

COMPILATION OF NORMS FOR MUSCULAR STRENGTH AND ENDURANCE OF EIGHTH STANDARD BOYS OF NORTHERN KARNATAKA

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Abstract: The present study is attempted to construct the norms for muscular strength & endurance (arm & shoulder and abdominal) of 8th standard high school boys of Northern Karnataka between 13-14 years of various schools of Bagalakote District, Karnataka, India. Two hundred seventy (n=270) of high school boys studying in 8th standard were randomly selected. The muscular strength & endurance of arm & shoulder and abdominal variables treated as criterion variables and these were measured by pull ups in numbers and bent knee sit ups in numbers. Six days, twelve sessions were taken duration for data collection from high schools for testing during physical education classes. All the subjects were tested in the school ground premises. Mean scores and standard deviations were calculated for all subjects and these were computed by using SPSS Package version 20 and with the help of MS Excel 2015. Statistically Percentile Scale have been classified into five intervals Excellent (above 80%), Good (60% - 79%), Average (40% - 59%), Poor (20% - 39%) and Very Poor (below 20%) then Z-Scores Scale have been classified into five grades i.e. Excellent, Good, Average, Poor and Very Poor based on z scores were compiled for muscular strength and endurance of arm and shoulder and abdomen of 8th standard boys of Northern Karnataka. The present investigation was conducted on Muscular Strength & Endurance of both arm & shoulder and abdomen as components of physical fitness norms specifically for 8th standard boys of Bagalakote district, Northern Karnataka. This study is to generous two grading scale under normal distribution that is percentile and Z score scales. Grading under normal distribution established to be the most appropriate way of categorizing students by using percentile scale and 'z' scores scale. Keeping in educational reform in mind, educational institutions should give grades rather than the score in order to squeeze mental problems among 8th standard boys of Northern Karnataka.

Index Terms- Compilation, Norms, Percentile, Muscular Strength & Endurance, Pull Ups, Bent Knee Sit Ups, 8th standard, high school boys

I. INTRODUCTION

Childhood fitness is a rising region of public health concern the world over. Childhood fitness is a rising zone of worry as commonness of childhood obesity is rising. Indian investigation, have recognized diminished fitness levels and expanded obesity in both urban and rural children. A portion of the reasons ascribed to this expansion in obesity and decline in fitness levels, are improved monetary status and better lifestyle decisions, expanded academic requests, which decline the time adequately spent in physical activity, and worries of wellbeing, which guardians voice as purposes behind disallowing physical activity (Mohan et al 2004; Khadilkar and Khadilkar 2004; Chhatwal, Verma and Riar 2004; and Kapil et al. 2002).

On the other side, there are children with poor nutritional levels prompting poor fitness levels. While these children are not inclined to lifestyle diseases, they are additionally a reason for concern. A portion of the reasons ascribed to poor nutritional status are social beliefs concerning foods, poverty, and absence of awareness. Age is the central point affecting physical fitness. Typically development can be defined by chronological, skeletal and physiological age. The time of life is commonly separated into infancy, childhood, adolescence, adulthood and younger. So children and adolescence must be viewed as miniature variants of grown-ups. They are extraordinary at each stage in their advancement. As children size builds, their utilitarian capacity alongside physical fitness additionally increments. By improving the essential segments of physical fitness, for example, endurance, strength, flexibility, speed and agility one can create physical fitness.

Muscular endurance is the capacity of a muscle or gathering of muscles to exert force over and over. Muscular endurance is like muscular strength in that strength is required to start developments, yet it is the muscles endurance capacity that empowers it to proceed for various endeavours.

Muscular Strength and Endurance are critical to empower children to play out each day capacities, for example, fine motor skills and gross motor skills. Muscular endurance keeps up legitimate stance throughout the day. Improving strength and endurance adds to a higher metabolism, which increments caloric utilize both while at work and rest, which thusly decreases the risk of obesity. Another significant advantage to note is that when a youngster has great strength, they are bound to have more grounded tendons, ligaments and general joint health which diminish the risk of genuine injury.

Strength and endurance of the shoulder and abdominal muscles are significant in advancing great stance and right pelvic alignment. The latter is especially significant in the support of low back health. In testing and preparing the muscles of this locale, it is hard to disengage the abdominal muscles. The physical education teacher at schools can by one-way or another drag the consideration of pre-adolescent boys particularly for school going children towards physical activity by making comprehend its countless advantages. Be that as it may, evaluation assumes a significant job in checking the improvement. Comparing their scores with standard norms is the next issue after assessment. Therefore, it is essential to have norms for keeping track of personal improvement. There is no standard norm for assessing the level of physical fitness of 8th standard students of Northern Karnataka. The present examination was endeavored to development of physical fitness test standards especially for muscular strength & endurance for eighth standard high school boys of Bagalkote District, Karnataka.

II. METHODOLOGY

The present study is attempted to construct the norms for muscular strength & endurance (arm & shoulder and abdominal) of 8th standard high school boys of Northern Karnataka between 13-14 years of various schools of Bagalakote District, Karnataka, India. Two hundred seventy (n=270) of high school boys studying in 8th standard were randomly selected. The muscular strength & endurance of arm & shoulder and abdominal variables treated as criterion variables and these were measured by pull ups in numbers and bent knee sit ups in numbers. Six days, twelve sessions were taken duration for data collection from high schools for testing during physical education classes. All the subjects were tested in the school ground premises. Mean scores and standard deviations were calculated for all subjects and these were computed by using SPSS Package version 20 and with the help of MS Excel 2015. Statistically Percentile Scale have been classified into five intervals Excellent (above 80%), Good (60% - 79%), Average (40% - 59%), Poor (20% - 39%) and Very Poor (below 20%) then Z-Scores Scale have been classified into five grades i.e. Excellent, Good, Average, Poor and Very Poor based on z scores were compiled for muscular strength and endurance of arm and shoulder and abdomen of 8th standard boys of Northern Karnataka.

III. RESULTS AND DISCUSSIONS

Table-1: Mean and Standard Deviation of test item of Muscular Strength & Endurance of high school boys

Test Item	Variable	Min.	Max.	Mean	Standard Deviation
Muscular Strength & Endurance (Arm & Shoulder)	Pull Ups	2	27	11.877	5.634
Muscular Strength & Endurance (Abdominal)	Bent Knee Sit Ups	12	49	31.125	8.080

Mean and Standard Deviation of muscular strength & endurance of arm & shoulder and abdomen as components of Physical Fitness variables have been shown in above table stands for minimum, maximum, mean and standard deviations of 2, 27, 11.877 and 5.634 for arm & shoulder strength and 12, 49, 31.125 and 8.080 for abdominal strength respectively and from the below Fig.1 and Fig.2 represent histogram for muscular strength & endurance of arm and shoulder and muscular strength & endurance of abdomen of 8th standard high school boys.

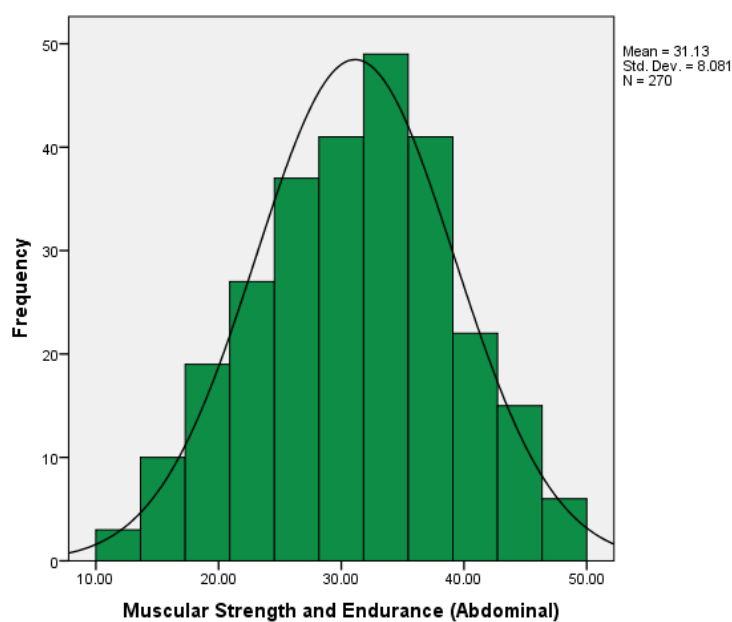
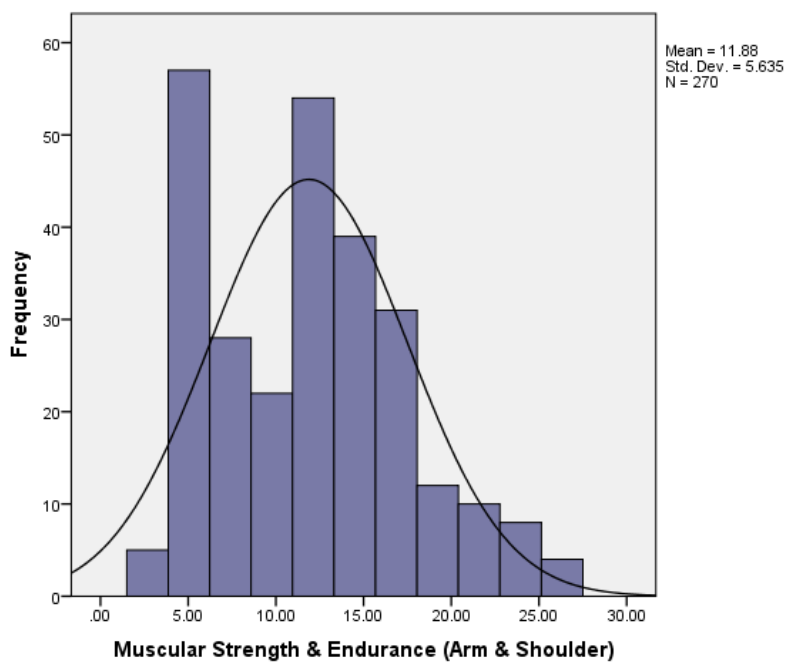


Fig.1: Histogram represents Muscular Strength & Endurance of 8 standard high school boys.

3.1 Percentile Scale

The percentile scale for muscular strength and endurance of arm & shoulder and abdomen as physical fitness component of eighth standard high school boys of Bagalkot District, Karnataka India as employed in this study. The percentile scale for the said component assessed by pull ups and bent knee sit ups (in numbers) have been presented in the Table-2.

Table-2: Percentile scale of the Muscular Strength & Endurance of eighth Standard high school Boys of Bagalakote District, Karnataka.

Percentile Score	Muscular Strength and Endurance	
	Arm & Shoulder (Pull Ups in Nos.)	Abdomen (Bent Knee Sit Ups in Nos.)
100	27	49
90	20	42
80	16	38
70	15	36
60	13	33
50	12	31
40	10	30
30	8	27
20	6	24
10	5	19
0	3	13

Table-2 shows Percentile scale related to Muscular Strength and Endurance (Arm & Shoulder) of 8th standard Boys of Bagalakote District, Karnataka. From the above table it was observed that highest performance of muscular strength & endurance scores were 27 counts (numbers) and lowest performance scores were 3 counts. Percentile grading scale of muscular strength & endurance (arm & shoulder) has been presented in the Table-3.

The table also shows Percentile scale related to Muscular Strength and Endurance (Abdomen) of 8th standard Boys of Bagalakote District, Karnataka. From the above table it was observed that highest performance of muscular strength & endurance scores were 49 counts (numbers) and lowest performance scores were 13 counts. Percentile grading scale of muscular strength & endurance (abdomen) has been presented in the Table-3.

Table-3: Percentile Grading Scale for Muscular Strength & Endurance (MSE) of 8th Standard Boys of Bagalakote District, Karnataka.

Percentile Grade	Excellent	Good	Average	Poor	Very Poor
	Above 80%	60% - 79%	40% - 59%	20% - 39%	Below 20%
MSE Arm & Shoulder (Pull Ups in Nos.)	Above 17	14 – 16	10 – 13	5 – 9	Below 4
MSE Abdomen (Bent Knee Sit Ups in Nos.)	Above 39	27 – 38	30 – 26	23 – 29	Below 22

Table-3 explains percentile grading scale for Muscular Strength & Endurance (Arm & Shoulder) variable of 8th standard boys of Bagalakote District, Karnataka. The performance of muscular strength & endurance of arm & shoulder of 8th standard high school boys has been divided into five categories namely based on percentile grading scale, Excellent (Above 80%), Good (60% - 79%), Average (40% - 59%), Poor (20% - 39%) and Very Poor (below 20%) were above 17 counts, 14 to 16 counts, 10 to 13 counts, 5 to 9 counts and below 4 counts respectively.

The performance of muscular strength & endurance of abdomen of 8th standard high school boys has been divided into five categories namely based on percentile grading scale were above 39 counts, 27 to 38 counts, 30 to 26 counts, 23 to 29 counts and below 22 counts respectively.

3.2 Z Score Scale

Table-4: Z Score Scale grading for Muscular Strength & Endurance of 8th Standard Boys of Bagalakote District, Karnataka.

Z Score Scale	Excellent	Good	Average	Poor	Very Poor
MSE (Arm & Shoulder) Pull Ups in counts	Above 20	15 – 20	10 – 14	4 – 9	Below 4
MSE (Abdomen) Bent Knee Sit Ups in counts	Above 43	36 – 43	28 – 35	19 – 27	Below 19

Table-4 presents Z score scale grading for Muscular Strength & Endurance (Arm & Shoulder) as physical fitness variable of 8th standard boys of Bagalakote District, Karnataka. The performance of muscular strength & endurance of arm & shoulder of 8th standard high school boys has been divided into five categories namely based on z score scale, Excellent, Good, Average, Poor, and Very Poor and were above 20 counts, 15 to 20 counts, 10 to 14 counts, 4 to 9 counts and below 4 counts respectively.

The performance of muscular strength & endurance of abdomen of 8th standard high school boys has been divided into five categories namely based on z score scale, Excellent, Good, Average, Poor, and Very Poor and were above 43 counts, 36 to 43 counts, 28 to 35 counts, 19 to 27 counts and below 19 counts respectively.

IV. DISCUSSION

The present investigation was conducted on Muscular Strength & Endurance of both arm & shoulder and abdomen as components of physical fitness norms specifically for 8th standard boys of Bagalakote district, Northern Karnataka. This study is to generous two grading scale under normal distribution that is percentile and Z score scales. Grading under normal distribution established to be the most appropriate way of categorizing students by using percentile scale and 'z' scores scale. Keeping in educational reform in mind, educational institutions should give grades rather than the score in order to squeeze mental problems among 8th standard boys of Northern Karnataka. It is necessary to increase awareness of physical activity among students especially health related fitness. As a follow-up to the results obtained in this study, a fitness programme has been designed to the effectiveness in schools sampled here.

V. CONCLUSION

Compilation of physical fitness norms for 8th standard boys of Northern Karnataka is an important part in the evaluation of physical fitness especially muscular strength & endurance. Such norms are essential to understand the present fitness level among the children and monitor for improvement especially in muscular strength & endurance as components of physical fitness.

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