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IMPACT OF SELECTED YOGIC PRACTICES ON MUSCULAR STRENGTH, MUSCULAR ENDURANCE, FLEXIBILITY AND AGILITY OF FEMALE KHO-KHO PLAYERS

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ABSTRACT The aim of the present study was to investigate the effect of yoga training on muscular strength, muscular endurance, flexibility and agility of female kho-kho players. For this purpose, a sample of forty (N=40) female kho-kho players of age ranging from 14 to 17 years were selected from Laxmi Narayan Inter College, Meja, Prayagraj. Further, the subjects were purposively divided in two groups. First group, designated as experimental group (N1=20) and the second one as control group (N2=20). All the participants were informed about the objectives and methodology of this study and they volunteered to participate in this experimental study. The study was restricted to the variables: muscular strength, muscular endurance, flexibility and agility. The same were measured by using Flexed Arms Hang Test, Sit-Ups Test, Sit and Reach Test and Shuttle Run Test respectively. Experimental group have undergone yoga training for 6 week by following a sequence of selected yogic asanas. Paired sample t-test was applied to study the effects of yoga training on female kho-kho players. The level of significance was set at 0.05. Results revealed significant differences between pre and post-tests of experimental group in respect to Muscular strength (t-6.946*), Muscular endurance (t-9.863*), Flexibility (t-11.052*) and Agility (t-14.068*). However, insignificant differences were observed between pre and post-tests of control group.

KEYWORDS : Yoga, Muscular Strength, Muscular Endurance, Flexibility, Agility.

INTRODUCTION:

Today, Global recognition of Yoga virtually attracts the attention of intellectuals of varied fields including sports. Worldwide, there seems a considerable rise in scientific research in the field of Yoga. Yoga is a science as well as an art of healthy living physically, mentally, morally and spiritually. It is not limited by race, age, sex, religion, cast or creed and can be practiced by those who want to have a more meaningful life. Yoga is about developing harmony between mind and body. The purposes of the asanas are to condition the body, which ultimately increase strength, flexibility and endurance. Mobility is defined as the ability to move body structures or parts of the body through the existing range of motion for a functional activity (Kisner C. & Colby L. A., 2007). Improved flexibility is one of the most obvious and quickly achieved effects of regular yoga practice, since this is based on gradual stretching of muscle and connective tissue around bones and joint (Woodyard C, 2011), static retention of yoga poses and movements of joints throughout the entire existing range of motion (McCall, 2007).More sothese Yoga postures are argued to stimulate body organs, promoting digestion, improving circulation and nervous system functioning (Iyengar, 2005). Asanas are performed standing, sitting, reclining or inverted and may involve forward bending, backward bending, and twisting of the trunk. It has been argued that holding these poses for a prolonged period of time (about 30 seconds or more for each pose) along with controlled breathing may be one of the most important aspects of Yoga exercise. Several proposed mechanisms have been offered to explain the neuromuscular benefits of yoga. One idea is that the repetitive stretching and force resistance movements of yoga postures increases the contraction ability and size of muscles as well as range of motion of various joints. This has been supported through evidence of increased muscle size, strength and endurance (Brochu, 2002). The present research was conducted to fetch out the effects of 6 week Yoga training on muscular strength, muscular endurance, flexibility and agility on female hockey players.

MATERIALAND METHODS:

The study was conducted on a sample of forty (N=40) female kho-kho players of age ranging from 14 to 17 years, randomly selected from Laxmi Narayan Inter College, Meja, Prayagraj. Further, the subjects were purposively divided into two groups. First group, designated as experimental group (N1=20) and the second one as control group (N2=20). All the participants were informed about the objectives and methodology of this study and they volunteered to participate in this experimental study.

Methodology:

The study was restricted to the variables: muscular strength, muscular endurance,flexibility and agility. Experimental group have undergone yoga training for 6 week by following a sequence of selected yogic asanas i.e. Sarvangasana, Chakra-asana, Trikonasana, Halasana, Bhujangasana, Dhanurasana, Ustrasana, Gomukhasana, Paschi motanasana and Ardha- Matsyendrasana. The experimental group was given Yoga training of one and half hour morning session daily (excluding Sunday) for a period of 6 weekks and no such training was given to control group. Both the groups were take part in the pre-training and post-training measurements test for the study. Muscular strength was assessed with the help of Flexed Arms Hang Test,Sit-up test was used to assess the muscular endurance, Sit and reach test was employed to measure the flexibility while Shuttle run test was administered to assess the agility.

Statistical Analysis:

The paired samples "t"-test was employed to find out the significance of differences between Experimental and control groups. The level of significance was set at 0.05. The data relates to variables of the study was analyzed with the help of SPSS (Statistical Package for Social Science) statistical software.

RESULTS:

For the variables, the statistical analysis reveal significance differences between the pre-test and post-test of experimental group regarding Muscular Strength, Muscular Endurance, Flexibility and Agility. However, insignificant differences were seen in control group.

Table 1:

Mean values (± SD) of pre and post test of 6 week yoga training of female kho – kho players of experimental and control groups.

Variables	Experimental Group (N1 = 20)		't' ratio	Control Group (N2 = 20)		't' ratio
	Pre-test Mean(± SD)	Post-test Mean(± SD)		Pre-test Mean (±SD)	Post-test Mean(± SD)	
Muscular Strength	29.8 (4.12)	33.7 (4.32)	6.946	27.45 (4.31)	27.95 (5.87)	0.74 1
Muscular Endurance	38.8 (5.39)	42.75 (5.55)	9.863	36.35 (2.68)	36.95 (4.87)	0.89 0
Flexibility	8.85 (1.81)	10.35 (1.72)	11.052	8.05 (1.43)	8.2 (1.44)	0.61 6
Agility	13.58(0. 76)	13.19 (0.8)	14.068	13.75 (0.68)	13.72 (0.95)	0.19 3

(*) Significant at 0.05 levels Tabulated t = 2.093

Table 1 exhibited the Mean Values (± SD) of pre and post-test of 6 weeks yoga training of female kho-kho players of Experimental and Control Groups in respect to muscular strength, muscular endurance, flexibility and agility. The table shows that the mean of muscular strength of pre and post-tests of experimental group was 29.8 and 33.7 respectively, whereas the mean of muscular strength of pre and post-tests of control group was 27.45 and 27.95. The muscular endurance of pre and post-tests of experimental group was 38.8 and 42.75 respectively, whereas the mean of muscular strength of pre and post-tests of control group was 36.35 and 36.95.The flexibility of pre and post-tests of experimental group was 8.85 and 10.35 respectively,

whereas the mean of muscular strength of pre and post-tests of control group was 8.05and 8.2. The agility of pre and post-tests of experimental group was 13.58 and 13.19 respectively, whereas the mean of muscular strength of pre and post-tests of control group was 13.75and 13.72. The critical value of t at 95% probability level in experimental group is much lower (2.093) than the observed values of t with regards to muscular strength (6.946*), muscular endurance (9.863*), flexibility (11.052*) and agility (14.068*). The data does suggest that the differences between pre and post-tests of experimental group with regard to muscular strength, muscular endurance, flexibility and agility are found statistically significant. Whereas critical value of t at 95% probability level in control group is much higher (2.093) than the observed values of t with regards to muscular strength (0.741), muscular endurance (0.89), flexibility (0.616) and agility (0.193). The data does suggest that the differences between pre and post-tests of control group with regard to muscular strength, muscular endurance, flexibility and agility are insignificant.

DISCUSSION:

The present study was structured to find out the effects of 6 week yoga training on female kho-kho players of experimental and control groups with regard to muscular strength, muscular endurance, flexibility and agility. Results revealed significant differences between pre and post-tests of experimental group in respect to Muscular strength (t-6.946*), Muscular endurance (t-9.863*), Flexibility (t-11.052*) and Agility (t-14.068*). However, in case of control group, insignificant differences were observed between pre and post-tests. The findings of present study are in line with the study of Singh, A. et al. (2011), they concluded that yoga asana training improve agility and muscular strength. The result with regard to flexibility is also in line with the result of Volga Hovsepian et al. (2013) as they observed that yoga and aerobic training significantly improved flexibility; Maja Petric et al.(2014) also favour this result as he found that regular practice of yoga has a significant effect on body flexibility in young healthy women. The results of present study are partially in line with the study of Shubhangi Damle(2012) as she concluded that yogic exercises and breathing exercises improve flexibility, agility, strength, concentration, lung capacity and speed. Munoru Pauline and Elijah Gitonga Rintaugu (2011) also concluded that yoga training increase strength and flexibility of females from South West London. Results are also in line with the study of Ezhilarasi and Amsa natarajan(2014) as they concluded that yogic practices group is significantly better than the control group in improving the muscular strength among college women basketball players.

CONCLUSION:

It is concluded that 6 week of yoga training can significantly improve muscular strength, muscular endurance, flexibility and agility among female kho-kho players, which ultimately enhances their level of sports performance. Now a day it has been observed that yoga can play a pivotal role in all spheres of life including sports.

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