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Development of norms for selected physical fitness parameters of male football defenders

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Abstract

Availability of norms for different selection parameters in sports with the view to maintain objectivity is very essential. In the Football context, much research have not been done in this regard. Hence, this study was aimed to develop norms for selected physical fitness parameters of Football Defenders. A sample of 30 Football Defenders was recruited purposively from the Guru Nanak Dev University, Amritsar. Subjects were tested for selected physical fitness parameters viz. Muscular strength, Muscular power, Muscular endurance, Running agility, Running speed, Jumping ability, Throwing ability, Flexibility and Balance. Percentile scale was used in order to develop the norms. The scores were ordered in to five grades viz. very poor, poor, average, good and very good.

Keywords: Norms, physical fitness, football, defenders

1. Introduction

In the order of physical instruction and sports, assessment has a dynamic influence since the start. The dimensions of the physical instruction and sports process are explained with the tests, estimations and assessments. These contain techniques to measure the understudy's advancement and status of development, their enhancement and the achievements (Singh and Singh, 2013)^[1]. Estimation and Evaluation are basic to identify ability in the games. The act of assessment all in all training and Physical instruction is a persistent procedure. Estimation and assessment of execution are critical to choose to which degree the encircled purposes have been accomplished, how viable the movement has been, and how much huge the result is (Singh and Singh, 2013)^[1]. The results indicate the bearing and the level of advancement in execution. In sports and physical training, as in instruction and throughout everyday life, understudy's execution is continually estimated and assessed by the instructor and mentor (Sarkar, 2010)^[2].

Football, at first a game filled the need of entertainment, step by step, developed into aggressive game that request a larger amount of physical wellness and aptitudes (Sarkar, 2010)^[2]. It has been contended that the most legal system of assessment is the utilization of very much engrained standards, as an inside for appraisals. "Standards are the qualities viewed as the agent of a predefined populace. A test that has going with standards is unquestionably wanted to one that is generally founded on age, weight, review, stature or different mix of these qualities" (Johnson and Nelson, 1988)^[3].

In the game of affiliation football, a Defenders is an outfield player whose essential job is to keep the restricting group from scoring objectives. There are four sorts of Defenders: focus back, sweeper, full-back, and wing-back. The inside back and full-back positions are fundamental in most present day developments. The sweeper and wing-back jobs are progressively specific for specific arrangements.

Fitness is characterized as the quality or condition of being fit. Around 1950, maybe steady with the Industrial Revolution and the treatise of World War II, the expression "fitness" expanded in western vernacular by a factor of ten. The advanced meaning of wellness portrays either an individual or machine's capacity to play out an explicit capacity or an all encompassing meaning of human versatility to adapt to different circumstances. This has prompted an interrelation of human fitness and allure that has assembled worldwide fitness and fitness hardware enterprises.

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With respect to work, fitness is credited to people who have critical vigorous or anaerobic capacity, i.e. continuance or quality. A balanced workout schedule enhances an individual in all parts of fitness contrasted with rehearsing just a single, for example, just cardio/respiratory perseverance or just weight preparing.

A far reaching work out regime custom-made to an individual commonly centers around at least one explicit abilities, and on age or wellbeing related needs, for example, bone health. Many sources additionally refer to mental, social and passionate wellbeing as a critical piece of by and large fitness. This is frequently displayed in reading material as a triangle made up of three points, which speak to physical, passionate, and mental fitness. Physical wellness can likewise anticipate or treat numerous incessant wellbeing conditions expedited by unfortunate way of life or aging. Working out can likewise enable a few people to rest better and potentially reduce some

inclination issue in specific people.

This highlights the greater need of establishing norms for selection of football players in order to make the selection criteria more objective and meritocratic. This study is an attempt to develop the norms for some selected physical fitness parameters with special consideration to the fitness of Defenders of Football.

2. Methods and procedures

2.1. Selection of subjects and variables

A sum of thirty (N=30), male college level Football Defenders between the age gathering of 18-25 years were selected from the different college of the Guru Nanak Dev University, Amritsar, Punjab, India. The purposive sampling technique was utilized to achieve the ideal sample. Physical fitness factors and their particular tests are given in table-1:

Table 1: Physical Fitness parameters and their respective tests

Variable	Test	Measuring unit
Muscular strength	Handgrip strength test	Kilograms
Muscular Power	Vertical jump test	Centimeters
Muscular Endurance	Pull-up test	Maximum performed
Running Speed	20 meter dash	Seconds
Running Agility	Illinois agility test	Seconds
Jumping Ability	Standing long jump	Meters
Throwing Ability	Overhead medicine ball throw test	Meters
Flexibility	Sit and reach test	Inches
Balance	Stork balance test	Seconds

2.2 Statistical Technique

Descriptive data was expressed as mean and standard deviation. Percentile Scale was used as a statistical tool in order to determine the norms of different variables. Further,

the scores were classified into five grades i.e. very good, good, average, poor and very poor.

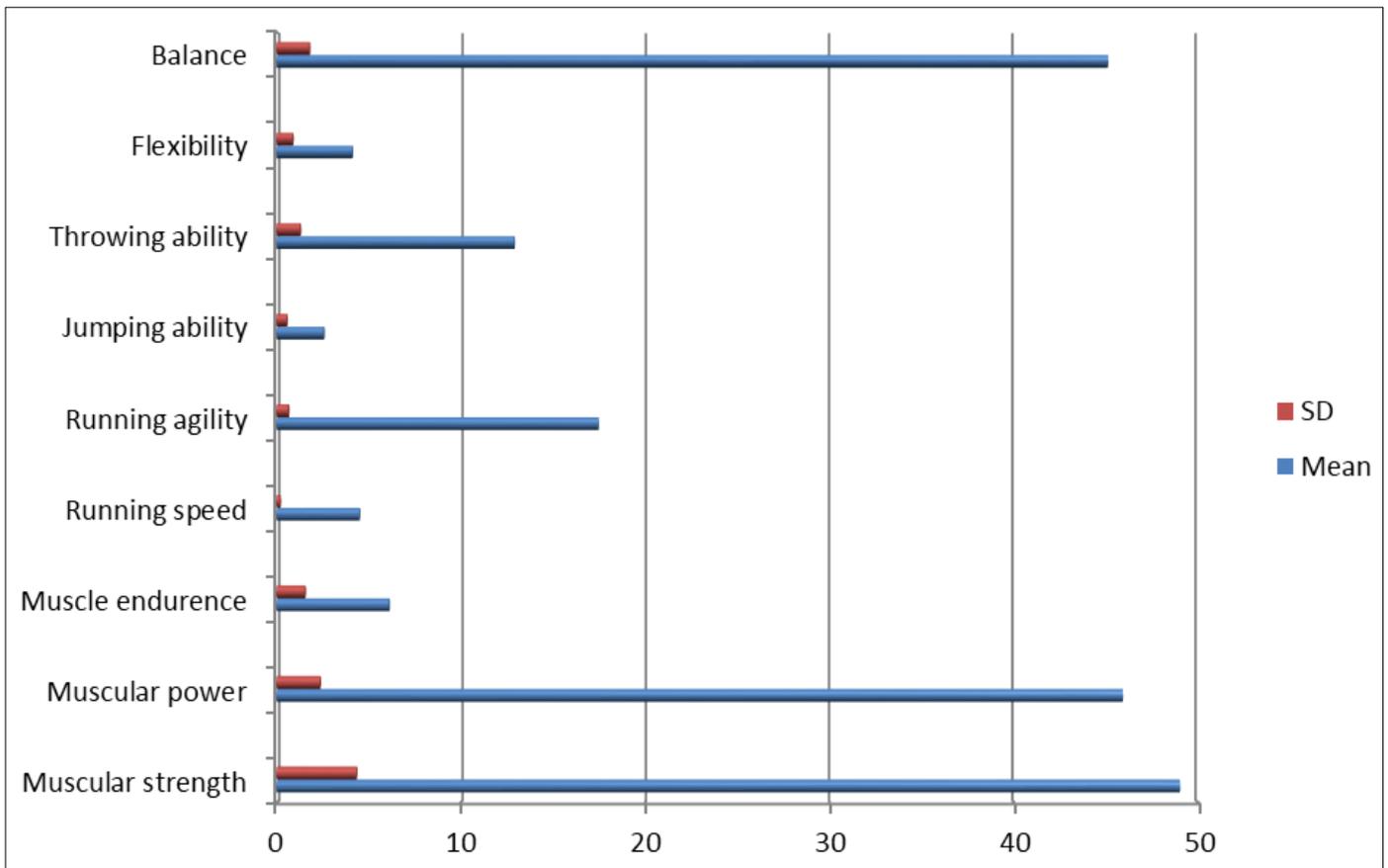
3. Results

Table 2: Descriptive Statistics (Mean & Standard Deviation) and Percentile Plot (Hi & Low) of specific Physical Fitness Test Items of Defenders (N=30) for Football game Selection.

S.	Test Item	Mean + Standard Deviation		Hi	Low
1	Muscular strength	Mean	49	57	41
		SD	4.328		
2	Muscular power	Mean	45.899	49	42
		SD	2.353		
3	Muscular endurance	Mean	6.1	9	4
		SD	1.535		
4	Running speed	Mean	4.4866	4.7	4.1
		SD	0.176		
5	Running agility	Mean	17.463	18.4	16.3
		SD	0.634		
6	Jumping ability	Mean	2.5556	3.36	1.70
		SD	0.546		
7	Throwing ability	Mean	12.9	15	10
		SD	1.274		
8	Flexibility	Mean	4.1	5	2
		SD	0.869		
9	Balance	Mean	45.1	48	42
		SD	1.776		

Table 2 shows that in Muscular Strength, the mean score was 49 and standard deviation score was 4.328. In Muscular Power, the mean score was 45.833 and standard deviation score was 2.353. In Muscular Endurance, the mean score was 6.1 and standard deviation score was 1.535. In Running Speed, the mean score was 4.4866 and standard deviation score was 0.176. In Running Agility, the mean score was

17.463 and standard deviation was 0.634. In Jumping Ability, the mean score was 2.5556 and standard deviation was 0.546. In Throwing Ability, the mean score was 12.9 and standard deviation score was 1.274. In Flexibility, the mean score was 4.1 and standard deviation score was 0.869. In Balance, the mean score was 45.1 and standard deviation score was 1.776 of Defenders.



Graph 1: Graphical portrayal of mean and standard deviation of physical fitness parameters

4. Discussion

The examination was intended to build up the standards for those physical wellness factors of Football defenders. Sarkar (2010) [2], in his doctoral research featured the need of foundation of physical wellness standards for Football players playing at different positions. On this record this investigation was expected to develop the standards for those physical wellness parameters of Football defenders. The after effects of this examination shows minor varieties with the standards for the comparative physical wellness parameters of Kabaddi players (Sharma *et al.*, 2014) [6]. This could be because of the shifted idea of these two amusements. Scarcely any different investigations have taken a shot at the improvement of standards for physical wellness parameters as there is a more prominent need to chip away at this topical territory in various physical training and sports settings (Singh *et al.*, 2014; Sharma, 2017; Singh and Singh, 2013) [6, 5, 1].

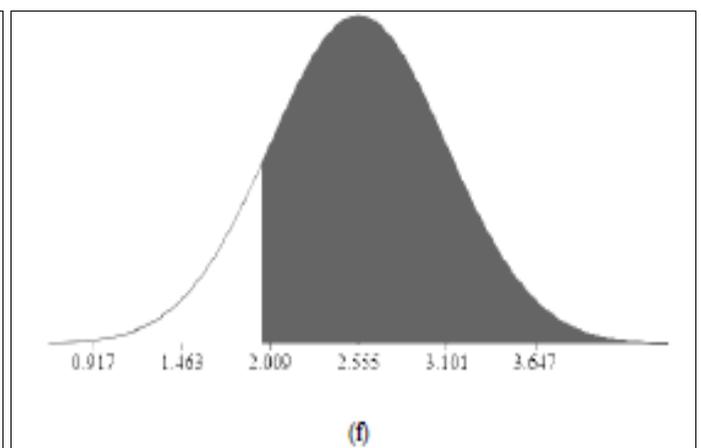
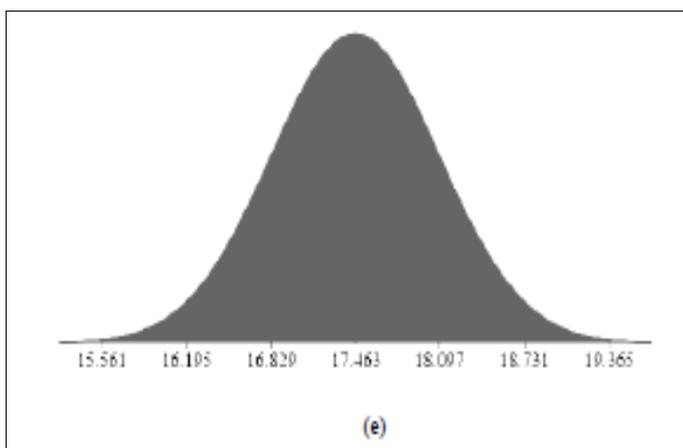
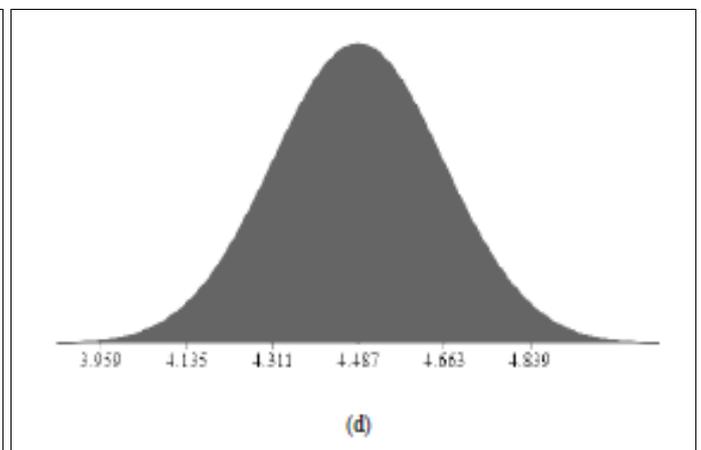
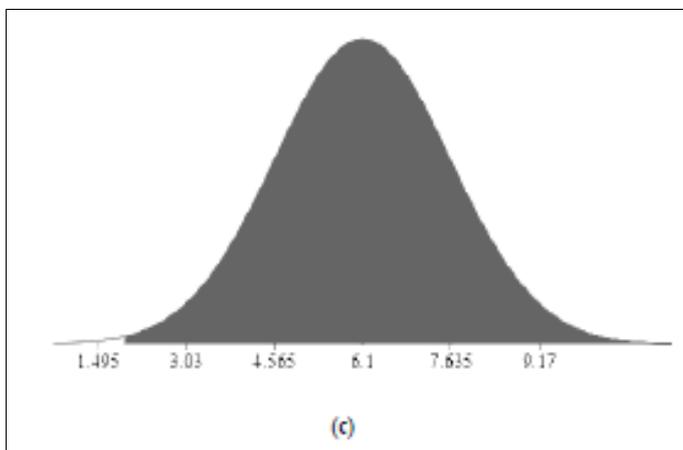
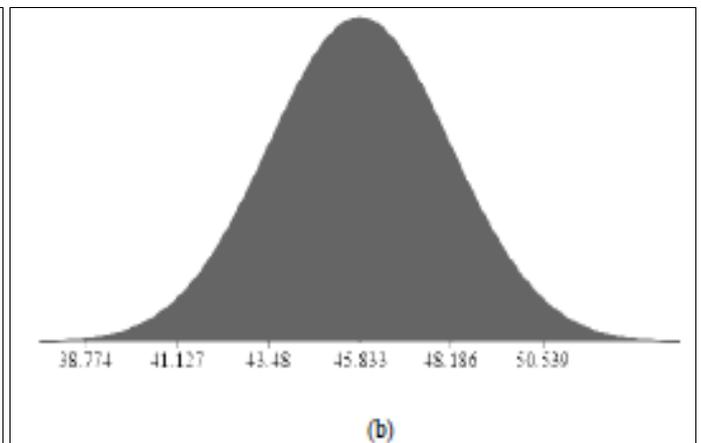
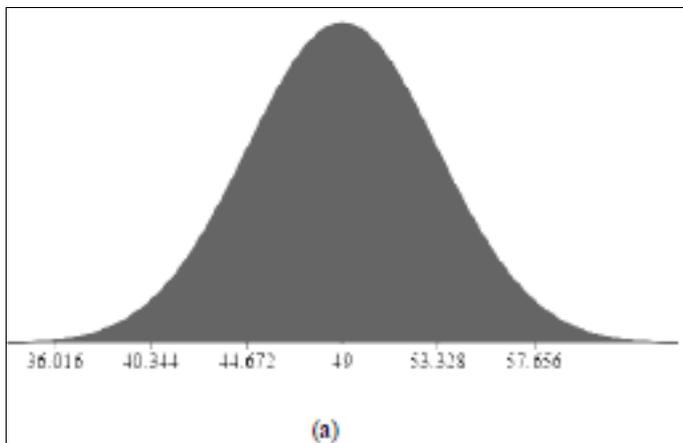
4.1 Distribution of grades under normal distribution of scores

The values listed in table 2 give a guide to expected scores of Defenders of Guru Nanak Dev University, Amritsar for the specific Physical Fitness Test Item. In Muscular Strength, the scores below 40.344 are considered very poor, from about 40.344-44.672 is considered poor, 44.672-53.328 is considered average 53.328-57.656 is considered good and the scores above 57.656 are considered very good. In Muscular Power, the scores below 41.127 are considered very poor, from about 41.127-43.48 is considered poor, 43.48-48.186 is considered average, 48.186-50.539 is considered good and the

scores above 50.539 are considered very good. In Muscular Endurance, the scores below 3.03 are considered very poor, from about 3.03-4.565 is considered poor, 4.565-7.635 is considered average, 7.635-9.17 is considered good and the scores above 9.17 are considered very good. In Running Speed, the scores above 4.839 are considered very poor, from about 4.839-4.663 is considered poor, 4.663-4.311 is considered average 4.311-4.135 is considered good and the scores below 4.135 are considered very good. In Running Agility, the scores above 18.731 are considered very poor, from about 18.731-18.097 is considered poor, 18.097-16.829 is considered average, 16.829-16.195 is considered good and the scores below 16.195 are considered very good. In Jumping Ability, the scores below 3.334 are considered very poor, from about 3.334-4.75 is considered poor, 4.75-7.582 is considered average, 7.582-8.998 is considered good and the scores above 8.998 are considered very good. In Throwing Ability, the scores below 10.352 is considered very poor, from about 10.352-11.626 is considered poor, 11.626-14.174 is considered average, 14.174-15.448 is considered good and the scores above 15.448 are considered very good. In Flexibility, the scores below 2.362 are considered very poor, from about 2.362-3.231 is considered poor, 3.231- 4.969 is considered average, 4.969- 5.838 is considered good and the scores above 5.838 are considered very good. In Balance, the scores below 41.548 are considered very poor, from about 41.548-43.324 is considered poor, 43.324-46.876 is considered average, 46.876-48.652 is considered good and the scores above 48.652 are considered very good.

Table 3: Grading for Defenders (N=30) of Guru Nanak Dev University, Amritsar for the specific Physical Fitness Test Item.

Test Items	Very Poor	Poor	Average	Good	Very Good
Muscular Strength	Less than (<) 40.344	40.344-44.672	44.672-53.328	53.328-57.656	Greater than (>) 57.656
Muscular Power	Less than (<) 41.127	41.127-43.48	43.48-48.186	48.186-50.539	Greater than (>)50.539
Muscular Endurance	Less than (<) 3.03	3.03-4.565	4.565-7.635	7.635-9.17	Greater than (>)9.17
Running speed	Greater than (>)4.839	4.839-4.663	4.663-4.311	4.311-4.135	Less than (<) 4.135
Running Agility	Greater than (>)18.731	18.731-18.097	18.097-16.829	16.829-16.195	Less than (<) 16.195
Jumping Ability	Less than (<) 3.334	3.334-4.75	4.75-7.582	7.582-8.998	Greater than (>)8.998
Throwing Ability	Less than (<) 10.352	10.352-11.626	11.626-14.174	14.174-15.448	Greater than (>)15.448
Flexibility	Less than (<) 2.362	2.362-3.231	3.231-4.969	4.969-5.838	Greater than (>)5.838
Balance	Less than (<) 41.548	41.548-43.324	43.324-46.876	46.876-48.652	Greater than (>)48.652



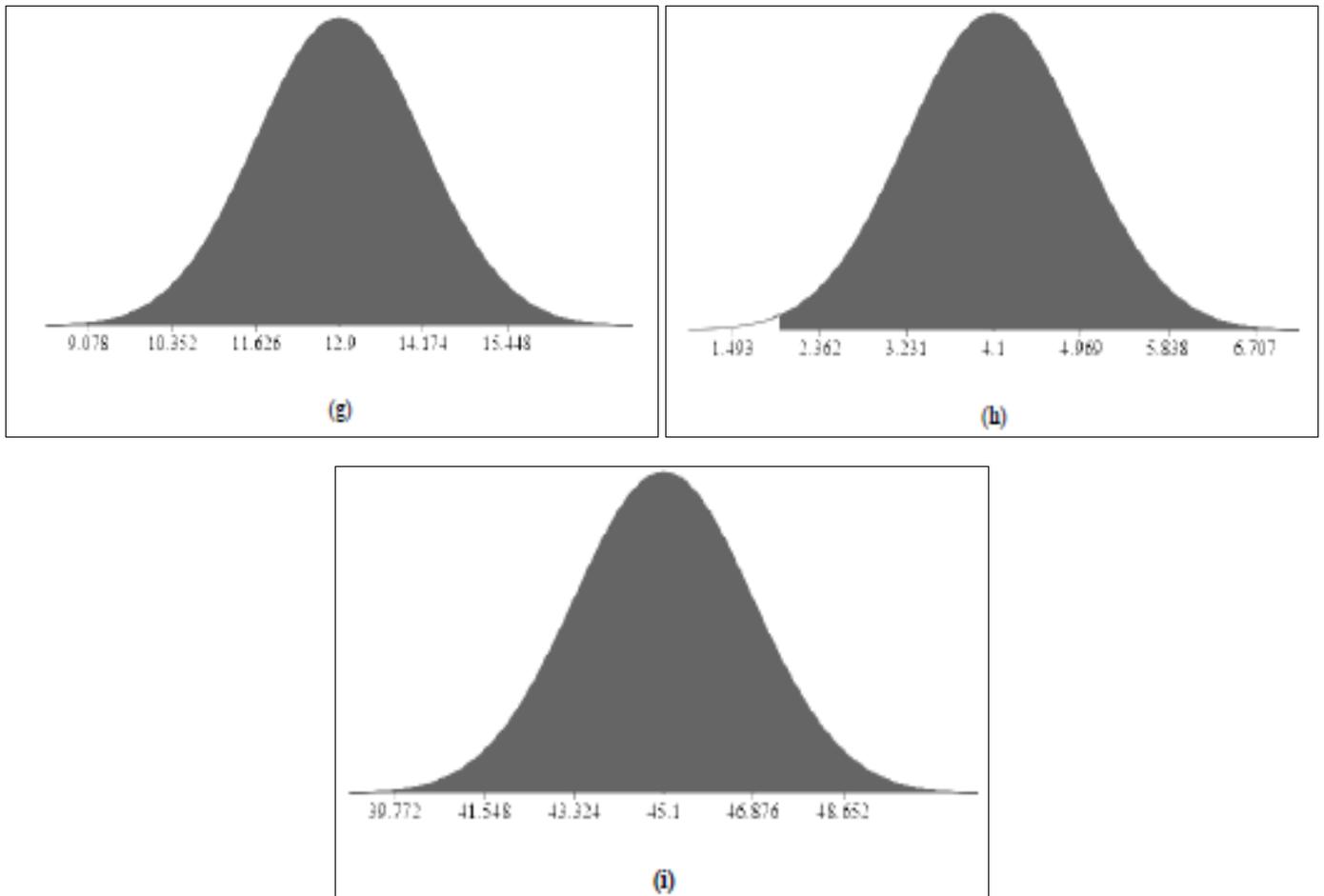


Fig 1: Values under Normal distribution of selected Physical Fitness parameters (i.e., a. Muscular Strength, b. Muscular Power, c. Muscular Endurance, d. Running Speed, e. Running Agility, f. Jumping Ability, g. Throwing Ability, h. Flexibility & i. Balance)

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