STUDY OF CONSTRUCTION OF NORMS REGARDING PHYSICAL FITNESS TEST ITEMS OF STUDENTS OF DEPARTMENT OF PHYSICAL EDUCATION (T), GURU NANAK DEV UNIVERSITY, AMRITSAR

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Abstract:
Study aims to construct the norms regarding physical fitness test items of students of department of physical education (T), Guru Nanak Dev University, Amritsar. For the present study, thirty-five (N=35) male subjects from department of physical education (T), Guru Nanak Dev University, Amritsar, Punjab between the age group of 18-28 years were selected. The statistics, that were collected by controlling tests, was statistically molded to develop for all the test items. In directive to construct the norms, Percentile Scale was used. Additionally, the scores were broken down into 05 scoring system (viz. Excellent, Very Good, Good, Fair and Poor). In Agility: - The scores between 6.277-6.551 was considered Very Good, between 6.551-6.825 was considered Good, 6.825-7.373 was considered Average, 7.373-7.647 was considered Poor whereas the scores between 7.647-7.921 was considered Very Poor. In Balance: - The scores between 25.703-28.048 was considered Very Good, between 23.358-25.703 was considered Good, 18.668-23.358 was considered Average, 16.323-18.668 was considered Poor whereas the scores between 13.978-16.323 was considered Very Poor. In Speed: - The scores between 8.593-8.952 was considered Very Good, between 8.952-9.311 was considered Good, 9.311-10.029 was considered Average, 10.029-10.388 was considered Poor whereas the scores between 10.388-10.747 was considered Very Poor.

Keywords: Physical Fitness, Agility, Balance, Speed, Norms.

Introduction

In the last decades, social and cultural transformations, mainly changes in the field of technology, where innovation led to greater efficiency in the use of energy and human time, provided changes to the habits of many adolescents, which have increased the time spent in sedentary entertainment activities. As a collateral effect, the regular practice of physical activities has been reduced, [1] and the prevalence of obesity and other comorbidities increased. Increases in sedentariness result in a decline in physical performance and levels of physical fitness [2] and may lead to changes in the motor competence (MC) in all periods of life, especially in adolescents, which in turn, can be more involved in sedentary activities for lack of motor skills. Physical fitness impacts physical and functional performance and is an important health status component of adolescents [3]. Low physical fitness can compromise the MC, mobility, and agility, with reduced participation in spontaneous physical activities in the presence of overweight [4]. Adequate levels of MC have been proposed as a fundamental aspect in enabling adolescents to engage in physical activity for health benefits [5].

Material and Methods

Participants

For the present study, thirty-five (N=35) male subjects from department of physical education (T), Guru Nanak Dev University, Amritsar, Punjab between the age group of 18-28 years were selected**.**

Procedure

Agility

(20 Yard Agility Run Test)

- ⊗ A total of 3 cones, namely A, B and C with A at the center are placed at equidistant at 5 feet. Athlete strides from the middle cone i.e., A, towards the cone B, then faces the other cone placed at the other extreme end i.e. C and finishes off by coming at the middle cone and the time is recorded from starting off at A and coming back the same after touching cones B and C respectively.

Balance

(Stork Balance Stand Test)

- ⊗ The participant is asked to remove their shoes and hands are asked to be kept on kips. After this, the participant is asked to stand on their supporting feet with the non-supporting foot bent towards the knee of the former. After this setup the participant is made to raise the heel of the supporting foot, once this formation is reached the stopwatch is started by the examiner and paused in the if any of the following cases:
  - Either of the hands misaligns with hips.
  - Supporting foot hops, fumbles in any side.
  - Contact in the supporting and the non-supporting foot is lost.
  - Supporting foot's heel touches the ground.

Speed

(30 Yard Dash Test)

- ⊗ Subject is asked being thoroughly warmed up, with completion of active warm-up of a duration of about ten-fifteen minutes. The test basically comprises of sprinting a distance of Thirty-yards in a single maximal effort. Upon whistle subject (in stance) sprints to the end point (at a distance of thirty-yards from the starting line), the stopwatch is stopped once the subject's chest crosses the last finish line.

Figure-1: Graphical illustration of Physical Fitness Test Items.

Table-1: Neuromuscular Components of Fitness, Tests and Criterion Measure.

Variables	Tests	Criterion Measure
Agility	20 Yard Agility Run Test	Recorded to the nearest 1/100th Second
Balance	Stork Balance Stand Test	Recorded to the nearest 1/100th Second
Speed	30 Yard Dash Test	Recorded to the nearest 1/100th Second

Statistical Procedure

The statistics, that were collected by controlling tests, was statistically molded to develop for all the test items. In directive to construct the norms, Percentile Scale was used. Additionally, the scores were broken down into 05 scoring system (viz. Excellent, Very Good, Good, Fair and Poor).

Results

Table-2: Descriptive statistics of Agility, Balance and Speed.

Statistics	Agility	Balance	Speed
Minimum	min=6.76	min=15.27	min=8.69
Maximum	max=7.85	max=24.27	max=9.98
Range	R=1.09	R=9	R=1.29
Size	n=35	n=35	n=35
Sum	sum=248.47	sum=735.48	sum=338.47
Mean	$\bar{x}$=7.09914286	$\bar{x}$=21.0137143	$\bar{x}$=9.67057143
Median	$\tilde{x}$=7.02	$\tilde{x}$=21.23	$\tilde{x}$=9.79
Mode	mode=6.89	mode=20.16, 22.29, 21.92, 16.90, 22.18, 21.23, 20.22, 18.24, 24.22, 23.21, 20.26, 24.26	mode=9.88
Standard Deviation	s=0.274337399	s=2.34551021	s=0.359476276
Variance	s2=0.0752610084	s2=5.50141815	s2=0.129223193
Mid-Range	MR=7.305	MR=19.77	MR=9.335
Interquartile Range	IQR=0.33	IQR=2.63	IQR=0.2
Sum of Squares	SS=2.55887429	SS=187.048217	SS=4.39358857
Mean Absolute Deviation	MAD=0.210873469	MAD=1.90089796	MAD=0.26197551
Root Mean Square	RMS=7.10429025	RMS=21.1404925	RMS=9.67705962
Std Error of Mean	SE$\bar{x}$=0.046371484	SE$\bar{x}$=0.396463587	SE$\bar{x}$=0.0607625809
Skewness	γ1=1.13874711	γ1=-0.53704623	γ1=-1.70749423
Kurtosis	β2=4.0032719	β2=3.01273726	β2=5.24317068

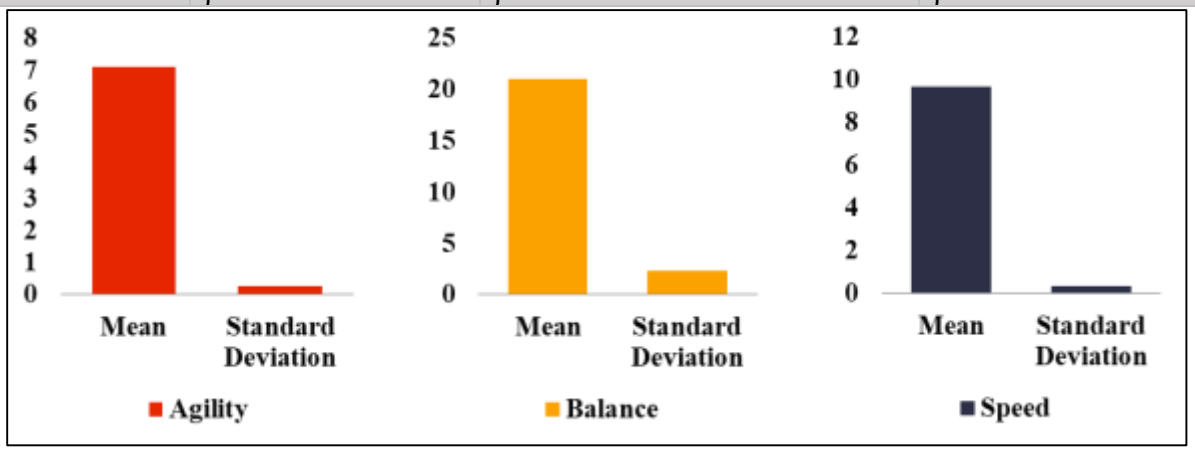
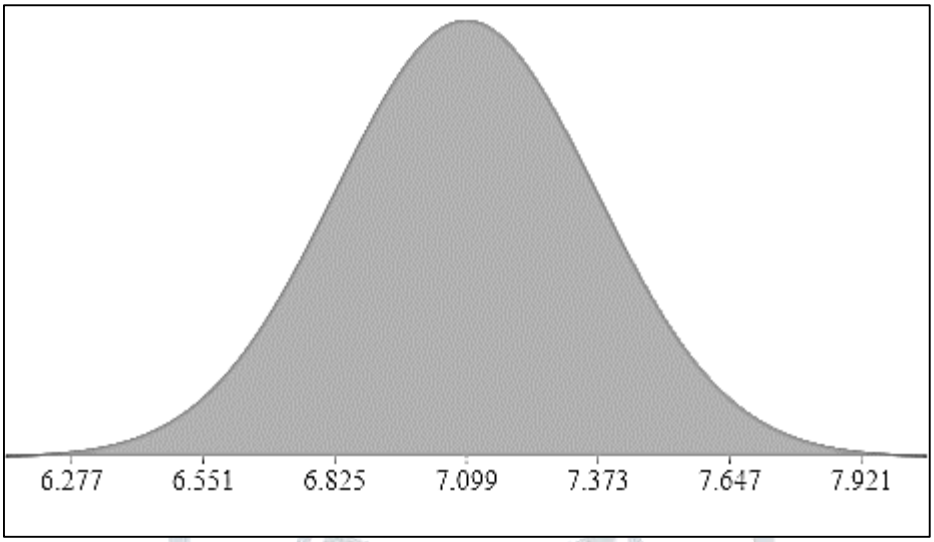


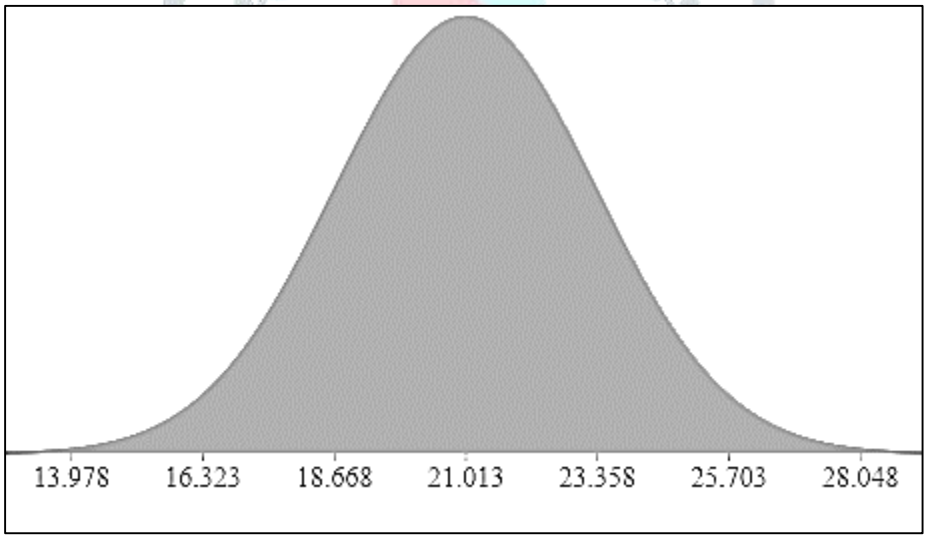
Figure-2: Graphical representation of Mean & Standard Deviation of Agility, Balance and Speed.

Table-3: Descriptive Statistics (Mean & Standard Deviation) and Percentile Plot (Hi & Low) of Physical Fitness Test Items of students of Department of Physical Education (T), Guru Nanak Dev University, Amritsar (N=35.)

Sr. No.	Test Items	Mean ± Standard Deviation		Hi	Low
1.	Agility	7.0991	0.274	7.85	6.76
2.	Balance	21.013	2.345	24.27	15.27
3.	Speed	9.670	0.359	9.98	8.69



(a)



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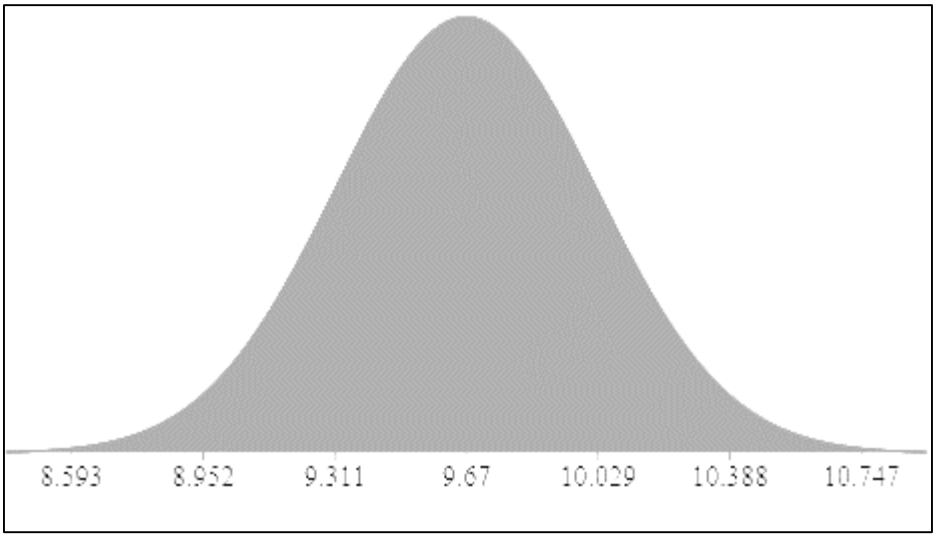

(c)

Figure-3: Graphical illustration of 05 scoring system (viz. Excellent, Very Good, Good, Fair and Poor) concerning Physical Fitness Test Items (viz. a. Agility, b. Balance & c. Speed) of students of Department of Physical Education (T), Guru Nanak Dev University, Amritsar (N=35.)

Table-4: Grades under Normal Distribution of Physical Fitness Test Items of students of Department of Physical Education (T), Guru Nanak Dev University, Amritsar (N=35.)

Sr. No.	Test Items	Very Poor	Poor	Average	Good	Very Good
1.	Agility	7.647-7.921	7.373-7.647	6.825-7.373	6.551-6.825	6.277-6.551
2.	Balance	13.978-16.323	16.323-18.668	18.668-23.358	23.358-25.703	25.703-28.048
3.	Speed	10.388-10.747	10.029-10.388	9.311-10.029	8.952-9.311	8.593-8.952

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