبي مسابقة الوثب الطويل للمعاقين فئة CP36 واستنتجت الباحثتان ان علاقة القوة العضلية لعضلات البطن والرجلين له تأثير بمستوى الاداء الفني للاعبى الوثب الطويل للمعاقين فئة للمعاقين فئة CP36 ، وهذا ما يحقق احد اهداف التنمية المستدامة للامم المتحدة في العراق (الصحة الجيدة). حيث توصي الباحثتان بتوسيع الدراسات العلمية ووضع الاختبارات المختلفة لقياس مختلف الصفات البدنية. والاهتمام بدراسة متغيرات جديدة مؤثرة على مستوى الاداء الفني للاعبى الوثب الطويل واجراء دراسات لمعرفة علاقة بعض القدرات البدنية في مختلف الفعاليات الأخرى

القدرات البدنية ، الوثب الطويل ، المعاقين فئة CP36

الكلمات المفتاحية