

Impact of Stretching Exercise Intervention Programme on The Development of Flexibility And Athletic Power on Students Athlets

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Abstract

The purpose of the research was to impact of stretching exercise intervention training programme on flexibility and athletic power in students. The 25 student as a experimental group who were stuying in Swami Ramanand Teeth Marathawada University Nanded and 25 other students as a control group was selected as subject for present study. and their age ranged between 22-30years. Only training was given to the experimental groups. Exclusion criteria were the presence of chronic medical conditions such as asthma, heart disease or any other condition that would put the subjects at risk when performing the experimental tests. The intervention training was planned as 06 weeks 4 day a week and 30 minutes in a day. Study was conducted at S.R.T.M. University Nanded. Mean score and standard deviation and t test was applied. The result reveals that there was significant effect of stretching exercise on flexibility and ($f=t p<.05$) and athletic power ($p<0.05$) It is found that stretching exercise improve the flexibility and athletic power on students.

Introduction

Flexibility is a components of physical fitness and theability of joint and muscle to move through its maximum range of motion (Sinku, 2018). Whereas, Stretching is a form of physical exercise in which a specific muscle or muscle group is deliberately flexed or stretched in order to improve the muscle's felt elasticity and achieve flexibilit (Favero, Midgley&, Bentley 2008.Fletcher 2010) .Flexibility through stretching is one of the basic tenets of physical fitness. Flexibility is prevalent for athletes to stretch before and after exercise to reduce risk of injury and increase performance, (Franco, Signorelli, Trajano& Oliveira 2008.Gergley2009). Athletes are at high risk of overuse injuries and stress fractures due to lack of flexibility (Gomes , Simao& Marques 2011.Jaggers, Swank, Frost& Lee 2008). Stretching provides assistance in the reduction of chronic overuse injuries and therefore is not a useful injury preventative strategy for endurance athletes(Kistler, Walsh, Horn & Cox 2010). Stretching has been shown to enhance performance when instituted prior to strength and power activities. (Moran *et al.* , Torre ,Castagna&Gervasoni 2010). Static stretching involves lengthening a muscle and holding it in a mildly uncomfortable position for a period, Dynamic stretching uses momentum and active muscular effort to lengthen a muscle, but the end position is not held (Little & Williams 2006.Mojock, Kim ,, Eccles & Panton 2011.Moran, McGrath , Marshall & Wallace 2009.Needham , Morse &Degens2009, Nelson , Kokkonen&Arnall2005). There is little research available in flexibility andathletic power in marathwada region of Maharashtra so the attempted has been taken by present investigator

Materials and Methods

The 25 male students as a experimental group who was studying in Swami Ramanand TeerthMarathwada University Nanded and 25 other students as a control group would be selected as subject for present study and their age ranged between 22-30years. Only training was given to the experimental groups. Voluntary to participate in the stretching exercise training programmes. Exclusion criteria were the presence of chronic medical conditions such as asthma, heart disease or any other condition that would put the subjects at risk when performing the experimental tests. The

subjects were free of smoking, alcohol and caffeine consumption, antioxidant supplementation and drugs during the programmes. They completed an informed consent document to participate in the study. The age, height, weights, flexibility and power ability of all subjects were measured in physical education department laboratory. This study involves the impact of stretching exercise intervention training programme on flexibility and Athletic power of students in experimental design.

Training Programme:

The exercise session should consist of the following

- 1) A warm-up period of approximately 10 minutes this should combine calisthenics' type stretching exercises and progressive aerobic activity that should increase the heart rate close to the prescribed heart rate for the session.
- 2) A cool-down period of 5-10 minutes. Training program would be planned as 6 weeks 4 days a week and 30 min. Day the level of training intensity is increased from initial 25% to 70% during six weeks students were trained according to protocol of three sets, 8-12 repeat and 3-5 minutes break between each set training programs were created in the frame of these criteria.

Parameters measurements

Methods Athletic power measured by using the Standing Broad Jump test and flexibility test was measured by using sit and reach test.

Flexibility

This component was measured by using Sit & Reach Test. The main aim of this test is to evaluate the flexibility of the subject. For conducting the test a stable wooden box 25 Cm's. high on one side is required. Procedure: Subject sits bare foot with the box with both feet together with toes in line with the edge of the box. From this position he bends forward and while keeping his knees straight. He extends his hands along the scale as far as possible. Both the hands should be parallel. At a maximum reach he holds the position for about 2 seconds. Scoring: The result is read from the scale. Two attempts are given at recovery rest of 30 seconds. In case a subject is not able to extend his hands even to the level of the box then the distance from the 0 Cm's. Mark to the tip of middle finger should be measured with a scale and recorded as negative score.

Athletic Power: Athletic power measured by the Standing Broad Jump.

Standing Broad Jump: This test measures the power of legs in jumping horizontal distance and may be applied to children of both sexes aged seven years above.

Equipment: Floor Mat or long jump pit may be used, measuring tape, marking tape.

Test Administration: A demonstration of the standing Broad jump is given to a group of Subjects to be tested. The Subject is then asked to stand behind the starting line with the feet parallel to each other. He is instructed to jump as farthest as possible by bending knees and swinging arms to take off for the broad jump in the forward direction. The subject is given three trials. **Scoring:** The distance between the starting line and the nearest point of landing provides the score of the test. The best trial is used as the final score of the test.

Collection of data:

Data was taken from the 25 students as an experimental group of Swami Ramanand TeerthMarathwada University similarly Pre and Post Test was taken from 25 other students as a control group. stretching exercise training programme was given to the experimental group. And analysis the data mean, S.D. and t-test was utilized the level of significant was set up at 0.05 level.

TABLE – 1

Pre and post-test of mean scores, standard deviation and t-ratio of flexibility of control group.

Components	Test	Number	Mean	S.Ds.	T-ratio
Flexibility	Pre-Test	25	10.67	2.13	NS
	Post-Test	25	10.71	2.19	

Table - 1 Pre and post-test of mean scores, standard deviation and t-ratio of Flexibility of Control Group. With regards to pre and post-test of Flexibility of control group they have obtained mean values were 10.67 and 10.71 respectively, whereas they obtained standard deviation 2.13 and 2.19 respectively. The result reveals no significant difference of Flexibility was found in control group.

TABLE – 2

Pre and post-test of mean scores, standard deviation and t-ratio of flexibility of experimental group

Components	Test	Number	Mean	S.Ds.	T-ratio
Flexibility	Pre-Test	25	10.83	2.41	(t=P<.05)*
	Post-Test	25	12.89	2.92	

* = Significant

Table - 2 Pre and post-test of mean scores, standard deviation and t-ratio of Flexibility of experimental group. With regards to pre and post-test of Flexibility of experimental group they have obtained mean values were 10.83 and 12.89 respectively, whereas they obtained standard deviation 2.41 and 2.92 respectively. The result reveals significant effects stretching exercise intervention training programme Flexibility was found in experimental group (t=P<.05). The findings of the study shows that six week stretching exercise intervention training programme improve Flexibility of experimental group.

Table-4 , Mean Scores and Standard Deviations of Pre and Post-test of Athletic Power among Control group.

Components	Test	Number	Mean Scores (cm)	S. D.	T-Test
Athletic Power	Pre Test	25	217.67	8.45	NS
	Post Test	25	218.08	8.92	

Table - 4 Pre and post-test of mean scores, standard deviation and t-ratio of **Athletic power** of Control Group. With regards to pre and post-test of **Athletic power** of control group they have obtained mean values were **217.67** and **218.08** respectively, whereas they obtained standard deviation **8.45** and **8.92** respectively. The result reveals no significant difference of **Athletic power** was found in control group.

Table-5, Mean Scores and Standard Deviations of Pre and Post-test of Athletic power ability among Experimental group.

Components	Test	Number	Mean Scores (cm.)	S. Ds	T-test
Athletic Power	Pre Test	25	218.67	8.86	(t=P<.05)
	Post Test	25	229.78	9.13	

Table - 2 Pre and post-test of mean scores, standard deviation and t-ratio of **Athletic power** of experimental group . With regards to pre and post-test of **Athletic power** of experimental group they have obtained mean values were **218.67** and **229.78** respectively, whereas they obtained standard deviation **8.86** and **9.13** respectively. The result reveals significant effects stretching exercise intervention training programme **Athletic power** was found in experimental group ($t=2.66$, $P<.05$) The findings of the study shows that six week stretching exercise intervention training programme improve **Athletic power** of experimental group.

Discussion

The findings of the study shows that six week stretching exercise intervention training programme improve Flexibility and **Athletic power** of experimental group. good flexibility increases the muscle's tissue temperature, which in turn improves blood circulation and promotes nutrient transport in the body (Gergley 2009, Pearce , Zois&Carlson2009). The end result of this is improved elasticity of surrounding muscles issues and increased athletic performance, endurance and physical strength. The increased oxygenation of your muscles will not only make you feel ten years younger, it will also improve your musculature (Pacheco, Balius , Perrier ,Pavol& Hoffman ,2011)The greatest benefit of doing regular flexibility training is the reduction of lower back pain (Pacheco, Balius&Aliste. 2011 , Pearce , Zois&Carlson2009.)Lower back pain is typically caused by stressed and knotted muscles from poor posture, mental stress or repetitive physical strain(Pearce ,Zois& Carlson2009. Behm& Cahill,2004). Flexibility training not only promotes muscle relaxation, it also reduces stress in the lower back by relaxing the hamstrings, hip flexors, quadriceps, and other muscles attached to the pelvis (Marshall & Wallace 2009.Needham , Morse &Degens 2009 . Pearce ,Zois& Carlson2009.).With improved circulation and increased nutrients being delivered to all the muscles in the lower back, lower back aches will be a thing of the past thanks to regular stretching and flexibility exercises (Pacheco, Balius , Perrier ,Pavol, Hoffman ,2011 , Power ,Behm, Cahill ,2004)Regular stretching exercises and flexibility training play a very beneficial role in maintaining a healthy, pain-free body (Pacheco, Balius , Aliste. 2011) . Poor flexibility in the hip flexor muscles may lead to an anterior pelvic tilt, where the pelvis is tilted down to the front (Moran, McGrath ,Marshall & Wallace 2009). This increases the lumbar lordosis, which is the sway in the lower back.(Jaggers, Swank, Frost& Lee 2008).Finally this research provides a platform for futherresearch .

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