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Morphological, Cardiovascular and Hematological Characteristics of Kabaddi and Kho-Kho Players

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Abstract

The primary aim of the study was to assess the Blood pressure (Cardiovascular), Hemoglobin and Red Blood Cells of Kabaddi and Kho-Kho players. Total 40 Kabaddi and 40 Kho-Kho Players were selected as sample size of the study.The study depends mainly on primary source of data. The data was collected from Kabaddi and Kho-Kho players in Agriculture University Parbhani during Ashamedha Tournament from 25 November to 30 November 2013. The result of the study shows that kabaddi players were younger than Kho-Kho Players, whereas, Kho-Kho players were more obese and tallest to their counterparts. Kho-Kho players spend more times in training as compared to Kabaddi played, Furthmore, Kho-Kho Players were playing more competition in year as camper to their counterparts. Further the result of the study shows that insignificant difference were found in blood pressure, hemoglobin and Red Blood Cells of in Kabaddi and Kho-Kho Players

Introduction

The Study of morphological, Cardiovascular (Blood Pressure)and hematological characteristics of sports participants is one of the most popular areas in sports related research. The game of Kabaddi and Kho-Kho are simple in nature, easy to organise, less expensive. Hence they reach to common men. Both games can be played in a small area and practically less equipment is required. Kabaddi is most aggressive and heavy contact game, but Kho-Kho is a semi contact game. Both games differ from each other in their nature, skill, techniques and strategies etc.Hemoglobin is a protein in the red blood cells that carries oxygen and gives blood its red color. The normal range for hemoglobin may differ between the sexes and is approximately 13 to 18 grams per deciliter for men and 12 to 16 grams per deciliter for women. Red cell count signifies the number of red blood cells in a volume of blood. The normal range in men is approximately 4.7 to 6.1 millioncells/ul (microliter).The normal range in women range from 4.2 to 5.4 million cells/ul, according to NIH (National Institutes of Health.The blood pressure is the pressure of the blood within the arteries. It is produced primarily by the contraction of the heart muscle.The normal range of Systolic blood pressure is 120-139 mm hg and the normal range of diastolic blood pressure is 80-89 mm Hg.Sports performance strongly depends on the oxygen transportation capacity to supply exercising muscles. This capacity is associated with the erythrocyte values, which may thus be regularly assessed throughout the sports season (Fallon, 2004.) to allow trainers and medical staff members to collect useful fitness and health related information on players. In a sportsman practicing an intense long duration activity, water losses are ac- companied by a decrease in iron store. In case this situation persists, it may lead to anaemia, as the sport considered requires important energy expenditure. More than one quarter of the male and the three quarters of the female long distance race specialists would be affected by iron deficiency (Clement &Sawchuck, 1984).The major function of Red Blood cells is to transport haemoglobin, which in turn carries oxygen from the lungs to the

tissue, so that the red blood cells are responsible for most of the buffering power of whole blood. Haemoglobin concentration is an important diagnosis indicator for the well-being of sports person.

Methods

The present study was undertaken with a view to "study and compare theMorphologicalcardiovascular, haemoglobin and red blood cells of Kabaddi and Kho-Kho. Total 40 Kabaddi and Kho-Kho Players were selected as sample size of the study.The study depends mainly on primary source of data. The data was collected from Kabaddi and Kho-Kho players in Agriculture University Parbhani during Ashamedha Tournament from 25 November to 30 November 2013.In collecting the data, the researcher follow to ethical guidelines, principles, and standards for studies conducted with human beings. The participant was agreeing to participate in the study,The participants were not rotating through other health facility at the time of study and finally Participants free from the smoking, drug abuse and alcohol consumptions during the experimental period.

Measurement of Haemoglobin, red blood and Blood pressure

For measuring haemoglobin and red blood cells the blood sample taken from a vein. This procedure takes only a few minutes.Caregivers put a wide rubber strap around arm and tighten it. Skin was be cleaned with alcohol. A small needle attached to a special test tube was put into a vein in arm or hand. The tube has suction to pull the blood into it. When the tube is full, the rubber strap, needle and tube are removed.The caregiver pressed a piece of cotton where the needle was removed. The subject wasasked to hold the cotton on the area for a few minutes to help stop the bleeding. Tape may then be put over the cotton on the arm.The blood collection took from the help of technician. Electronic Blood pressure machine was used to measure the blood pleasure of players.Still tape, weighing machine, and demographic sheet were used for measure the morphological characteristics .The data was checked for accuracy and completeness and was coded and putup into the SPSS Descriptive statistics for all studied variables, mean standard Deviation, and T- test were considered statistically technique throughout the study.

Range of Blood Pressure

Blood pressure chart reflects categories defined by the American Heart Association.

Blood Pressure Category	Systolic mm Hg (upper #)		Diastolic mm Hg (lower #)
Normal	less than 120	and	less than 80
Prehypertension	120 – 139	or	80 – 89
High Blood Pressure (Hypertension) Stage 1	140 – 159	or	90 – 99
High Blood Pressure (Hypertension) Stage 2	160 or higher	or	100 or higher
Hypertensive Crisis (Emergency care needed)	Higher than 180	or	Higher than 110

Results and discussion The results and discussion have been presented in concise and comprehensive manner that is easy to comprehend starting with selected physical parameter.

Table – 1
Mean Scores and Standard Deviations of selected components of Kabaddi and Kho-Kho Players.

Sr.No.	Components	Kho-Kho		Kabaddi	
		Mean	Standard Deviation	Mean	Standard Deviation
1)	Age (Year)	21.20	4.56	22.02	**4.34**
2)	Weight (Kg)	66.89	8.45	67.89	**8.79**
3)	Height (Cm)	170.27	14.12	170.33	**14.50**
4)	Training days (Week)	3.40	0.98	4.67	**1.02**
5)	Training duration (Hours)	2.12	.89	2.78	**0.95**
6)	**Competition in one year**	**8.90**	**2.30**	**10.34**	**2.51**

Table-1 shows that the mean scores and standard deviations of the selected components of kabaddi and Kho-Kho players.

Table-2
Mean scores and standard deviations and t-ratio of Systolic Blood pressure kabaddi and Kho-Kho players

Variable	Players	Number	Mean	S.D.	T-ratio
Systolic Blood pressure	Kabaddi	40	121.33	8.56	NS
	Kho-Kho	40	121.89	8.87	

Table – 2 Shows that Mean scores standard deviation of systolic blood pressure Kabaddi and Kho-Kho Players.

Table-3
Mean scores and standard deviations and t-ratio of Diastolic Blood pressure kabaddi and Kho-Kho players

Variable	Players	Number	Mean	S.D.	T ratio
Diastolic Blood pressure	Kabaddi	40	82.13	5.67	NS
	Kho-Kho	40	81.79	5.46	

Table – 3 Shows that Mean scores standard deviation of **Diastolic** blood pressure Kabaddi and Kho-Kho Players.

Table-4
Mean scores and standard deviations and t-ratio of Haemoglobin Kabaddi and Kho-Kho players

Variable	Players	Number	Mean	S.D.	
Haemoglobin	Kabaddi	40	13.40	2.17	NS
	Kho-Kho	40	13.51	2.19	

Table – 4 Shows that Mean scores standard deviation of **Haemoglobin** Kabaddi and Kho-Kho Players.

Table-5
Mean scores and standard deviations and t-ratio of Haemoglobin Kabaddi and Kho-Kho players

Variable	players	Number	Mean	S.D.	
Red Blood Cells	Kabaddi	40	5.30	1.30	NS
	Kho-Kho	40	5.33	1.31	

Table – 5 Shows that Mean scores standard deviation of Red Blood Cells blood pressure Kabaddi and Kho-Kho Players.

Discussion

The aim of the study is to determine the Morphological, Cardiovascular and Hematological characteristics of kabaddi and Kho-Kho players.Kabaddi is an ancient Indian sport and it has been very popular almost everywhere in India.Kabaddi is the national game of Bangladesh and also the state game of the Indian statesof TamilNadu, Maharashtra, Bihar, Andhra Pradesh, Telangana and Punjab.India is the most successful team on the world stage, having won every World Cup and stile so far.The Mean Score (S.Ds.) age of Kabaddi players were 21.20 (4.56) years, mean score (S.Ds.) weight was 66.89 (8.45) Kg., mean score (S.Ds.) height was 170.27 (14.12) cm., their training mean score (S.Ds.) was 3.40 (9.8) days, their training duration mean score (S.Ds.) was 2.12 (.89) hours and competition mean score (S.Ds.) was 8.90 (2.30) in one year. In addition, the Mean Score (S.Ds.) age of Kho-Kho players were 22.02 (4.34) years, mean score (S.Ds.) weight was 67.89 (8.79) Kg., mean score (S.Ds.) height was 170.33 (14.50) cm.,their training mean score (S.Ds.) was 4.67 (1.02) days, their training duration mean score (S.Ds.) was 2.78 (.95) hours and competition mean score (S.Ds.) was 10.34 (2.51) in one year. The mean values of systolic blood pressure Kabaddi and Kho-Kho Players were 121.33 (8.56) and 121.89 (8.87) obtained respectively which are illustrated in the Table – 2, reveals that insignificant difference of systolic blood pressure was found between Kabaddi and Kho-Kho Players. The mean values of Diastolic blood pressure Kabaddi and Kho-Kho Players were 82.13 (5.67) and 81.79 (5.46) obtained respectively which are illustrated in the Table – 38, reveals that insignificant difference of Diastolic blood pressure was found between

Kabaddi and Kho-Kho Players. the mean values of Haemoglobin of Kabaddi and Kho-Kho Players were 13.40 (2.17) and 13.51 (2.19) obtained respectively which are illustrated in the Table – 4, reveals that insignificant difference of Haemoglobin was found between Kabaddi and Kho-Kho Players. Haemoglobin concentration is an important diagnosis indicator for the well-being of an individuals.The mean values of Red Blood Cells of Kabaddi and Kho-Kho Players were 5.30 (1.30) and 5.33 (1.31) obtained respectively which are illustrated in the Table – 4, reveals that insignificant difference of Red Blood Cells was found between Kabaddi and Kho-Kho Players. The major function of Red Blood cells is to transport haemoglobin, which in turn carries oxygen from the lungs to the tissue, so that the red blood cells are responsible for most of the buffering power of whole blood. The findings of the study supported that no major differences have been reported between the players of different sports discipline in red blood cells and haemoglobin concentration. (sinku 2016, Zapico, et.al.1992).Boyadjiev,& Taralov.(2000), Clement, & Sawchuk, (1984), Douglas, (1989). Ashenden, et.al.(1999). Wilkinson, 2002).This study is significant to future work in the field of sports Science to be of great use and importance to the individuals, Psychologist, Teachers, Scientist Educationist as the same can be utilized in formulating the modalities in putting their knowledge acquired through devoted scientific investigations, analysis and interpretation of findings to use of all athletesThe results of the study would add further scholarly knowledge to the existing literature of sports sciences.

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