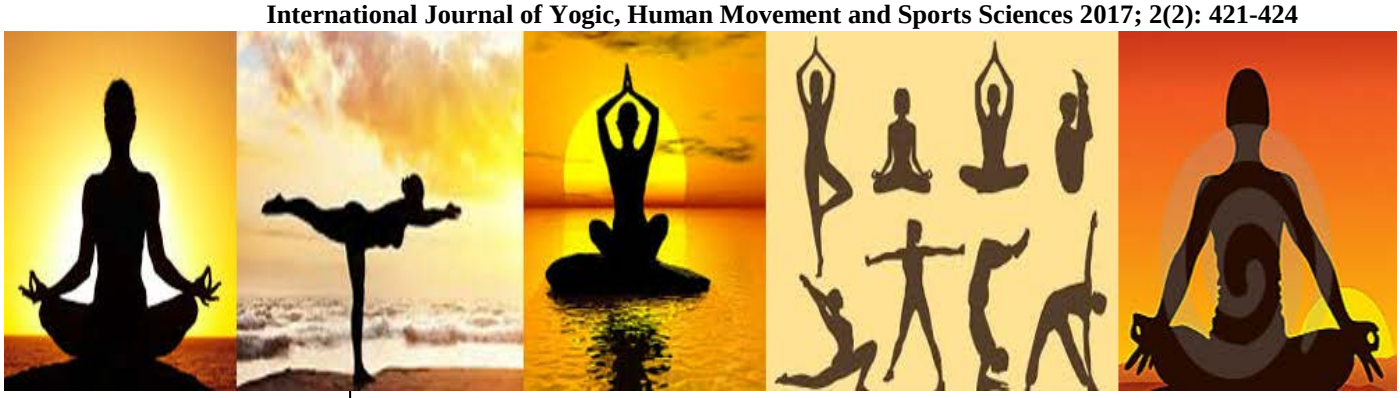
International Journal of Yogic, Human Movement and Sports Sciences 2017; 2(2): 421-424



ISSN: 2456-4419
Impact Factor: (RJIF): 5.18
Yoga 2017; 2(2): 421-424

www.theyogicjournal.com
Received: 21-05-2017
Accepted: 25-06-2017

Dr. Karuna Sana
Assistant Professor, State Institute of Physical Education for Women, Hastings House, Alipore, Kolkata, West Bengal, India

Amita Barman
Student, State Institute of Physical Education for Women, Hastings House, Alipore, Kolkata, West Bengal, India

Correspondence
Dr. Karuna Sana
Assistant Professor, State Institute of Physical Education for Women, Hastings House, Alipore, Kolkata, West Bengal, India

A study on selected physical fitness components of Kho-Kho players, kabaddi players, physical education trainee students and untrained females

Dr. Karuna Sana and Amita Barman

Abstract
Purpose of the present study was to find out the influence of varied type of physical activity on selected fitness components. For conducting the study total 100 female subjects [25 untrained female, 25 students of Physical education, 25 state level kho-kho player and 25state level kabaddi players] of 22 to 25 years were selected from Alipore Hastings college, and kho-kho and kabaddi players were selected from different district of West Bengal, India, randomly. Criterion measured for conducting the study were back and hamstring flexibility, lag explosive strength, abdominal muscular strength endurance and cardio-vascular endurance of physical fitness. Mean and standard deviation were used as descriptive statistics. ANOVA and "t" test were used to compare the groups in selected physical fitness variables. It was found that Kho-Kho players were better in back and hamstring flexibility and abdominal muscle strength endurance, where Kabaddi players showed better performance in leg explosive strength. Physical Education students were better in cardio-vascular endurance, but untrained females were worse performer in all the selected physical fitness components. There were significant differences on selected physical fitness components between the untrained female students and with all the three selected groups. There were significant differences between kho-kho and kabaddi players in back and hamstring flexibility, and cardio-vascular endurance. There was significant difference between kho-kho players and Physical Education students in abdominal muscular strength endurance. There was significant difference in abdominal muscular strength endurance between kabaddi players and Physical education students. So it can be concluded that regular participation in different type of training or physical activity programme helps to improve and/ or to maintain different type of fitness components.

Keywords: kho-kho, kabaddi, physical education, fitness

Introduction
Kho- kho is an indigenous game of India. Kho-Kho game is based on principles of physical development like developing self defence, attack and reflexes of counter attack. Speed is the most essential part and the relentless pursuit in the turn demands stoutness, stamina and strength. Kho-Kho is such a game which requires maximum agility and a high degree of presence of mind on the part of both chasers and defenders. The game demands muscular coordination, lung power, quick reflexes, intelligence [1]. Kabaddi is also an Indigenous game of India. It requires power and skill. It was originally meant to develop self defence, in addition to develop responses to attack and reflex of counter attack [2]. Kabaddi is a body contact game and the intensity and aggression run very high amongst the player [3] and it also requires both skill and power [4]. On the other hand Physical Education is the education through physical activity. In Physical Education curriculum body sports, rhythmic and gymnastics activities, yoga asana etc. conducted according to social and hygienic standards [5]. Physical Education students are the regular participants of varied type of planned physical activity. But the general education students have no any option of regular participation in planned physical exercises and they are almost busy in their reading and writing activity. So, the investigator wants to find out any differences if exist in various components of physical fitness among the females of different disciplines and it was also wants to know that regular participation in different type of training or physical activity programme can helps to improve and/ or to maintain different type of fitness components?

Methodology

Total 100 females (25 untrained students, 25 Physical Education trainee students, 25state level Kho-kho players and 25 state level kabaddi players) were selected randomly from different district of West Bengal, India. Their age ranged from 22 to 25 years who were involved in regular practice for their respective games of Kabaddi and Kho-Kho and the students of physical Education were the regular participant of their planned physical activity.

Criterion measured for conducting this study were-

a. Back and hamstring flexibility: by one minute sit and reach test
b. Leg Explosive Strength: by Standing Broad Jump
c. Abdominal Strength endurance: by sit- up test
d. Cardio-Vascular Endurance: 12min. Run/Walk Test

For the purpose of the analyses, the employed statistical procedures were mean; SD, AOVA and "t" test, to observe the differences among the mean of selected physical fitness variables. The level of significant was set at 0.05 level of confidence.

Result and Discussion

Table 1: Mean and standard deviation(SD) of personal data (age, height and body weight) of selected four groups

Groups	Age(year)		Standing height (meter)		Body weight(kg)	
	Mean	SD	Mean	SD	Mean	SD
Untrained female	23.68	±3.997	1.545	±0.04866	47.50	±6.334
Physical education trainee	23.92	±0.7024	1.541	±0.04406	46.82	±6.220
Kho-kho players	23.44	±2.083	1.543	±0.04347	49.32	±6.395
Kabaddi Players	22.90	±2.269	1.559	±0.02972	51.20	±4.360

Table 2: Mean, Standard Deviation and "F" values of selected fitness variables among the four groups

Groups	Leg explosive strength (m)		Back and hamstring flexibility (cm)		Abdominal muscular strength endurance (no.)		Cardio-vascular endurance (m)	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Untrained female	1.070	±0.18	1.200	±2.84	12.00	±3.94	1523	±279.4
Physical education trainee	1.788	±0.23	6.772	±1.75	26.33	±7.44	1921	±214.4
Kho-kho players	1.944	±0.15	7.390	±1.03	34.28	±5.53	1882	±130.4
Kabaddi Players	2.091	±0.34	5.930	±0.95	33.76	±3.83	1678	±72.56
F values	91.69* $P<0.05$		60.52* $P<0.05$		91.88* $P<0.05$		23.58* $P<0.05$	

*= Significant at 0.05 level of confidence

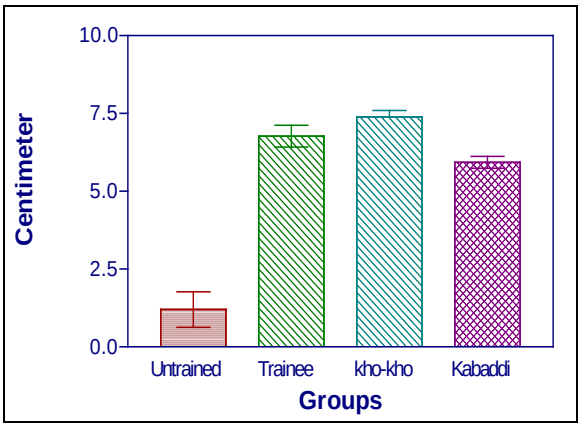


Fig 1: graphical representation of mean and standard error of flexibility of four groups

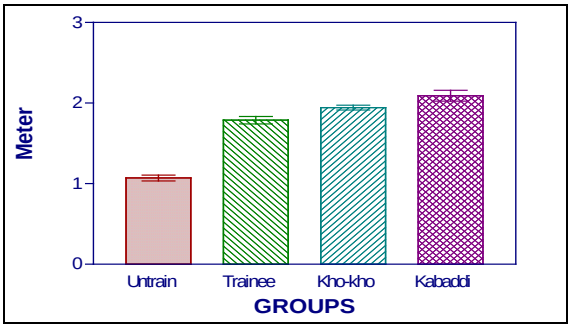


Fig 2: graphical representation of mean and standard error of leg explosive strength of four groups

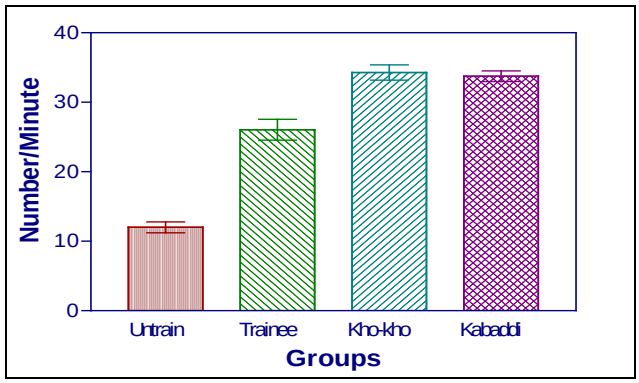


Fig 3: graphical representation of mean and standard error of abdominal muscular strength endurance of selected four groups

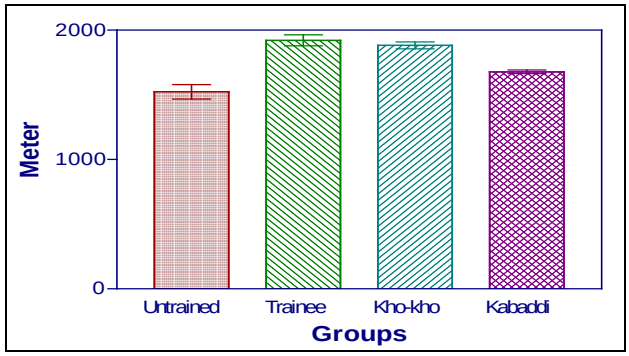


Fig 4: graphical representation of mean and standard error of cardio-vascular endurance of selected four gorups

Back and Hamstring flexibility Flexibility: Kho-kho players (7.39 cm)>Physical education trainee (6.77 cm)>Kabaddi Players (5.93 cm)>Untrained female (1.20cm)

Leg explosive strength: Kabaddi Players (2.09m)> Kho-kho players (1.94m)>Physical education trainee (1.79m)> Untrained female (1.07m)

Abdominal muscular strength endurance: Kho-kho players (34.28)> Kabaddi Players (33.76)> Physical education trainee (26.33)>Untrained female (12.00)

Cardio –Vascular endurance: Physical education trainee (1921m)> Kho-kho players (1882m)> Kabaddi Players (1678m)>Untrained female (1523m)
Physical Education trainee: 2+3+3+1= 9/16
Kho-kho players: 1+2+1+2= 6/16
Kabaddi Players: 3+1+2+3= 9/16
Untrained female: 4+4+4+4= 16/16

Table2 showed the mean, standard deviation and "F" values of selected fitness component. From table 2 it was found that there were significant differences on back & hamstring flexibility, leg explosive strength, abdominal strength endurance and in cardio-vascular endurance among selected four groups. From table 2 it was also found that kho-Kho female players were most better than other females groups on back and hamstring flexibility and in abdominal muscular strength endurance where the Kabaddi female players were better than others three groups in leg explosive strength and physical education trainee students were better in cardio vascular endurance but untrained females were worse and get last rank in all the selected fitness components.

Table 3: "t" Values of selected fitness variables

Groups	Leg explosive strength	Back and hamstring flexibility	Abdominal muscular strength endurnce	Cardio-vascular endurance
Untrained female vs Physical education trainee	10.75* P < 0.05	10.90* P < 0.05	9.161* P < 0.05	7.359* P < 0.05
Untrained female vs Kho-kho players	13.07* P < 0.05	12.10* P < 0.05	14.54 * P < 0.05	6.640* P < 0.05
Untrained female vs Kabaddi Players	15.27 * P < 0.05	9.248 * P < 0.05	14.20 * P < 0.05	2.861 * P < 0.05
Physical education trainee vs Kho-kho players	2.322 P > 0.05	1.209 P > 0.05	5.377 * P < 0.05	0.7187 P > 0.05
Physical education trainee vs kabaddi players	4.524* P < 0.05	1.647 P > 0.05	5.037* P < 0.05	4.497 * P < 0.05
Kabaddi Players vs Kho-kho players	2.202 P > 0.05	2.856* P < 0.05	0.3393 P > 0.05	3.779 * P < 0.05

Table 3 showed the "t" values of selected fitness components. From table 3 it was found that there were significant differences in back and hamstring flexibility between the groups of untrained females and all other selected groups and between kho-kho and kabaddi female players.
There were also significant differences between the untrained females and all other selected three groups on leg explosive strength. In leg explosive strength there was also significant difference between physical education female students and female kabaddi players.
In case of abdominal muscle strength endurance, there were also significant differences between the untrained females and all other selected three groups and among the three active female groups there were significant differences between the group of physical education students and kho-kho players and between the physical education students and kabaddi players.
Among the three active female groups there were significant differences in cardio vascular endurance between the groups of Physical education trainee & kabaddi players and between Kabaddi Players & Kho-kho players. There were also significant differences in cardio-vascular endurance between the groups of untrained female and all other selected three groups.
Yogesh Kumar Singh *et al*. (2017) [6], found that there were no significant differences in flexibility and cardio vascular endurance between the Kho-kho and Kabaddi players. They also found that kho-kho players were better in flexibility and cardio vascular endurance than kabaddi players. Present study also revealed the same scenario of previous study. In case of leg explosive strength, Yogesh Kumar Singh *et al*. (2017) [6], found that the kabaddi players were better performer than kho-kho players though there was no significant difference between kho-kho and kabaddi players. Presnt study revealed that there was significant difference in leg explosive strength between kho-kho and kabaddi players and kabaddi players were better than kho-kho players [6]. Subhra Basak and Suparna Dutta (2016), [7] found that explosive strength, flexibility, agility, balance and muscular endurance is better in training college students than the general college students. Harrare [1986] [8] supported that the successful participation in any game is directly related to physical fitness [8]. Helga reported that physical fitness improves in those who take regular physical exercises. Regular participation in games significantly contributes to higher level of performance and greater degree of physical fitness amongst the players [9].
Present study also showed the same result in back and hamstring flexibility, leg explosive strength, and abdominal muscular strength endurance and in cardio-vascular endurance between the female untrained and with all other females of three selected groups. They also found that training college students are significantly more fit than the general college students. Present study also revealed that training of kho-kho, kabaddi and Physical Education have positive influence in remaining and maintaining physical fitness.

Discussion

It was found that endurance training becomes effective only when the sportsperson gets tired to a significant extent. The longer and frequently a sportsperson trains under extreme condition of fatigue the more improvement of endurance takes place. Physical Education is an inter- disciplinary subject. During the course different types of games and sports are learned by the students. Students of Physical Education also participate regularly in conditioning programme for morning and evening session for a long period and then they participate in different types of games and sports through the whole year. It may be the reason that improves the cardio-vascular endurance more than the other three selected groups.
Explosive strength is a combination of strength and speed abilities [10]. It is a highly specific motor ability. Explosive strength is highly movement specific. It is mainly developed through special and competition exercises because it is always coupled with the specific load and movement structure of an exercise or motor action [10]. For plying kabaddi athletes require strong leg muscle to give punch to the opponent players [11]. Kabaddi is a game of self defence, attack as well

as survival. Here, strength and speed play a vital role because kabaddi is a body contact power sports [12]. Here, various techniques of attack and defence is played very quickly and strongly. For that reason explosive strength is developed by playing kabaddi more in respect to other three selected groups.

Flexibility enables the muscles to develop more force and speed. Greater flexibility always allows the limbs for smooth and easy movements. During the time of playing kho-kho, specially during chasing varied types of skills are used for good performance that requires greater range of movement of a special posture greater speed and force that may help to improve the back and hamstring flexibility more than the other three selected groups.

In all sports movements, whether it is fast or slow, movements have to be done under lesser or higher conditions of fatigue. Even for sprints some amount of strength endurance is required in the last phage or in heats. In kho-kho, Kabaddi and also during the physical Education programme different types of movement like different type of jump, pull-up, push-up etc. should be done for certain time that can helps to improve the abdominal muscle strength endurance.

Conclusions

1. In overall ranking kho-kho players were better than other selected three groups and untrained group showed worse performance in selected physical fitness components.
2. In case of back and hamstring flexibility and abdominal muscular strength endurance Kho-Kho players showed better performance.
3. Kabaddi players were better in leg explosive strength where the Physical education trainee students showed better performance in cardio-vascular endurance.

Lastly it can be concluded that regular participation in different type of training or physical activity programme helps to improve and/ or to maintain different type of fitness components.

References

1. Ghosh Dastidar HS. The Excellent Game Kho-Kho Himanshu Sekhar. Swapna Publication, Kolkata. 2010; 5-7.
2. Natrajon HV, Chandra Kumar. Selected motor ability variable and kabaddi performance. 2006; 129(1):12.
3. Kumar Y. A comparative study on international Kabaddi players. Edn 1, LAP LAMBERT Academic Publishing, Deutschland/Germany, 2015. ISBN: 978-3-659-63303-4
4. Devaraju K, Needhiraja A. Prediction of Kabaddi Playing Ability from Elected Anthropometrical and Physical Variables among College Level Players. International Journal of Advanced Research In Engineering And Technology. 2012; 3(1):115-120.
5. Bookwalter, Karl W. Physical Education in Secondary Schools" The Centre for Applied Research in Education, Inc., New York, 1962.
6. Singh, Yogsh K, *et al*. Comparative study on selected physical fitness abilities between kabaddi and kho-kho players. International Journal of Physical Education and Sports. 2017; 2(8):13-18. ISSN- 2456-2963.
7. Basak S, Dutta S. A Comparative Study of Physical Fitness Parameters Between General Collage Students and Training College Students. International journal of Experimental Research and Review. 2016; 4:26-30. ISSN: 2455-4855.
8. Harrare D. Principles of Sports Training, 1986.
9. Jaiswal A. Anthropometric and Somatotyping Study among the Female Kho-KhoPlayers of Pondicherry: A Comparative Analysis. Journal of Global Economics. 1986, 2014, 2:4.
10. Singh H. Science of Sports Training. New Delhi: D.V.S. Publication, 1991.
11. Jadhav KM. Role of Yoga in Kabaddi Sport. Golden Research Thoughts. 2011; 1(2).
12. Mishra CS. Teach Yourself KABADDI, Sports Publication, New Delhi. 2010, 1-3. ISBN- 978-7879-461-7.