The effect of sensory -motor training by perceptual sensory apparatus on development of some special physical and mechanical abilities for 100 m. racers under 20 years

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Abstract

Impact Resistance training with and against the trajectory of the motor in some physical abilities and the BioA 100-meter, mechanical racing run for young people. That Training Jogging for different distances Melt -Rubber ropes According to direction and reversed movement With Obligations To the border of scientific of components Pregnancy Training represents to a training trend Aimed To Events Developments In The link between Starting and running, According to the specific mechanical requirements Have It Of Development of force Explosive and quick and their components which To give Border To the level Special speed for Stages Sprint run 100 m and amounts Efforts Required instantaneous powers. Noted Researcher In That Over there Repeat For exercises The speed was born A pattern Kinetic Have Running 100, Which A reason In That Be Progress of capacity Of special In stages Performance Limited And almost Be Non Concrete. So Came This The Study To put Some Solutions With the use Means Assistance Like ropes. The rubber By Facilitative and be my fault for a purpose Achieve Integration In of capacity of physical and mechanical performance. Set of Running 100 m For the youth, Under 20 years old, the researcher conducted physical tests (a test ran 10 m, 30 m and 60 m and a test of achievement), frequency and length of steps, and then applied your workouts with resistors, and carried out tests of the dimensional, and there was a clear improvement in the special physical abilities, mechanical variables and the completion of the jogging.

Key words: Sensory training - cognitive sensitivity - physical capabilities - mechanical abilities

Introduction

Sports training are one of the basic sciences in developing various physical, physiological and mechanical aspects that have been addressed by several researchers in practical applications, as this science has many methods and methods and has given positive results by influencing the level of achievement of various sports, including athletics events in particular**. (Saleh, 2011)** That training Jogging for different distances with rubber ropes according to the direction of the movement and its reversal with Commitment With borders Scientific For components Pregnancy Training represents a training trend Aim to me events has evolved in a The link

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between starting and running, according to specific mechanical requirements and stove **(Sareh, 2007)** It follows from development to the force explosive and fast and its components which give border for level The special speed for the 100-meter running stages and levels do the intraday forces required Puppet Repetition Training by this means gesticulate It follows on that From Integration For conditions Mechanical Accompanying For performance At Do this is Powers And achieve Corners Occasion And variables Starting Associated with To investigate Best Completion. **(Kareem, 2012)** This means helping to force Athlete On Do strong Non usual To fulfill the requirements New to components The step From) Length And frequency The step (At maximum What Can And outside the pattern Which Return on him The player. And come Importance search in an Emphasis on developing physical abilities and accomplishing the 100 m run for youth by training using a factory device to help adhere to With borders Artistic And mechanical To perform the effective step of running and developing the performance that should be emphasized when using this forced device Athlete On broke down the pattern the usual on him At Implementation The movements of the two men, and what is required from the athlete is an effective lifting of the knees at the highest frequency and died as a result of these movements of effective lengths for the steps that all lead to achieving the speed The extreme And strength Explosive And fast And effect that On some special physical abilities and biomechanical variables Achievement He ran 100 meters For young people. **(Muhannad, 2006)**

Literature review

A rapid development has recently appeared in the digital achievement of the 100-meter run in the world and an evolution in the technical performance of the run, and this does not come at random, but rather the training efforts made by the trainer and the player, and the trainer uses advanced training methods to increase the efficiency of the major muscle groups and assistance related to effectiveness, which ultimately helps Increasing the production of the necessary special forces that contribute to the development achievement in the short-distance runners. **(Dintiman, 1984)** .Numerous training methods in order to develop these activities, including the sense of training - kinetic trainer training programs and players, intended training sense -motor preparation exercises are related to the domain of spatial and temporal and according to the information comes through the senses as a way to receive information and correct dynamical tracks as we note through it that the 100 m has a relationship with the sense of time and space as the length and frequency of steps and what is related to taking positions in body parts and the ability of the individual with a sense and high control if appropriate methods are used in exercises that focus on the possibility of correlating the technical stages of this competition and factors that directly relate to achieving a great speed rate as a length The steps and their frequency during the 100-meter effectiveness stages, which require an effort and a scientific means to monitor and follow them **(Hilliard, 2004)**. Therefore, the importance of the research came in the use of kinesthetic exercises by means of assisting and controlling the steps of hostility and the changes in length and frequency that happen to them using one of the modern technical devices to help prepare the necessary training that strengthens in these factors according to scientific principles elaborated to serve the training side and achieve achievement for one Among the important age group is the category of young people who are considered the basic basis for the development of achievement in the future. And because the achievement suffers from many problems on the Arab and international levels in the 100-meter race, as it did not rise to the international level and no achievement or any gold medal was achieved at the Olympics level or at the Asian level, then from this topic the researcher wanted as one of the university team contestants in this event **(Sareh, 2004)** Among the participants in the Clubs Championship is to search for scientific solutions to contribute to the development of achievement for this event, especially for the youth category, by using new training, which is the physical sensory training in a

factory device in order to enhance the sensory variables related to (temporal and spatial field) for its large and effective role In achieving the achievement directly, i.e. any increase in the length of the step with constant frequency, or an increase in both, and the researcher wanted to enter this variable through sensors placed on the player's body or on the ground that gives the player a feeling that the step was correct or wrong according to the sensor or The alarm that is set to give the player a command . **(Mohammad, 2010)** and the aim of the research to identify the biomechanics variables and physical abilities of racers 100 m, and the preparation of exercises with the help of a sense of stirring technical sensors. And recognize the impact of these exercises Ba sensors in the development of physical capacity and mechanical completion of the research sample. And assuming there are significant differences found between the pre - test and post variables in the body j e of the research sample. And the presence of significant differences between the pre and posttest in the biomechanical variables and the achievement of the research sample. **(Sareh, 2012)** Training according to the kinesthetic capabilities depends mainly on the structure of achievement mainly on competition exercises, and he has indicated ((stamper "The development of strength in the muscles of the two legs leads to speed during the run" **(Stamper, 1983)** In that the ability to push a static object forward quickly requires attention to the development of the explosive force to a large degree, the hostility that lacks the explosive power is unable to run 30 meters at a maximum speed. This is what a 100-meter runner requires, especially in the starting stage, up to the uniform speed. Those who run at speed need training that includes running at full speed for short distances (20-80 m) and for relatively long distances (15- 300 m). To achieve this speed, there must be aids to develop this speed and its causes, such as running on a slope with a slight slope **(Borozov, 1983)** to develop the rhythm of the steps, to run against the wind, or to pull the parachute or the device of the steps for maximum speed. **(Clark, 2009)** and the player's ability to possess reactions (sensory and kinetic action) plays a major role in achieving a good and effective launch which helps him to achieve effective launch at full speed after hearing the launch (**Hilliard, 2004**) And to emphasize the step of hostility components that are associated with a number of physical - related features by applying mechanical conditions to perform this step , namely , (the number of steps and repeat it to a specific time, which means the frequency steps, step length and frequency vary mechanical jogging player to another dependent speed achieved on: the time of foot contact to the ground. the amount of pressure off the foot on the ground. the amount of force exerted and inflicted on the foot. **(Clayne, 1983).**The runner can reach a typical step length during the tuning of the technical performance because the running races start from stability, the runner begins with the gradual increase of the length of the step from the moment of departure **(Sareh, 2007)** i.e. (begins with the gradual increase in the length of the step and its frequency until it reaches the regular maximum speed in which the length of the step and its frequency The average velocity for a runner is its ability to perform repeated consecutive movements of a type and according to the frequency and frequency equation of the time taken to perform the step, which is determined by the times of the pivot and flight **(Sareh, 2012)**. In his study, Qusai Muhammad indicated that the training by the factory apparatus mainly increases the length of the step. And the speed training by the factory device reduces the step time to the step significantly. Ali Sadiq indicated that the use of the aids and tools is effective in developing the achievement. And the improvement of some variables and in the improvement of some biomechanical variables for the skill of 100 m. **(Abu Al-Ella, 1997)**

Methodology

The procedure: the researcher used the experimental method. And the sample was chosen intentionally 12 of the 100 m runners from the Specialized School in Athletics of the Ministry of Youth for the year 2019, and their ages were under 20 years, according to the rules of the International Federation of Athletics. And

divide the sample according to the achievements of the sample into two groups, one is control and the other is experimental, and the researcher conducted the principle of homogeneity on them.

Table (1)

Physical measurements	s	±p	Mediator	Coefficient of torsion
Total length	1.67	0.03	1.65	2
body mass	65	3.5	66	0.86
Training age	7.5	1.6	7	0.93

Homogeneity of sample members The researcher used sources and references, electronic information network, observation and experimentation, personal interviews, tests and measurements as means of information, as well as using a device to measure height and weight. Stopwatch, Funnels (Kinova), kinetic analysis program, a scale of 1 meter in length, and the sensor for cognitive steps. It is a device consisting of an adjustable plastic arm, a rechargeable Levium battery, a battery base, an earphone with a button, a connection wire, a pressure suction bush, a variable-angle holder for the arm, and a base for attaching the device with a belt and a flexible belt And the researcher identified some stages of the 100-meter running, in agreement with some specialists and sources for athletics, as follows: starting and running for a distance of 5 meters , starting and running stage 10 meters (response and starting) , the first acceleration stage for a distance of 30 meters , the second acceleration stage until 60 m

The first test: the beginning and he ran 5 pm: the player takes the starting position from sitting on the 100m running field and determines the end of the test with a line that represents 5m then the time is measured from the moment the signal is heard to the moment he passes the finish line and the athlete's movement time is calculated from the moment he heard the signal to the moment He left the predicate. Time is calculated in seconds and its parts by a stopwatch.

The second test: the start and the 10m run: The player takes the starting position from sitting on the 100m running field and determines the end of the test with a line representing 10m and then the time is measured from the moment the signal is heard to the moment he passes the finish line and the athlete's movement time is calculated from the moment he heard the signal to the moment He left the predicate. Time is calculated in seconds and its parts by a stopwatch.

The third test: *Running 30 meters*: the player takes a sitting position and when the signal goes off to travel a distance of 30 m, the distance travel time is calculated.

The fourth test runs 60 meters, the player takes a sitting position and when the signal goes off to travel a distance of 60 m, the distance travel time is calculated.

The fifth test runs 100 meters, the player takes a sitting position and when the signal goes off to travel 100 meters, the distance travel time is calculated according to international law.

The researcher photographed the members of the research sample with a fast camera (120 p / s) moving in order to measure the number, lengths and frequency of steps in every 100 meters through the program Kinuvia. And pay Z reconnaissance experience on 5 / 1 / 2019 on the sample consisted of 2 players who are trained in the specialized school in order to stand on the following matters for to know the possibility of a fumbling cognitive in measuring search variables. Tribal tests was performed on Saturday 8 / 1 / 2019 , and the researcher numbers drill factory device includes jogging certainly touched on the laser sensor associated with alarm sound in the case if the lifting correctly performance or not. And also included drills using the same means in a manner resistance to determine the intensity and size , and the number of training modules (18)

and a training unit and the duration of monthly and half of 6 weeks and by three training units per week each, start applying the exercises on 12 / 1 / 2019 until 7 / 3 /201 9

Done Implementation The exercises Own And fixing Distress According For time Utmost To run And it was training in the main section of the training module as complementary training, And it is done pheasant With pregnancy Training Really   1: 3 From Yes that is being Training influential And effective Depending On Foundations Scientific.

Results

Table (2a)

Arithmetic circles ,standard deviations ,differences ,deviations and values T Computed, significance level, and difference function for the pre and posttests of the physical abilities and achievement of the experimental group

Statistical means Variables	s	P	P^-	P P	T Calculated	Significance level	Difference function		
	Tribal	after me	Tribal	after me				**0.001**	**D.**
Takeoff 5m (s)	1.483	0.98	0.152	0.136	0.503	0.138	3.624	**0.015**	**D.**
Launch 10m (sec)	2.483	2.32	0.152	0.136	0.163	0.045	3.624	**0.006**	**D.**
30 m (s)	4.957	4.535	0.203	0.178	0.423	0.093	4.453	**0.005**	**D.**
60m (s)	7.515	7.345	0.406	0.349	0.17	0.035	4.854	**0.000**	**D.**

Table (2b)

Arithmetic circles ,standard deviations ,differences ,deviations and values T Calculated and differences function for the pre and posttests of step variables for the 100 m test for the experimental group

Statistical means Variables	s	P	F.	PF	T Calculated	Significance level	Difference function		
	Tribal	after me	Tribal	after me				**0.000**	**D.**
Step length (m)	1.98	2.05	0.39	0.025	0.071	0.006	10.95	**0.046**	**D.**
Step frequency	3.94	3.998	0.062	0.066	0.048	0.018	2.63	**0.000**	**D.**
Step number (repeat)	50.352	48.589	0.975	0.599	1.762	0.173	10.186	**000. 0**	**D.**

Table (3)

Shows circles calculations and deviations of standard differences and deviations and value T Computed, significance level, and difference function for the pre and posttests of the physical capabilities and achievement of the control group

Statistical means Variables					T Calculated	Significance level	Difference function		
	s	P	F.	PF					
	Tribal	after me	Tribal	after me				0.164	G. D.
Speed of 5m (s)	1.52	1.48	0.354	0.142	0.04	0.021	1.84	0.081	G. D.
Speed of 10m (s)	2.635	2.607	0.152	0.151	0.283	0.013	2.177	0.034	D.
30 sec	4.974	4.898	0.257	0.195	0.103	0.036	2.891	0.017	D.
60 sec	8.048	7.972	0.488	0.469	0.076	0.022	3.454	064. 0	G. D.

Table (4)

Arithmetic circles, standard deviations, differences ,deviations and values T Computed, significance level, and difference function for the pre and posttests of the biochemical variables of the control group

Statistical means Variables					T Calculated	Significance level	Difference function		
	s	P	F.	PF					
	Tribal	after me	Tribal	after me				0.076	G. D.
Step length (m)	1.982	2.02	0.045	0.021	0.038	0.016	2.335	0.262	G. D.
Step frequency	3.978	3.932	0.157	0.078	0.046	0.036	1.265	0.074	G. D.
Step number (repeat)	50.485	49.509	1.198	0.508	0.976	0.433	2.257	061. 0	G. D.

Table (5)

Shows circles calculations and deviations of standard differences and deviations and value T calculated, the significance level, and the difference function for the post-test of physical capabilities and achievement for the two research groups

Statistical means Variables					T Calculated	Significance level	Difference function		
	Experimental	Control	F.	PF					
	s	P	s	P				0.00 6	D.

Starting 10m sec	2.32	0.136	2.607	0.151	0.287	0.083	3.452	**0.027**	D.
30 m (s)	4.535	0.278	4.898	0.195	0.363	0.139	2.619	**0.026**	D.
60m (s)	7.345	0.349	7.972	0.469	0.627	0.239	2.626	**003.0**	D.

Table (6)

Arithmetic circles, standard deviations, differences, deviations and values T The calculated, the significance level, and the difference function for the post test of step variables for the two research groups

Statistical means	Experimental	Control	F.	PF	T Calculated	Significance level Experimental	Difference function		
Variables	Experimental	Control	F.	PF	T Calculated	Significance level	Difference function	**0.018**	D.
	s	P	s	P				**0.147**	D.
Step length (m)	2.06	0.025	2.02	0.021	0.038	0.014	2.835	**0.017**	D.
Step frequency	3.998	0.066	3.932	0.078	0.066	0.042	1.573	**003.0**	D.

Table (2b) shows that the first experimental group achieved an improvement in all the values of the arithmetic mean, and for the purpose of identifying the significance of the differences, as the values (t) At a level of significance greater than (0.05) in front of the degree of freedom (4), which indicates the presence of significant differences with statistical significance. And the attribution of the researcher cause these differences to the nature of the training curriculum based on the use of a training curriculum based on scientific and similar bases for exercises for the effectiveness of the 100 meters, as the curriculum included exercises variety performed different training , which affected the exercise positively in improving the physical capabilities of the effectiveness of the 100-meter, and the stresses used in the training affected the generation of special adaptations in the working muscle groups. As all the exercises that were applied were affecting the performance of the 100 meters and the presence of the perceptual sensing device by controlling the movements of the legs and torso during flight, and this increase in the angular velocity affected the increase in the linear velocity of the center of gravity of the body, considering that the angular velocity has to do with the linear velocity (peripheral), If this velocity is related to a rotating object (**Talha, 1998**). Thus, all the exercises used in the training curriculum affected the development of the number, lengths , and frequency of the steps , which led to the development of the achievement together. This is my me to do Bhrk data , the player which aims to

overcome the body fixed this particular block to exert force appropriate to give the bloc speed, accounting for body mass great resistance, whether fixed, and which help him overcome this resistance payment rapid goal movements The rapid legs and their repetition, and with the presence of equipment , led to the player taking appropriate positions in his body parts by controlling the corners of these parts during the kinetic performance of the racing stages, and this means controlling the movement of body parts during this, performance that indicates the body's resistance to rotational movements during performance , with this resistance less by reducing the radii and increases if they increased these moieties. **(Sareh, 2004)** the drill speed device sensor proposed cognitive led to forcing the player to the mile to his body forward to overcome the torque back and this means an increase in muscle contraction Against this resolve in the muscles of the legs as well as control of the spatial field (the distance of the leg on these surfaces). This gives positive responses to the increase in muscle strength required to obtain specific distances while performing jogging movements   .

Conclusions

1. There was an evolution in the physical abilities and the level of performance of the 100-meter effectiveness ,according to the race stages under consideration clearly for the members of the group that used the cognitive sensor.

2. The experimental group exceeds all physical abilities tests and the performance level of 100 m effectiveness.

3. The development was evident in the variable steps of the experimental group as a result of using the training curriculum of the proposed device.

4. The variety in the variety of training loads, and the nature of the muscle contractions, had a significant impact on the development of special physical abilities, and the level of running 100 m.

5. Adopting the training curriculum for the factory in developing physical capabilities to help improve the achievement of a better level for the 100-meter race.

6. Diversity in the use of modern training methods, and various and appropriate training methods, work to break the deadlock, and develop the level of achievement by running 100 m.

7. Training with the research apparatus with the capabilities of the research sample and following modern scientific methods can be effective to develop the level of technical performance of various sporting events.

8. The need to take advantage of modern training methods to break the pattern of traditional exercises and break the usual kinetic style of the sample members to bring about an evolution in physical abilities in other games.

References

1. Abu Al-Ella Ahmed , 1997 ,, Physical Training, Physiological Basis, Arab Thought House , Cairo, 1st floor

2. Abu Al-Ella Ahmed Abdel-Fattah , 1997 : Athletic Training Physiological Foundations, 1st Floor, Cairo, Dar Al-Fikr Al-Arabi,

3. Ariel, G; 1992, Long jump analysis (Carl Lewis and Bob Beamon) Track & field. Carterly review, kansas, 4.

4. Clark, d. A , 2009 : Sabick , MB, and anthers, Influence   of towing force magnitude on the kinematics of supra-maximal sprinting, 166

5. Hilliard, 2004 Pfaff, D., Boas, J. & Bourne, G. Roundtable: Horizontal Jumps .Track Coach

6. Jacoby, E & Fraley , 1995 , B, Long jump, Human Kinetics Champaign

7. Jakalski , k. Parachules, tubing and towing in sprints and relays 2000,

8. Karim Abdel-Hussein Al-Jaber , 2012 : The effect of rubber ropes training on the length and frequency of the steps for stages and achievement of a 100-meter youth, PhD thesis, College of Physical Education, University of Qadisiyah.

9. Mohamed Reda Ibrahim , 2008 : previous source , 2nd edition, National Library,

10. Muhammad Abdul-Hassan , 2010 , Sports Training Science 111, 1st edition , Baghdad: Sports Library Publications,

11. Muhammad Subhi Hassanein , 1995 ; Measurement and Evaluation in Physical Education, 3rd edition, Part 1: (Cairo, Dar Al-Fikr Al-Arabi)

12. Muhannad Hussein Al-Bishtawi and Ahmed Ibrahim Al-Khawaja , 2006 ,: Principles of Athletic Training, 1st floor, Amman, Wael Press.

13. Saleh Shafi Sajit , 2011 : Athletic Training, Its Ideas and Applications, 1st Floor , Damascus, Dar Al-Arab Publishing House,

14. Sareh Abdul Karim , 2007 . Functional anatomy and its mechanical applications, Baghdad, Al-Aqili Press,

15. Sareh Abdul Karim and Khawla Ibrahim , 2012 : Theoretical and practical foundations of athletics, Baghdad, Al-Ghadeer Press,

16. Sareh Abdulkarim, 2004: Characteristics of Determination of Inertia, a documented lecture given to doctoral students at the University of Baghdad - College of Physical Education, Foreign sources

17. Schiffre.J: 2011 Training procedures in sprinting for speed plateau. part II.NSA.27. (1)

18. Tellez, K. & James, Human Kinetics , 2000 , Long Jump, track & field coaching manual Champaign