International Journal of Movement Education and Social Science
IJMESS Vol. 4 Issue 2 (Oct, 2015) www.ijmess.org
ISSN (Print): 2278-0793
ISSN (Online): 2321-3779

ANTHROPOMETRIC AND PHYSICAL PROFILES OF THE STATE AND OUTSIDE STATE SOCCER PLAYERS OF MANIPUR

(Received on: 11 March 2015, Reviewed on: 20 April 2015 and Accepted on: 22 May 2015)

Dr. Laishram Thambal Singh, Assistant Professor
Department of Physical Education and Sports Science
Manipur University, Canchipur, Imphal.

Abstract

The objective of the study was to investigate the significant profiles of state and outside state football players originated from the Manipur state. Various parameters like skill, physical, anthropometric, physiological, psychological, social and environments influence Soccer performance. Thirty (N=30) football players, fifteen (15) each from the state and outside state had been randomly selected. The data were collected on anthropometric parameters- age, height, weight, body fat % (skinfold), body fat % (BIA), shoulder width; circumferences- chest, waist, thigh (left), thigh (right), calf (left), calf (right), and physical parameters were handgrip (left),handgrip (right), leg-lift, sit and reach. The means and standard deviations of anthropometric and physical measurements for both state and outside state football players were observed by employing the descriptive analysis. The independent 't' test was employed to find out the significant difference between state and outside state football players on anthropometric and physical measurements. Among the anthropometric measurements BMI, waist, thigh (left), thigh (right), calf (left) and calf (right) were found significant difference as the respective calculated values 2.14, -4.65, 2.37, -2.65, -5.26 and -5.78 greater than table value of 't'=2.048 at .05 level of significance. Further, among the physical measurements there were also significance difference on leg-lift and sit & reach performance as the calculated values -3.25 and 4.42 respectively greater than table value of 't'=2.048 at .05 level of significance. By the means (M), mean differences (MD) and t-test, it was acknowledged that outside state players had better anthropometric and physical performance than the state players did. Those players who had the better anthropometric and physical parameters might get the advantages to recruit to the outside states' big clubs, ISL, and others. It was also recommended that similar study might be conducted on different performance limited parameters.

Keywords: Physical, Physiological, Body composition, and Somato types.

Introduction

In the modern world, soccer is the most popular and truly a dominant game in every countryside. In the developed countries, it is taken as a part of life. There are different levels of soccer leagues in different countries. The BPL in England, the La Liga in Spain, the Bundesliga in Germany, the Serie A in Italy, League 1 in Franceetc. are some of the most famous soccer leagues around the world. Football, this is the biggest

and most dominant game in Manipur also. Large numbers of players are playing in big clubs and the national team of the country, India. A particular body size may encourage acquisition of certain skills and force gravitation towards a specific playing position. This is likely to occur before maturity so that the individual will tend to favor one positional role before playing at senior level. Under-age soccer also organized according to chronological rather than biological age (Reilly, 2002). Body size, shape, physique and stature contribute big role to limit the soccer performance. Body composition is an important aspect of soccer fitness concern to the quality of locomotor actions. Therefore, anthropometric measurement and somato typing are indispensable to predict and guide the performance suitably. The isotonic, isometric and combination types of contractility strength imply the power, speed and precision of kicking.

Objective of the Study

The objective of the study was to investigate the anthropometric and physical profiles of state and outside state football players originated from the Manipur state.

Methodology

Selection of subjects:

To investigate the anthropometric and physical profiles of soccer players, thirty (N=30) male soccer players, fifteen (N=15) each from state and outside state were selected randomly according to their availability in the state for national team preparation. The minimum level of the subjects was state league participation representing from A- division clubs.

Data collection

The data were collected from each fifteen (N=15) players of state and outside state on anthropometric variables- age, height, weight, BMI, body fat % (skinfold), body fat (BIA), shoulder width, circumference- chest, waist, thigh (left), thigh (right), calf (left) and calf (right); and physical variables- strength of hand grip (left and right)and leg-lift, and flexibility by sit & reach test. For the collection of anthropometric data, weighing machine, measuring tape, skinfold caliper, anthropometric compass, sliding caliper, handgrip dynamometer, leg-lift dynamometer and flexometer were used.

Data Analysis

Firstly, descriptive analysis was employed to find out the means and standard deviations of the state and outside state football players groups. The t- test statistical technique was applied to find out the significant difference between the groups and the level of significance was set at 0.05.

Results

The means and standard deviation of the anthropometric measurements of the state and outside state football players are given in table 1(a) and 1(b).

TABLE-1A
MEANS AND STANDARD DEVIATIONS OF ANTHROPOMETRIC MEASUREMENTS OF STATE FOOTBALL PLAYERS OF MANIPUR (N=15)

Variables	Min	Max	Mean	SD
Age	18	25	22.00	2.23
Height (cm)	163	186	174.17	8.07
Weight (kg)	60.5	86.4	73.32	7.71
BMI	16.54	25.12	21.52	2.12
Body Fat % (Skinfold)	9.23	16.5	12.10	2.20
Body Fat % (BIA)	8.40	20.12	14.47	3.67
Shoulder width (cm)	32	37	34.50	1.40
Circumference:				
Chest (cm)	84	102	92.35	5.40
Waist (cm)	72	92	80.25	6.25
Thigh L (cm)	46	61	53.15	3.35
Thigh R (cm)	48	62	54.26	3.54
Calf L (cm)	36	42	37.31	1.25
Calf R (cm)	37	43	39.30	2.04

ISSN (Print): 2278-0793
ISSN (Online): 2321-3779

TABLE-1B
MEANS AND STANDARD DEVIATIONS OF ANTHROPOMETRICMEASUREMENTS OF OUTSIDE STATE FOOTBALL PLAYER OF MANIPUR (N=15)

Variables	Min	Max	Mean	SD
Age	18	27	23.00	2.46
Height (cm)	166	185	175.00	7.00
Weight (kg)	64.5	85	73.18	6.15
BMI	16.50	24.45	19.00	2.91
Body Fat % (Skinfold)	9.20	15.86	12.45	2.44
Body Fat % (BIA)	8.25	20.00	13.47	4.07
Shoulder width(cm)	32.00	38.00	35.27	1.74
Circumference:				
Chest (cm)	84	103	94.09	6.67
Waist (cm)	74	93	84.73	6.36
Thigh L (cm)	45	64	55.38	5.55
Thigh R (cm)	46	65	56.64	6.52
Calf L (cm)	38	46	42.18	2.82
Calf R (cm)	38	48	44.54	3.33

By the application of t-test, the significant difference between the state and outside state players on the anthropometric measurements has shown in the table 2.

TABLE 2
INDEPENDENT T-TEST OF SELECTED ANTHROPOMETRIC MEASUREMENT OF THESTATE AND OUTSIDE STATE FOOTBALL PLAYERS

Variables	Groups	M	SD	N	MD	t
Age	State Outside State	22 23	2.23 2.46	15 15	1.00	1.28
Height(cm)	State Outside State	174.17 175.00	8.07 7.00	15 15	0.83	1.15
Weight (kg)	State Outside State	73.32 73.18	7.71 6.15	15 15	0.14	0.86
BMI	State Outside State	21.52 19.00	2.12 2.91	15 15	2.52	2.14*
Body Fat %(Skinfold)	State Outside State	12.10 12.45	2.20 2.44	15 15	0.35	0.94
Body Fat % (BIA)	State Outside State	14.47 13.47	3.67 4.07	15 15	1.00	1.28
Shoulder width (cm)	State Outside State	34.50 35.27	1.40 1.74	15 15	0.82	1.10
Chest (cm)	State Outside State	92.35 94.09	5.40 6.67	15 15	1.74	1.84
Waist(cm)	State Outside State	80.25 84.73	6.25 6.63	15 15	4.48	4.65*
Thigh-L(cm)	State Outside State	53.15 55.38	3.35 5.55	15 15	2.23	2.37*
Thigh-R(cm)	State Outside State	54.26 56.64	3.54 6.52	15 15	2.38	2.65*
Calf-L(cm)	State Outside State	37.31 42.18	1.25 2.82	15 15	4.87	5.26*
Calf-R(cm)	State Outside State	39.30 44.54	2.04 3.33	15 15	5.24	5.78*

*Significant at 0.05 ($t_{0.05(28)}$=2.048)

Table 2 reveals that there were significant difference between in BMI, waist, thigh (left), thigh (right), calf (left) and calf (right) as the respective calculated values were 2.14, -4.65, 2.37, 2.65, 5.26 and 5.78 were greater than table value of t=2.048 at 0.05 level of significance of the state and outside state football players. Further, table 2 presents that there were no significant difference in terms of age, height, weight, body fat (skinfold), body fat (BIA), chest and shoulder width as the calculated values i.e. 1.25, 1.18, 0.86, 0.94, 1.28, 1.10, and 1.84 respectively less than the table value of t =2.048 at 0.05 level of significance of the state and outside state football players.

TABLE-3A
MEANS AND STANDARD DEVIATIONS OF PHYSICAL MEASUREMENT OF STATE FOOTBALL PLAYERS

Variables	Min	Max	Mean	SD
Handgrip- L (kg)	42.00	55.00	48.85	4.38
Handgrip- R (kg)	42.00	56.00	49.60	4.27
Leg-lift (kg)	115.00	130.00	122.53	5.32
Sit and Reach (cm)	24.00	40.00	37.10	4.55

TABLE-3B
MEANS AND STANDARD DEVIATIONS OF PHYSICAL MEASUREMENT OFOUTSIDE STATE FOOTBALL PLAYERS

Variables	Min	Max	Mean	SD
Handgrip- L (kg)	44.00	56.00	49.87	3.64
Handgrip- R (kg)	44.00	57.00	50.33	4.12
Leg-lift (kg)	118.00	135.00	125.33	5.22
Sit and Reach (cm)	26.00	40.00	33.67	4.92

By the application of t-test, the significant difference between the state and outside state players on the selected physical measurements has shown in the table 4.

TABLE 4
INDEPENDENT T-TEST OF SELECTED PHYSICAL MEASUREMENT OF THE STATE AND OUTSIDE STATE FOOTBALL PLAYERS

Variables	Groups	M	SD	MD	t
Handgrip-left(kg)	State	48.85	4.38	1.02	1.86
	Outside State	49.87	3.64		
Handgrip-right (kg)	State	49.60	4.27	0.73	1.01
	Outside State	50.33	4.12		
Leg-lift (kg)	State	122.53	5.32	2.80	3.25*
	Outside State	125.33	5.22		
Sit & Reach(cm)	State	37.10	4.55	3.43	4.42*
	Outside State	33.67	4.92		

*Significant at 0.05 $t_{0.05(28)}$=2.048

Table 4 reveals that there were significance difference on leg-lift and sit & reach performance as the calculated values -3.25 and 4.42 respectively were greater than table value of t=2.048 at 0.05 level of significance. Further, table 4 presents that there were no significant differences in terms of handgrip-left (kg) and handgrip-right (kg) as the calculated values, i.e. -1.86 and -1.01 respectively less than the table value of t = 2.048 at 0.05 level of significance.

Discussion

The objective of the study was to investigate the selected anthropometric and physical profiles of state and outside state football players originated from the Manipur state. The results had shown that the anthropometric profiles of state football players were expressed by the calculated means(M) and standard deviation(SD) on the selected variables- age (22.00±2.23), height (174.17±8.07), weight (73.32±7.71), BMI (21.52±2.12), body fat % (skinfold) (12.10±2.20), body fat % (BIA) (14.47±3.67), shoulder width (34.50±1.40), circumferences- chest (92.35±5.40), waist (80.25±6.25), thigh (left) (53.15±3.35), thigh (right) (54.26±3.54), calf (left) (37.31±1.25), calf (right) (39.30±2.04). Then, the anthropometric profiles of outside state football players were expressed by the calculated means(M) and standard deviation(SD) on the selected variables- age (23.00±2.46), height (175.00±7.00), weight (73.18±6.15), BMI (19.00±2.91), body fat % (skinfold) (12.45±2.44), body fat % (BIA) (13.47±4.07), shoulder width (35.27±1.74), circumferences- chest (94.09±6.67), waist (84.73±6.36), thigh (left) (55.38±5.55), thigh (right) (56.64±6.52), calf (left) (42.18±2.82), calf (right) (44.54±3.33). Further, the results had shown that the physical profiles (handgrip strength, leg-lift strength, and body flexibility) of state football players were expressed by the calculated means(M) and standard deviations (SD) on the selected variables- handgrip (left) (48.85±4.38), handgrip (right) (49.60±4.27), leg-lift (122.53±5.32),and sit & reach (37.10±4.55). Then, the results had shown that the physical profiles (handgrip strength, leg-lift strength, and body flexibility) of outside state football players were expressed by the calculated means(M) and standard deviation(SD) on the selected variables- handgrip (left) (49.87±3.64),handgrip (right) (50.33±4.12), leg-lift (125.33±5.22), and sit

& reach (33.67±4.92). By employing the independent t- test there were significant difference between state and outside state football players among the anthropometric variables- BMI, waist, thigh (left), thigh (right), calf (left) and calf (right) as the respective calculated values were 2.14, 4.65, 2.37, 2.65, 5.26 and 5.78 greater than table value of t=2.048 at .05 level of significance. Further, there were also significant difference on leg-lift and sit & reach performance as the calculated values were 3.25 and 4.42 respectively greater than table value of 't'=2.048 at .05 level of significance.

Conclusion

Based on research outcome, we know that the means (M) ,mean differences(MD) and t-test statistical analysis generally reveal the significant differences among the selected anthropometric and physical variables between the state and outside state football players of Manipur. Overall observation of the study, it is acknowledged that outside state players had better anthropometric and physical performance than the state players did. Being the outside state players had better selected anthropometric and physical outputs, they might get the advantages to be recruited by the outside big clubs, ISL, and others. It is recommended that similar study might be conducted on different performance limited parameters.

.

References

Admand, B. J. and Florence, B.C. (1979). "Physiological and Anthropometric Assessment of Successful Teenage Female Distance Runners". Research Quarterly, 50(2).

All-Hazaa HM. et.al. (2001). "Aerobic and Anaerobic Power Characteristics of Saudi Elite Soccer Players". Journal of Sports Medicine and Physical Fitness, 41(1).

Beine G.(1977). Principle of Modern Soccer. Houghton Miffin Company, Boston.

Beiter, FW. (1991). Prediction of Football Playing Ability. Completed Research in Health, Physical Education, Recreation and Dance, 23.

Bunc, V. and Psotta, R. (2001). "Physiological Profiles of Very Young Soccer Players". Journal of Sports Medicine and Physical Fitness, 41(3).

Matheson, Z. (1978). "Selected Physiological, Anthropometric and Skill Variables Contributing to Success in 10-12 Years Old Female Competitive Swimming". Completed Research in Health, Physical Education and Recreation, 20.

Ramadan, JM. (1985). "Selected Physiological, Psychological and Anthropometric Characteristics of the Kuwait World Cup Soccer Team". Dissertation Abstracts International, 46(4).

Raman, G. (1983). "Relationship of Grip Strength, Leg Power, Agility and Hand and Foot Reaction Time to Performance in Cricket". Unpublished Master's Thesis, Jiwaji University, Gwalior, India.

Sodhi, H.S. and Sidhu, L.S. (1984). Physique and Selection of Sportsmen. Punjab Publishing House, Patiala.

Thatcher J, Thatcher R, Day, M. , Portas M. and Hood S. (2009). Sports and Exercise Science. Learning Matters Ltd., Southernhay East.

Williams AM. (2013). Science and Soccer. Routledge, London and New York.