Selected Anthropometric Measurements and Motor Fitness Profiles of Inter-University Cricketers

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Abstract

The purpose of the study was to determine the comparison between the selected anthropometric variables and motor fitness profiles of inter-university cricketers and non-sportsmen between the age ranges of 18 to 28 years. The data was collected from Inter-university crickters taken as subjects of the study by using anthropometric rod, skin fold calipers, vernier calipers and steel tapes. The 't'-test was used for calculating comparison between inter-university cricketers and non-sportsmen. Linear measurements i.e. Height, Sitting height, Trunk length, Total arm length, Upper arm length, Fore arm length, Total leg length, Thigh length, Foot length, girth measurements i.e. abdomen, hip and calf girths, body diameters i.e. biacromial, bitrochantric, femure bicondylayer diameters and skin fold measurements i.e. biceps, triceps, sub-scapular, suprailliac, thigh, calf and sum of skin folds and body composition variables i.e. Body density, fat percentage and fat weight have been found highly significant at one percent level. The comparison of four variables taken together with motor fitness profiles has been found highly significant of inter-university cricketers and non-sportsmen.

KEYWORDS: Anthropometric, Variables, Fitness Profiles, cricketers

INTRODUCTION

Sports play a very prominent role in the modern society. It is important to individuals, a group, a nation and indeed the world. Throughout the world, sport has a popular appeal among people of all ages and both sexes. (Uppal, 1992) At present, the sports competitions are highly competitive and challenging. Human beings by nature are competitive and ambitious for their excellence in all athletic performance. Every sportsman or nation wants to show their supremacy by challenging other nations by showing dominance and supremacy in sporting performance in international competitions. Thus this challenge stimulates, inspires and motivates all the nations to sweat and strive to run faster, jump higher, throw faster and exhibit greater strength, endurance and skills in present competitive sports world. This can only be possible through scientific, systematic and planned sports training as well as channelizing them into appropriate games and sports by finding out their potentialities. (Carl E. Karfs and Daniel D. Aruheim, (1969)

In the modern world which is technically for advanced and developing more and more by leaps and bounds in the shortest spans of time, there is great need of considering the personality and characteristics of the individuals and the sportspersons specially to get the surprising and convincing results

More recently several studies conducted on Olympic athletes have revealed that various sports events differ from one & another not only in their skill patterns, organization and equipment requirements but also in the requirement of an anatomical structure (Body- build) of the athletes participating in it.

METHOD AND MATERIAL One thirty inter-university cricketers and one thirty non-sportsmen who participated in the various Inter-University Championship and non-sportsmen of jammu and Kashmir State between the age range of 18 to 28 years in the session 2015-2016 constituted the subjects of the study. For the collection of the data of the subjects, anthropometric rod, steel tape, vernier calipers and skin fold calipers were used to measure linear segments; girth, body diameters and skin fold variables respectively. The instructions given by Wernier and Lourie were followed in taking the various measurements of the body.

Body composition variables i.e. body density, fat percentage, fat weight and lean body mass were calculated. The motor fitness profiles of Inter-University cricketers and non-sportsmen were measured in terms of performance in shot put (8lbs), 50 meter dash, 12 minutes run and walk, bent and reach, shuttle run, standing broad jump and Beam walk. The 't'-test was used for calculating comparison between inter-university cricketers and non-sportsmen of the data

RESULTS

The results of the study are presented in the following tables as under—

Table: - 1

Significant difference in the motor fitness variables of inters university level cricketers and non sportsmen.

s.No	variables	Cricketers		Non sportsmen		T ratio
		Mean	S.D	Mean	S.D	
1	Strength	8.314	.619	6.799	1.356	17.72**
2	Speed	7.70	.512	7.89	.710	11.10**
3	Endurance	1988.81	59.14	1496.30	237.40	21.44**
4	Flexibility	21.054	2. 39	10.311	2.58	33.41**
5	Agility	11.82	.418	18.50	1.612	56.25**
6	Power	2.364	.354	1.717	.217	15.37**
7	Balance	2.851	.418	5.176	1.83	15.15**

****Significant at 0.01 level N = 260 d.f. = 258**

The table-1 shows that t- ratio of motor fitness variables i.e. strength, speed, endurance, flexibility, agility, power and balance between inter university cricketers and non-sportsmen are significant at 0.01% level. Further the mean scores of inter-university level cricketers have higher in strength, endurance, flexibility and power than the non-sportsmen. So it is shown that inter-university crickets have more motor fitness than the non-sportsmen whereas in variables like speed, agility and balance non-sportsmen have more mean scores than the inter-university level cricketers.

Table 2

Significant difference in the selected anthropometric variables of inter-university levels cricketers and non- sportsmen

S.No	variables	Inter- university		Non - sportsmen		T ratio
		Mean	S.D	Mean	S.D	
1	Age	21.48	1.92	20.77	1.83	3.30**

2	weight	60.108	3.87	62.531	4.995	4.34**
3	Height	166.452	4.62	169.928	6.21	5.33**
4	Sitting Height	82.65	3.63	85.29	4.61	5.19**
5	Trunk Length	53.99	2.72	55.30	3.29	3.61**
6	Total Arm Length	74.042	2.57	75.301	3.64	3.20**
7	Upper Arm Length	30.91	1.36	31.52	1.97	2.90**
8	Fore Arm length	25.019	1.24	25.46	1.49	2.70**
9	Hand Length	18.295	.805	18.304	.837	.08
10	Total leg length	85.43	4.09	87.36	4.36	3.86**
11	Thigh length	40.10	2.87	43.04	3.30	5.53**
12	Fore leg length	44.42	2.56	44.295	2.27	.43
13	Foot length	24.455	1.291	25.015	1.097	3.73**

****Significant at 0.01 level N = 260 *Significant 0.05 level d.f. = 258**

Table-2 shows the t-ratio of age, weight and linear measurements i.e. height, sitting height, trunk height, total arm length, upper arm length, total leg length, upper leg length and foot length between inter-university levels cricketers and non-sportsmen are significant at 0.01% level whereas the t-ratio of fore arm length of same measurement is significant at 0.05% levels. But the variables like hand length and fore leg length between above two groups are not significantly difference at any level. Further the mean scores of all variables of linear measurement of non-sportsmen are higher than the inter-university levels cricketers. It is indicate that the non-sportsmen have possessed more linear measurements than the inter-university level cricketers

Table 3

Significant difference in the Diameters of inter-university levels cricketers and non-sportsmen

S.No	variables	Inter- university		Non Sportsmen		T -ratio
		Mean	S.D	Mean	S.D	
1	Wrist	5.731	.298	5.699	.300	.91
2	Elbow	6.711	.410	6.772	.401	1.20
3	Shoulder	38.85	1.664	39.68	1.933	3.87**
4	Hip	27.83	1.397	28.36	1.681	3.03**
5	Knee	8.92	.579	9.19	.482	4.05**
6	Ankle	6.84	.440	6.885	.269	.92

****Significant at 0.01 level N = 260 d.f. = 258**

The table also revealed the t-ratio of shoulder, hip and knee diameters between inter-university levels cricketers and non-sportsmen are significant at 0.01% levels and wrist, elbow and ankle diameters are not significant at any levels. Further the mean scores of diameters of non-sportsmen are higher than the inter-university levels cricketers. It implies that non-sportsmen have more diameters than that of the inter-university levels cricketers.

Table –4

Significant difference in the Circumference of inter-university levels cricketers and non- sportsmen

S.No	variables	Inter- university		Non Sportsmen		T -ratio
		Mean	S.D	Mean	S.D	
1	shoulder	109.80	4.72	105.14	4.48	4.77**

2	Upper arm	28.888	2.48	27.966	2.48	3.55**
3	chest	87.41	3.48	85.90	5.27	4.00**
4	abdomen	73.862	3.298	75.700	5.980	3.16**
5	hip	87.112	3.92	88.369	3.988	2.47*
6	thigh	52.22	3.991	52.672	3.326	.75
	calf	31.904	1.604	33.362	2.14	2.06*

****Significant at 0.01 level N = 260 d.f. = 258**

Table-4 shows that the t-ratio of shoulder, upper arm chest and abdomen girth between inter-university levels cricketers and non-sportsmen are significant at 0.01% level whereas the t-ratio of variables like hip and calf girths between above two groups are significant at 0.05% level. But thigh girth has not significant at any levels.

Table –5

Significant difference in the Skin folds of inter-university levels cricketers and non-sportsmen

S.No	variables	Inter- university		Non Sportsmen		T -ratio
		Mean	S.D	Mean	S.D	
1	Biceps	3.38	.759	4.24	1.08	7.45**
2	Triceps	5.413	1.78	8.96	3.62	10.41**
3	Sub-Scapular	8.34	1.998	10.712	2.79	8.28**
4	Suprailiac	7.64	2.27	10.74	3.91	8.09**
5	Thigh	8.18	2.79	12.84	4.23	10.29**
6	Calf	8.42	2.75	11.77	2.96	9.02**
	Sum of Skin folds	41.30	10.23	59.11	14.72	11.39**

****Significant at 0.01 level N = 260 d.f. = 258**

It is indicated from the same table that the t-ratio of biceps, triceps, sub-scapular, suparailiac, thigh, calf and sum of skin folds thickness between inter-university level cricketers and non-sportsmen are significant at 0.01% level. But according to their mean scores above two groups, it shows that non-sportsmen have more skin folds thickness than that of inter-university levels cricketers.

Table –6

Significant difference in the Body composition of inter-university levels cricketers and non- sportsmen

S.No	variables	Inter- university		Non Sportsmen		T -ratio
		Mean	S.D	Mean	S.D	
1	Body density	1.0631	.007	1.0582	.008	10.87**
2	Fat percentage	15.17	2.84	19.14	3.12	10.69**
3	Fat weight	9.16	1.93	11.895	2.47	10.03**
4	Lean Body Mass	51.0368	3.409	50.0252	2.318	2.16**

****Significant at 0.01 level N = 260 *Significant 0.05 level d.f. = 258**

The t-ratio of body composition i.e. body density, fat percentage, fat weight and lean body mass between inter-university level cricketers and non-sportsmen are significant at 0.01% level. So it is clearly indicated that non-sportsmen have more fat percentage and fat weight than that of inter-university level cricketers.

DISCUSSION OF THE RESULTS

According to results the significant difference of motor fitness components i.e. strength, speed, endurance, flexibility, agility, power and balance of inter-university cricketes have been found to be more than those of the non-sportsmen and the differences are statistically significant (as shown in the table-1). The results reveled that inter-university cricketers are superior in the motor fitness variables because inter-university level cricketers have done more technical training. These results are agreement with those of Larson (1941), Sigerreth (1944),Cureton (1947),Barrow (1954),Cumming (1967),Kaur (1977),Rani (1978), Harre (1979) and Bawa (1981), Singh.N. (1983).

It is observed that height, sitting height and trunk length of non-sportsmen has been found more than those of the inter-university cricketers (table-2) and the difference in means is statistically significant. The result is in complete agreement with those of Gunney (1973), LeVeau et.al (1974), They found that the shorter cricketers have more strength and body weight ratio than the taller.

The upper extremity i.e. total arm length, upper arm length and fore arm length of non-sportsmen have more than those of the inter-university cricketers (as shown in the table-2). The results are also in agreement with those of Digiovanna (1943).

The lowers extremity length i.e. total leg length, thigh length and foot length of non-sportsmen have more than those of the inter-university cricketers.

From the results, it is clear that elbow, shoulder, hip, knee and ankle diameters of non-sportsmen have more than those of the inter-university cricketers whereas wrist diameter is insignificant (table-3). The result is agreement with those of Bawa (1981).

The girth measurements i.e. abdomen, hip, thigh and calf girths are more than those of the inter-university cricketers (as shown in the table-4).

The skin fold measurements i.e. biceps, triceps, sub-scapular, suprailiac, thigh, calf skin and sum of four skin folds (biceps, triceps, sub-scapular and suprailiac skin folds) of non-sportsmen have been found to be greater than those of the inter-university cricketers and the differences are statistically significant (as shown in the table-5). Here non-sportsmen have more thickness of subcutaneous tissues it means they have more body fat weight The results of the present study are broadly supported by the findings of Bird (1961), Bosco (1962), Falls and Humphrey (1974). He stated "The less body fat leads to a body weight with relatively more muscles mass".

Body composition variables i.e. fat percentage and fat weight of non-sportsmen have more than those of the inter-university cricketers (as shown in the table 6) whereas body density and lean body mass of inter-university cricketers have been found more than those of the non-sportsmen.

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