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Comparison of body mass index, respiratory rate and peak expiratory flow rate between tribal and non-tribal inter-college sports participants

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Abstract

The aim of the study was to compare the body mass index (BMI), resting respiratory rate (RRR) and peak expiratory flow rate (PEFR) between tribal and non-tribal inter-college sports participants. The 19 tribal and 21 non-tribal male sports participants were included in this study. All participants were the members inter-college sports teams of Seva Bharati Mahavidyalaya, Kapgari, Jhargram in 2016-17 session. The BMI was measured by used of BMI formula, RRR in numbers of breath per minute was counted followed by stopwatch and the PEFR in l/minute was measured by peak flow meter. Independent t-test was used to analyzed the data and significant level was set at $p < 0.05$. The findings were BMI and PEFR were insignificant difference and RRR was significant difference between the study groups.

Keywords: Inter-college players, tribal, non-tribal, body mass index, resting respiratory rate, peak expiratory flow rate

Introduction

The word tribe is used in many different contexts to define a category of human social groups. A tribe can also be defined as a series of generations, descending from the same progenitor. Traditionally, de-notified, nomadic and semi-nomadic communities practice a range of occupations and are remarkably internally diverse. In this exercise India constitution defined the castes those are under tribe, some of they are Bhuiyia, Bhutiyas, Chero, Santhal, Oraon, Paharia, Munas, Lephcas, Khariya, Garo, Magh, Mahli, Mru, Munda, Lohara and Mal Pahariya.

It has no doubt that the life living condition, food habits, profession and environmental conditions changes individual performance levels. The study showed lungs function capacity has better in active or sports persons than the sedentary (Sing *et al*, 2012 & Prasad, 2016) ^[6, 4] and (Marangoz *et al*, 2016) ^[3] also defined better lungs function in active individuals than sedentary. When researchers goes to study of tribes and non-tribes, defined different outcomes. The attitude of self also difference between tribe and non-tribe (Yadev *et al*, 2013). The body composition and cardio respiratory fitness showed different between the tribe and non-tribe (Manna *et al*, 2015) ^[2]. Whereas another study defined better flexibility and abdominal strength of non-tribe compare to tribe students and same time study showed tribe students were better cardio-respiratory endurance and upper body strength endurance than non-tribe students (Sarkar *et al*, 2015) ^[12].

Objective of the Study: To compare the body mass index, resting respiratory rate and peak expiratory flow rate between tribal and non-tribal inter-college sports participants.

Methodology

Subjects:

Total 40 participants were collected from the inter-college sports teams of Seva Bharati Mahavidyalaya, Kapgari, Jhargram in 2016-17 session. They were divided in two categories, such as tribal and non-tribal. The number of tribal players were 19 (Football-10, Volleyball-6, Cricket-3) and number of non-tribal were 21 (Football-4, Volleyball-6, Cricket-11).

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Inclusive criteria were a. team members of Football, Volleyball and Cricket inter-college sports competition in 2016-2017 session. b. Bachelor level students of concerned college and age range 19-23 years. c. the document was followed to confirm the castes.

Variables & Measurement: The Selected physiological variables were body mass index (BMI), resting respiratory rate (RRR) and peak expiratory flow rate (PEFR). The BMI was measured by used formula $BMI = \text{weight in kg} / \text{height in } m^2$ and data was recorded in kg/m^2 , RRR in numbers of breath per minute was counted followed by stopwatch and the PEFR in l/minute was measured by peak flow meter.

Statistical Analysis

The independent t-test was applied to compare the independent variables between tribal and non-tribal inter-college Sports participants. The significant level was set at $p < 0.05$.

Result

The comparative result of BMI, RRR and PEFR between tribal and non-tribal inter-college sports participants (Table:1) indicated there was insignificant difference of BMI and PEFR between tribal and non-tribal inter-college sports participants. The RRR was significantly difference between them, it was showed higher in non-tribal sports participants.

Table 1: Comparative Result of BMI, RRR & PEFR between Tribal and Non-Tribal

Variables	Tribal n=19 (Mean ± SD)	Non-Tribal n=21 (Mean ± SD)	T-value	P-value P< 0.05
BMI	22.57 ± 1.12	22 ± 1.67	1.17	0.24
RRR	13 ± 3.5	16 ± 3.22	3.26	0.00
PEFR	662.10 ± 53.08	640.23 ± 49.05	1.34	0.18

Abbreviation: BMI=Body Mass Index, RRR=Resting Respiratory Rate, PEFR=Peak Expiratory Flow Rate

Discussion

The comparative result of body mass index (BMI), resting respiratory rate (RRR) and peak expiratory flow rate (PEFR) between tribal and non-tribal sports participants has shown that the BMI and PEFR were insignificant difference and the RRR was significant difference between the tribal and non-tribal inter-college sports participants. Past studies showed better body composition and cardio respiratory fitness of tribal students than non-tribal (Manna *et al*, 2015) [2]. Basically genetic, lifestyle, environment, food habits and socio-economical status leads human physic. The study also found better flexibility and abdominal strength of non-tribe compare to tribe students and same time study found tribe students were better cardio-respiratory endurance and upper body strength endurance compare to non-tribe (Sarkar *et al*, 2015) [5].

Conclusion

The finding of the study showed no significant difference is present in body mass index and peak expiratory flow rate between tribal and non-tribal inter-college sports participants and significant difference is present in resting respiratory rate between two study groups.

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