Effect of Isokinetic Exercises on Muscle Capacity and Performance Level of Some Leaps in Ballet

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Introduction and Research Problem:

The most important characteristic of sport is its close association with the developments and foundations of other natural sciences. Each activity is characterized by special abilities and qualities that qualify the individual to practice this type of activity and enable him to reach high levels.

Ballet is one of the basic branches of motor expression, as it is a universal language that is understood by all and an integrated activity that expresses people's opinions, ideas, beliefs, needs and the true value of ballet lies in the opportunities available to those who practice this art. It provides moral, mental and physical strength. (49: 1)

Based on the multiple skills in Ballet, this requires students to master the performance of the leaps so that they can perform well and this requires a long period of training and high ability to work to master these leaps and requires increased capacity in the level of physical variables and muscle strength.

The modern training methods are the backbone of the training process, including the identification of training loads and the selection of fitness elements that the trainer should develop.

Through these methods, the trainer can identify the physical element that must be focused on the type and importance of the motor skill used in the sports activity. (11: 7)

Due to the development of the sciences related to the field of sports training, the trainers have been concerned with modern methods and training in the preparation of the players, which contributed to raising the level of physical and technical performance and helped them to reach the highest levels of competition, has crystallized this achievement in the level of numbers achieved by athletes through the Olympic Games and previous world championships. (8: 11)

The importance of developing muscular capacity has a positive effect on progress at the skill level, and shows the importance of muscular capacity in muscular activities of continuous nature and rapid repetition which is characterized by strength with speed, so the player must have a high muscle capacity so that he can produce a high degree of driving force For both men as well as a high degree of speed when performing the required skill. (10:20)

Muscle strength is linked to the maximum strength and is developed by similar training methods. The increase in strength or velocity will lead to an increase in muscle capacity. When power increases, greater strength can be

achieved in less time. (68:11)

Abul-Ela 'Abd El-Fattah (1997) indicates that the development of musculoskeletal capacity uses a range of training methods including decentralized and bipolar contraction and Isokinetic (3: 134)

The muscle contraction Isokinetic known as the maximum muscle contraction is fixed at the full range of movement, and from this point came the name of this type of muscle contraction similar to the movement because of its similarity with the movements performed during sports activity. (25: 5)

Isokinetic training programs are the latest types of resistance programs. These programs significantly improve muscular performance, as they develop maximal muscle strength over the whole movement and thus involve as many motor units as possible. (6: 238)

In this regard, the results of several studies indicate that the use of muscle contraction Isokinetic has a positive effect on the development of the elements of fitness, motor skills, especially the muscle strength, such as the study of "Khaled Abdul-Muqeem" (2007) 10 and "Safa Fathi" (2005) 11), Ahmed Ahmed (2001), 17 and Eveto-Vich tk et (2001)

This is why training with the use of muscle contraction Isokinetic is one of the best types of muscle contraction, which works on the growth of muscle groups involved in the performance of the skill directly, so that the isokinetic exercises are special exercises and similar to the performance skill and have a good return in upgrading the performance of skills (21: 125,126) (170: 24)

Training isokinetic is one of the best methods of muscle development. Many studies have shown that comparing isokinetic training with weight training. Isokinetic training develops muscular strength faster than any other method of training. (16: 147)

Bojaziev (2004) states that one of the most important tasks of standard measurements is to recognize the physical and physiological competence of athletes as a basis for diagnosing their health and evaluating their physical abilities for their type of sports activity. In addition, training for sports activities.

The researcher noted that the use of special resistance training isokinetic has been effective in improving the performance of ballet leaps. The researcher noted the decrease in female students due to the lack of performance in some of the leaps and the inability of female students to perform well in the students in the leaps (sissonne, Pas de chat, changement de pieds), which is determined by students in the specialization of motor expression and need to perform the muscle capacity and special physical abilities, which prompted the researcher to conduct this study to identify the impact of training program for training resistance to Isokinetic on some special physical variables and level Skill performance in ballet.

Search Goal:

The aim of the research is to identify the effect of a training program on the resistance of isokinetic on some special physical variables and the performance level of some leaps in ballet.

Research hypotheses:

1-There are statistically significant differences between the pre and post-experimental measurements of the experimental group in some special physical variables and the performance level of some sissonne, Pas de Chat, changement de pieds in ballet in favor of telemetry.

2-There are statistically significant differences between the pre and post measures of the control group in some special physical variables and the level of performance of some beats (sissonne, Pas de Chat, changement de pieds) in ballet for the benefit of telemetry.

3-There are statistically significant differences between the experimental groups and the control of the post-measurement in some special physical variables and the level of performance of some leaps (sissonne, Pas de Chat, changement de pieds) in ballet for the benefit of the experimental group.

Search procedures:

Research Methodology:

The researcher used the experimental method by designing two groups, one experimental and the other controlling the post-pre measurement method for each group.

Community and Sample Search:

The whole research community was chosen by the intentional way of the female students of the sports training department. The number of female students was 70 and the students of the Curriculum and Teaching Methods Department reached 50 in the Faculty of Physical Education at Beni Suef University in 2016/2017. The Department of Mathematical Training specialized in motor expression and the number of (22) students and were divided into two groups of each group (10) students, and was selected (10) students from the Department of Curriculum and Methods of Teaching and within the research community and outside the basic sample for the survey.

Data collection tools:

It is divided into the following:

1-The device of the resameter to measure the total length of the body in centimeters.

2-Medical balance calibrated to measure weight in kilograms.

3- Stop watch.

4-Tape measure.

5-Ropes length (75 cm)

6-Medical balls

7-Cassette

First: physical tests:

To determine the physical requirements of the skills in the ballet in question and to determine the physical tests, the researcher designed a questionnaire to survey the opinions of the experts to determine the most important physical requirements of the skills in question, Annex 1, and how to measure them. The questionnaire was presented through the interview with the experts. next:

١-Obtain a PhD degree in Physical Education.

The researcher accepted 80% of the opinions of the experts to determine the physical requirements and how to measure them. The result was as follows:

1-Vertical jump test (to measure the muscle capacity of the two men on the vertical axis)

٢ -Wide jump test (to measure the muscle capacity of the two men on the horizontal axis)

٣-Test the payment of a medical ball 3 kg for the farthest distance (to measure the muscle strength of the arms)

Second: Evaluation of the performance of some of the leaps (in search) in ballet:

The level of performance of some leaps was evaluated initially by a committee consisting of (3) members of the teaching staff in the exercises, gymnastics and motor expression section where the score is calculated from (10) grades for each skill. In order to calculate the degree of the student for each of the skills in question. Annex (2)

Homogeneity of the research sample:

The researcher determined the distribution of research individuals in the growth rates (age, height, and weight), physical abilities (muscular capacity of both men and arms) and performance of the ballet leaps in the table and table (2)

Table (2)

Prevalence of research personnel distribution in growth rates and physical abilities of the skills in question N = 22

Statistical transactions / Variables		Measure unit	SMA	standard deviation	Mediator	Torsion coefficient
Growth	age	Year	18.21	0.65	18.00	0.57
	Height	Cm	165.98	2.75	165.00	0.73
	Weight	Kg	71.76	1.11	71.50	0.56
Physical	Vertical leap	Cm	28.87	1.54	28.50	0.28
	Wide leap	M	1.55	0.23	1.50	0.81
	Muscle power of arms	M	7.87	0.56	7.80	0.91
Technical	sissonne	Degree	4.74	0.32	4.70	0.86
	Pas de Chat	Degree	4.85	0.67	4.80	0.57
	changement de pieds	Degree	4.76	0.44	4.50	0.68

It is clear from Table (2) that the spindle coefficients for growth rates and special physical variables and the performance level of some falcons in the

ballet in question ranged between 0.28 and 0.91, ie, they were limited to ± 3, indicating the distribution of the sample Variables.

Proposed training program using the ropes:

The content of the training program has been developed using the isokinetic exercises by reviewing the specialized scientific references and the results of the related studies (5), (8), (9) and the international information network, in addition to using the opinion of the experts, annex No. 4, according to the following:

Objectives of the proposed training program:

1- Development of some special physical variables for students in ballet (muscular capacity of the two men - muscular ability of the arms)

٢ -Improve the performance of some leaps (sissonne, Pas de Chat, changement de pieds) in ballet.

Course content:

The researcher identified the contents of the training program using the isokinetic exercises by studying many references and scientific studies in the field of resistance training (5), (8), (9), (15) and was presented to a group of experts in the field of expression (5) experts to determine the most appropriate exercise in isokinetic, taking into consideration the level of the members of the research sample. The program content was modified and applied to the members of the experimental group

Timetable of the training program:

Using the expert opinion, the researcher divided the program into 24 training units for 8 weeks with 3 training units per week and 45 days daily training unit. Les 45 m 90 s

Table 7 shows the distribution of the intensity of the pregnancy and the isokinetic training on the duration of the proposed training program.

View and discuss the results:

Table (8)

The significance of the differences between the pre and post measurements of the experimental group in some physical variables and the skilled performance of some leaps in Ballet N = 11

Tests	Measure unit	Pre measure		Post measure		The difference between the two averages	Percentage improvement	Value (T)	Level of significance
		s	±e	s	±e				
Vertical leap	Cm	28.77	0.56	33.32	0.12	4.55	13.65%	5,54	Indicated
Wide leap	M	1.54	0.54	1.75	0.65	0.21	12.00%	5,76	Indicated
Muscle power of arms	M	7.55	0.63	9.10	0.64	1.55	17.03%	5.43	Indicated
sissonne	Degree	4.61	0.32	7.32	0.87	2.71	37.02%	4.44	Indicated
Pas de Chat	Degree	4.55	0.42	7.86	0.21	3.31	42.11%	4.76	Indicated
changement de pieds	Degree	4.64	0.31	7.66	0.25	3.02	39.42%	5.32	Indicated

*Tabular value (T) at significance level (0.05) = 1.65

Table (8) shows statistically significant differences between the pre and post-

experimental measurements of the muscular capacity and the performance of some leaps in ballet, where the differences achieved levels of significance greater than the significance level of 0.05.

Table (9)

Significance of differences between the pre and post measures of the control group in some physical variables and the skillful performance of some leaps in ballet N = 11

Tests	Measure unit	Pre measure		Post measure		The difference between the two averages	Percentage improvement	Value (T)	Level of significance
		s	±e	s	±e				
Vertical leap	Cm	28.75	0.85	30.10	0.43	1.35	4.48%	3.33	Indicated
Wide leap	M	1.50	0.97	1.61	0.46	0.11	6.21%	3.86	Indicated
Muscle power of arms	M	7.50	0.73	7.95	0.31	0.45	5.66%	3.54	Indicated
sissonne	Degree	4.62	0.21	5.96	0.11	1.34	22.48%	3.21	Indicated
Pas de Chat	Degree	4.52	0.75	6.10	0.75	1.58	25.90%	3.21	Indicated
changement de pieds	Degree	4.61	0.64	6.12	0.31	1.51	24.67%	3.35	Indicated

*Tabular value (T) at significance level (0.05) = 1.65

Table (9) shows statistically significant differences between the pre and post measures of the control group in the muscular capacity and the performance level of some leaps in ballet, where the differences achieved levels of significance greater than the significance level of 0.05.

Table (10)

Indication of differences between the two dimensions of the experimental and control groups in the level of muscular strength and the performance level of some leaps in ballet N = 22

Tests	Measure unit	Excremental group		Control group		T value	Significance level
		s	±e	s	±e		
Vertical leap	Cm	33.32	0.12	30.10	0.43	4.54	Indicated
Wide leap	M	1.75	0.65	1.61	0.46	4.85	Indicated
Muscle power of arms	M	9.10	0.64	7.95	0.31	4.96	Indicated
sissonne	Degree	7.32	0.87	5.96	0.11	4.86	Indicated
Pas de Chat	Degree	7.86	0.21	6.10	0.75	4.95	Indicated
changement de pieds	Degree	7.66	0.25	6.12	0.31	4.74	Indicated

•Tabular value at the level of significance = 1.875

Table (10) shows statistically significant differences between the two dimensions of the experimental and control groups at the level of muscle strength and the level of some leaps in ballet, where the differences achieved levels of significance greater than the significance level of 0.05.

The results of Table (8) revealed statistically significant differences between the pre and post measurements of the experimental group in muscular capacity and for the benefit of telemetry.

The results of Table (8) showed statistically significant differences between the pre and post-experimental measurements of the performance of some ballet stabilizers (sissonne, Pas de Chat, changement de pieds) and for the benefit of telemetry.

The researcher attributed the improvement in the level of muscular strength of the two men and the arms and the performance of some ballet

stability under study to the effectiveness of resistance training using isokinetic exercises,

In which the researcher took into consideration the severity of training loads, and the gradation from easy to difficult to carry out resistance exercises to suit the nature of the research sample in terms of The physical and skill level, as well as the variety of exercises for the various working muscles (the two men - arms - trunk) in the leaps, which contributed to the development of muscular capacity of the two men and arms.

The results of this study are consistent with what Ahmed Salah (2003) and Khaled Abd Al-Moqeem (2007) have indicated (10) that scientists who support isokinetic training believe that muscle contraction is the best for sports that rely on Both in strength and speed, as well as providing training opportunities at a speed of contraction similar to the speed required during competition.

The results of this study also agree with the results of many previous studies that the proposed training program using the isokinetic exercises has a great positive effect on the development of the elements of fitness and helps to develop the muscular strength of the muscles involved in the skill performance, "(2003), (6) Khalid Abdulmuqeed (2007), 10 and Safa Fathi (2005), 11 and Akim, 1999 (16), with different sample, specialization and training program From the current research, but the agreement was that the proposed training program using the method of training isokinetic Positive effect on the development of muscular strength and improved skill performance.

(sissonne ، Pas de Chat ،changement de pieds.) In this regard, Abdul Aziz Al-Nemer, Nariman Al-Khatib (1996) confirms that in the case of the motor performance of the player, the brain transmits nerve impulses to the muscles to produce the desired motor performance and the same neurotransmissions occur in the brain and muscles when the student visualizes the movements without actual performance (21: 250.251)

This result is consistent with the results of the study of Heba Abu Zeid (2004) that the resistance training program positively affects the growth rates of muscular strength of the two men and the arms and flexibility of the practitioners of various sports activities and the development of attention and speed of motor response is effective in developing the level of artistic and skilled performance in gymnastics Physical exercises and motor rhythm as well as other sports activities. (18:14)

This result is also consistent with what was referred to as Tohami" (2002) that jumping is a major part of ballet. It is one of the movements that require a smooth flow of performance and a link between muscle contractions, relaxation and speed. (15: 120)

The validity of the first research, which states:

"There are statistically significant differences between the pre and post

measures of the experimental group in certain physical variables and the performance level of some sissonne, Pas de Chat, changement de pieds in ballet in favor of telemetry".

Discuss second search results:

The results of Table (9) indicate that there are statistically significant differences between the pre and post measurements of the control group in muscular capacity and for the benefit of telemetry.

It is clear from Table (9) that there are statistically significant differences between the pre and post measurements of the control group in the level of performance of some ballet leaps and in favor of telemetry. The researcher attributes this improvement in muscular ability to the interest of the teachers in the educational process of the general motor expression course and ballet, and focus on the technical aspects of ballet skills.

In addition to the attention of the educational authorities to try to teach the different students in the ballet and the presence of the teacher continuously during the practical part and provide verbal reinforcement and repair of technical errors as soon as they appear, this led to a slight improvement in the level of female students to perform (sissonne, Pas de Chat, changement de pieds.)

Thus, the validity of the second research, which states that there are statistically significant differences between the pre and post indices of the control group in some special physical variables and the level of performance of some sissonne, Pas de Chat, changement de pieds in ballet for the benefit of telemetry.

Discuss the results of the third research hypothesis:

The results of Table (10) showed statistically significant differences between the two dimensions of the experimental and control groups in the muscular capacity and for the benefit of the experimental group.

As shown in Table (10) there are statistically significant differences between the two dimensions of the experimental and control groups in the level of the skill performance of some sissonne, Pas de Chat, changement de pieds in ballet and for the experimental group.

The researcher attributes the superiority of the experimental group to the control group in the telemetry and the rate of change of telemetry measurement from the pre in the muscular ability to perform the leaps in the ballet under consideration to the effectiveness of the training program using the isokinetic exercises for ballet notes to suit the nature of the skill performance in ballet where there are many leaps that lead to Vertical axis and horizontal axis as well as its relevance to the level and capabilities of students physical and skill, which led to the development of muscular capacity of the two men and arms associated with the nature of performance in Ballet while the control group used the educational program

Which depends on the practical model by the teacher, and repetition of performance by the student and then follow the exercise skill to try to upgrade the level of the program and the absence of any resistance training and their dependence on physical preparation in traditional physical exercises, which negatively affected their level of physical and thus affect the level of skill.

In this regard, "Amani El-Gindi" (2004) refers to the importance of exercises for the development of muscular capacity, as its development is the first basis for physical performance and exercise. Resistance training is one of the main exercises for the development and improvement of muscular capacity (84: 5)

changement de pieds.

The researcher believes that taking both muscle and muscle strength is a very important area in the mathematical field. They represent two elements of the success of any movement performed by the athlete, since the performance of any skill requires the student to excite the senses in order to transmit the information to the brain the response is a state of reaction to the conscious stimulant

The student focuses on the most important stimuli that he perceives in the performance space. At one point, he has to form a quick and accurate response that suits the facing situation. . I do not have myself

The validity of the third research, which states:

There are statistically significant differences between the experimental and control groups of post-measurement in some special physical variables and the performance of some sissonne, Pas de Chat, changement de pieds in ballet for the experimental group".

Extractions:

Within the limits of the objectives, hypotheses and procedures of the research and presentation and discussion of the results, the researcher reached the mechanical conclusions:

1-The proposed program using isokinetic exercises improves the specific physical variables under consideration.

2-The program in the college of the students of the control group improves the special physical variables in question.

3-The proposed program using the isocentic exercises improves the performance of certain beats (sissonne, Pas de Chat, changement de pieds) in ballet.

4-The program in the college of the students of the control group improves the performance of some of the beats (sissonne, Pas de Chat, changement de pieds) in ballet.

5-The students of the experimental group outweighed the students of the control group in the special physical variables and the level of performance of some of the beats (sissonne, Pas de Chat, changement de pieds) in ballet.

Second: Recommendations:

Within the limits of the research sample and in light of its results, the researcher recommends the following:

6- Interest in the use of isokinetic resistance training when developing special physical variables and the level of performance in ballet.

١. Increase interest in the development of other physical abilities that affect the performance of ballet leaps

٢ -Pay attention to the exercises of elongation and flexibility before and after the performance of resistance exercises because of its great importance to obtain positive results in the development of muscular capacity of the two men and arms and the performance of leaps in ballet.

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