

The Effectiveness of Using the Bulgarian Bag on the Level of some Physical Variables and the Digital Level of Javelin Throwers

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Introduction and research problem

Scientific research has become one of the most important factors on which to develop societies in order to reach the highest levels in all fields in general, and the sports field in particular, by identifying what God has endowed man with multiple abilities and energies. Sports training led to the emergence of modern training methods to keep pace with progress at digital levels.

Sports training scientists have placed the element of muscular strength at the top of the pyramid of physical abilities because it is one of the most important capabilities, as it is the basis for building and developing other physical abilities. No sports activity or sports activity is devoid of its dependence on it, noting the variation in the importance of this element from one activity to another and according to the requirements kinetic duty.

In this regard, Mufti Ibrahim 1998 asserts that muscular strength is one of the most important physical attributes at all, as it is an important determinant in achieving athletic excellence for most sports activities, as it contributes to the achievement of any type of physical effort performance, but the percentage of its contribution varies according to the type of performance, so it is It occupies a large

place in sports training programs (6: 125).

Kyle Brown (2009) notes that the Bulgarian bag is the modern form of job training. (18:3) Vairavasundaram & Palanisamy (2015) add that fitness trainers and athletes alike are looking for new fitness tools that achieve their desired results, and the Bulgarian bag is the ideal tool for being versatile, functional and effective for all types of training. (26:16)

The Bulgarian bag was discovered by the Bulgarian Ivan Ivanov, in 2005 AD, where he noted the need for more robust and functional training protocols that depend on the movements of the body and its full capabilities necessary for success in training. (59:8)

The Bulgarian bag is similar to sandbags in shape and has many of the same benefits, but the unique shape allows it to perform some movements that are difficult to perform with most sandbags. The unique shape of the bag combined with different handles makes it a versatile tool, which is often not possible with other exercise tools. (61:12)

The idea of the Bulgarian bag was inspired by the Bulgarian folk style, where festivals were held to carry live animals on the shoulders and the winners were awarded prizes at

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these sports festivals. The exercises of the Bulgarian bag are similar to kettle bell exercises, but they are distinguished by the fact that the incidence of sports injuries is much less than the iron ball, which drives some players to fear the practice of volleyball, in addition to the large variety of exercises used, which far exceed the ferret ball exercises. (51:24)

Bobu Antony adds. (2015) The Bulgarian bag is inexpensive and can be made manually from simple tools such as fabric, artificial leather or plastic, and it can be made through the inner frame of car tires, which is used as buoys for children inside open water, where it is cut and stuffed with sand or cloth and then re-sewed again and exploited in training.(11:15)

And Kelly Brown Kendal (2009) indicates that the Bulgarian bag is an ideal tool because it has all the characteristics and characteristics of functional training. (18: 23)

In this regard, Dave Schmitz (2003) indicates that job training is called any form of training if it has the following characteristics and characteristics:

1- Focus on the center muscle group: all sports movements will lack efficiency without integrating them with strong muscles of the center, the strong center muscles help to connect the lower end to the upper end, in addition to preventing the leakage of force.

2- Multiple levels:

Performing sports movements in more than one direction and not limiting the exercise to one direction only, the human body is designed and has the ability to move directly forward, left

and right, as well as rotation, and training should work to improve these abilities by focusing on the three dimensions of movement (horizontal - sagittal – vertical)

3- Multiple joints: When picking up something from the ground, a large number of joints move. The training should focus on using more than one joint instead of one joint. The rise of the stairs is considered more effective than lifting a weight with the two legs, and the player spends a lot of time against the effects of Earth's gravity, so focus on the main stabilizing muscles located in the center.

4- Control of counterbalance: multi-directional movements require balance, and here it requires not only strong muscles of the center, but sufficient skill and compatibility to perform, and dynamic exercises of balance are practiced with or without a maximum counterbalance, and the development of balance improves the form of performance and sense of productive force.

5- One limb:

Most sports skills require focusing on one leg, and even in our normal lives we perform our various tasks using one hand, hence the need to focus on one limb.

6- Alternating limbs:

running and walking are performed by moving our feet in an alternating manner, and training in this manner improves natural movements, general strength and consistency in performance.

7- Integrative movement:

Lifting, walking and running are all movements performed by multiple

joints and muscles that work together as a result of their perfect contact with each other, so functional training should aim to increase the sensitivity and integrity of the body.

8- Qualitative activity: To achieve this, it requires understanding the nature and requirements of the sports activity performed. The gymnast's training method differs from the marathon player or the football player, and through understanding the performance requirements, we determine the exercises and resistances to meet those needs.

9- Specific speed: To achieve speed of performance, training must be fast, and to achieve control and stability, training must be slow (13:12.)

The javelin throwing competition is one of the important throwing competitions that dates back to the third and fifth centuries BC and is considered one of the first competitions to be entered into the Olympic competitions, and the javelin throwing competition is one of the competitions that depends on the level of quick strength in addition to the personal preparation of the player. Personal preparedness means those morphological and anthropometric specifications. Which the player enjoys and it is difficult to change it completely by training.(25:3)

Strength is one of the most important basic physical qualities on which it depends in achieving the best

Achievements in athletics competitions, especially throwing events, are the main cause of change

The movement of the body, whether horizontal or vertical, and

many researchers have agreed that an athlete who is characterized by strength can achieve a better athletic level, and thus crystallizes the importance of strength when performing most of the throwing skills in athletics, including the effectiveness of javelin throwing and the extent of its need when performing this skill. (14:1) (78:3)

Javelin throwing, like other sports, depends on high performance and on levels

The force that an athlete can produce in his major muscle groups working on the joints.

Participation in this skill and when we talk about the special power that the javelin produces in

Working muscles, we must always attribute them to body weight, which is known as relative muscular strength

Which means the amount of force that pertains to one kilogram of body weight and is expressed as the maximum force / weight

The researcher seeks to clarify the importance of studying this strength by building a training program for those skills. (58:2)

Through the researcher's work in training field and track competitions and what the researcher has learned from previous studies (1), (7), (14), she noticed that some trainers of field and track competitions were interested in developing special physical requirements along with developing the skill side and the digital level. The researcher noted the frequent use of trainers of field competitions the track at the international and local levels is largely based on the plyometric

training method, despite the diversity of methods and tools that have recently emerged, including the Bulgarian bag, which is similar to the use of the throwing movement in the sports of field and track competitions. Given the technical form of javelin throwing skills, it depends on the vertical position and then the particle turns into movement Right and left undulation, start of onyx movements and transfer of undulating movement to the upper part of the upper extremities, and this is what the exercises may achieve using the Bulgarian bag, and this is what prompted the researcher to conduct this research.

The movements of the arms, we find that they are similar to plyometric exercises in the throwing competitions (the shot put - the spear - the hammer - the spear), and the researcher believes that this aspect is tainted by some right and wrong, depends on the repetition of performance, which improves the muscle memory of the throwing contestants, which in turn may lead to the improvement of motor abilities, But it may result in the throwing runners feeling bored to repeat the daily performance, as the focus is on specific muscle groups that may lack muscle integration for performance, hence the importance of diversity in the use of the forms and styles of training used, including the use of innovative and modern tools, including the Bulgarian bag

Search objective

The research aims to identify the effectiveness of using the Bulgarian bag on:

1- The level of some physical variables (under research)

2- -2The digital level of the javelin throwers.

Research hypotheses

-There are statistically significant differences between the mean of the tribal and remote measurements in the level of some physical variables among the javelin throwers.

-There are statistically significant differences between the averages of the tribal and remote measurements at the numerical level among the javelin throwers.

Some of the terms included in the search

Bulgarian bag

The Bulgarian bag, also known as the Bulgarian training bag, is a crescent-shaped exercise tool made of leather and usually filled with sand, used as weight training and plyometric exercises to develop general fitness and specific to throwing races. In strength training, weight training, plyometrics, cardiovascular training, and general physical fitness bags. (procedural definition)

Research plan and procedure

Research Methodology

The researcher used the experimental method by designing the tribal and dimensional measurement for one experimental group to suit the nature of the research.

The research sample

The sample was chosen intentionally from the beautiful Beast Club players in the Kingdom of Saudi Arabia for the year (2019/2020), their number was (12) players, and the survey study and finding scientific transactions were applied to (6) players contestants from October Club from

the same research community and outside the basic sample, and the training program using the Bulgarian bag was applied to them.

The homogeneity of the research sample:

Table (1)
The homogeneity of the research sample in growth rates n = 18

Serial	Variables	Measure unit	SMA	standard deviation	Mediator	Skwness
1	Age	Year	20.59	1.18	20.50	0.058
2	Height	Cm	169.87	3.37	169.50	0.329
3	Wight	Kg	69.15	1.28	69.00	0.351

It is clear from Table (1) that the values of the skewness coefficients of the growth rates under study for the research sample are within (± 3), which indicates the moderation of the distribution of the contestants in those variables.

Table (2)
The homogeneity of the research sample in the physical variables n = 18

Serial	Variables	Measure unit	SMA	standard deviation	Mediator	Skwness	
1	physical variables	Leg muscle ability	Cm	33.24	1.18	33.20	0.101
2		Leg muscle strength	Kg	54.99	1.62	54.90	0.030
3		Abdominal muscle capacity	No.	18.14	0.92	18.00	0.456
4		Abdominal muscle strength	Kg	38.14	1.10	38.00	0.381
5		Back muscle strength	Kg	51.87	1.32	51.80	0.159
6		Arm muscle capacity	No	14.80	0.62	14.60	0.104
7		Arm muscle strength	M	5.22	0.12	5.20	0.027
8		Right fist strength	Kg	30.87	1.13	30.80	0.185
9		left fist strength	Kg	29.60	1.18	29.50	0.524

It is clear from Table (1) that the values of the skew coefficients of the

physical variables under investigation for the research sample are within (± 3),

which indicates the moderation of the players' distribution in those variables.

Table (3)

The homogeneity of the research sample at the numerical level n = 18

Serial	Variables	Measure unit	SMA	standard deviation	Mediator	Skwness
1	Digital level for javelin throwers	M	18.21	0.52	18.00	1.211

It is clear from Table (1) that the values of the skewness coefficients for the numerical level under study for the research sample are within (± 3), which indicates the moderation of the distribution of players in those variables.

Data collection tools and methods:

First: Hardware and tools

- 1- A rheostat for measuring the length in centimeters.
- 2- A medical scale measures the weight in kilograms.
- 3- A dynamometer to measure muscle strength in kilograms.
- 4- Stopwatch to measure the time to the nearest 0.01 second.
- 5- P-198 Combo Abdominal Back Extension w/ ROM
- 6- Tools for the program (heavy weight for the legs, legs and torso - plastic of different types - dumbbells - closed parachute - funnel-shaped parachute - sponge cutter - Bulgarian bags)

Second: Tests and Measurements: - Attachment (2)

1- Physical exams

- Vertical jump test from stability to measure the muscular ability of the muscles of the legs.
- A dynamometer to measure the muscle strength of the muscles of the legs.

- Abdominal combo to measure the muscular strength of the abdominal muscles.

- Lying test with the torso bent forward to measure the muscular capacity of the abdominal muscles.

- Dynamometer to measure the muscle strength of the back muscles.

- The arm flexion test (modified) to measure the muscular ability of the arms.

- A test of throwing a medical ball to the farthest distance to measure the muscular strength of the muscles of the arms.

- Dynamometer to measure grip strength.

2- Digital level for javelin throwers:

- Throwing (3) spear attempts, and the best attempt is taken and measured to the nearest cm.

3- Anthropometrics

- Measuring height in meters.
- Weight measurement in kilograms.

Third, the forms:

- Survey form for experts about physical tests and skill exercises using the Bulgarian bag resistances. Attachment(3)

Survey study:

The exploratory experiment was conducted from 10/12/2019 to 15/10/2019 and aimed at

- 1- Identifying the obstacles that the researcher may encounter during the application of the original experiment.
- 2- Training assistants on correct performance instructions and different measurements.
- 3- Ensure that the devices used are valid.
- 4- Ensuring the suitability of tools and exercises for the research sample.

Fourth, the proposed program using the Bulgarian bag- :

Program preparation steps

-The researcher prepared a questionnaire form for the experts' opinion that contains resistance exercises using the Bulgarian bag and the appropriate repetitions and rests, and after reviewing the scientific references and information networks and after taking the opinions of the

experts whose names are indicated. Annex (1)

-The researcher determined the final form of resistance training using the Bulgarian bag, attachment (5) and the final program using resistance training using the Bulgarian bag attachment (6) The time distribution of the program The time distribution of the proposed instruction unit:

*Physical preparation (warm-up). (15)

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*Exercises to learn the movements of the arms in the skills of javelin throwing (30) s

*Training with resistance training using the Bulgarian bag. (35)

*Calm down and closing. (10) s

Presentation and discussion of the results:

First, show the results:

Table (4)

The percentage of improvement between the pre and post measurements in the level of some variables Physical fitness of javelin throwers n=12

physical exams	measuring unit	Pre measuring		Post measuring		The differences between the averages	improvement rate
		M 1	E 1	M 2	E 2		
Leg muscle ability	Cm	33.21	0.54	38.90	0.47	5.69	17.13%
Leg muscle strength	Kg	54.96	0.15	61.12	0.32	6.16	11.20%
Abdominal muscle capacity	No.	18.12	0.32	22.20	0.85	4.08	22.51%
Abdominal muscle strength	Kg	38.11	0.25	43.15	0.32	5.04	13.22%

Follow Table (4)
The percentage of improvement between the pre and post measurements in the level of some variables Physical fitness of javelin throwers n=12

physical exams	measuring unit	Pre measuring		Post measuring		The differences between the averages	improvement rate
		M 1	E 1	M 2	E 2		
Back muscle strength	Kg	51.88	0.32	56.80	0.87	4.92	9.48%
Arm muscle capacity	No	14.81	0.25	18.92	0.25	4.11	27.75%
Arm muscle strength	M	5.20	0.14	5.90	0.84	0.70	13.46%
Right fist strength	Kg	30.86	0.32	35.20	0.14	4.43	14.06%
left fist strength	Kg	29.55	0.25	34.60	0.12	5.05	17.08%

It is clear from Table (4) that there is an improvement rate in the level of some physical variables among the javelin throwers, where the

improvement rate was between (11.20% to 22.51%) for the physical variables under discussion.

Table (5)
The percentage of improvement between the pre and post measurements in the level of some variables The skill of javelin throwers n=12

physical exams	Measure unit	Pre measure		Post measure		The differences between the averages	improvement rate
		M 1	E 1	M 2	E 2		
digital javelin level	M	18.21	0.52	20.10	0.98	1.89	9.40%

It is evident from Table (5) that there is an improvement rate in the level of some numerical variables among the javelin throwers, where the improvement rate was between (9.40%) for the physical variables under discussion.

Discuss the results

It is evident from Table (4) that there is an improvement rate in the level of some physical variables among the javelin throwers, where the improvement rate was between

(11.20% to 22.51%) for the physical variables under discussion.

The researcher attributed the occurrence of these changes to the good planning of the Bulgarian bag program and the legalization of training loads in a scientific manner appropriate to the age and training stage of the research sample with the aim of developing physical variables. The female worker while performing the javelin throwing competitions and choosing the Bulgarian bag exercises

as this led to the improvement of the physical variables under study.

In this regard, Dave Schmitz, (2003) (13) confirms that one of the most important features of the Bulgarian bag exercises is to focus on the emphasizes the core, where the strong center muscles connect the lower end to the upper end, in addition to that it includes multi-directional movements, which It makes it one of the best exercises used to improve muscular endurance.

Regarding the improvement of physical variables, Adams et al., Heyard, VH, (2005) (16) confirm that the activity of the rubber reflex allows excellent transfer of muscular ability to the same similar movements, which require high capacity of the trunk and legs, and its results appear when performing muscular ability tests, as the physical component is considered One of the pillars of training that depends on the player's development, and it is one of the important foundations that share with the motor skills in the formation of the player in the physical aspect, which will be reflected in the skill and numerical results.

The results of the study agree with the study of Vairavasundaram & Palanisamy (2015) (26), Bobu Antony et al. (2015) (11) that Bulgarian bag training contributes to improving muscular ability and skill level performance.

Thus, the first research hypothesis has been achieved, which states that there are statistically significant differences between the averages of tribal and dimensional measurements in the level

of some physical variables among javelin throwers.

It is evident from Table (5) that there is an improvement rate in the level of some numerical variables among the javelin throwers, where the improvement rate was between (9.40%) for the physical variables under discussion.

In this regard, Pedersen (2000 AD) (25) points to the importance of exercises for the development of muscular ability, as its development is the first basis for physical performance and sports practice. Resistance training in general and the use of its forms is one of the main important exercises for developing and improving muscular ability.

The results of this study agree with the study of Amani fahmi (2015) (1) on the importance of improving the level of skill and digital performance by improving the level of physical abilities.

Thus, the second research hypothesis has been achieved, which states that there are statistically significant differences between the averages of the tribal and dimensional measurements at the digital level among the javelin throwers.

Conclusions

-The use of the Bulgarian bag exercises led to an improvement in the level of some physical variables (leg muscle strength - leg muscle strength - abdominal muscle strength - abdominal muscle strength - back muscle strength - arm muscle strength - arm muscle strength - right fist strength - left fist strength) among javelin throwers.

-The use of the Bulgarian bag exercises led to an improvement in the digital level of the javelin throwers.

Recommendations

-Using the Bulgarian bag exercises for javelin throwers because of its importance in improving the physical and numerical variables of the field and track players.

Expanding the use of Bulgarian bag exercises in training field and track sports competitions, due to their effectiveness and similarity of performance with the skillful performance in different throwing competitions.

-Organizing training courses for trainers on the importance of using the Bulgarian bag exercises.

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