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THE CARDIOVASCULAR ENDURANCE OF UNDER-14 NATIONAL BADMINTON MALE AND FEMALE PLAYERS OF DIFFERENT STATES OF INDIA- A Study

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ABSTRACT: - The study assesses the variables, cardiovascular endurance of under-14 national badminton male and female players of different states of India". The study draws the comparison among the male and female Players at National Level under 14 on the aspects of cardiovascular endurance. The data pertaining to the study was collected at Under-14 National level badminton championship which was held at Jammu in October-Nov. (2015), in which the teams of maximum states of India participated like J&k, Punjab, Bihar, Rajasthan, Madhya Pradesh, Assam, Himachal Pradesh, Chandigarh, U.P, Chhattisgarh, Pondicherry, Tamil Naidu and Maharashtra. Among this the total numbers of 90 participants were taken as the subjects for the study, in which 45 were male participants and 45 were female participants. The Harvard Step Test was used to collect the data from these subjects.

KEYWORDS: - Cardiovascular endurance, Badminton, Under 14 Players.

INTRODUCTION: - Cardiovascular endurance simply means the "body's ability to continue exertion while getting energy from the aerobic system used to supply the body with energy". This is the system that kicks in third after the Phosphogen and the glycogen lactic acid system, and so the one that supplies energy to the human circulatory system and the muscles over extended periods. Cardiovascular endurance is most useful for long distance sports; for marathon training, long distance running, jogging and swimming, however it will also be useful for everyone else and a lack of it will lead to individuals becoming rapidly tired and out of breath. In a marathon, the person who comes first (while allowing for injury or general poor technique) will generally be the person with the best cardiovascular fitness.

Cardiovascular fitness refers to the ability of your heart, lungs and organs to consume, transport and utilize oxygen. The maximum volume of oxygen your body can consume and use is your VO2 Max. When you exercise regularly, you can increase your cardiovascular fitness as your heart becomes more efficient at pumping blood and oxygen to the body, and the body becomes more efficient at using that oxygen.

STATEMENT OF THE PROBLEM:

The statement of the problem was to compare, "THE CARDIOVASCULAR ENDURANCE OF Under-14 NATIONAL BADMINTON MALE AND FEMALE PLAYERS OF DIFFERENT STATES OF INDIA".

SIGNIFICANCE OF THE STUDY: - The present study will be helpful to understand the value of cardiovascular endurance for both the sexes of badminton players and is justified on the basis of following grounds:-

1. The present study would help the badminton players to check their level of cardiovascular fitness.
2. The present study would give the better concept and clear picture about the importance of cardiovascular endurance and its effect on sports performance.
3. The present study would help the badminton players to prove themselves best in the field of games and sports by means of having good degree of cardiovascular endurance.

HYPOTHESIS:

After going through the literature review and experts advice by the supervisor, It was hypothesized that, "there will be a significant difference in the cardiovascular endurance among Under-14 male and female badminton players."

METHODS AND PROCEDURE

SOURCES OF DATA

The data pertaining to the present study was collected at Under-14 National level badminton championship which was held at Jammu in October-Nov. (2015), in which the teams of maximum states of India participated like j&k, Punjab, Bihar, Rajasthan, Madhya Pradesh, Assam, Himachal Pradesh, Chandigarh, U.P, Chhattisgarh, Pondicherry, Tamil Naidu and Maharashtra. Among this the total no. of 90 participants were taken as the subjects for the study, in which 45 were male participants and 45 were female participants. And the Harvard Step Test was used to collect the data from these subjects.

SAMPLING PROCEDURE: Simple random sampling technique was employed to select the subjects for the present investigation.

TOOLS USED: Harvard Step Test was used as tool to collect the data for present investigation. The data was collected from the participants of various states of India like J&k, Bihar, Rajasthan, Madhya Pradesh, Assam, Himachal Pradesh, Chandigarh, U.P, Chhattisgarh, Pondicherry, Tamil Naidu and Maharashtra.

DESCRIPTION OF THE TEST

Purpose: To check cardiovascular efficiency of U-14 Badminton male and female players.

Equipment: The equipments used for the present study were a metronome, watch etc.

Test Administration: The full demonstration was given by the researchers before the administration of the test. After demonstration a group of 1-4 subjects were asked to start steps up and down exercise in consonance with the sounds of metronome, in which each subject has to complete 30 steps/minute by means of following procedure like Up, Up & Down, Down. If somewhere any subject stopped exercise by means of fatigue or exhaustion his time was recorded in concern with his exercise done. After completion of 5 Minutes, pulse rate of each subject was counted and recorded as per the procedure given by Brouha, which is as; from 1-1.5minutes, 2-2.5minutes and 3-3.5 minutes.

Scoring: The scoring was done by adding all the 3 half pulse counts of 30 seconds together and then multiplied by 100, after then all this was divided by 2xsum of 3 pulse counts after exercise, which is mathematically given as:-

Fitness Index = Duration of exercise performed in seconds x 100

2 x sums of three pulse counts after exercise.

For example:-

Fitness index = 90 x 100 = 22.5

2 x 200

COLLECTION OF DATA:

For the study the data was collected from Under-14 badminton players of different states of India who participated in Under-14 National Badminton championship which was held at Jammu in Oct-Nov 2015. And the data was collected by means of applying Harvard Step Test on them, and then the collected data was statistically analyzed by using chi square test.

ANALYSIS AND INTERPRETATION OF DATA

The collected data was analyzed statistically to find out whether there will be any significant difference between Statistical chi square tests which were used to fine the significant difference between male and female players.

LEVEL OF SIGNIFICANCE:

To test hypothesis, the level of significance was set at 0.000 2-tailed level of confidence which was considered adequate and reliable for the purpose of this study.

FINDINGS:

The data collected from 90 subjects in which 45 were male players and other 45 were female players. The data collected on a single variable as cardiovascular endurance was analyzed by using chi square tests to check the significant difference among the selected subjects if any. The data is presented in the following tables and figures:

MALE FITNESS INDEX

GENDER:- MALE	Fitness Index			Total
	High Average	Good	Excellent	
Count	26	14	5	45
Expected Count	16.0	18.5	10.5	45.0
% within Fitness Index	81.3%	37.8%	23.8%	50.0%

Sig. level 0.000 2-tailed, df (2,2,1).

The above table shows the fitness index of the male players. Out of 45 male players there are 26 players who fall in the category of high average as their fitness index is 81.3%, 14 players are those who are in good category as their index shows 37.8% and 5 players are those who fall in the excellent category as their fitness index is 23.8%.

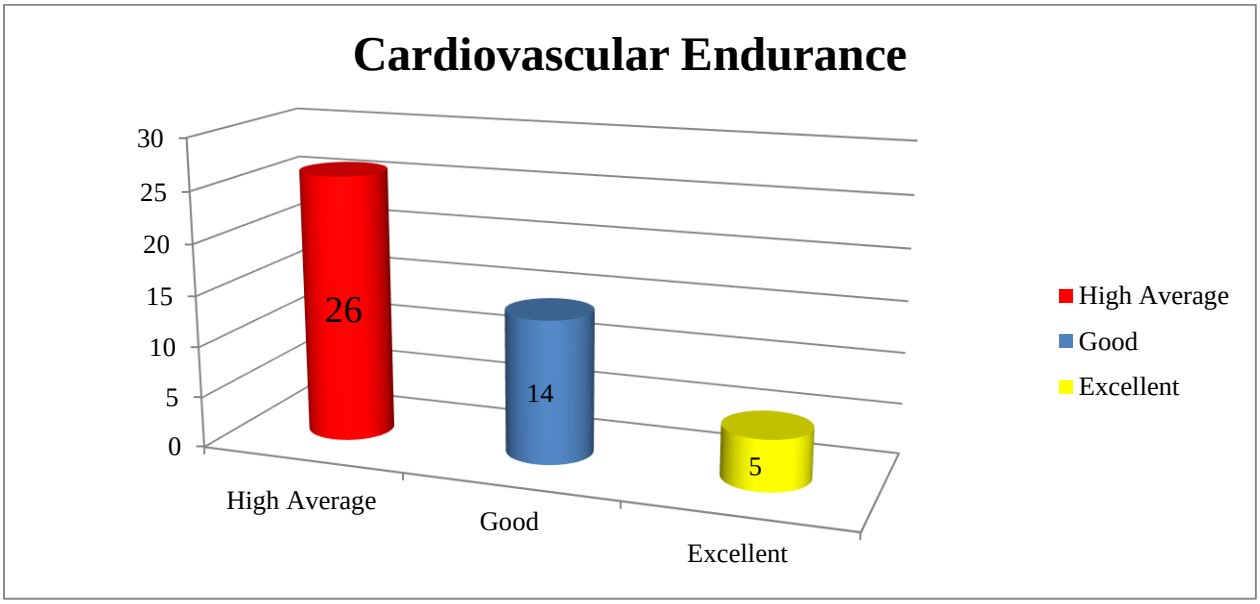

Fig. showing comparison cardiovascular endurance of male players of badminton.

FEMALE FITNESS INDEX

GENDER:- FEMALE	Fitness Index			Total
	High Average	Good	Excellent	
Count	6	23	16	45
Expected Count	16.0	18.5	10.5	45.0
% within Fitness Index	18.8%	62.2%	76.2%	50.0%

Sig. level 0.000 2-tailed, df (2,2,1).

The above table shows the fitness index of the Female players. Out of 45 female players there are 6 players who fall in the category of high average as their fitness index is 18.8%, 23 players are those who are in good category as their index shows 62.2% and 16 players are those who fall in the excellent category as their fitness index is 76.2%.

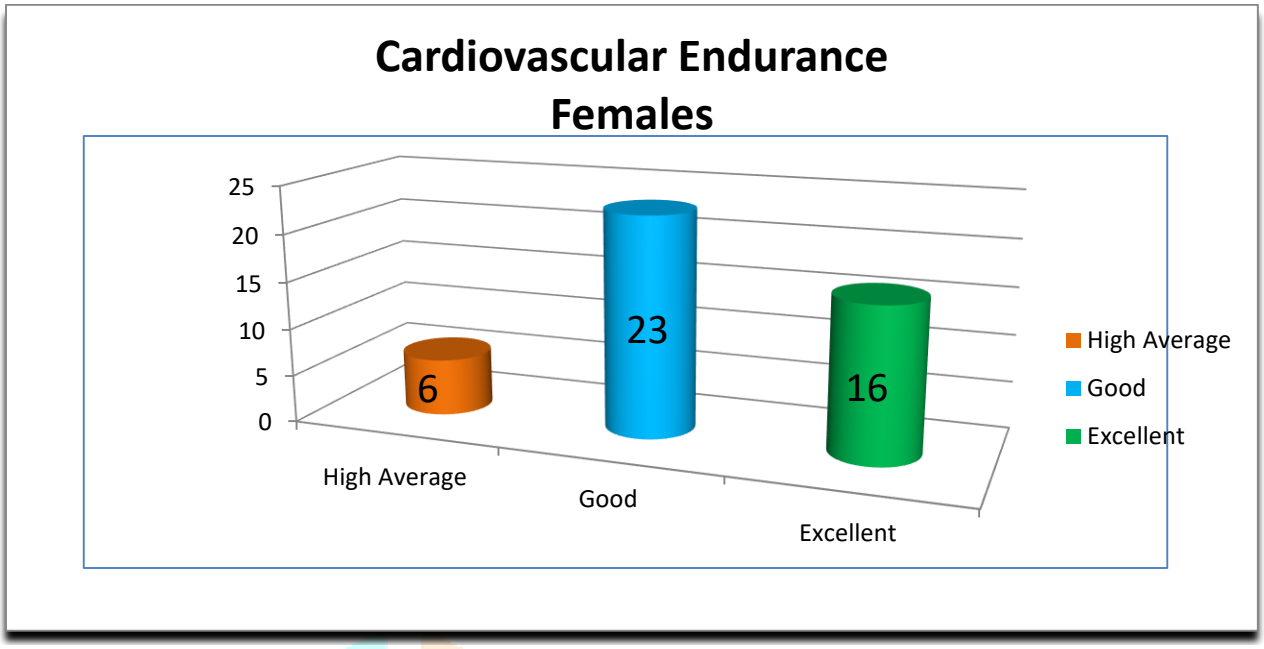

Fig. showing comparison of cardiovascular endurance of female players.

Fitness Index Cross tabulation

			Fitness Index			
			High Average	Good	Excellent	Total
Gender	Male	Count	26	14	5	45
		Expected Count	16.0	18.5	10.5	45.0
		% within Fitness Index	81.3%	37.8%	23.8%	50.0%
	Female	Count	6	23	16	45
		Expected Count	16.0	18.5	10.5	45.0
		% within Fitness Index	18.8%	62.2%	76.2%	50.0%
Total		Count	32	37	21	90
		Expected Count	32.0	37.0	21.0	90.0
		% within Fitness Index	100.0%	100.0%	100.0%	100.0%

0 cells (.0%) have expected count less than 5. The minimum expected count is 10.50.

The above table clearly shows that there is a significant difference in the cardiovascular endurance between male and female payers of badminton under-14 years as out of 45 male players there are 26 players who fall in the category of high average as their fitness index is 81.3%, 14 players are those who are in good category as their index shows 37.8% and 5 players are those who fall in the excellent category as their fitness index is 23.8%. Similarly out of 45 female players there are 6 players who fall in the category of high average as their fitness index is 18.8%, 23 players are those who are in good category as their index shows 62.2% and 16 players are those who fall in the excellent category as their fitness index is 76.2%. Therefore the results reveal that both the male and female players differ with each other with respect to cardiovascular endurance.

CARDIOVASCULAR ENDURANCE

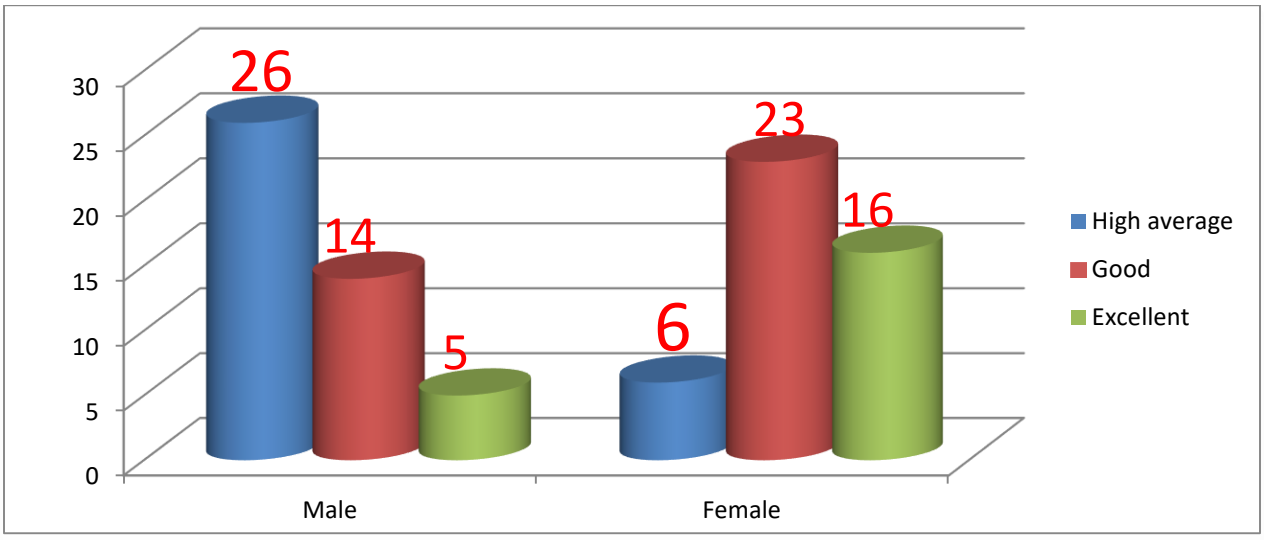

Fig. showing comparison between male and female players of badminton u-14 on the variable cardiovascular endurance.

FINDINGS AND CONCLUSIONS

Chi-Square Tests			
	Value	Df	Assumption. Sig. (2-sided)
Pearson Chi-Square	20.451	2	.000
Likelihood Ratio	21.747	2	.000
Linear-by-Linear Association	18.397	1	.000
No. of Valid Cases	90		

Within the limitations of the present study, the following were drawn:

1. It was concluded that there was a significant difference in cardiovascular endurance between the male and female under-14 badminton players.

RECOMMENDATIONS:

On the basis of findings and conclusions, the following recommendations were made:

1. The present study may be repeated with respect to other physiological variables on the same subjects like muscular endurance etc.
2. The present study may be conducted on the large sample size in order to make the study more valid and detailed.
3. Similar study may be undertaken with other different age groups.
4. Similar study may be undertaken in different altitudes like high altitude and low altitude.

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