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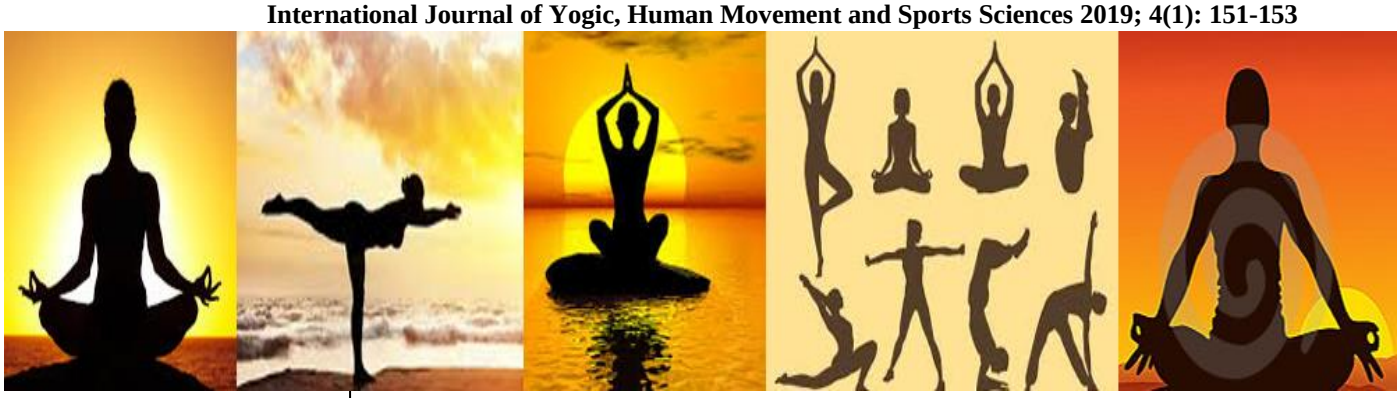

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# Study to select the skin fold thickness of football and volleyball players

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**Abstract**
The present study was designed to determine study to select the skinfold thickness of football and volleyball players. Total forty (N=40) Football (N=20) and Volleyball (N=20) players were selected to act as subjects for the present study, with the age ranging between 18-25 years. In consultation with the experts in the field, minutely gleaning through the literature available and considering the feasibility criteria in mind, especially the availability of instrument. The following components of Kin anthropometric variables were selected for the present study such as skin fold thickness such as biceps, triceps, and sub scapular, supra iliac and calf. Statistical analysis was performed using SPSS version 16.0 for windows (SPSS Inc, Chicago, IL, USA). All descriptive data were report as mean and standard deviation. Independent samples t-test was used to test if population means estimated by two independent samples differed significantly. The level of significance to test the hypothesis was set at 0.05. The results powerfully prove that, Significant differences were found between football and volleyball players for their biceps, triceps, sub scapular and supra iliac whereas insignificant difference found in calf.

**Keywords:** Volleyball, football, males, biceps, triceps, sub scapular, supra iliac and calf

## Introduction
Kin anthropometry is a newly emerging scientific specialization (Ross *et al*., 1978) [4] it is the scientific study of human size, shape, proportion, composition, maturation and gross function in order to understand human growth, exercise, performance and nutrition with implication for medicine, education and government with respect to individual rights in the service of humankind. In other words, kin anthropometry is the application of measurements of human size, shape, proportion, composition, maturation and gross function. It has the purpose of helping us to understand human movement in the context of growth, exercise, performance and nutrition enabling its objectives being achieved through applications in medicine, education and government (Koley and Sandhu, 2005) [2].

Identical to the mechanistic approach of human motion, anthropometry has a rich tradition in sports sciences and sports medicine. For instance, the physique of Olympic athletes was studied by kin anthropometrics since a long back. Though, in different times, different terms were used like dynamic anthropometry, sports anthropometry, biometry, physiological anthropometry, anthropometrica etc. by scientists. They tried to establish some relationships between the body structure and the specialized functions required for various tasks. They have also tried to understand the limitations of such relationships. Apart from the measurements of structural characteristics, the field of kin anthropometry extends the study of human adaption, maturation, nutrition and body composition (Koley and Sandhu, 2005) [2].

We know that the condition of the human species is the result of adaption, both genotypic and phenotypic. Phenotypic adaptions or developmentally acquired traits, in fact are comparable to the changes produced by athletic training (Stini, 1985) [5]. In this particular point the interests of the physical anthropologists and kin anthropometrics come together. The skills of anthropometry have been practiced by physical anthropologists for many decades. Jan borms opined that the term kin anthropometry is a young one. It must be clear that what is young is the terminology and not the use of anthropometry, studying the relationship of form and functions, the interaction of anatomy, growth and performance (Stini, 1985) [5]. If it is true that anthropologists have always been interested in the contributions of form and function, then they are earliest kin anthropometrics.

Diana, *et al*. (2014) [1] conducted despite the importance of body composition in athletes, reference sex- and sport-specific body composition data are lacking. We aim to develop reference values for body composition and anthropometric measurements in athletes. Body weight and height were measured in 898 athletes (264 female, 634 male), anthropometric variables were assessed in 798 athletes (240 female and 558 male), and in 481 athletes (142 female and 339 male) with dual-energy X-ray absorptiometry (DXA). A total of 21 different sports were represented. Reference percentiles ($5^{th}$, $25^{th}$, $50^{th}$, $75^{th}$, and $95^{th}$) were calculated for each measured value, stratified by sex and sport. Because sample sizes within a sport were often very low for some outcomes, the percentiles were estimated using a parametric, empirical Bayesian framework that allowed sharing information across sports. We derived sex- and sport-specific reference percentiles for the following DXA outcomes: total (whole body scan) and regional (subtotal, trunk, and appendicular) bone mineral content, bone mineral density, absolute and percentage fat mass, fat-free mass, and lean soft tissue. Additionally, we derived reference percentiles for height-normalized indexes by dividing fat mass, fat-free mass, and appendicular lean soft tissue by height squared. We also derived sex- and sport-specific reference percentiles for the following anthropometry outcomes: weight, height, body mass index, sum of skinfold thicknesses (7 skinfolds, appendicular skinfolds, trunk skinfolds, arm skinfolds, and leg skinfolds), circumferences (hip, arm, mid-thigh, calf, and abdominal circumferences), and muscle circumferences (arm, thigh, and calf muscle circumferences). These reference percentiles will be a helpful tool for sports professionals, in both clinical and field settings, for body composition assessment in athletes.

Musaiger *et al*. (1994) [3] investigated a total sample of 304 athletes was selected from first class clubs related to four common sports (football, handball, volleyball and basketball) and compared with 53 non-athlete adults. Weight, height, mid-arm circumference and skinfold thickness were measured to assess their body composition. The findings revealed that there were differences in body composition among athletes according to the type of sport. Basket ballers and volley ballers were the tallest athletes, while hand ballers were the heaviest ones. Skinfold thickness measurements showed that basketball and handball players have more subcutaneous fat than other athletic groups. As compared with non-athletes, the Bahraini players had higher means for height, weight, subscapular, suprailliac thickness and mid-arm circumference. This study was done with the aim of skinfold thickness of football and volleyball players. Keeping in the mind the importance of kin anthropometric variables at football and volleyball players for attaining for development and enhance the performance of players, the investigators therefore, designed a study select skinfold thickness of football and volleyball players.

**Sampling Procedure**

In this study, only those football and volleyball players were study, who was participated in inter college football and volleyball competition from year 2017 to 2018. The players from various colleges from all over Punjab were analyzed. The players falling under the age between 18 and 25 years was study. The players were divided into two groups in footballers and volley-ballers.

**Selection of Variables**

In consultation with the experts in the field, minutely gleaning through the literature available and considering the feasibility criteria in mind, especially the availability of instrument. The following components of Kin anthropometric variables were selected for the present study.

**Skin folds Thickness (mm)**

1. Biceps
2. Triceps
3. Sub scapular
4. Supra iliac
5. Calf

**Tools Used**

1. Pen
2. Copy
3. Skinfold caliper

**Table 1:** Comparison of Skin Fold Thickness Mean, Standard Deviation and 'T' Value of Football and Volleyball Players

| Variables | Football Players | | Volleyball Players | | t-value |
|---|---|---|---|---|---|
| | MEAN | S.D | MEAN | S.D | |
| Biceps | 6.53 | 1.05 | 4.53 | 1.13 | 7.486* |
| Triceps | 10.97 | 2.25 | 6.97 | 2.40 | 7.082* |
| Sub Scapular | 12.11 | 2.12 | 9.11 | 2.21 | 5.749* |
| Supra Iliac | 14.08 | 3.95 | 9.08 | 3.59 | 5.911* |
| Calf | 8.92 | 2.32 | 7.92 | 2.23 | 1.899 |

t.05 (38) = 2.02

The table & figure 1 reveals that the mean of football and volleyball players of skin fold thickness biceps, triceps, sub scapular, supra iliac and calf were recorded as 6.53 & 4.53, 10.97& 6.97, 12.11 & 9.11, 14.08 & 9.08 and 8.92 & 7.92 whereas the standard deviation were 1.05 & 1.13, 2.25 & 2.40, 2.12 & 2.21, 3.95 & 3.59 and 2.32 & 2.23 respectively. The calculated t- value of skin fold thickness biceps, triceps, sub scapular, supra iliac and calf of football and volleyball players of intercollege male were 7.486*, 7.082*, 5.749* 5.911* and 1.899 set at. 05 level of significance. So, it implies that there were significant difference found between football and volleyball players of biceps, triceps, and sub scapular, supra iliac on the other hand calf found was insignificant difference between football and volleyball players.

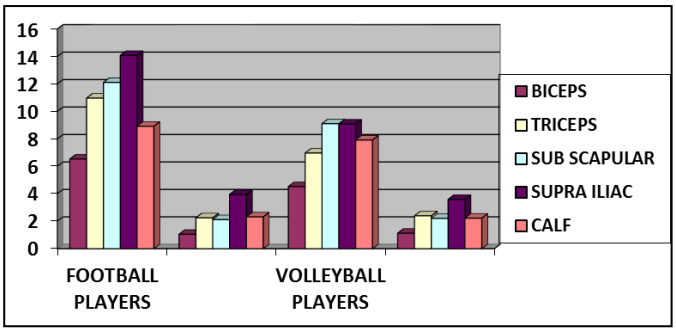


**Fig 1:** Comparison of Skin Fold Thickness Mean, Standard Deviation and 'T' Value of Football and Volleyball Players

**Conclusion of the Study**

On the basis of findings of present study, the following conclusion was drawn.

Significant differences were found between football and volleyball players for their biceps, triceps, sub scapular and supra ilia whereas insignificant difference found in calf.

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