

# THE BALANCE EFFECT OF THE LEG MUSCLES PLYOMETRIC TRAINING IN AEROBICS DANCE

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## ABSTRACT

A study of the balance effect of the leg muscles plyometric training in aerobics dance. 1. To increase the balance in aerobic dance of Suan Sunandha Rajabhat University students. 2. To compare the results of the balance ability of students before training. 3. To compare the results of balance ability of students after being trained.

The population of this study was 30 male students of Suan Sunandha Rajabhat University, age between 18 - 21 years, divided into 2 groups: control group (15 trainees) and experimental group (15 trainees trained). Plyometric training was designed for participants in the group. Training is a method. Squat sample is to point the toes a little bit, knees pointing to the front. Minimize and spring up for 40 seconds in 3 sets during play to complete set to a 3-minute break with the Squat Jump is knee angle 90 degrees, always two consecutive alternates. For the duration of 40 minutes, 3 sets were used during the play to complete a 3-minute break. Practice 3 days a week for 8 weeks. The statistics used for data analysis were the mean and the baseline. Ben The differences between the groups were tested by independent t-test and paired t-test.

The results showed that the physical characteristics of the sample group include Age, Weight, Height and Body mass index between two groups were no statistically significant difference at .05 levels. The comparison of balance in aerobic dance of students in spending time in balance found that the experimental group has balance ability more than the control group was significantly at the .05 level.

Conclusion the plyometric training of leg muscles for 8 weeks, which able to improve the strength of the leg muscles, power and balance ability of Suan Sunandha Rajabhat University students.

**Keyword:** Plyometric training, Balance, Aerobics Dance

## 1. INTRODUCTION

Aerobic dance is the basis of other types of sports. It has been popular for centuries and is an exercise that is based on balance. Body movement will make the body fluent and healthy. Exercise is the body that moves and uses more energy such as walking, running, dancing, aerobics, etc. However, exercise is an important factor affecting prevention and overweight. Because it helps to increase the metabolism of excess energy from the needs of the body and helps enhance physical fitness. Therefore, we should choose activities that will help to reduce the problem of increased levels of body fat percentage by the heart rate while exercising at the level of 60-70 percent of the maximum heart rate. Exercise duration should be more than 20 minutes. [1]

Plyometric training is a muscle training that connects between muscle strength and the speed of contraction of muscles, resulting in muscle power by jumping activity. [2] The Plyometric training is a practice that connects the strength of the muscles from the body weight and the speed of muscle contraction, Which helps to increase muscle power. [3] Plyometric training can improve muscle strength as well and can increase power and agility. The strength of the muscles can improve the balance ability.

Balance ability means the ability of the body to maintain the balance of the body to be able to engage in various activities. If the balance of the body is bad, the body effecting in various areas such as standing, walking, running and etc. unable to perform various activities get full potential.

As mentioned above, health problems can occur with all ages especially those who are overweight. Aerobic exercise activities have a positive effect on body composition; help to strengthen the muscles used in movement and increase the body's energy metabolism. Therefore, the researcher is interested in studying of the balance effect of the leg muscles plyometric training in aerobics dance.

## 2. OBJECTIVES

1. To increase the balance in aerobic dance of Suan Sunandha Rajabhat University students.
2. To compare the results of the balance ability of students before training.
3. To compare the results of balance ability of students after being trained.

## 3. METHODOLOGY

The population of this study was 30 male students of Suan Sunandha Rajabhat University, aged between 18 and 21 years, divided into 2 groups: control group (15 trainees) and experimental group (15 trainees trained). Pilot Metric training was designed for participants in the group. Training is a method. Squat sample is to point the toes a little bit, knees pointing to the front. Minimize and spring up for 40 seconds in 3 sets during play to complete set to a 3-minute break with the Squat Jump is knee angle 90 degrees, always two consecutive alternates. For the duration of 40 minutes, 3 sets were used during the play to complete a 3-minute break. Practice 3 days a week for 8 weeks.

The samples were trained to practice after the training in week 8 to record the results by doing the same tests as before the training session. Create data and data analyze, results, discussions.

## DATA ANALYSIS

The statistics used for data analysis were the mean and the baseline. The differences between the groups were tested by independent t-test and paired t-test.

## 4. RESULTS

The results of the balance effect of the leg muscles plyometric training in aerobics dance are as follow:

**TABLE 1** MEAN AND STANDARD DEVIATION AND THE VALUES OBTAINED FROM ANALYZING THE DIFFERENCES IN WEIGHT, HEIGHT AND BODY MASS INDEX BEFORE THE EXPERIMENT BETWEEN THE CONTROL GROUP AND EXPERIMENTAL GROUP.

physical fitness	Control group (n = 15)		Experimental group (n = 15)		t	p
	$\bar{X}$	S.D.	$\bar{X}$	S.D.		
Weight (Kg)	69.30	2.245	69.33	2.095	-.208	.839
Height (Cm)	171.00	2.903	170.93	2.548	.126	.902
Body mass index (Kg /M <sup>2</sup> )	23.71	.896	23.74	.928	-.197	.847

P > .05

Table 1 shows that mean and standard deviation weight of the control group 69.30 Kg and weight of the experimental group 69.33 Kg

Height of the control group 171.00 Cm and height of the experimental group 170.93 Cm.

Body mass index of the control group 23.71 Kg /M<sup>2</sup> and body mass index of the experimental group 23.74 Kg /M<sup>2</sup>

The results of the difference analysis before the experiment showed that mean and standard deviation of weight, height and body mass index between the control group and experimental group. There were no significance difference at the .05 level.

**TABLE 2** MEAN AND STANDARD DEVIATION AND THE VALUES OBTAINED FROM ANALYZING THE DIFFERENCES IN WEIGHT, HEIGHT AND BODY MASS INDEX AFTER THE EXPERIMENT BETWEEN THE CONTROL GROUP AND EXPERIMENTAL GROUP.

physical fitness	Control group (n = 15)		Experimental group (n = 15)		t	p
	$\bar{X}$	S.D.	$\bar{X}$	S.D.		
Weight (Kg)	69.24	2.377	68.69	2.019	-1.803	.093
Height (Cm)	171.00	2.903	170.93	2.549	-.126	.902
Body mass index (Kg /M <sup>2</sup> )	23.69	.885	23.52	.988	-1.029	.321

P > .05

Table 2 shows that mean and standard deviation weight of the control group 69.2 Kg and weight of the experimental group 68.69 Kg.

Height of the control group 171Cm and height of the experimental group 170.93 Cm.

Body mass index of the control group 23.69 Kg /M<sup>2</sup> and body mass index of the experimental group 23.52 Kg /M<sup>2</sup>

The results of the difference analysis after the experiment showed that mean and standard deviation of weight, height and body mass index between the control group and experimental group. There were no significance difference at the .05 level.

**TABLE 3** MEAN AND STANDARD DEVIATION AND THE VALUES OBTAINED FROM ANALYZING THE DIFFERENCES IN TIME OF BALANCE ABILITY BEFORE THE EXPERIMENT BETWEEN THE CONTROL GROUP AND EXPERIMENTAL GROUP.

Variable	Control group (n = 15)		Experimental group (n = 15)		t	p
	$\bar{X}$	S.D.	$\bar{X}$	S.D.		
Time of balance ability (second)	218.93	66.35	238.86	75.21	-.770	.448

P > .05

Table 3 shows that before the experimental, the control group use time of balance ability 218.93 second and the experimental group 238.86 second.

The results of the difference analysis before the experiment of using time of balance ability between the control group and experimental group were no significance difference at the .05 level.

**TABLE 4** MEAN AND STANDARD DEVIATION AND THE VALUES OBTAINED FROM ANALYZING THE DIFFERENCES IN TIME OF BALANCE ABILITY BETWEEN BEFORE AND AFTER OF THE EXPERIMENT OF THE CONTROL GROUP.

Variable	Before (n = 15)		After (n = 15)		t	p
	$\bar{X}$	S.D.	$\bar{X}$	S.D.		
Time of balance ability (second)	218.93	66.35	213.20	62.05	2.119	.052

P > .05

Table 4 shows that before the experiment, the control group use time of balance ability 218.93 second. After the experimental, the control group use time of balance ability 213.20 second.

The results of the difference analysis of control group between before and after the experiment of using time of balance ability were no significance difference at the .05 level.

**TABLE 5** MEAN AND STANDARD DEVIATION AND THE VALUES OBTAINED FROM ANALYZING THE DIFFERENCES IN TIME OF BALANCE ABILITY BETWEEN BEFORE AND AFTER OF THE EXPERIMENT OF THE EXPERIMENTAL GROUP.

Variable	Before (n = 15)		After (n = 15)		t	p
	$\bar{X}$	S.D.	$\bar{X}$	S.D.		
Time of balance ability (second)	238.86	75.21	331.07	74.47	-9.226	.000

P < .05

Table 5 shows that before the experiment, the experimental group use time of balance ability 238.86 second. After the experimental, the control group use time of balance ability 331.07 second.

The results of the difference analysis of experimental group between before and after the experiment of using time of balance ability were significance difference at the .05 level.

**TABLE 6** MEAN AND STANDARD DEVIATION AND THE VALUES OBTAINED FROM ANALYZING THE DIFFERENCES IN TIME OF BALANCE ABILITY AFTER OF THE EXPERIMENT BETWEEN THE CONTRAL GROUP AND THE EXPERIMENTAL GROUP.

Variable	Control group (n = 15)		Experimental group (n = 15)		t	p
	$\bar{X}$	S.D.	$\bar{X}$	S.D.		
Time of balance ability (second)	213.2	62.05	331.07	74.47	-4.709	.000

P < .05

Table 6 shows that the control group use time of balance ability 213.2 second and the experimental group use time of balance ability 331.07 second.

The results of the difference analysis after the experiment of using time of balance ability of between control group and experimental group were significance difference at the .05 level.

## 5. DISCUSSIONS

The balance ability in this research is measured from the time it takes to test after the 8-week experiment, it was found that the experimental group was able to balance more than before the experiment was significantly at the level .05. The control group had balance ability that was not significantly different of statistical significance at the level .05. Shows that training according to this experimental program can improve balance ability because this training can develop the speed, power and muscle coordination [5] [6] with the practice of squat posture, it is a balance that can be developed for the experimental group to develop balance, which corresponds [7] was found that the strength training and muscle strength of Sepak Takraw serving skills Affecting balance in serving Sepak Takraw which the movement and power of the muscles are necessary for muscle performance in athletes

This study found that leg muscular plyometric training for 8 weeks can improve leg muscular strength. Muscle strength, leg and speed the balance ability in Suan Sunandha Rajabhat University students.

## 6. ACKNOWLEDGEMENT

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