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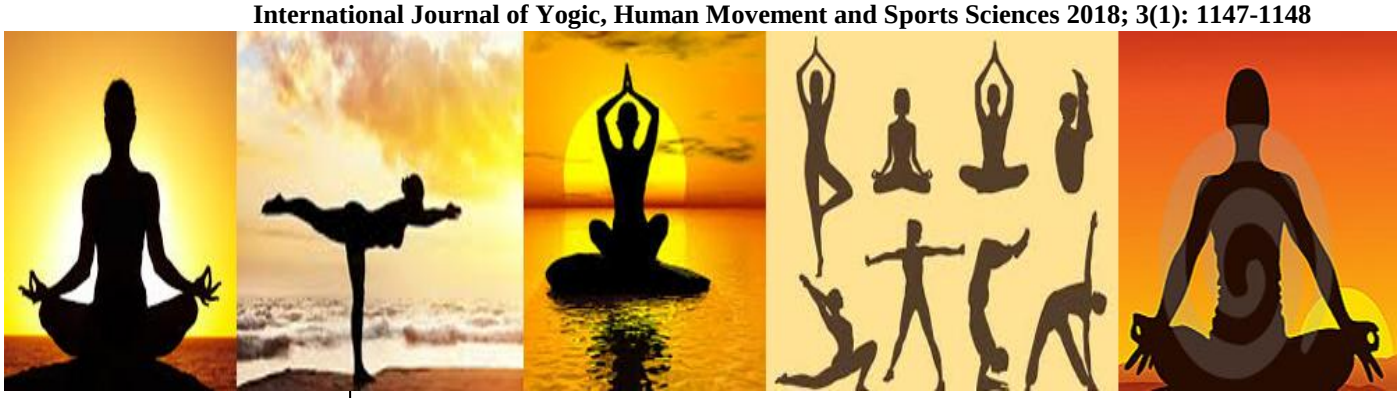

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Comparison study of selected physiological variables between female table tennis and badminton players

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Abstract
The purpose of the present study was to compare the selected physiological variables between female table tennis and badminton players. Total 60 female subjects (Table Tennis: 30 and Badminton: 30) age group of 18 to 25 years, were randomly selected from different colleges affiliated to Punjabi university Patiala, Punjab. All the subjects, after having been informed about the objectives and protocol of the study, gave their consent and volunteered to participate in this study. The level of significance was set at 0.05. The physiological variables were vital capacity and peak flow rate of players. The outcome of the study is that female badminton players were found to have significantly greater vital capacity (t=17.11) and peak flow rate (t=3.05) as compared to female table tennis players. This might be due to the high level of training of badminton payers.

Keywords: Vital capacity, peak flow rate etc

Introduction
Human physiology is the bird in the house of the mechanical, physical, and biochemical functions of humans in good health, their organs and the cells of which they are composed. The principle level of focus of physiology is at the level of organs and system (Lawrence *et al*. 1971) [4].

The physiological factors limiting one's performance in sports are also well known. It is the understanding of interaction of all these factors that can help us in designing the way for selecting the children for appropriate game and training. Among the various physiological parameters, cardio vascular efficiency forms the base to undertake sports efforts successfully. The physiological characteristics play an important role for the attainment of high level of sports performance that can ultimately be realize by taking into consideration the various physiological variables. Physiological variables may be defined as those variables which are directly linked with various physiological systems such as heart rate, blood pressure, vital capacity, peak flow rate, respiratory rate and haemoglobin. Physiological variables such as cardiovascular efficiency, peak flow rate, vital capacity and other should be taken into consideration while selecting badminton and table tennis players cardio-respiratory endurance denoted capacity of individual to work effectively with the help of oxygen which is collected, transported and utilized by lungs, blood and muscles respectively. Any work as daily task or form of physical activity is directly related to energy supplying system which in turn is the cardio-respiratory endurance. Cardiovascular endurance varies from individual to individual and one of important variables for establishing top class performance in badminton and table tennis players as the game involves work of long duration/endurance type. Several studies have documented the physiological and anthropometric characteristics of badminton and table tennis players (Hakkinen 1993, Smith *et al*. 1992, Maclaren, 1990) [3, 5]. Badminton and table tennis are among the world's popular sports, played practically in every nation at varying levels of competence. Successful participation in these sports requires from each player a high level of technical and tactical skills and suitable anthropometric and physiological characteristics however, the purpose of the present study was to compare the selected physiological variables between female table tennis and badminton players.

Material and method

Total 60 female subjects (Table Tennis: 30 and Badminton: 30) age group of 18 to 25 years, randomly selected from different colleges affiliated to Punjabi university Patiala, Punjab, India. All the subjects, after having been informed about the objective and protocol of the study, gave their consent and volunteered to participate in this study.

Selection of variables

1. Vital capacity
2. Peak flow rate

Methodology

1. **Vital capacity:** Vital capacity was measured by Spiro meter. The subject was asked to take a deep breath and then to blow hard into the mouthpiece of the Spiro meter with a sharp blast. There recording were taken at one minute intervals and the average of the three highest was noted. Subjects asked to flow a maximum inspiration, all the air possible was forcibly exhaled through the mouthpiece. (Ghai, 2007) [1].
2. **Peak flow rate:** Peak flow rate was measured with a Peak flow meter. Peak expiratory flow measure how fast you breathe out when you try your hardest. It tells you how well your lungs are working. The subject was asked if you can breathe out quickly and with as, you will have a higher number (higher peak flow rate) and if you can breathe out slowly and with difficulty, you will have a lower number (lower peak flow rate). There recordings were taken at one minute intervals and the average of the three readings was noted. (Ghai, 2007) [1].

Statistical analysis

Values are presented as mean values and SD. The 't' test was used. A significance level of $p<0.05$ was considered significantly different.

Results

Table 1: comparison of selected physiological variables between female table tennis and badminton players

Variables	Table tennis players		Basketball players		
	Mean	SD	Mean	SD	t-value
Vital capacity	3.790	0.286	4.726	0.086	17.11*
Peak flow rate	353.33	49.64	386.33	32.10	3.05*

***Indicates $p<0.05$.**

Table: 1 shows the vital capacity and peak flow rate of female table tennis and badminton players. The mean value of vital capacity of female table tennis and badminton players were 3.790 and 4.726 respectively. Whereas the peak flow rate of female badminton players were 353.33 and 386.33 respectively. The female badminton players were Found to have significantly greater vital capacity (t=17.11) and peak flow rate (t=3.05) as compared to table tennis players.

Discussion

The results of physiological variables (i.e. vital capacity and peak flow rate) between female table tennis and badminton players are presents in table-1. The female badminton players were found to have significantly greater vital capacity (t=17.11) and peak flow rate (t=3.05) as compared to female table tennis players. Results are in line with the findings of Lawrence *et al*. (1971) [4] which revealed that physiological traits differ with regards to former and current elite table tennis players. It is evident from the above findings that significant differences were observed between female table tennis and badminton players on the parameters of vital capacity and peak flow rate. While comparing the mean values of groups it shows that badminton players have significantly greater with regard to vital capacity and peak flow rate. This might be due to the high level of training of badminton payers.

Conclusion

In conclusion, the present study revealed that the female badminton players had significantly greater vital capacity and peak flow rate than table tennis players. The subject-pool of this study involved healthy, college-aged females. Whether the observed study patterns applied to other population groups such as the elderly, impaired, or specially other games trained athletes remain a question for future studies.

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