



Effect of yoga and Surya namaskar on body flexibility in recreational footballers: An experimental study

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Abstract

As footballers is a sport that involves great physical strength, youngsters, who are no professional guidance while playing recreationally are exposed to a wide array of musculoskeletal injuries due to lack of awareness of proper stretching, warming up and cool down techniques. It is important to maintain flexibility of lower limb muscles as these are under greater usage while clicking a ball our study involves effect of certain yoga postures and surya Namaskat on body flexibility in recreational footballers by using Sit and Reach Test and Active Knee Extension Test. So we have given them yoga as a stretching intervention for twelve weeks to see the effect on flexibility after completion of twelve weeks. all participants improved flexibility score and it was statistically significant.

Keywords: hamstring flexibility, recreational footballers. active knee extension test, sit and reach test

Introduction

Practicing yoga is associated with many positive effects in various aspects of physical performance and well-being. In addition to these, there may be direct benefits to improve the athletic performance [1]. There is clear evidence and a better knowledge of its impact on movements and other performance. yoga may be an important component of training regime with those of traditional exercises.

From a performance standpoint, yoga has been reported to enhance muscle torque, increase in handgrip strength, decrease low back pain, delay the onset of muscle soreness following strenuous activity, increase flexibility and balance as well as improved cardiovascular performance. The impact of yoga has also been connected to improvements in mental health. Such positive influences include reductions in anxiety, [2] depression reduction

The yoga differs from specific types of training because of its multifaceted requirements that challenge the body in varied ways. When it is done properly, footballers can optimize the body functioning by maximizing the movement affordances and minimizing the movement constraints. The physical practice of yoga, consists of maintaining regular and steady breathing while changing the positioning of the body through a series of Asanas during which all the targeted and supporting muscle groups are under tension. Connecting breathing mechanics to an engaged musculoskeletal system while performing the poses provides a holistic challenge to the whole body. During these movements, the timing and duration of each breath are regulated to coincide with the duration of each pose as well as with the initiation of transitions between each pose.

This more optimal performance occurs as flexibility increases and muscle tension reduces thereby producing a greater stretching effect on the surrounding connective tissue to ultimately it loosens thus, reducing the load placed on the ligaments and joints. In contrast, yoga is an activity that can simultaneously enhance several specific components of fitness. For instance, practice of yoga in

some duration, joints comprising movement in their kinetic chains may be optimized through increased alignment, increased range of motion, and a greater muscle fibers recruitment. In this way, new movement options become possible as connective tissues become laxer, muscles become more active, and joints move more freely. As such, practicing yoga may have a uniquely positive and varied impact on athletic performance and improve the general flexibility of body.

Aim and objective

Aim

- To see the effect of yoga and Surya namaskar on body flexibility in recreational footballers.

Objectives

- To measure effect of yoga and Surya namaskar on body flexibility in recreational footballers by using Active Knee Extension Test
- To measure effect of yoga and Surya namaskar on body flexibility in recreational footballers by using Sit and Reach test

Materials and methodology

Study design

An experimental study conducted on 30 participants, from colleges, and football academy Pune with an age group of 18 to 25 years both male and female were included.

Inclusive criteria

- Age group of 18-25 years
- Football players.
- Both Male and Female
- Football players who are willing to participate.

Exclusion criteria

- Football players with any musculoskeletal injuries.
- Those who going for regular yoga practice.
- Smokers and alcoholics

Outcome measures

- Active knee extension test. (r =0.71)
- Sit and reach test. (r =.98)

Study Procedure

Before the Yoga session starts All the subjects were informed about the objective and protocol of the study. Study was conducted at Tilak Maharashtra Vidhyapith campus and ground. and football academy Pune. Convenient sampling method was used. 30 recreational footballers between the age group 18- 25 years, both male and female, The demographic data was obtained also knee extension test and sit and reach test explained to the patient to assess the flexibility of the hamstring muscle. the basic reading was taken by active knee extension test. And sit and reach test

Details of yoga practice and training protocol

The participants was made to perform Yoga asanas for the duration of twelve weeks for 5 days in a week. Each yoga session started at morning time 7am to 8 am, 5-10 minutes of warm up focused on slow dynamic muscle movements with shoulder/arm circling, wrist circling and neck rolling. This was followed by 40 to 45 minutes of asanas consisting of various poses and Surya namaskar 3 repetition each lastly 5 mins pranayama and savasana for cool down.

1. Pranayama
2. Sun salutations (Surya Namaskar all 12 steps)
3. Paschimotanasana
4. Yogmudra
5. Padmasana
6. Setubandasana
7. Sarvangasana
8. Dhanurasana
9. Parvatasana (Mountain pose)
10. Virbhadasana (Worrier pose)
11. Trikonasana (Triangle Pose)
12. Tada asana
13. Savasana

1. Active knee extension test (AKE)

The test was performed using an experimental apparatus designed specifically for the assessment of hamstrings flexibility. Rectangular Wooden Frame that attaches to the examination table. Participants were instructed to lie down supine on the table, facing the wooden frame. Tested limb was flexed until the thigh touched the wooden frame, being at 90 degrees

with the table. The contralateral limb was fully extended and stabilized in neutral rotation by a second examiner. With the foot at neutral position and knee flexed at 90 degrees, a standard universal goniometer was placed over the lateral femoral condyle, with one arm aligned along the thigh in the direction to the greater trochanter, and the other arm aligned over the e.g. in direction to the lateral malleolus.-From this position, and without any prior warm-up, subjects were instructed to extend the knee until they felt a string resistance, holding this final position for 2-3 seconds, allowing the goniometric readings. The result recorded corresponded to the amplitude, in degrees, of the knee extension movement, starting from initial test position (knee flexed at 90 degrees which corresponded to the goniometric 0 degrees). After the goniometric readings, the tested leg resumed to the resting position for one minute, after which the same procedures were executed for the second trial.

2. Sit And Reach Test

The test was administered using a specially constructed box that had a slide ruler attached to the top. The height of box was 33 cm. The box was placed on raised platform against the wall (wooden box), leaving enough room for the participants to sit opposite the box with leg straight in front of him or her and bare foot against the box. keeping the knees locked, the participants reached for the slide, smoothly pushed it as far away as possible, then held the position for 2 seconds. The score was the shift of slide in centimeters. After one practice trial, the best score of three trial was recorded.

Higher score indicated better performance

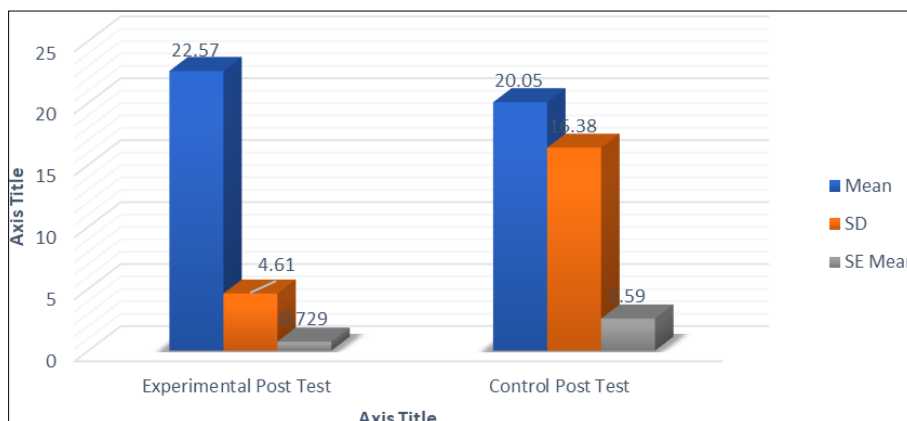
A reach distance of 22.5 cm (approximately 8.86 inches) corresponded with the position of feet against the box. At the end of session data was collected.

Results

Table 1: Shows pre-test and post test performance of flexibility group experimental and control group

Groups		Mean	SD	SE Mean	DM	SE Mean difference	't' ratio
Experimental group	Pre test	20.65	4.01	0.634	1.93	0.461	4.17*
	Post test	22.57	4.61	0.729			
Control group	Pre test	19.35	3.27	.517	700	2.48	.283
	Post test	20.05	16.38	2.59			

*Significant level is 0.05 where t.05 (39) is equal to 2.042



Graph 1: shows comparison of Post Test Performance of flexibility Group Experimental and control group

The mean difference was calculated as. 700 and standard error of difference was 2.48, t 'paired obtained value and tabulated values were. 283 and 2.042 respectively and obtained value is on lower side which is not significant at CI of 0.05 and 39 df.

Discussion

Practicing yoga has been associated with many positive outcomes in various aspects of physical performance and well-being. The positive health outcomes that have been observed include a decrease in body mass index, as well as an improvement in pulmonary function. regular practice of yoga has been reported to enhance muscle torque, increase in handgrip strength, increase flexibility and balance as well as improved cardiovascular performance. The impact of yoga has also been linked to improvements in mental health. Such positive influences include reductions in anxiety, depression reduction, enhanced the state of relaxation, and enhanced motivation.

From a performance standpoint, yoga has been reported to enhance muscle torque, increase in handgrip strength, decrease low back pain, delay the onset of muscle soreness following strenuous activity, increase flexibility and balance as well as improved cardiovascular performance. The impact of yoga has also been connected to improvements in mental health. Such positive influences include reductions in anxiety, depression reduction Selected yoga asanas included as a flexibility exercises and balance as part of their regular warm up routine, strength training. yoga is known to enhance the range of motion of joint systems in comparison to control group all the athletes participated in stretching exercises as part of their warm ups, we expected that both groups would improve in flexibility tests.

Sport is a multi-dimensional endeavor, athletes may consider taking part in activities that optimize the specific dimensions of fitness as well as the aspects of the multiple dimension of performance We can explain for the improvement in flexibility may be found from changes in whole body measures. In this view, the specialized sports training associated with the loss of flexibility and balance. In contrast, taking part in an additional activity that emphasized multiple components of fitness may explain the enhanced flexibility.

Our findings suggest that the practice of yoga as part of traditional training methods enhances the components of fitness that are the essential components of sports performance. Thus, the practice of yoga may provide an additional training option to enhance performance. Future studies in this area should explore the impact of yoga training on specific tasks or compare group athletes from the same sport. In this way, it may be possible to demonstrate the impact of yoga on sports performance. Our results indicate for the when added to the traditional flexibility exercises, yoga training significantly enhances the measures of flexibility. Results indicate that may have important implications for sports training.

Material and Methods

Experimental study conducted with 30 participants between 18-25 years of age both male and female were selected from college and football academy

Results

Data was analyzed for effect of yoga on flexibility by tests of college going students

Conclusion

Practice of yoga may provide an additional effect to enhance flexibility in recreational footballers. When Yoga sessions added with the traditional flexibility exercises, can improve the results and indicate that may have important implications for sports training.

Future Implications

Future studies in this area should explore the impact of yoga training on specific tasks or compare group athletes from the same sportay.

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