



EFFECT OF BALLISTIC STRETCHING ON VERTICAL JUMP PERFORMANCE AMONG VOLLEYBALL PLAYERS

Physiotherapy

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ABSTRACT

The purpose of this study was to find out the effect of ballistic stretching on vertical jump performance among volleyball players. To achieve the purpose thirty (N=30) volleyball players studying in Annamalai University, Annamalai Nagar, Tamilnadu, randomly assigned as subjects. The subjects were divided into two group of fifteen each. Group-I underwent Ballistic stretching and group-II acted as control. The experimental group underwent ballistic stretching with 20 minutes duration for 6 weeks. Vertical jump was selected as dependent variable and it was assessed by sergeant jump test. The pre and post test comparison of vertical jump is analyzed by paired 't' test. The entire statically analysis is carried out by statistical packages for social sciences (16th version). The results of the study showed that the Ballistic stretching group better in explosive power than control group.

KEYWORDS

Ballistic stretching, Explosive power, Sergeant Jump test

INTRODUCTION

Stretching has long been touted as an important part of fitness and exercise warm-ups because of its putative effects on injury and performance. However, few controlled studies exist to support the assertion that stretching decreases injury. Furthermore, a growing body of evidence indicates that the acute effects of stretching may impair performance, while the chronic effects of stretching on performance are less clear. Because stretching is routinely included as a warm-up for sport participation, the effects of a stretching warm-up in the context of sport performance are an important consideration for coaches and athletes. If stretching does not reduce injury and may impair performance, its inclusion as a warm-up may be unwarranted (Thacker et al., 2004).

Stretching is generally divided into static, ballistic, and proprioceptive neuromuscular facilitation (PNF) stretching. All the methods are used to acutely (a single stretching exercise for several seconds/minutes) increase the range of motion (RoM). Besides range of motion (RoM), several other functional [maximal isometric torque, muscle-tendon stiffness, passive resistive torque (PRT)] or structural parameters (muscle stiffness, tendon stiffness, fascicle length, pennation angle), which might be able to explain the functional changes, may be altered by the use of different stretching methods.

Ballistic Stretching type of stretching exercise involves bouncing into a range when the muscle is not prepared or relaxed such that it can enter that range. This exercise can be dangerous if done without supervision or training by a professional (Schilling et al., 2000).

Ballistic stretching is popular among athletes, but is it safe for the average person. This intense stretching method uses bouncing movements to push your body beyond its normal range of motion.

Whereas static stretches are performed slowly and gradually, the ballistic method stretches muscles much farther and faster. You can do many of the same stretches as ballistic or static stretches. For example, the ballistic method of touching your toes would be to bounce and jerk toward your feet.

People often confuse ballistic stretching with dynamic stretching. While both techniques involve movement during the stretch, they are different. Dynamic stretching doesn't push muscles past their normal range of motion and there is no bouncing or jerking involved. An example of a dynamic stretch is arm circles. Dynamic stretching is more widely recommended by doctors than ballistic stretching (Unick, et al., 2005).

MATERIAL AND METHODS

For this purpose thirty (N=30) volleyball players studying in Annamalai University, Annamalai Nagar, Tamilnadu, randomly assigned as subjects. The subjects were divided into two group of fifteen each. Group-I underwent Ballistic stretching and group-II acted as control. The experimental group underwent ballistic stretching with 20

minutes duration for 6 weeks. Vertical jump was selected as dependent variable and it was assessed by sergeant jump test. The pre and post test comparison of Vertical jump is analyzed by paired 't' test. The entire statically analysis is carried out by statistical packages for social sciences (16th version).

Analysis of the Data

Vertical jump

The results of the dependent 't'-test on the data obtained for Vertical jump of the subjects in the pre-test and post-test of the Experimental groups have been analyzed and presented in Table-1.

TABLE - 1
SUMMARY OF MEAN STANDARD DEVIATION AND DEPENDENT 't' TEST FOR THE PRE AND POST TESTS ON VERTICAL JUMP OF EXPERIMENTAL GROUPS
(Foot Vertical jump is expressed in Centimeters)

Test	Descriptive Statistics	Ballistic Stretching Group	Control Group
Pre Test	Mean	41.67	42.67
	SD (\pm)	2.69	4.78
Post Test	Mean	48.50	42.83
	SD (\pm)	3.00	4.90
"t" Test		6.57*	0.09

*Significant at 0.05 level.

The table value required for 0.05 level of significance with df 14 is 2.15.

Table-1 shows that the pre-test mean and standard deviation of Vertical Jump values of Ballistic stretching group and Control group are 41.67 ± 2.69 and 48.50 ± 3.00 respectively. The post-test mean and standard deviation are 42.67 ± 4.78 and 42.83 ± 4.90 respectively. The obtained dependent t-ratio values between the pre and post test means on Vertical Jump of Ballistic stretching group and Control group are 6.57 and 0.09 respectively. The table value required for significant difference with df 14 at 0.05 level is 2.15. It was concluded that Ballistic stretching group had registered significant increase in Vertical Jump performance. The above data also reveal that Ballistic stretching group had shown better increase than Control group in Vertical Jump.

The pre and post test mean values of Ballistic stretching group and Control group on Vertical Jump are graphically represented in the Figure - 1.

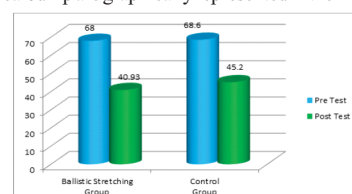


Figure: 1 The Pre and Post test Mean Values of Ballistic stretching group and Control group on Vertical Jump (In Points)

CONCLUSION

The results of the study showed that the Ballistic stretching group had shown better increase than Control group in Vertical Jump.

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