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EFFECT OF BUNGEE EXERCISES ON POWER AND CERTAIN RHYTHMIC GYMNASTICS SKILLS

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Abstract: The study aims to identify the effect of Bungee workouts on power and Rhythmic Gymnastics skills (Arch Jump, Arabesque balance) among female college students., sample selected intentionally from female students of the second year at the College of Physical Education in Al-Arish University for the academic year (2020-2021), and their number were (15) female students. The data was collected, transcribed, and tabulated to perform statistical treatments. The results shows that Significant Difference between the pre- and post-tests for the experimental group in Medicine ball, Vertical jump, and Rhythmic Gymnastics skills (Arch Jump, Arabesque balance) for post-test of experimental group. In conclusion. Functional performance exercises using elastic ropes "Bungee" showed a clear improvement in the level of muscular ability of the legs, arms and performance level of some rhythmic exercise skills.

Keywords: Bungee Fitness, Rhythmic Gymnastics, Arabesque Balance.

Introduction

Rhythmic gymnastics (RG), since its inclusion in the Los Angeles Olympic Games in 1984, has become a widely accepted gymnastic sport in its recreational and competitive aspects, gaining worldwide popularity. At a competitive level it is a sport that requires strength, endurance, coordination, agility, rhythm, and balance. The use of the 5 devices, hoop, clubs, ribbon, ball, and rope, requires the gymnast to be physically prepared to jump, turn, throw, pick up, flip... performing great physical difficulties with elegance, since the aesthetic factor is fundamental in this sport. (Batista, et al. 2019)

Rhythmic gymnastics combines art and sports, as it includes ballet skills, gymnastics, and dance steps performed with music, thus highlighting the player's skill and superior abilities in combining motor rhythm and music. It is also one of the complex sports where the player's motor sentences are evaluated based on To perform difficult body movements, such as jumps and leaps, balances and rotations, with the technical requirements of each tool, which requires the development of many physical abilities of the player such as flexibility - coordination - static and motor balance - physical ability - agility and some special motor abilities, in addition to the skill abilities that appear in Control and master the performance of various difficult body movements with the skill of using tools. (Samia, 2004; Anisha, 2023)

Control of orthostatic posture (static, bipedal posture) is the basis for the execution of countless motor tasks or during sports practice. This mechanism represents the subject's ability to maintain the position of the body, and specifically its centre of mass (CM), within safety limits with respect to what the upright position of the body represents1. Seemingly simple, maintaining a stable erect posture represents a complex task for humans. (Bressel, et al. 2007)

So, flexibility, balance and strength play a key role in the execution of complex technical elements, where increasingly demands a very high volume of training where the gymnast must repeat many times their routine. So, we need to use modern training tools to help players perform efficiently. (Anisha Gulati. 2023)

Bungee is considered one of the most important fitness tools currently. Bungee cords dates to ancient civilizations, However, it wasn't until the 20th century that bungee cords were developed as we know them today.

Today, bungee cords are used in various fields, especially recreational activities, as they are an ideal tool for anyone looking for excitement and adventure. (Janot, et al. 2013)

Bungee workout is a type of modern functional training that targets the body core and limbs using a rubber rope. It uses the reaction of the body's weight according to the trainee's own abilities, where the trainee's height and weight are measured and then the equipment is modified according to the needs of everyone. Therefore, it considers the principle of individual differences and is ideal for training. On physical variables as well as physical rehabilitation, it provides the opportunity to fly high and land with a minimum level of collision with the ground. (Fayez, 2021).

Bungee is considered one of the most common unweighting systems for the purpose of rehabilitation and training. It is a relatively new unweighting systems that uses rubber ropes to support the trainee, in addition to being less expensive than other unweighting systems. (Muhammad, 2020; Rania, 2020; Manal, 2019; Abdelmomen, 2023)

Bungee dancing is very similar to the skills performed in Rhythmic gymnastics. Because Rhythmic gymnastics are often referred to as "the dance of the Olympic Games" due to its spectacular elegance and beauty. In this sports discipline, both competitions and exhibitions are held, where gymnastics is synchronized with music to give rhythm to their movements. Participation can be individual or in teams composed of 2 to 6 people. Rhythmic gymnastics practitioners combine movements from ballet, gymnastics, and dance, using various apparatus to create patterns and shapes. Although there is also a modality of group exercises on the floor, dispensing with apparatus. Gymnasts must possess excellent balance, coordination, and flexibility skills. Their dexterity is put to the test by executing complex routines quickly and accurately, evaluating the difficulty of movements, artistic presentation, and the synchronization of the team or individual. (Abdelmomen, 2023)

Therefore, we need to use modern training tools to help players perform efficiently. Exercises performed with resistance in different directions help thus raise muscular efficiency in a balanced and comprehensive manner for all parts of the body. Thus, they develop many physical elements such as muscular ability, muscular balance, as well as flexibility, as they thus represent a basic form of skill performance. The best way to rely on any sporting activity.

Although there are numerous studies that have investigated power in athletes from different disciplines including artistic gymnastics, and ballet, not many studies have investigated this phenomenon in rhythmic gymnastics, a discipline that covers aspects of artistic gymnastics and ballet, along with the specific technical management of 5 devices (hoop, ball, ribbon, clubs, and rope). Furthermore, it is necessary to highlight that

most of these works used young subjects as samples. For this reason, the aim of the present study was to identify the effect of Bungee workout on power and Rhythmic Gymnastics skills (Arch Jump, Arabesque balance) among female college students.

Material and method

Methods.

The sample selected intentionally from female students of the second year at the College of Physical Education in Al-Arish university for the academic year (2020-2021), and their number were (15) female students. The data was collected, transcribed, and tabulated to perform statistical treatments.

Experimental Approach to the Problem

Experimental group performed a pre - post tests in vertical jump, medicine ball throw (3 kg), and Rhythmic Gymnastics skills (Arch Jump, Arabesque balance). The experimental group (EG) trained 90 minutes per day once a week with Bungee training for eight weeks. First two weeks aimed to preparing the strength and sex weeks for power. Bungee sets are generally low repetitions separated by periods of rest pause that wear cumulatively and tax a target muscle. Bungee sets are not performed until failure but become extremely intense as the number of total sets being performed increases.

Statistical analysis.

The statistical program (SPSS) was used, as the statistical treatment plan for the primary data included the following statistical methods:

Mean.

Median

Standard Deviation.

Skewness.

correlation coefficients.

T. test.

Results.

Table 1. Characteristics of Experimental group (Mean ± SD)

Group	N	Age [years]	Weight [kg]	Height [cm]
Experimental	15	18.12 ± 0.6	69 ± 4.8	168 ± 3.77

Table 1 shows that no significant differences were observed in the variables (Age, Weight, Height) to the Experimental group.

Table 2. Differences significant between the pre- and post-tests for the experimental group

Variables	Experimental group		Change rate	Sign.
	Before	After		
Medicine ball throw (3 kg)	5.40 ±0.12	5.81 ±0.13	7.59259	S
Vertical jump	23.70 ±1.12	25.18 ±1.35	6.24473	S
Arch Jump	95.35 ±3.08	97.15 ±3.11	1.88778	S
Arabesque balance	84.27 ±2.89	90.53 ±2.93	7.4285	S

Table 2 shows that:

Significant Difference between the pre- and post-tests for the experimental group in Medicine ball, Vertical jump, and Rhythmic Gymnastics skills (Arch Jump, Arabesque balance) for post-test of experimental group.

Discussion.

The study assumed that eight weeks of Bungee workouts could be affected on power and Rhythmic Gymnastics skills (Arch Jump, Arabesque balance) to the experimental group. The results proved that all variables were significantly improvement to the post-tests of experimental group. We attribute these results to Bungee training.

This is consistent with the findings of the study Mawaddah, (2020) which concluded that the use of Bungee cords were popular and unconventional among the research sample, and this is the most important thing that distinguishes functional performance exercises, that they are unconventional and diverse, and it is possible to use different tools to perform them, and this is what Amr, (2023) pointed out that functional Bungee training is a form of advanced training that is recently used in the sports field, and it is also unconventional.

In this regard, Samia (2004) The effectiveness of power and balance will determine the success of Rhythmic gymnastics skills.

This result is confirmed by Manal (2019) that the gymnast must have powerful muscular groups, to achieve a good performance in the competition routines. Muhammad, (2020) asserts that the Bungee training increases short-term performance adaptations in experienced athletes.

This is confirmed by (Abdelmomen, 2023; Fayez, 2021; Rania, 2020) that Bungee has a special effect and character, which contributes to increasing the element of excitement, change and innovation in the training process, makes the players participate positively in training, and instills a spirit of enthusiasm and motivation in continuing their performance. Effectively.

Another benefit of bungee workout is ability to traverse strength plateaus. Since most people haven't been exposed to group training methods before, it stands to reason that they see their greatest benefit the first time they do it. (Mawaddah, 2020).

The results of the study agree with the study of (Abdelmomen, 2023; Fayez, 2021; Rania, 2020) that Bungee training contributed to the improvement the physical and skillful variables.

Conclusions

- Under the conditions of our article, we conclusion that:
- Functional performance exercises using elastic ropes “Bungee” showed a clear improvement in the level of muscular ability of the legs.
- Functional performance exercises using elastic ropes “Bungee” showed a clear improvement in the level of muscular ability of the arms.
- Functional performance exercises using elastic ropes “Bungee” showed a clear improvement in the performance level of some rhythmic exercise skills.

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