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Research Article

Analytical Study on Body Composition of University Students

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Abstract:
The study aimed to analyses the body composition characteristic of badminton students. There is a lack of descriptive study on the body composition of Haryana private and government universities of Haryana. The available of the related literature on the body composition of boy's and girl's private and government universities of Haryana. The result of Pearson sign of correlation coefficient of basal metabolic rate positive strong was and $p \leq 0.82$ was not significant for girl's private and government universities of Haryana. The result of Pearson sign of correlation coefficient of fat mass was very weak and $p > 0.91$ was not significant for boy's private and government universities of Haryana. The Pearson sign of correlation coefficient of fat mass was strong positive and $p \leq 0.95$was not significant for girl's private and government universities of Haryana. The result sign of correlation coefficient of fat free mass was strong and $p \leq 0.87$ was not significant for boy's private and government universities of Haryana. The sign of correlation coefficient of fat free mass was weak and $p \leq 0.09$ was not significant for girl's private and government universities of Haryana. The result of Pearson sign of correlation coefficient of total body water was very weak and $p > 0.02$ was significant for boy's junior badminton. The result of Pearson sign of correlation coefficient of total body water was weak and $p \leq 0.06$ was not significant for girl's private and government universities of Haryana. It concludes that present status of Haryana private and government universities of morphological characteristic, body composition is very poor level are wick and it's compared to desirable badminton students.

Keywords: Age, Body weight, Body Height, BMI, BMR, Percentage of Body Fat Mass, Fat Free Mas

Introduction

Transition from (high) school and home to apprenticeship, university, civil or military service along with moving to a new unfamiliar setting induce pronounced changes of lifestyle that can severely challenge a subject's health status. With respect to body composition, the 5.5-times higher weight gain of college students compared with the general population, which can be largely attributed to increases of fat mass, may be the most prominent negative consequence of this new situation. The main reason for this development may be the severe decline of physical activity as a protective factor that was reported to be far above average during this period of life. Although this problem was primarily reported for US student cohorts, the general problem of drastically reduced physical activity combined with unhealthy life style changes may concern many young adults. Maintaining or increasing the amount of sport and/or physical exercise may be the most effective tool in fighting overweight and obesity in this period of life. Thus, the aim of the study

was to determine the − preferably − isolated effect of physical activity, or, more specifically, exercise on the development of body composition during young adulthood. In order to achieve this goal, we accompanied two cohorts of students with fundamentally different exercise patterns (sports vs. dentistry students), but comparable basic condition, setting and situation before and during their study course of ≈ 5 years. The rationale behind selecting these cohorts was based on the assumption that the new unfamiliar setting and the high demands related to the dentistry college course will significantly decrease exercise levels and thus dentistry students may be ideal representatives for corresponding life style changes among young adults. On the other hand, sports students are one of the few cohorts to increase or at least maintain their former exercise levels. Thus, we expect that dentistry and sports student may be most suitable to determine the effect of occupational related sports and exercise increases or reductions on body composition during young adulthood.

Literature Review

Nawaz, Razia & Khan (2020) This research set out to measure how aerobic exercise affected the body composition of overweight girl between the ages of 22 and 27. Thirty overweight girl, aged 22–27, were selected at random from the population of District Tonsa, Punjab, Pakistan. The girl in the control group were given a four-week workout program to follow. Anthropometric and three-site skin-fold measurements were taken of the experimental group. Both the control and experimental groups' pre- and post-test results were recorded and input into a computer for further statistical analysis. Inferential statistics (Independent Samples t-Test and Paired Samples t-Test) and descriptive statistics (mean and standard deviation) were employed to accomplish this. The data analysis revealed that the average EG pre- and post-test scores were 28.66 and 23.5, respectively. The table has a t-value of 5.022 and a P-value of 0.001, both of which are less than the 0.05 threshold for statistical significance.

Harmouche Karaki (2019) The purpose of this research was to assess the physical activity (PA) levels and sitting time of a representative group of college students and to investigate the relationship between PA and BMI. Methods: The study contained data from 221 total pupils. We gave the full IPAQ (International Physical Activity Questionnaire) version to participants twice, each time separated by one month. Physical activity (PA) was measured in terms of total time spent moving and then broken down into four categories: sitting, working, moving about the home, and playing. Six separate food recalls of 24 hours' duration were used to calculate daily consumption. Bioelectrical impedance analysis (BIA) was used to measure percent body fat (the dependent variable). The correlations between domain-specific PA and sitting time and BMI were analyzed using multivariate logistic regression while controlling for possible confounders. The data showed that both total and recreational PA were greater among males than among girl. The average sitting duration for all participants was over 10 hours and 15 minutes per day, and almost half sat for longer than that. In a multivariate study, moderate levels of leisure-time physical activity were linked to lower levels of body fat than strong levels of PA. Even after accounting for calorie consumption and sedentary time, this connection remained statistically significant. Physical activity from housework was linked to a larger percentage of body fat. After accounting for potential confounders, the association between moderate recreational physical activity and % body fat remained strong. University students might benefit from adequate interventions aimed at this kind of recreation.

Podstawski, Robert & Finn (2022) Few scientific research has compared pre- and post-Pandemic COVID-19 outcomes for wellbeing (WB), physical activity (PA), and strength endurance (SE). The purpose of the research was to evaluate college students' weight, height, and body mass index before and after the epidemic. A total of 60 participants were used in the

research (30 boy and 30 females, with mean ages of 21.7 2.51 and 21.6 2.34 years, respectively). Prior to and during the pandemic, participants' levels of happiness were measured using the Self-Perception Questionnaire (POMS), PA was determined using the Polish regular version of the International Physical Activity Questionnaire (IPAQ), body composition parameters were measured using an InBody 270 analyzer, and SE was determined using the results of a 12-minute test conducted on a Concept 2PM-5 rowing ergometer. The results of the WB analysis showed a statistically significant rise in stress, despair, rage, and bewilderment, and a statistically significant drop in vitality among college students (p 0.05). Both male and female PA and SE considerably declined between the years 2005 and 2010, from 2115.4 to 1822.8 METs-min/week and 2184.5 to 2035 m, and from 1793.5 to 1699.8 METs-min/week and 2021.5 to 1943.8 m, respectively. At the same time, both girl and boy had substantial increases in their body mass and body mass index (p 0.001). Conclusions: The COVID-19 pandemic resulted to large increases in body mass and BMI as well as significant decreases in WB, PA, and SE levels in young girls and boy.

Shukla, Akash & Dogra, (2021) The researchers wanted to see how varsity athletes with and without a background in physical education fared on a number of measures of physical fitness. The research included 44 male participants from two groups: those who had participated in physical education classes (n = 22) and those who had not (n = 22) at H.N.B. G University in Srinagar, Garhwal, Uttarakhand (India). The participants' ages ranged from 18 to 25. The pull-up test measured upper-body strength, the modified sit-ups test measured lower-body strength, the 410-meter shuttle run measured agility, and the 50-yard sprint measured speed. In addition, with permission, we were able to gather data on a number of other factors at the University Athletics Ground. The threshold of significance used in this analysis was 0.05, and the variables associated with physical fitness were evaluated and compared between the chosen group individuals using descriptive statistics and an independent "t"-test. Muscular strength ("t" = 1.26), muscular endurance ("t" = 0.64"), agility ("t" = 0.28) and speed (0.82) were all measured and found to be statistically indistinguishable between the male intercollegiate athletes with and without a background in physical education. Based on the data presented here, it was determined that college students' participation in either physical education or non-physical education courses had no effect on their fitness levels as intercollegiate male athletes.

Rahmani-Nia, Farhad &Damitchi (2011) The goal of this research was to compare male college students' estimates of their own fitness with objective measures of their physical health. Male students at Iran's University of Guilan were singled out for study. The male participants in this research had mean demographics of age 21.83 1.17 years, height 173.6 6.4 cm, weight 70.66 11.8 kg, and body mass index 22.38 3. kg/m 2. The 150 participants self-assessed their fitness levels using a 5-item questionnaire. Subjects' ratings of their own perceived endurance, flexibility, strength, body composition, and overall fitness were aggregated into a single score, known as self-perceived fitness (SPF), using a 13-point scale. The results showed a negative correlation between self-perceived flexibility and sit and reach scores (r = -.033) and a non-significant correlation between self-perceived body composition and 1500-m running time (r =.042). A positive correlation was found between self-perceived strength and composite strength scores (handgrip dynamometry, hand-grip tests). The acquired data was subjected to both inductive (Pearson correlation coefficient) and deductive (mean and standard deviation) statistical analysis. Self-perception is consistently greater than objective measures of fitness. Results showed that male students who did not participate in sports lacked the necessary abilities to accurately assess their own fitness levels.

Research Methodology

In-person interactions were used to compile the data. The research participants were selected using a random selection technique. Data on physiological, and body composition variables were mostly obtained during practice and in university settings, when a thorough warm-up was also conducted to reduce the risk of injury.

The necessary data was collected in different places of Haryana. The subjects were collected 40 Haryana junior universities students of twenty (20) boy's and twenty (20) girl's, who are participate in national and international competition levels. All the tests were administered in different universities clubs and association, which are Haryana universities associations of Haryana, United universities association of Haryana. The test of the administration subject was explained before the starting of the test and give a chance to practice and warm up.

Descriptive statistics was use to describe the morphological characteristics, body composition of boy's and girl's junior universities students of Haryana. Karl Pearson coefficient of correlation method was employed for both boy's and girl's junior universities students of Haryana. The level of significant at 0.05 was set.

Data Analysis

Boys and girls from Private and Government Universities in Haryana were surveyed on their morphological characteristics, body compositions, this chapter focused on the findings and discussions that followed those results.

The study's goals informed the statistical analysis and interpretation of data, and a 0.05 significance level was used. The following pattern of findings has emerged:

Adobe (SPSS version 100100) was used for descriptive analysis, with minimum, maximum, mean, and standard deviation applied to male and female university students in Haryana.

The male and female college students of Haryana were compared using the Karl Pearson coefficient of correlation technique.

Table 1: Body Composition of Girls Private and Government Universities of Haryana

Variables of body composition	Number of subjects	Minimum	Maximum	Mean	Std. Deviation
Body Mass Index	100	19.70	23.70	21.49	1.30
Fat Percentage	100	17.00	26.50	22.06	2.44
Basal Metabolic Rate	100	1284.00	1870.00	1421.65	136.15
Fat Mass	100	8.60	16.30	12.41	1.82
Fat Free Mass	100	14.70	43.70	39.50	6.02
Total Body Water	100	28.00	32.10	30.12	1.07

Body mass index (BMI), fat percentage (%), basal metabolic rate (BMR), fat mass (FM), fat free mass (FFM), and total body water (TBW) for girl attending private and public universities in Haryana are displayed in Table 1 below, along with their respective minimum and maximum values, means, standard deviations, and ages. The BMI ranges from 19.70 to 23.70, the fat% from 17.00 to 26.50, the BMR ranges from 1284.00 to 1870.00.

Table 2: Comparison Mean of Body Composition Variable Between Private and government Universities(W) Students of Haryana and Desirable of Body Composition Variable (W) Private and Government Universities

Variables of body composition	Haryana Universities (W)students	Desirable of private and government Universities(W) students
Body Mass Index	21.49	18.5-24.9
Fat %	22.06	14-100
Basal Metabolic Rate	1870.00	1438.65
Fat Mass	12.41	4.6-6.6
Fat Free Mass	39.50	16-17
Total Body water	30.12	52-58

Table 2 shows that when comparing the body mass index of Haryana students from private and government universities with that of desirable students from the same age range, the students from Haryana have a lower risk of developing obesity. The student body fat percentage in Haryana was 22.06, which was more above the 14-100% range for the ideal student body. Haryana students had a higher basal metabolic rate than other student profiles, at 1421.65 compared to 1438.65 for the ideal student. kids in Haryana had a much higher average body mass index (12.41) than the 4.6-6.6 average of kids in other states that are considered "desirable." pupils in Haryana had a higher percentage of lean body mass (39.50) than pupils in other desired states (16-17). The average student in Haryana has 30.12 ml/kg of total body water, whereas the ideal student has 52-58 m Female students at Haryana's universities desperately need access to a reliable water supply.

Table 3: Karl Pearson Correlation of Body Composition Between Boys and Girls of Private and Government Universities of Haryana

		BMI	Fat%	BMR	Fat Mass	Fat Mass	Free Total Body water
	Pearson	-.58**	.76**	-.50*	.67**	-.04	.49*
Boy's	Sig.(2-tail)	.06	.01	.02	.91	.87	.02
	No. of subject	100	100	100	100	100	100
	Pearson	.66	-.01	.05	.01	.38	.58**
Girl's	Sig.(2-tail)	.01	.99	.82	.95	.09	.06
	No. of subject	100	100	100	100	100	100

Body mass index, fat percentage, basal metabolic rate, fat mass, fat free mass and total body water are shown in Table 3, together with their Pearson correlation values between males and females at Private and Government Universities in Haryana. For boys, the results show Pearson values of (-.58**, 0.76**, -0.50*, 0.67**, 0.04*, 0.49*) and significant values of (-0.06,0.01,0.02,0.91,0.87, 0.02), whereas for girls, the values are (0.66), (-.01), (-0.05), (-0.38,0.58**), and (-0.01,0.99,0.82, 0.95,0.09,0.06).

Conclusion

The purpose of this research was to examine the body composition of collegiate athletes. University-aged men and women in Haryana are not well represented in descriptive statistics on body composition. The "Fittest Man on Earth" competition is a popular way to measure body composition. A condition of physical and mental well-being, and more specifically the ability to engage in certain facets of sporting and occupational activity. After accounting for confounding factors, we observed that the mean

and standard deviation of morphological traits, body composition, among university-aged boys and girls in Haryana are significantly different. Data collected included: age, height, weight, BMI, fat percentage, basal metabolic rate (BMR) in kilocalories, fat mass in kilograms, fat free mass in kilograms, total body water in kilograms, vertical jump, stair case, standing broad jump, shoulder strength in pull-ups, push-ups, wall sitting, flexed arm hanging test, bent knee sit, and total body water in kilograms.

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