



ISSN: 2456-0057  
IJPNPE 2018; 3(1): 460-462  
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www.journalofsports.com  
Received: 11-11-2017  
Accepted: 16-12-2017

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## Construction of norms for flexibility of adolescent boys of Jammu region

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### Abstract

Physical fitness is the ability to perform moderate to vigorous levels of physical activity without undue fatigue and the capability of maintaining such ability throughout life. The investigator attempted to construct Norms for flexibility of 13, 14 and 15 years old adolescent boys of Jammu region. To achieve the said purpose, 1575 (525 from each age group) adolescent boys were selected randomly from various schools of Jammu region. Flexibility was selected as criterion variable and was measured by V- Sit and Reach test. Mean and standard deviation were computed by using SPSS. The calculated mean and standard deviation was used to find out the Hull scale. The results shows that 14 years old adolescent boys were better in flexibility compared with 13 and 15 years old adolescent boys.

**Keywords:** Jammu region, adolescent boys, flexibility

### Introduction

Physical fitness may be defined as a set of attributes that people have or achieve that relates to the ability to perform physical activity and this characteristic is regarded as a powerful indicator of health in childhood and adolescence (Liao *et al.* 2013) [1]. Physical activity is essential for the development of wholesome personality of a child which would depend upon the opportunities provided for wholesome development of the mental, physical, social and spiritual aspects. Hence a well-organized and properly administered physical education programme for school children is very essential. (Bhat and Shelvam, 2018) [2]. Physical activity includes all leisure and non-leisure bodily movements produced by the skeletal muscles resulting in energy expenditure and may include the more specific subcategory of structured exercise (Burr *et al.*, 2010) [3]. Adolescence is a decisive period in human life due to the multiple changes that take place between childhood and adulthood. Puberty is the main neuro-hormonal determinant of both physiological and psychological changes, although other social and behavior factors must be considered in this process (Rodriguez, Moreno and Bueno 2004) [4]. Flexibility is an aspect of health related fitness, is the ability of the various joints of the body to move through their full range of motion. Flexibility is joint-specific and can be improved with practice. Most children are involved in numerous flexibility-developing activities. Their constrained bending, twisting, turning, and stretching, along with the natural elasticity of their bodies, account for much of their flexibility. One needs only to look at the contorted positions that children sit in while watching television or listening to a story to realize that they have a good deal of flexibility in the hip and knee joint. All too often, however, the range of motion diminishes in latter childhood and adolescence because of lack of activity (Jain, 2003) [9]. The sit and reach is a field test used to measure hamstring and low-back flexibility (Wells and Dillon, 1952) [5]. It is believed that maintaining a good level of flexibility in these areas is an important part of health related fitness (Martin *et al.*, 1998) [6], because it prevents risk of falling, gait limitations or postural deviations and the most acute or chronic musculoskeletal injuries and lower back problems (ACSM, 2000) [7].

### Review of Literature

Jagathesan and Ganeshkumar (2013) [8] purposed a study was to construct the norms for evaluating performance of players in the game of Kabaddi. For this purpose, four hundred male college level Kabaddi players were randomly selected from various colleges of

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Tamilnadu state, India and their age ranged from 18 to 20 years. The performance of Kabaddi players was assessed by Skill Test Battery constructed by Jagathesan and Ganeshkumar was chosen for this study. The data, which was collected by administering tests, was statistically treated to develop norms for all the test items. The norms were constructed by using percentile and 6 sigma scale techniques analyzed through SPSS. The results of the study revealed that the scores were further classified into five grades i.e. excellent, good, average, satisfactory and poor.

Chander (2015) [10] conducted a study on construction and standardization of athletic performance norms for Bachelor of Arts students. The purpose of the study was to construct and standardize the athletic performance norms for Bachelor of Arts students. The study was confined to two thousand (N=2000) Bachelor of Arts students who opted physical education as a subject in graduation from different colleges affiliated to Punjabi university Patiala. The data pertaining to athletic test items was collected for three different age groups of 19 year, 20 year and 21 years for B.A. 2nd year class. The variables selected for the study were 200m run, High Jump and Javelin Throw. After the collection of the data on athletic performance, statistical analysis was carried out by computing descriptive statistics and analysis of variance (ANOVA) to investigate the differences among 18 to 20 year male and female subjects of Bachelor of Arts, which was followed by Scheffe's Post-hoc test of least significant differences and level of significance, was set at 0.05 level. Norms were developed by using four normative scales namely Percentile scale, T-Scale, Hull scale and Sigma Scale separately for males and female students.

Singh (2013) [11] conducted a study on construction of athletics performance norms for physical education students. The purpose of the study was to construct norms for evaluating the performance of physical education students in athletics events. A sample of 1400 students was taken from different physical education colleges and department of universities of Panjab and Chandigarh. Subjects were divided into two groups according to their chronological age i.e. 18 to 21 year and 21 to 25 year boys and girls, in each age group 700 students (400 boys and 300 girls) of physical education served as subjects. The performance data of subjects in athletics through three test items namely 100m, 200m and 400m was collected. Norms were constructed for sprint events (athletics) with four normative scales such as Percentile, Hull,

Sigma and T scale and standard for evaluation of students also established under Normal Distribution.

**Methodology**

The investigator attempted to construct Norms for flexibility of 13, 14 and 15 years old adolescent boys of Jammu region. To achieve the said purpose, 1575 (525 from each age group) adolescent boys were selected randomly from various schools of Jammu region. Flexibility was selected as criterion variable and was measured by V- Sit and Reach test. Mean and standard deviation were computed by using SPSS. The calculated mean and standard deviation was used to find out the Hull scale. The scores were further classified into five grades i.e. excellent, good, average, poor and very poor.

**Result and Discussion**

For preparing the norms, mean and standard deviations of the Scores of 13, 14 and 15 years old adolescent boys on flexibility were computed. The calculated standard deviations for respective ages (13, 14 and 15) was multiplied by 0.70 to get the hull scale value. Then Hull scale value is serially added and subtracted to the mean score of the respective ages (13, 14 and 15) to get the percentile scale values for 13, 14 and 15 years old adolescent boys and are given in Table 1.

**Table 1:** Hull Scale Norms for Flexibility of 13, 14 And 15 Years Old Adolescent Boys

Score	Jammu Region		
	13 years	14 years	15 years
100	57.41	61.49	56.57
90	54.31	57.81	53.63
80	51.21	54.13	50.69
70	48.11	50.45	47.75
60	45.01	46.77	44.81
50	41.91	43.09	41.87
40	38.81	39.41	38.93
30	35.71	35.73	35.99
20	32.61	32.05	33.05
10	29.51	28.37	30.11
0	26.41	24.69	27.17
Mean	41.91	43.09	41.87
S.D	4.43	5.26	4.21

On the basis of the above constructed table, the subjects were given qualitative grading as follows

**Table 2:** Qualitative Grading of the Constructed Norms for Flexibility of 13, 14 And 15 Years Old Adolescent Boys of Jammu Region

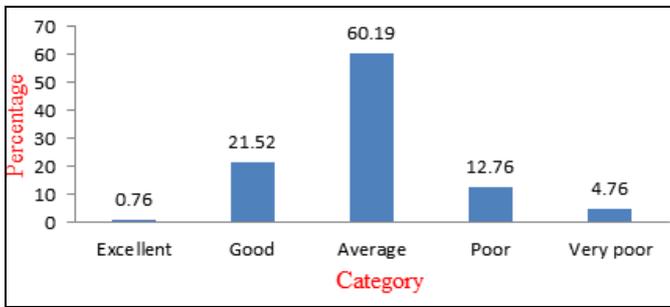
Score	Qualitative Grading (%)	Percentage of Subjects in each Grade		
		13 years	14 years	15 years
81 -100	Excellent	0.76	2.66	2.47
61-80	Good	21.52	23.42	22.66
41- 60	Average	60.19	50.66	57.52
21 -40	Poor	12.76	21.33	13.71
0 – 20	Very poor	4.76	1.90	3.61

It is evident from the table 2 that the adolescent boys scoring between 81 and 100 are considered to be excellent on flexibility. Similarly the adolescent boys scoring 61-80, 41-60, 21-40 and 0-20 are to be treated as Good, Average, Poor and Very poor on flexibility respectively.

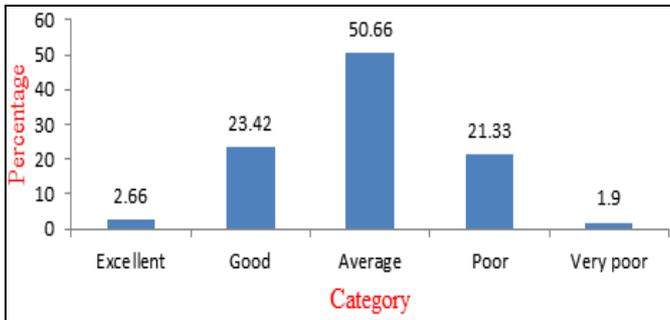
Among the 13 years old adolescent boys of Jammu region, 0.76%, 21.52%, 60.19%, 12.76%, and 4.76 % of adolescent boys falling in the category of Excellent, Good, Average, Poor and Very poor respectively which has also been graphically represented in the Figure 1.

Among the 14 years old adolescent boys of Jammu region, 2.66%, 23.42%, 50.66%, 21.33%, and 1.90% of adolescent boys falling in the category of Excellent, Good, Average, Poor and Very poor respectively which has also been graphically represented in the Figure 2.

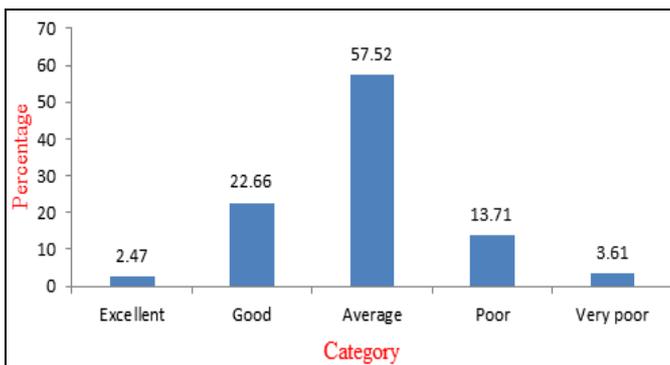
Among the 15 years old adolescent boys of Jammu region, 2.47%, 22.66%, 57.52%, 13.71%, and 3.61% of adolescent boys falling in the category of Excellent, Good, Average, Poor and Very poor respectively which has also been graphically represented in the Figure 3.



**Fig 1:** Percentage of 13 Years Old Adolescent Boys Falling Into Excellent, Good, Average, Poor and Very Poor Categories.



**Fig 2:** Percentage of 14 Years Old Adolescent Boys Falling Into Excellent, Good, Average, Poor and Very Poor Categories.



**Fig 3:** Percentage of 15 Years Old Adolescent Boys Falling Into Excellent, Good, Average, Poor and Very Poor Categories.

**Conclusion**

An attempt has been made to prepare the norms for 13, 14 and 15 years old adolescent boys of Jammu region on flexibility. The results of the study revealed that adolescent boys who scored 81-100, 61-80, 41-60, 21-40 and 0-20 are treated to represent Excellent, Good, Average, Poor and Very poor categories on the Flexibility variable. Among 13 years adolescent boys, 0.76%, 21.52%, 60.19%, 12.76% and 4.76% were found to be falling into Excellent, Good, Average, Poor and Very poor categories with respect to flexibility. Similarly, Among 14 years adolescent boys, 2.66%, 23.42%, 50.66%, 21.33% and 1.90% were found to be falling into Excellent, Good, Average, Poor and Very poor categories with respect to flexibility. Further, 2.47%, 22.66%, 57.52%, 13.71% and 3.61% of 15 years adolescent boys were found to be falling into Excellent, Good, Average, Poor and Very poor categories with respect to flexibility.

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