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Somatotype characteristics of football players in the coastel area

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Abstract
The purpose of the study was to find out the somatotype characteristics of football players in coastal area. For the purpose of the study a total of 60 male subjects were selected randomly from the game of football who represented District level and above. Their age ranged between 18 to 25. Players from coastal area of Thiruvananthapuram District of Kerala state were selected as subject for the present study. The variables selected for the study were Somatotype components Endomorphy, Mesomorphy and Ectomorphy. The absolute variables measured for deriving the somatotype components were body mass, stretch stature, Triceps skinfold, subscapular skinfold, biceps skinfold, iliac crest skinfold, supra spinale skinfold, abdominal skinfold, medial calf skinfold, Arm girth relaxed, Arm girth flexed and tensed, waist girth (Min), Glutel girth (max), Calf girth (max), Humerus breadth and femur breadth. Descriptive statistics such as mean, standard deviation and Frequency are calculated to find out the status of somatotype components. And also to find out the frequency of each type falling into the specific playing positions. The result indicate that more number of football players (24 numbers) of coastal area is falling in the expected Ectomorphic Mesomorph body type group.

Keywords: Somatotype, endomorphy, mesomorphy, ectomorphy

Introduction
Human body is designed for physical activity. He has to be physically fit for climbing, Running, Jumping and throwing for procuring needs and to escape constant threats of life. Anthropologists indicate that the need to be active is associated with the "Flight or Fight" response. In search of food primitive people sometimes had to fight with other predicators. In either case, the response was often vigorous activity. Even our more recent ancestors were required to do vigorous activity as a relatively major part of their normal daily routine.
Somatotype is a person's physique or body type. The importance of somatotype toward health has been recognized since the time of Hippocrates, and the somatotype is currently regarded as a physical expression of lifelong contraction between a person's genotype and his or her environment.
According to Heath-Carter views, the technique of Somatotype is used to appraise body shape and composition. The Somatotype is defined as "the qualification of the present shape and composition of the human body". It is expressed in a three number rating representing Endomorphy, Mesomorphy and Ectomorphy. Here Endomorphy is the relative fatness. Mesomorphy is the relative muscular skeletal robustness, and Ectomorphy is the relative linearity or slenderness of a physique

Methodology
Selection of subject
For the purpose of the study a total of 60 male subjects were selected randomly from the game of football who represented District level and above. Their age ranged between 18 to 25. Players from coastal area of Thiruvananthapuram District of Kerala state were selected as subject for the present study.

Selection of test items
The variables selected for the study were Somatotype components Endomorphy, Mesomorphy and Ectomorphy.

The absolute variables measured for deriving the somatotype components were body mass, stretch stature, Triceps skinfold, subscapular skinfold, biceps skinfold, iliac crest skinfold, supra spinale skinfold, abdominal skinfold, medial calf skinfold, Arm girth relaxed, Arm girth flexed and tensed, waist girth (min), Glutel girth (max), Calf girth (max), Humerus breadth and femur breadth.

Analysis of data and result of the study

Statistical Procedure

Descriptive statistics such as mean, standard deviation and Frequency are calculated to find out the status of somatotype components. And also to find out the frequency of each type falling into the specific playing positions.

Table 1: The table shows Descriptive statistics such as mean

Descriptive	Somatotype		
	Endomorph	Mesomorph	Ectomorph
Mean	2.24	4.47	2.7
Std.Deviation	0.54	0.94	0.91
Minimum	1.10	2.30	0.90
maximum	3.50	6.70	4.80

Football players of coastal area had a mean score on endomorphy 2.24±0.54, Mesomorphy 4.47±0.94 and Ectomorph 2.72±0.91. The Endomorphic components of these ranged from 1.10 to 3.50. The Mesomorphic components ranged from 2.30 to 6.70 and Ectomorphic components from 0.90 to 4.80.

Table 2: Frequency of endomorphic components of the football players

Score	Frequency	Percent	Valid Percent	Cumulative Percent
1.10	1	1.7	1.7	1.7
1.40	1	1.7	1.7	3.3
1.50	4	6.7	6.7	10.0
1.60	5	8.3	8.3	18.3
1.70	2	3.3	3.3	21.7
1.80	3	5.0	5.0	26.7
1.90	4	6.7	6.7	33.3
2.00	3	5.0	5.0	26.7
2.10	3	5.0	5.0	43.3
2.20	4	6.7	6.7	50.0
2.30	5	8.3	8.3	58.3
2.40	3	5.0	5.0	63.3
2.50	5	8.3	8.3	58.3
2.60	4	6.7	6.7	78.3
2.70	6	10.0	10.0	88.3
2.80	1	1.7	1.7	90.0
2.90	1	1.7	1.7	91.7
3.20	1	1.7	1.7	93.3
3.30	1	1.7	1.7	95.0
3.40	2	3.3	3.3	98.3
3.50	1	1.7	1.7	100.0
Total	60	100.0	100.0	

The endomorphic components of the football players ranged from 1.10 to 3.50. More number of players (51 out of 60) about 58% have fallen within the range of 1.50 to 2.70. 3.3% of players were with a very low fatness (ranged 1.10 to 1.40) and 11.7% of players had slightly higher range (2.80 to 3.50) fatness.

Table 3: Frequency of mesomorphic components of the football players

Score	Frequency	Percent	Valid Percent	Cumulative Percent
2.30	1	1.7	1.7	1.7
2.50	1	1.7	1.7	3.3
3.00	2	3.3	3.3	6.7
3.10	2	3.3	3.3	10.00
3.20	2	3.3	3.3	13.3
3.30	2	3.3	3.3	16.7
3.50	1	1.7	1.7	18.3
3.60	1	1.7	1.7	20.0
3.80	3	5.0	5.0	5.0
3.90	2	3.3	3.3	8.3
4.00	1	1.7	1.7	30.0
4.10	4	6.7	6.7	36.7
4.20	3	5.0	5.0	41.7
4.30	2	3.3	3.3	45.0
4.40	1	1.7	1.7	46.7
4.60	4	6.7	6.7	53.3
4.70	1	1.7	1.7	55.0
4.80	4	6.7	6.7	61.7
4.90	6	10.0	10.0	71.7
5.00	3	5.0	5.0	76.7

5.10	3	5.0	5.0	81.7
5.20	2	3.3	3.3	85.0
5.40	1	1.7	1.7	86.7
5.50	1	1.7	1.7	88.3
5.60	2	3.3	3.3	91.7
5.90	2	3.3	3.3	95.0
6.20	1	1.7	1.7	96.7
6.40	1	1.7	1.7	98.3
6.70	1	1.7	1.7	100.0
Total	60	100.0	100.0	

The Mesomorphic components of the football players ranged from 2.30 to 6.70. More number of players (33 out of 60) about 55% have fallen within the range of 4.10 to 5.20 (9 out of 60) 15% have fallen within the range of 5.40 to 6.70 remaining (18 out of 60) 30% of the players within the range of 2.30 to 4.00.

Table 4: Frequency of ectomorphic component of the football players

Score	Frequency	Percent	Valid Percent	Cumulative Percent
0.90	1	1.7	1.7	1.7
1.10	2	3.3	3.3	5.0
1.60	2	3.3	3.3	8.3
1.70	1	1.7	1.7	10.0
1.80	3	5.0	5.0	15.0
1.90	3	5.0	5.0	20.0
2.00	1	1.7	1.7	1.7
2.20	5	8.3	8.3	30.0
2.30	3	5.0	5.0	35.0
2.40	6	10.0	10.0	45.0
2.50	2	3.3	3.3	48.3
2.60	5	8.3	8.3	56.7
2.70	1	1.7	1.7	58.3
2.80	5	8.3	8.3	66.7
2.90	1	1.7	1.7	68.3
3.00	1	1.7	1.7	70.0
3.10	1	1.7	1.7	71.7
3.20	3	5.0	5.0	76.7
3.40	2	3.3	3.3	80.0
3.60	3	5.0	5.0	85.0
3.80	1	1.7	1.7	86.7
3.90	1	1.7	1.7	88.3
4.00	1	1.7	1.7	90.0
4.30	1	1.7	1.7	91.7
4.40	1	1.7	1.7	93.3
4.50	1	1.7	1.7	95.0
4.60	1	1.7	1.7	96.7
4.70	1	1.7	1.7	98.3
4.80	1	1.7	1.7	100.0
Total	60	100.0	100.0	

The Ectomorphic components of the football players ranged from 0.90 to 4.80. More number of players (31 out of 60) about 56.6% have fallen within the range of 1.80 to 2.80. 10% of players are in the range of 0.9 to 1.70. 33.33% of players are in the range of 2.90 to 4.80.

Table 5: Frequency of body types of different position players of coastal area

Somatotype	Forwards	Midfielders	Defenders	Goal keepers	Total
Endomorphic Mesomorph	5	6	10	01	22
Ectomorphic Mesomorph	5	14	04	01	24
Mesomorphic Ectomorph	5	03	02	01	11
Mesomorphic Endomorph	_	_	01	_	01
Balanced Mesomorph	_	01	01	_	02

From table 5 it is observed that the Endomorphic Mesomorph of the players are distributed as Forwards (five), Mid fielders (six), defenders (ten) and goal keeper (one). The Ectomorphic Mesomorph of the players are distributed as forwards (five), Mid fielders (fourteen), defenders (four) and goal keeper (one). The Mesomorphic Ectomorph of the players are Distributed as forwards (five), Mid fielders (three), defenders (two) and goal keeper (one). The Mesomorphic endomorph of the players are distributed as Forwards (zero), Mid fielders (zero), defenders (one) and goal keeper (zero). The balanced Mesomorph of players are distributed as forwards (zero), Mid fielders (one), defenders (one) and goal keeper (zero).

Conclusion

1. More number of football players (24 numbers) of coastal area is falling in the expected Ectomorphic Mesomorph body type group.
2. Playing position of the coastal area players are almost justified with their body type.
3. Only few players are with unsuitable body type and playing positions.

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