



ISSN: 2456-0057
IJPNPE 2019; 4(1): 2607-2610
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www.journalofsports.com
Received: 02-11-2018
Accepted: 25-12-2018

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Impact of training with gym ball and medicine ball on motor fitness

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Abstract

The aim of the present study was to find out the comparative effect of training with Gym Ball and Medicine Ball on Motor Fitness ability of sports related persons. Out of 90 students 60 male subjects were randomly selected from HLM College, Ghaziabad, U.P. 20 Subjects each was randomly and equally divided into three equal groups and was named as Group 'A' (Gym ball Group) Group 'B' (Medicine ball Group) and Group 'C' (Control Group) and accordingly training was given, whereas Group 'C' (Control Group) received no training. Variables undertaken were Abdominal Strength, Agility, Flexibility and Balance. In order to investigate the existence of significant difference in the effect of Training with Gym Ball and Medicine Ball on Motor Fitness among three groups, Analysis of Co-variance statistical technique was used. The result revealed that there was insignificant difference in the development of Motor Fitness through the exercises training between Gym ball and Medicine ball.

Keywords: gym ball, medicine ball, motor fitness

Introduction

Motor fitness is a term that describes an athlete's ability to perform effectively during sports or other physical activity. An athlete's motor fitness is a combination of five different components, each of which is essential for high levels of performance. Improving fitness involves a training regimen in all five.

There are many different manifestations of fitness. Some examples include strength, stamina, speed, and flexibility. Certain types of fitness, such as an athlete's cardiac fitness level, are more important than others. An athlete needs to be aware of the various types of fitness to develop an effective training program that focuses on weak or important areas.

Motor Fitness is necessary for success in most of the games and sports. Without a high level of motor fitness an individual will not be able to withstand the stress and strain caused on the body by various games and sports. Motor Fitness in addition to bringing about better performance in games and sports, also helps in prevention of injuries in the long run. Every game needs different type of Motor Fitness. Motor Fitness differs from game to game because every game has its own rules, regulation and technique. Yet some times we find some games need high quality motor fitness and sometimes it is difficult to understand and differentiate the Motor Fitness between the two games.

The six components of motor skills related to fitness are agility, balance, coordination, power, reaction time and speed, according to Glencoe/McGraw-Hill Education. A motor skill is associated with muscle activity. You carry out motor skills when your brain, nervous system and muscles work in concert to move parts of your body in large or small manoeuvres. Motor skills improve with practice and all six components determine your level of athletic ability. A well-rounded athlete works to improve each of the six equally.

Agility

Agility is the capacity to change course, controlling the direction and position of your body while maintaining your momentum. Changing course while sprinting to hit a tennis ball is an example of agility. Sports coach Brian Mackenzie offers a simple zig-zag run to test agility.

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Balance

Balance is the ability to stabilize your body, whether standing still or maintaining motion. Ice-skating, skiing and bicycle riding are balance exercises. There are two types of balance – static and dynamic. Static balance refers to remaining upright while staying still, standing on one leg, for example. Dynamic balance deals with stability in motion. Test your balance by holding a stationary position as long as you can, without wobbling, after moving around.

Coordination

Coordination describes the synchronization of your senses and your body parts in a way that enhances motor skills. Volleying a table tennis ball is an example of hand-eye coordination. A variety of tests measure coordination, including juggling or hitting a ball.

Speed

Speed is the facility to move your body swiftly. Speed is usually associated with running, but other exercises, like throwing or kicking a ball, depend on moving your arms or legs rapidly. Some athletic coaches measure speed with a 40-yard dash.

Power

Power is a combination of speed and muscular force. A football linebacker uses power to blast through a line of men. A gymnast uses power during a performance on the rings and uneven bars. Measure your power by throwing a heavy object or lifting weights.

Reaction Time

Reaction time measures how swiftly you interpret and then react to expected and unexpected events happening around you. An example of reaction time to an expected event is the interim between hearing the starter's pistol and beginning to run. Your reaction time to unexpected events, such as a bicycle crash just ahead of you in a race, relies on how quickly you can make sense of the event and come to a decision about how to react to it.

Now-a-days to develop Motor Fitness various exercise materials are used such as Gym Ball and Medicine Ball. In order to investigate such subject matter of this thought and in order to study the degree of its logical authenticity in expecting the same as the established fact, such study has been undertaken.

Statement of the Problem

The main purpose of the study was to find out the comparative effect of training with Gym Ball and Medicine Ball on Motor Fitness ability of sports related persons.

Hypothesis

It was hypothesized that due to the comparative effect of training with Gym Ball and Medicine Ball there would not be any significant differences on motor fitness ability of sports related persons.

Methodology

Out of 90 students 60 male subjects were randomly selected from HLM College, Ghaziabad, U.P. They were selected at random for the purpose of the study. The age of the subjects ranged between 21 to 27 years. 20 Subjects each were randomly divided into three equal groups and was named as Group 'A' (Gym ball Group) Group 'B' (Medicine ball Group) and Group 'C' (Control Group), Further Group 'A' was assigned fitness training with Gym ball and Group 'B' was assigned fitness training with Medicine Ball while no training was assigned to Group 'C' (Control Group).

Variables

On the bases of review of related literature, expert's opinions and research scholar's own Understanding the following variables have been undertaken:

1. Abdominal strength (core strength) was measured by the Bent knee sit up.
2. Agility was measured by 4 × 10 yards shuttle run.
3. Flexibility was measured by Sit and Reach test.
4. Balance was measured by stork stand test.

Table 1: Analysis of Co-Variance of the Means of Bent Knee Sit-Ups Test among Two Experimental Groups and One Control Group

Mean	Gym	Medicine	Control	Source of Variance	SS	df	MSS	F -ratio
Pre-test	39.60	37.25	40.70	Among	124.23	2	62.12	1.13
				Within	3128.75	57	54.89	
Post-test	45.10	41.75	42.70	Among	119.23	2	59.62	1.73
				Within	1960	57	34.38	
Adjusted Post-Test	44.86	42.86	41.83	Among	94.99	2	47.50	2.87
				Within	926.21	56	16.54	

$F_{.05}(2, 57) = 3.15$, $F_{.05}(2, 56) = 3.15$ A = Among means variance. W = Within group variance.

The Table 1 clearly revealed no significant differences in Bent Knee Sit ups Test among two experimental groups (Group-A i.e., Gym Ball Group and Group-B i.e. Medicine Ball Group) and one Control Group i.e. Group-C in pre-, post-

and adjusted post-test phases at 0.05 level of significant ($F = 1.13, 1.1.73$ and $2.87 < 3.15$ respectively). It was evident that the Gym Ball Group is better than the Medicine Ball Group and Control Group.

Table 2: Analysis of Co-Variance of the Means of 4 × 10 Yards Shuttle Run Test among Two Experimental Groups and One Control Group

Mean	Gym	Medicine	Control	Source of Variance	SS	df	MSS	F -ratio
Pre-test	9.34	9.17	9.48	Among	0.98	2	0.49	2.58
				Within	10.78	57	0.19	
Post-test	9.49	9.24	9.42	Among	0.70	2	0.35	1.30
				Within	15.0	57	0.27	
Adjusted Post-test	9.48	9.37	9.30	Among	0.33	2	0.17	1.12
				Within	8.32	56	0.15	

$F_{.05}(2, 57) = 3.15$, $F_{.05}(2, 56) = 3.15$ A = Among means variance. W = Within group variance.

The Table 2 clearly revealed no significant differences in 4 × 10 yards Shuttle Run Test among two experimental groups (Group-A i.e. Gym Ball Group and Group-B i.e. Medicine Ball Group) and one Control group i.e. Group-C in pre-, post-

and adjusted post-test phases at 0.05 level of significant ($F=2.58, 1.30$ and $1.12 < 3.15$ respectively). It was evident that the Gym Ball group is better than the Medicine Ball group and Control group.

Table 3: Analysis of Co-variance of the means of Sit and Reach Test among two experimental groups and one control group

Mean	Gym	Medicine	Control	Source of Variance	SS	df	MSS	F -ratio
Pre-test	16.83	17.65	16.92	Among	8.15	2	4.08	1.10
				Within	212.13	57	3.72	
Post-test	17.67	18.34	17.24	Among	12.30	2	6.15	1.83
				Within	192.0	57	3.37	
Adjusted Post-test	17.94	17.89	17.43	Among	3.16	2	1.58	2.71
				Within	32.59	56	0.58	

$F_{.05} (2,57) = 3.15, F_{.05} (2,56) = 3.15$ A = Among means variance. W = Within group variance.

The Table 3 clearly revealed no significant differences in Sit and Reach Test among two experimental groups (Group A i.e. Gym Ball Group and Group-B i.e. Medicine Ball Group) and one Control Group i.e. Group-C in pre-, post- and adjusted

post-test phases at 0.05 level of significant ($F=1.10, 1.83$ and $2.71 < 3.15$ respectively). It was evident that the Gym Ball Group is better than the Medicine Ball Group and Control Group.

Table 4: Analysis of Co-Variance of the Means of Stork Stand Test among Two Experimental Groups and One Control Group

Mean	Gym	Medicine	Control	Source of Variance	SS	df	MSS	F -ratio
Pre-test	19.99	21.30	16.01	Among	304.21	2	152.11	0.46
				Within	18968.57	57	332.78	
Post-test	36.69	36.98	23.79	Among	2269.12	2	1134.56	2.32
				Within	27843.0	57	488.47	
Adjusted Post-test	35.95	35.15	26.35	Among	1120.45	2	560.23	2.11
				Within	14867.53	56	265.49	

$F_{.05} (2, 57) = 3.15, F_{.05} (2,56) = 3.15$ A = Among means variance. W = Within group variance.

The Table 4 clearly revealed no significant differences in Stork Stand Test among two experimental groups (Group A i.e. Gym Ball Group and Group-B i.e. Medicine Ball Group) and one Control group i.e. Group-C in pre-, post- and adjusted post-test phases at 0.05 level of significant ($F=0.46, 2.32$ and $2.11 < 3.15$ respectively). It was evident that the Gym Ball group is better than the Medicine Ball group and Control group.

Discussion of Findings

Gathering pre treatment and post treatment results and its subsequent statistical calculation employing the statistics of Analysis of Co-variance (ANCOVA) revealed that there was insignificant difference in the development of Motor Fitness through the exercises of Gym ball and Medicine ball. The Motor Fitness component selected under the study were- Core Strength (Abdominal Strength), Agility, Flexibility and Balance. The effect of Gym balls is their ability to provide an unstable surface to exerciser. Gym ball help to increase balance, increase the strength of the core region. The medicine balls also have been used historically for training upper and lower body muscles as well as core muscles. Medicine balls have been used in a variety of populations including resistance training in school-aged boys, to increase the motor abilities and fitness and fitness in obese children. The exercises chosen for both Gym ball and Medicine ball were found to have some similarity in movement execution and activating of the same muscle group. The doses of exercises were also found similar. That's there was probability of getting insignificant difference of Motor Fitness development between the two types of training among two experimental groups i.e. Gym Ball Group and Medicine Ball Group. Thus the null hypothesis of no difference in developing Motor Fitness through the two types of training was accepted. Further it was seen that there was a

insignificant higher trend in improvement of Motor Fitness through Gym Ball Training than Medicine Ball Training. This result revealed that Gym Ball may be a new and interesting equipment for the subjects and they enjoy it while training with the same apparatus without filling bored and monotonous rather feeling a sense of fatigue.

Conclusion

On the basis of analysis of data and interpretation of results it was concluded that exercise training with Gym ball and medicine ball have showed positive improvement but no difference between both the training was found. Further it may concluded that both the ball training is beneficial for the development of motor fitness.

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