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A STUDY TO ASSESS THE MUSCULOSKELETAL FITNESS STATUS OF MIDDLE-AGED MEN IN WEST BENGAL

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One aspect of good physical health is the musculoskeletal fitness.It is a composite word comprising the integrated function of muscle, bone, joints and nerves. Growing body of scientific evidence indicates that health benefits are associated with musculoskeletal fitness, such as reduced coronary risk factors, increased bone mineral density (reduced risk of osteoporosis), increased flexibility, improved glucose tolerance, and greater success in completion of activities of daily living. With the process of aging, the performance of daily tasks can become a challenge. Improved musculoskeletal fitness is associated with an enhanced health status. Thus, maintenance of musculoskeletal fitness can increase overall quality of life. Therefore, the purpose of this study was to assess the musculoskeletal fitness status of middle age men in west Bengal. To fulfil the purpose of the study total 160 males aged between 35-55 years were acted as subjects of the study. The purposive random sampling method was used for collection of data. Leg and Back strength, Grip strength and Flexibility were measure and compare with a standard norm to know the musculoskeletal fitness status of middle-aged men in West Bengal. In the case of leg and back strength, when we compare the obtained study value (101.22 ± 28.47 kg) with the standard norm prepared by LNIP, Gwalior. The obtained value lay withinpoor to fair categories status. For the right-hand grip strength value (34.97 ± 6.73 kg) and left-hand grip strength value (33.72 ± 7.1 kg), the obtained value was Mean + SD, it belongs (<40) to the very poor category. However, in case of flexibility the standard normative score for the men is > +27, present obtained value (28.68 ± 8.91) indicates Super grade of flexibility for this population also. Based on the results of this study it may conclude that West Bengal middle-aged (35-55 years) people need to develop muscular strength in terms of leg & back strength and right and left-hand grip strength and also maintain super grade of flexibility.

Keywords: Status, Muscular Fitness, Physical Fitness, Health-Related Physical Fitness

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Introduction

"Muscular fitness is very essential for individual health." We cannot imagine a person being healthy without being physically fit. Physical fitness is crucial in today's world, physical activity is the only way to live a healthy and better life. Today's worldissuffering from many diseases, day by day the dependency on medicine is increasing, for example, digestive medication, excretion medicine, sleeping pill and so on. Man is a become a working robot as a result of those drugs(Lohne-Seiler et al., 2016).

We all know that a healthy mind resides in a healthy body, video games and computers mostly replaced traditional games in recent years. In today's technological world, man does not have time to play indoor or outdoor games. "Exercise plays a very important role in the fitness and wellness of every individual.Muscular fitness is a multidimensional nation that encompasses a variety of fitness components such as muscle strength, endurance, power, and flexibility(Hurd et al., 2023).

The muscle supports the skeleton and enables movement. A strong muscle in the body provides a person with a strong stand-up striate and maintains good posture(Douglas-Gabriel, 2016). Strong muscles, tendons, ligaments and bones decrease the risk of injury, as the body can respond to the daily work routine of the person. Good muscle strength can increase a person's ability to work. Muscular strength is usually measured concerning individuals' group activities together.

"Health-related physical fitness includes muscular strength, muscular endurance, body composition and flexibility" and agility, balance, neuromuscular adaptation and coordinative abilities, speed, strength, and reaction time are the types of performance-related physical fitness(Justine et al., 2011). In thisstudy, researchers want to know the status of muscular fitness of West Bengalmiddle age people (male),

Thepurpose of the study is an awareness of the muscle fitness status of West Bengal middle age male people. The men forget to think about their health statusand are unable to manage time for exercise regular basis. once man is aware then it will help to regulate or develop their level of fitness.

Methodology

To fulfil the purpose of the study total 160 males aged between 35-55 years were acted as subjects of the study. The purposive random sampling method was used for the collection of data. Leg and Back strength, Grip strength and Flexibility were measuredand compare with a standard norm to know the musculoskeletal fitness status of middle-aged men in West Bengal.

Table of Variables and Testing Tools:

Enclosed as Annexure 01

Leg and back strength test: : An "analog dial leg and back dynamometer" is the equipment used to test the muscular strength of the leg muscles and back muscles. Measuring Range: 0 kg to 300 kg.

Photo 3 : Collection of data (Leg and back strength)from Jadavpur university, sports complex

Enclosed as Annexure 02

Purpose: To measure the leg and back strength, often made up of a cable tensiometer.

Equipment- Strength dynamometer.

Procedure: After completing the warm-up subjects stand upright on the base of the dynamometer with feet shoulder-wide apart. The arm was hanged straight down to hold the center of the bar with both hands, the palm was faced towards the body. Adjust the dial to zero before starting and set the knees bent at approximately 110 degrees. At this position back must be bent slightly for arms at the hips. And looked forward and head must be upright. Then without bending the back pulled as hard as possible on the chain and tried to straighten the legs. Keep arm straight. Pull against the weight steadily. Keep the feet flat on the base of the dynamometer. Maximum performance was scored when the leg was almost straight at the end of the lift. (Test your physical fitness, Dr. C. Ashok)

The procedure of Sit and reach test:This test measures the fixability of the lower back and hamstring muscles.

Photograph 1 :Collection of data (Flexibility)from Jadavpur university, sports complex

Enclosed as Annexure 03

Equipment required: sit and rich box.

Description/ procedure: this taste involved sitting

On the floor with leg out Straight ahead. feet (shoes off) were placed with the soles flat against the box, shoulder-width apart. Both knees were held flat against the floor by the researchers and both palms facing down. The subject reached forward along the measuring line as per as possible. makes sure there were no jark movements and that the fingertip remains level and the leg flat.

After three performances the fourth reach was held for at least two seconds while the distance is recorded.

Scoring procedure: the score was recorded to the nearest centimeter as the distance before (negative) or beyond (positive) the toes. (Test your physical fitness, Dr. C. Ashok)

Handgrip strength test:The maximal isometric strength of the hands' and forearms' muscles is measured by the grip strength test. It's a crucial strength for daily tasks and sporting areas that necessitate the use of the hands.

Purpose: To measure grip or forearm muscle strength.

Equipment: Hand grip dynamometer.

Procedure: Hold the dynamometer in the single hand by the side of the thigh and pull as hard as possible to the dynamometer bar without swinging the arm.

Score: Two trails were given for each hand. The highest performance was recorded as score by the unit of kg. (Test your physical fitness, Dr. C. Ashok)

Photograph 2: Collection of data (handgrip strength)from Jadavpur university, sports complex

Enclosed as Annexure 04

Results and Discussion

Table 1: Mean and SD of LBST (Leg and back strength test, Flexibility and Handgrip strength.

Descriptive Statistics

Enclosed as Annexure 05

Table 1 shows that the mean ± SD of (LBST) leg and back strength test. The mean ± SD of middle age people was 101.22 ± 28.47 kg.

Enclosed as Annexure 06

The various studies showed the different values of Leg and back dynamometer.In the case of leg and back strength, when we compare the obtained study value (101.22 ± 28.47 kg) with the standard norm prepared by LNIP, Gwalior, the value (94-101)indicates poor to fair categories status.

Mean ± SD of the flexibility of the selected subjects. The mean and SD were 28.68 ± 8.90 cm.

Enclosed as Annexure 07

However, in case of flexibility the standard normative score for the men is > +27, present obtained value (28.68 ± 8.91) indicates Super grade of flexibility for this population also.

Based on the results itmay consider as the middle age West Bengal people have the "Super" grade of flexibility.

The mean and SD of right- and left-hand grip strength test were34.97 ± 6.73 and 33.72 ± 7.1 respectively.

Enclosed as Annexure 08

For the right-hand grip strength value (34.97 ± 6.73 kg) and left-hand grip strength value (33.72 ± 7.1 kg), the obtained value was Mean + SD, it belongs (<40) to the very poor category. As per research, grip strength is a significant marker of general health and a predictor of muscular endurance(Douglas-Gabriel, 2016). Greater grips are linked to a lower probability of heart attack and stroke(Trosclair et al., 2011)

Conclusion

01. This study mainly focuses to describe the status of the musculoskeletal fitness of selected subjects.
02. Researchers chosen three much more related musculoskeletal fitness variables such as leg and back strength, flexibility, and hand grip strength.
03. After analysis the data by descriptive statistic (mean and SD) the leg and back muscles strength were lies on "poorto fair grade"according the standard norms.
04. In case of flexibility of the middle age people (men) in were in super grade to compared with standard norms.
05. The mean and SD of both hand grip strengths were "very poor" compared with norms.

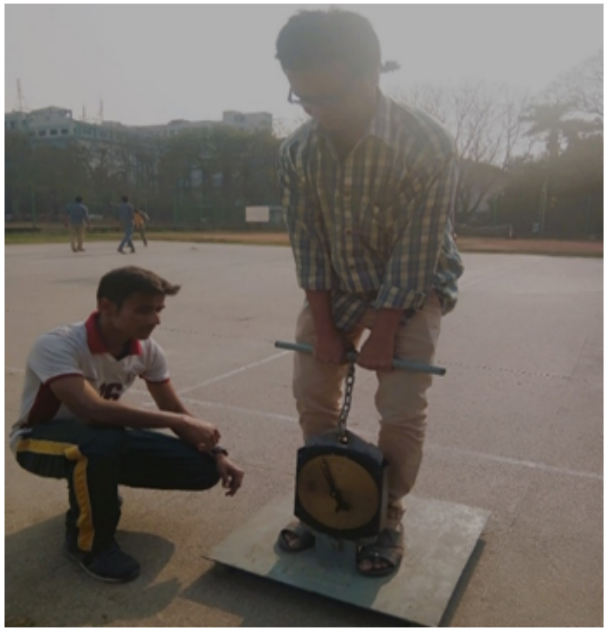
01. West Bengal middle-aged (35-55 years) people need to develop muscular strength in terms of leg & back strength and right and left-hand grip strength and also maintain super grade of flexibility.

Annexure

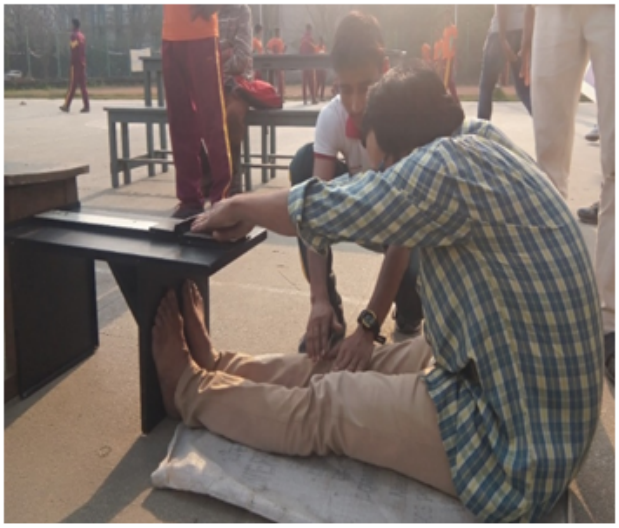
Annexure 01

Variables	Testing tools
Leg and back Strength	Back dynamometer
Hand grip strength	Grip dynamometer
Flexibility	Sit and reach test

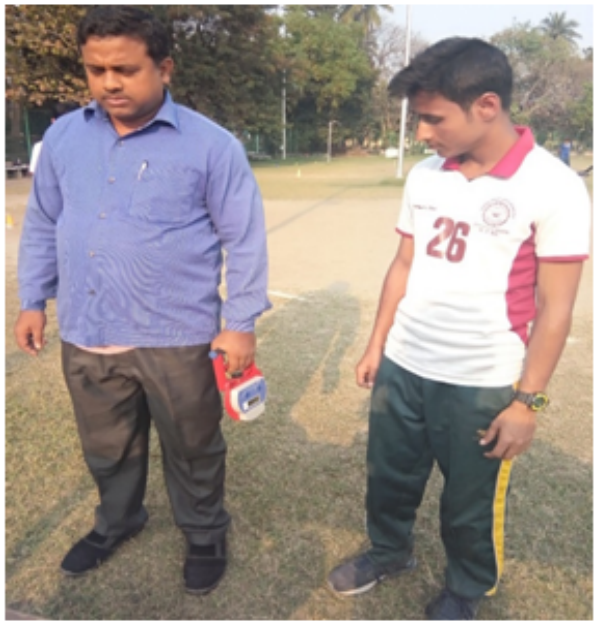
Annexure 02



Annexure 03



Annexure 04



Annexure 05

	N	Mean		Std. Deviation
	Statistic	Statistic	Std. Error	Statistic
Leg and back strength in kg.	160	101.1853	2.24814	28.43701
Flexibility in cm	160	28.6819	.70426	8.90825
Right-handgrip strength in kg.	160	34.9719	.53231	6.73325
Left-handgrip strength	160	33.7237	.56196	7.10833
Valid N (listwise)	160			

Annexure 06

Norms of Leg and Back Strength					
Age	*Need Improvement*	*Poor*	*Fair*	*Good*	*Excellent*
15-19	*<84*	*84-94*	*95-102*	*103-112*	*>112*
20-29	*<97*	*97-105*	*106-112*	*113-123*	*>123*
30-39	*<97*	*97-104*	*105-112*	*113-122*	*>122*
40- 49	*<94*	*94-101*	*102-109*	*110-118*	*>188*
50- 59	*<87*	*87-95*	*96-101*	*102-109*	*>109*
60-69	*<79*	*79-85*	*86-92*	*93-101*	*>101*

Source : http://lnipe.edu.in/public_html/Back%20Dynamometer%20Takei.pdf

Annexure 07

Sit and reach test score	
Grade	Men
Super	>+ 27
Excellent	+17 to +27
Good	+ 6 to 16
Average	+0 to 5
Fair	-8 to -1
Poor	-19 to -9
Very poor	<- 20

Test your physical fitness, Dr. C. Ashok

Annexure 08

Handgrip Strength test score	
Rating	Men
Excellent	>64
Very Good	56- 64
Above average	52-56
Average	48-52
Below average	44-48
poor	40-44
Very poor	<40

Test your physical fitness, Dr. C. Ashok

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