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ANTHROPOLOGICAL MEASUREMENT OF WOMEN'S NATIONAL AND INTERNATIONAL LEVEL FOOTBALL PLAYERS OF MANIPUR

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Abstract

Body measurement was one of the important factors which affect to our performance level. The purpose of this research was to measure the level of selected anthropological measurements between the goalkeepers, backs, midfielders and strikers of national and international level women's football players of Manipur. Under the Descriptive research comparison was predicted from 81 women's players those who had participated national and international level of competition and these players are recently participating in state level competition organized by All Manipur Football Association. The collected data was analysis by using Duncan's Range Test significant at 0.05 level of confidence.

Goal keepers were significantly found higher in weight than Half, striker; backs were significantly higher in weight than striker; Goal keepers were significantly higher in height than all the position of players back, Half, striker; goalkeepers were significantly different in BMI then the back and backs were significantly higher than strikers; in neck circumference the significant different found in goalkeeper than the half and striker position of players; goalkeepers were significantly lower in upper arm circumference than back and half, backs were significantly higher in upper arm circumference than the striker position of players; backs were significant higher in fore arm circumference than strikers but no significant different found to other different position of players; back were higher thigh circumference than Goalies, Half and Strikers; no significant difference found in calf circumference.

Keywords: Anthropological, comparative study, national and international, Duncan's range test, body girth.

Introduction:

From the origin of our life, our first view comes to the body. Even now our ancestor uses to say about the body size, height and posture. They classified the body type suited to the related event of sport. In Manipur, football women team are considerable one, as per Senior National Women's Football Championship Manipur become top most, most time winner of the championship is Manipur, and 3 times become only the runner since from 1991-1992 championship to till 2010-2011 championship. The contributions are very high in national level, but still there is need of improvement for better performance [1-5]. Sports historians claim that soccer is the oldest team sport in the world. While no one is quite sure exactly where it began, they know that a kicking game called *tsu chu* was played by the Chinese over 2,500 years ago, where participants tried to kick a leather ball filled with hair between bamboo poles. There are many factors which are related to sport performance; in common we can say the performance is combination of fitness, skill ability, motor control and motor educability. Ideally speaking person having good performance is not enough with practice. Genetic play vital role in performing physical activities. Generally we look first the structure of the body who big the individual is, how height or how weight. It gives the some idea that the common thinking may have the change to be right in reality [6-8].

Sarojini had conducted a study to 38 Meitei women football players and another 100 non- athlete women individuals, who have at least attained 18 years of age been collected [1]. Majority of the football players (71.05%) were national and international level players, while the rest (28.95%) were state level players. Based on 27 anthropometric variables inclusive of 3 skin fold measurement, reports for the first time, on women football players, specially of India. At large, the football players with 153.84 cm as mean stature show quite similar features in linear and limb measurements with the controlled group who also have a mean stature of153.94 cm, except that of the former have significantly larger bi-trochanteric and bi-iliocristale breadths and of neck, upper arm girth, fore arm girth and thigh and calf girth measurements. Moreover, the players too show larger proportions or mean Z values in the same above 4 limb girth measurements, bi-iliocristale breadths and lean body mass, than the controlled group and the differences are significant. Having withstructurally larger physical features and body proportions, specially, of upper arm, fore arm, thigh and calf girth measurements, bi-trochanteric and bi-iliocristale breadths and heavier body weight from the non athletes, when many other linear and limb measurements are found to be similar between the two groups of the Meitei women sample, may be due to the course of development which took place after the long term regular and rigorous physical exercise and nutritional intake pattern among the players. Drawing of athlete and the non-athlete samples in bigger size comparatively from the larger

families and also from the lower social class status families, may be in consonant with the general sociodemographic and economic background of the population of the state which belonged to the lower per capita income of Rs 12,228/- against Rs 17,530/ - for all India (Finance Department, Govt. of Manipur, 2002). The trend of producing more athletes of team games such as football, hockey and basketball etc. not from the higher social class groups have also been observed even in western societies. Apart from all, encouragement and the apparent socio-cultural sanction of the women in games and sports like in the field of arts and culture, seems to have contributed profoundly in enhancing sports pursuits of the Meitei women. **A** comparative study on selected muscular strength, flexibility and body composition of state and national level football, volleyball and handball players of Manipur, 300 male players age range from 17-25 years has taken 50 players for each group were randomly selected. The data pertaining to all the selected variables obtained through 3 groups were statistically analysed employing F-test (analysis of variance) for selected muscular strength, flexibility and body composition. Significant difference obtained on muscular strength (abdominal strength) body composition (fat %) body composition (lean body mass) among state level football, volleyball and handball players and no significant difference were obtained in the shoulder strength, back strength, explosive leg strength, flexibility and body composition (total body fat) . No significant different obtain among national level football, volleyball and handball players. No significance differences obtained among state and national level football players. Significant different obtained on back strength among state and national level volleyball player. Where as no significant different were obtain in abdominal strength, shoulder strength, explosive leg strength, flexibility, body fat % , lean body mass and total body fat. Significant difference obtained on back strength, flexibility, % of body fat among state and national level handball players where as no significant differences obtained in abdominal strength, shoulder strength, explosive leg strength, flexibility, body composition (lean body mass and total body fat). A profile study of collegiate football players in Pune University. Health related physical fitness, motor fitness, football skill and psychological profiles of attackers, goalkeepers, defenders and midfielders are not parallel. It seems that the health related fitness, motor fitness; football skill profiles could contribute better psychological profiles of the football players. Health related physical fitness, motor fitness, football skill and physiological profiles of attackers, goalkeepers, defenders and midfielders are not parallel. It seems that the health related fitness, motor fitness; football skill profiles could contribute better physiological profiles of the football players. Health related physical fitness, motor fitness; football skill profiles of attackers, goal keepers, defenders are parallel. It seems to be Health related physical fitness profiles could not contribute better motor fitness profiles of the football players. Motor fitness profiles could not contribute better skill profiles of the football players. The results help to consider seeing the different aspect of physical responses with related to the position of the play the research had chosen this research work to find out the different level of anthropological measurement of the women‘s football players.

Method:

The scholar would like to compare the selected nine variables (viz. Height, weight, BMI and neck, upper arm, fore arm, waist, thigh and calf circumference.) of anthropological measurement between women‘s football players. The subjects for this study were 81 (eighty one) women‘s football players who participate in national and international competitions. Besides, the subjects had participated recently in the state level competitions organized by All Manipur Football Association. It was found that the maximum six clubs participate in the state competitions and from that the maximum 81 players were drawn out. The players‘ distribution in women‘s football players are shown in table no. 1 below. The tester‘s reliability was established with the help of test retest method, the performance of ten subjects selected at random on the selected variables were recorded several times under identical conditions by the research scholar. A Pearson‘s Product Moment Correlation was computed between the two measures of each variable, the reliability coefficient had shown higher values. Body weight (.992), stature or standing height(.990), body mass index (BMI) (.993), Neck circumference (.980), upper (.943) and fore arm (.949) circumference, waist circumference (.913), thigh circumference (.906) and calf circumferences (.895). The subject of different position of play namely goalie, back, half and striker groups were compared in the selected body measurement variables statistically analyses with Duncan‘s multi-group design- four groups with unequal N‘s the significant difference level was fix at 0.05 level of confidence.

Result:

Comparison of body weights between the goalie Gr1, back Gr2, half Gr3 and striker Gr4: The comparison of mean weight among goalie, back, half and striker of national and international level of Manipur women‘s football players is presented in Table 2. Group 4 was reliably inferior to groups 2 (mean diff. R_p value -3.06352> R_p = 2.304728 at 0.05 level) and 1(mean diff. R_p value -3.50389 > R_p = 2.575544 at 0.05 level), but no reliable difference with group 3. Group 3 was reliably inferior to group 1(mean diff. R_p value -3.18889 > R_p = 2.304728 at 0.05 level), but no reliable difference with 2. Group 2 had no reliable difference with group 1. Group 1 was reliably superior to groups 3 and 4.

Comparison of height between the goalie, back, half and striker of women’s football players: The comparison of mean height among Goalie, back, half and striker of National and International level Manipur women‘s football players is presented in Table 3. Group 4 was reliably inferior to group 1(mean diff. $R_p$value -0.053 > R_p = 0.030216 at 0.05 level), but

no reliable difference with groups 2 and 3. Group 3 was reliably inferior to group 1(mean diff. R_p value -0.0792 > R_p = 0.027039 at 0.05 level), but no reliable difference with 2. Group 2 was reliably inferior to group 1(mean diff. R_p value -0.05852 > R_p= 0.03559 at 0.05 level). Group 1 was superior in height from other three groups.

Comparison of BMI between the goalie, back, half and striker: The comparison of mean BMI (body mass index) among Goalie, back, half and striker of National and International level women's football players is presented in Table 4. Group 4 had no reliable difference with groups 1 and 3, but was reliably inferior to group2 (mean diff. R_p value -1.40664 > R_p = 0.935017 at 0.05 level). Group 3 had no reliable difference with groups 1 and 2. Group 2 was reliably superior to group 1(mean diff. R_p value 1.468569 > R_p = 1.230704 at 0.05 level).

Comparison of Neck circumference between the goalie, back, half and striker: The comparison of mean score of neck circumferences among Goalie, back, half and striker of National and International level women's football players is presented in Table 5. Group 4 was reliably inferior to group 1(mean diff. R_p value -0.35944 > R_p = 0.331567 at 0.05 level), but no reliable difference with groups 2 and 3. Group 3 was reliably inferior to group 1 (mean diff. R_p value -0.43644 > R_p = 0.296793 at 0.05 level), but no reliable difference with group 2. And there were no reliable difference between the group 2 and group 1.

Comparison of Upper arm circumferences between the goalie, back, half and striker: The comparison of mean score of upper arm (circumference) among Goalie, back, half and striker of National and International level Manipur women's football players is presented in Table 6. Group 4 had no reliable difference with groups 1 and 3, but reliably inferior to group 2 striker (mean diff. R_p value -0.5625 > R_p = 0.495902 at 0.05 level). Group 3 was reliably superior to group 1 (mean diff. R_p value 0.523778 > R_p = 0.495902 at 0.05 level), no reliable difference with group 2. Group 2 was reliably superior to group 1 (mean diff. R_p value 0.727778 > R_p = 0.652724 at 0.05 level).

Comparison of fore arm circumferences between the goalie, back, half and striker: The comparison of mean score of fore arm (circumferences) among Goalie, back, half and striker of National and International level women's football players is presented in Table 7. Gr4 was reliably inferior to Gr2 (mean diff. R_p value -0.49398 > R_p = 0.466183 at 0.05 level) and no reliable differences between Gr4-Gr1, Gr4-Gr3 and Gr3-Gr2.

Comparison of waist circumferences between the goalie, back, half and striker: The comparison of mean score of waist circumference among Goalie, back, half and striker of National and international level Manipur women's football players is presented in Table 8. Group 4 had no reliable differences with groups 1, 2 and 3. Group 3 was reliably inferior to groups 1(mean diff. R_p value -1.15333 > R_p = 0.924618 at 0.05 level) and 2 (mean diff. R_p value -1.2737 > R_p = 1.217017 at 0.05 level). But there were no reliable differences between Gr2-Gr1.

Comparison of thigh circumferences between the goalie, back, half and striker: The comparison of mean score of thigh circumference among Goalie, back, half and striker of National and international level Manipur women's football players is presented in Table 9. Group 4 was no reliable differences with groups 1 and 3, but was reliably inferior to group 2 (mean diff. R_p value -1.30685 > R_p = 0.560856 at 0.05 level). Group 3 had no reliable difference with group 1, but was reliably inferior to group 2(mean diff. R_p value -0.89185 > R_p = 0.738219 at 0.05 level). Group 2 was reliably superior to group 1 (mean diff. R_p value 1.085185 > R_p = 0.738219 at 0.05 level).

Comparison of calf circumferences between the goalie, back, half and striker: The comparison of mean score of calf circumference among Goalie, back, half and striker of National and International level women's football players is presented in Table 10. The comparisons of group's values are compared with the related R_p value, from the comparison of calf circumference between goalie, back, half and striker: There are no reliable difference between the Groups 1, 2, 3 and 4.

Discussion:

Goal keepers were significantly higher in weight than Half (mean diff. R_p value -3.18889 > R_p = 2.304728 at 0.05 level), striker (mean diff. R_p value -3.50389 > R_p = 2.575544 at 0.05 level), backs were significantly higher in weight than striker (mean diff. R_p value -3.06352 > R_p = 2.304728 at 0.05 level); table 25 and 26 indicated Goal keepers were significantly higher in height than all the position of players back (mean diff. R_p value -0.05852 > R_p= 0.03559 at 0.05 level), Half (mean diff. R_p value -0.0792 > R_p = 0.027039 at 0.05 level), striker (mean diff. R_p value -0.053 > R_p = 0.030216 at 0.05 level); goalkeepers were significantly different in BMI then the back (mean diff. R_p value 1.468569 > R_p = 1.230704 at 0.05 level) and backs were significantly higher than strikers (mean diff. R_p value -1.40664 > R_p = 0.935017 at 0.05 level); in neck circumference the significant different were sown in table 31 and 32 by goalkeeper than the half (mean diff. R_p value -0.43644 > R_p = 0.296793 at 0.05 level) and striker (mean diff. R_p value -0.35944 > R_p = 0.331567 at 0.05 level) position of players; goalkeepers were significantly lower in upper arm circumference than back (mean diff. R_p value 0.727778 > R_p = 0.652724 at 0.05 level) and half (mean diff. R_p value 0.523778 > R_p = 0.495902 at 0.05 level), backs were significantly higher than the striker (mean diff. R_p value -0.5625 > R_p = 0.495902 at 0.05 level) position of players; backs were significant

higher in fore arm than strikers (mean diff. R_p value -0.49398 > R_p = 0.466183 at 0.05 level), no significant different found to other different position of players; table 40 and 41 indicated that goalies (mean diff. R_p value -1.15333 > R_p = 0.924618 at 0.05 level) and backs (mean diff. R_p value -1.2737 > R_p = 1.217017 at 0.05 level); back were higher thigh circumference than Goalies(mean diff. R_p value 1.085185 > R_p = 0.738219 at 0.05 level), Half (mean diff. R_p value -0.89185 > R_p = 0.738219 at 0.05 level) and Strikers (mean diff. R_p value -1.30685 > R_p = 0.560856 at 0.05 level); no significant difference found in calf circumference.

It was found that different positions of players were having different body measurement their weight, height and different body parts girth. So it may conclude that there was possible for establishing for the selection criteria of selection for the more successful player with related to Anthropometric measurement. And Researcher would like to consider other factors affection performance like physiological, motor fitness, balance and coordination and health related fitness component etc. should have the possibility of different score to different position of play.

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Table – 1

Players' distribution in women's football players sampling

Position of players	No. of women's football players
Goalie	9
Defender	27
Midfielder	25
Striker	20
Total	81

Table 2

Mean difference of four groups in relation to weight of the subject

Goalie Gr. 1	Back Gr. 2	Half Gr. 3	Striker Gr. 4
53.68889	53.24852	50.5	50.185

Table - 3

Mean difference of four groups in relation to weight of the subjects

Goalie Gr. 1	Back Gr. 2	Half Gr. 3	Striker Gr. 4
1.62	1.56148	1.5408	1.567

Table - 4

Mean difference of four groups in relation to BMI of the subjects

Goalie Gr. 1	Back Gr. 2	Half Gr. 3	Striker Gr. 4
20.4127	21.88127	21.26996	20.47463

Table - 5
Mean difference of four groups in relation to Neck circumference

Goalie Gr. 1	Back Gr. 2	Half Gr. 3	Striker Gr. 4
12.44444	12.16852	12.008	12.085

Table - 6
Mean difference of four groups in relation to upper arm (circumferences) of the subjects

Goalie Gr. 1	Back Gr. 2	Half Gr. 3	Striker Gr. 4
8.922222	9.65	9.446	9.0875

Table - 7
Mean difference of four groups in relation to fore arm (circumferences) of the subjects

Goalie Gr. 1	Back Gr. 2	Half Gr. 3	Striker Gr. 4
8.5	8.481481	8.344	7.9875

Table - 8
Mean difference of four groups in relation to waist (circumference) of the subjects

Goalie Gr. 1	Back Gr. 2	Half Gr. 3	Striker Gr. 4
30.83333	30.9537	29.68	30.125

Table – 9
Mean difference of four groups in relation to thigh (circumferences) of the subjects

Goalie Gr. 1	Back Gr. 2	Half Gr. 3	Striker Gr. 4
18.91667	20.00185	19.11	18.695

Table - 10
Mean score difference of four groups in relation to calf circumferences of the women's football players

Goalie Gr. 1	Back Gr. 2	Half Gr. 3	Striker Gr. 4
12.95	13.27593	13.142	12.975

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