A STUDY OF ANTHROPOMETRY AND SELECTED FITNESS VARIABLES BETWEEN UNIVERSITY LEVEL PLAYERS OF DAVENGERE UNIVERSITY

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INTRODUCTION

Anthropometry, body composition and health related fitness variables are very important tools for assessing the health status and widely implemented in various sports. Anthropometry simply means "measurement of a person". Anthropometry is the study of the human body i.e. size, shape and strength of the human body, including, mass, volumes, mobility, proportions, centers of gravity, and inertial properties of the whole body and body segments.

The main aim of the majority studies has been done to procure the level of body mass index, to evaluate anthropometric status, to measure the level of fitness, for talent identification or for giving guidance in improving health, and also for improving sports performances. (Al Sendi & et al, 2003) had studied and find the increasing body weight gain among the Bahraini participants. (Bhavani A, 2015) revealed in a study that the school boys having more fat percent than the college and University boys. (Duraskovic et al., 2011) had mentioned that to achieve top results in various sports a certain influence of body weight, height, and proportion of certain segments of the body should be considered. Anthropometric variables, body composition and physical fitness are one of the most important characteristics of the athlete's success (Gill. S & et al, 2007). (Hardayal S, 1996) mentioned that the increased in physical fitness had a positive impact on health and performance at work.

The purpose of this study was to find out the status of the anthropometry, body composition and selected fitness variables among university level players of Davagere University.

METHOD

Selection of the subjects

The selected participants were university level players of Davengere University. The age of the students was 18 to 23 years of age. The reason of this investigation was explained to the participants, doubts were addressed to them and also their concerned were taken for this study.

Experimental Design

A group of (n=100) subjects were selected randomly for this study. Anthropometry measurements and selected fitness variables i.e. Muscular strength, muscular endurance, flexibility, and cardio-vascular endurance were considered for this study.

Procedure of testing

The selected test considered for this study were**;** for anthropometric measurements i.e. Waist, hip, circumference was taken by the help of measuring tape and recorded in centimeters and waist-hip ratio was calculated by the simple technique i.e. (waist circumference divided hip circumference = waist-hip ratio). Selected fitness variables along with the test were muscular strength (1RM bench press), muscular endurance (sit-ups for 30 seconds), flexibility (sit and reach test), and cardio-vascular endurance (12 minute's run and walk test). Furthermore Anthropometry and body mass index results were compared with the mayo clinic and American college of sports medicine (ACSM) standards respectively.

Statistical Analysis

The data were analyzed by using statistical software, for descriptive statistical method.

RESULTS

In this present study, the anthropometric, body composition, bench press, sit-ups test, sit & reach test, 12 min run & walk test status of the 100 players of Davengere University. The below table shows the descriptive statistics of the selected variables **Table-1,Descriptive statistics for the selected variables i.e. Age, weight, height, BMI, bench press, sit-ups, sit & reach test, 12 min run & walk test, waist, hip and waist-hip ratio**

Variables	N	Mean	S.D	Min	Max
Age	100	18.300	0.8127	18.0145	22.000
Weight	100	73.25	17.5268	48.4586	152.000
Height	100	1.689	0.0586	1.6845	1.913
Body Mass Index (BMI)	100	24.807	5.8380	15.3478	58.335
Bench press 1RM (kgs)	100	41.65	14.3445	9.0000	138.000
Sit-ups (number of sit-ups in 30 sec)	100	22.30	4.1720	5.0000	35.000
Sit and reach test (cm)	100	21.47	6.8512	5.0000	44.000
12 minutes run & walk test (mts)	100	1347.89	331.34	350.0000	2300.000
Waist	100	87.4255	14.75684	47.00000	146.0000
Hip	100	102.947	14.01134	60.00000	192.5000
Waist- hip ratio (WHR)	100	0.834	0.079	0.399	1.274

The data for 100 participants was analyzed and reveals the status of the anthropometry, body composition and selected fitness variables among University students in Davengere. Anthropometry with mean & standard deviation with regard to waist circumference were (87.43, 14.75), hip circumference (102.95, 14.01) and waist-hip ratio (0.834, 0.079) respectively. Body composition (mean and standard deviation): Weight (73.25, 17.53), height (1.69, 0.06) and BMI (24.81, 5.84). Selected fitness variables (mean and standard deviation); 1 RM bench press test (41.65, 14.34), sit-ups test (22.30, 4.17), sit & reach test (21.47, 6.85), and 12 minutes run & walk test (1347.89, 331.34) respectively. Furthermore anthropometry and body composition results were compared with mayo clinic and ACSM standards respectively.

Tabel-2, shows a comparative status between selected variables and standard norms

Variables	Mean	Sources of Standards norms	Norms	Status
Waist –Hip ratio	0.834	Mayo clinic	<0.85	**Excellent**
Body Mass index	24.807	ACSM'S health related physical fitness assessment manual, fourth edition (2014)	25 -29.9	**Over weight**
Bench press 1RM (kgs)	41.65	YMCA bench press test	34-41	**Good**
Sit-ups (number of sit-ups in 30 sec)	22.30	Davis, B. et al.(2000)	20-25	**Average**
Sit and reach test (cm)	21.47	ACSM'S health related physical fitness assessment manual, fourth edition (2014)	< 24	**Needs improvement**
12 minutes run & walk test (mts)	1347.89	COOPER, K.H. (1968)	<1600m	**Poor**

The waist-hip ratio of the participants is (0.834) and as per the range of mayo clinic it is in excellent range of (< 0.85). The BMI of the participants had showed (24.81) and as per the range of ACSM standard it is in the overweight category (25 to 29.9).

The results of the selected fitness variables were compared to the standards norms and had revealed the following; 1RM bench press (good), sit-ups test (average), sit and reach test (less than fair and needs improvement), and 12 minutes run walk test (poor).

DISCUSSION

Anthropometry data is widely used to estimate the health and performance status of the sports men and non-sportsmen. Body weight and height of an individual are the important indicators of growth and development. Body weight and height can be monitor by the weight, height and age chart to help them at the right age for the growth or to maintain healthy body weight and to maintain best health. All the health problems mainly cause of overweight and obesity, this is the root cause of many diseases i.e. Coronary heart diseases and diabetes. The waist-hip ratio as per the mayo clinic standard norm (<0.85 is excellent) and the present findings had revealed that the participants waist-hip ratio is in the range of excellent.

The students have to maintain the healthy circumference of the waist and hip line. Big tummy is the sign of many diseases namely; coronary heart diseases, and diabetes. The BMI normal range as per the ACSM standard is (18.6 to 24.9) and the current findings shows that participants are in the higher range of normal weight and they are in the range of (24 to 29.9), over weight. Students have to reduce some body weight to get back in the normal range of BMI. The students had shows reasonable performance with regard to bench press and sit-ups test. As per the standard norms they are in the ranges of bench press 1RM test (34-41, good range), as per the YMCA bench press test norms and sit-ups test is in the range of (20-25, average) as per the DAVIS, B. et al. (2000) sit-ups test norms.

Lastly the students had shows poor performance with regard to the sit & reach test and 12 minutes run and walk test as compared with the standard norms of ACSM'S health related physical fitness assessment manual, fourth edition (2014) and COOPER, K.H. (1968) respectively. The students have to improve their flexibility and cardio-vascular fitness by involving and including program of stretching and aerobic exercises. The following previous studies are in the agreement with the present study; (Liliana. E.R, & et al, 2014) had revealed that the students are healthy and with normal anthropometric selected variables. (Naidia M, et al 2009) had investigated and revealed that BMI and skin fold thickness increased adiposity among Bahraini adolescents, and they are at the high risk of obesity and its future consequences. (Arif A. K, 2014) findings suggest that the selected anthropometric variable shows significant differences for the successful performance of the athletes. (Muniraju & et al, 2014) concluded that the various anthropometric characteristics, components of body composition and somato-typing scores had a clear impact on the performance of the athletes.

Conclusion

It is concluded that the waist-hip ratio of the university students is (0.834) and in the range of (< 0.85) and reveals it is in the excellent range standard norm of Mayo clinic standard norm.

It is also concluded that the Body mass index of the students is (24.81) and in the range of overweight i.e., (25 to 29.9) and at the higher risk of health problems in the future.

Lastly, it was concluded that the status of bench press test 1RM was in the range of (34-41, good range) and sit-ups test is in the range of (20-25, average range). Sit & reach test status was in the range of (< 24, needs improvement) and 12 minutes run and walk test performance was in the range of poor and also needs improvement.

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