

# Assessment Of Level Of Physical Fitness And Level Of Mental Stress In Students

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## Abstract

**Background:** Physical fitness is a set of attributes a person has or achieve, which is linked to the person's capability to do physical activity. Measures of health-related physical fitness are closely allied with disease prevention and health promotion and can be modified through regular participation in physical activity and structured exercise program. Stress express as simply reaction to a stimulus that disturbs physical or mental equilibrium of individual.

**Aim:** To assess the level of physical fitness and level of mental stress in young students.

**Materials and methods :** 100 participants , both male and female students were assessed for physical fitness and mental stress using Modified Harvard Step Test respectively.

**Result:** The present study showed that there was significant decrease in level of physical fitness and level of mental stress in young students.

**Conclusion:** Exercise and physical activity is necessary in order to improve level of physical fitness and to help in decreasing the level of mental stress.

**Keywords:** Physical fitness, Mental stress, Young Students, Modified Harvard Step Test, Perceived Stress Scale

## Introduction

Physical fitness has been described in several ways, but the generally accepted definition is ability to carry out daily tasks with vigor and alertness, without undue fatigue and with ample of enjoy leisure time pursuits and meet unforeseen emergencies<sup>1</sup>. Fitness can be also termed as: - It is a general term used to describe the ability to perform physical work<sup>2</sup>. Physical fitness is a set of attributes a person has or achieve, which is linked to the person's capability to do physical activity<sup>3</sup>. Health related physical components :- Cardiovascular endurance :- The ability of the circulatory and respiratory system to supply oxygen during sustained physical activity ,Body composition :- The relative amount of muscle ,fat ,bone and other vital parts of the body, Muscular strength :-The ability of muscle to exert force ,Muscular endurance:- The ability of muscle to continue to perform without fatigue ,Flexibility :- the range of motion available at a joint <sup>4</sup>. Skill Related Physical Fitness Components :- Agility :- The ability to change the position of the body in space with speed and accuracy ,Coordination :-The ability to use the senses ,such as sight and hearing ,together with body parts in performing tasks smoothly and accurately ,Balance :- The maintenance of equilibrium while stationary or moving ,Power:- The ability or rate at which one can perform work ,Reaction time :- The time elapsed between stimulation and the beginning of the reaction to it, Speed :- The ability to perform a movement within a short period of time<sup>4</sup>.

The capability to move is essential for an independent life<sup>5</sup>. It's extensively honoured that those who spend the utmost time either lying down or sitting and are physically inactive tend to have limited autonomy, poor health related quality of life, and adverse prognostic of outcomes<sup>5</sup>. Factors that affect physical fitness include physical activity<sup>6</sup>. Sports is a part of physical exertion carried out in a planned manner and measured manner and aims to achieve fitness and achievement<sup>6</sup>. Physical fitness can be attained through physical exercise totally and progressively<sup>7</sup>. To maintain the physical exertion, the principles are load, frequency, intensity, time, specialization, and progression<sup>7</sup>. Exercise is the key not only to physical fitness but also to peace of mind. The benefits of regular exercise program extend into numerous areas of life<sup>8</sup>. Numerous people do exercise for different reasons such as to strengthen muscles, to improve the athletic skills for weight reduction or just for enjoyment<sup>9</sup>. Stress express as simply the reaction to a stimulus that disturbs physical or mental equilibrium of

individual<sup>9</sup>. Positive thinking on mood and depression may be due to impact of exercise on the brain chemicals nor epinephrine and serotonin<sup>15</sup>. Exercise provides wide opportunities for social support and interaction which can be helpful for those suffering from depression<sup>10</sup>.

Harvard step test is used to assess the level of physical fitness. With the help of physical fitness formula ratings, interpretation and scoring is noted down. Perceived stress scale is used to assess the level of mental stress, and total score is noted down.

## Methods

### Methods

1. Study design: - Survey based
2. Sampling type: - Simple Random
3. Sample size: - 100
4. Target population: - young students
5. Study set up: - pune

### Inclusion criteria: -

1. Age (18 to 25) years
2. Gender: - male and female
3. Students doing exercise regularly or irregularly or not doing at all.
4. Willing to participate in research project.

### Exclusion criteria:

1. Young students with any musculoskeletal, neurological, cardiovascular
2. Students who are addicted to alcohol and smoking
3. Students with behavioral and mental impairments

### Materials:

Consent form, Perceived stress scale, stepper, measuring tape, weighing scale, Pulse Oximeter, Metronome.

### Outcome Measures:

1. Modified Harvard Step Test
2. Perceived Stress Scale

**Procedure:** Permission was taken from the institutional ethical committee of Tilak Maharashtra Vidyapeeth. Prior to the study, detailed information and the purpose of the study was explained and informed consent was taken from the subjects. All the participants were screened for inclusion and exclusion criteria. The method of the study was explained to the patients and consent was taken and procedure was carried out. A total of 100 participants were selected and level of physical fitness and level of mental stress was assessed using Modified Harvard Step Test and Perceived Stress Scale.

Data was collected and subjected respectively.



**Result:**

1. Physical Fitness Index rating <sup>12</sup>

PFI Rating	Physical Fitness Index	
	MALE	FEMALE
Excellent	>115	>91
Good	103-115	84-91
Fair	91-102	77-83
Poor	<91	<77

2. Perceived stress scale <sup>11</sup>

Total score was given out of 40.

Score was interpreted as:

0-13: Low mental stress

14-26: Moderate mental stress

27-40: High mental stress

**Table no:1** Mean value of Physical Fitness Index for Male students

Excellent	Good	Fair	Poor
0	0	93	34.1

**Interpretation:** Above table shows that there are 0 students for excellent and good category and mean value for Fair students is 93 and for poor students is 34.1.

**Table no. 2:** Mean value of Physical Fitness Index for Female students

Excellent	Good	Fair	Poor
0	84.5	78	25.2

**Interpretation:** Above table shows there are 0 female students in Excellent category, mean value for good category is 84.5, mean value for fair category is 78 and for poor category is 25.2.

**Table no. 3:** Mean value for Perceived Stress Scale

Low	Moderate	High
10.6	19.6	31.4

**Interpretation:** Above table shows that mean value for low level of stress is 10.6, for moderate level of stress is 19.6 and for high level of stress is 31.4.

**Discussion**

The present study was conducted to find out the level of physical fitness and level of mental stress in young students. In the present study, 100 students were assessed according to inclusion and exclusion criteria which included the age group between 18 to 25 years. The modified Harvard step test and perceived stress scale is used to assess physical fitness and stress respectively.

Physical fitness is one of the essential factors in our life. Being a physically active it helps to maintain your weight, strengthen the bones and muscles, helps to improve everyday activities, improve your brain health, makes you feel energetic, and also improves self-esteem and prevent from mental distress, depression and anxiety. Increased inactivity and sedentary behaviour worsened disease activity and symptoms, lead to poor quality of life obesity, high blood pressure, decreased physical capacity.

Priyanka Sharma et.al in her study Assessment of level of physical fitness and level of mental stress in exercising and non-exercising physiotherapy students used Modified Harvard step test and

perceived stress scale and concluded that physical fitness is more among exercising group than non-exercising physiotherapy students' group and mental stress is less in exercising group than non-exercising group<sup>11</sup>.

Dharmesh Parmar in his study of physical fitness index using Modified Harvard Step Test in relation with gender in physiotherapy students concluded that females are having excellent physical fitness when compared to their male counterparts<sup>12</sup>.

The survey-based study was done to find out the level of physical fitness and level of mental stress using Modified Harvard step test and perceived stress scale. Modified Harvard step test help to find out the level of physical fitness by recording the pulse rate post-test and by using physical fitness rating students are categorized. Using perceived stress scale level of mental stress is determined, how to use scale is explained and according to score students are divided.

Table no: 1 represents mean value of physical fitness index for male students. These table shows there are 0 students who fit in excellent and good category, and the mean value fair and poor students is 93 and 34.1 respectively. It means due to low workout and living sedentary lifestyle most of the male students has poor and fair level of mental stress. Table no: 2 represents mean value of physical fitness index for female students. These table shows there are 0 female students who fit in excellent category. Mean value for good, fair and poor category is 84.5, 78 and 25.2 respectively. Due to low confidence, low stamina, easy fatiguability, poor nutrition and due to less energy expenditure, the level of physical fitness is less. Table no :3 represents mean value for perceived stress scale for young students. These table shows that level of high perceived stress is more with mean value 31.4 and 19.6 and 10.6 for moderate and low level of perceived stress respectively. It means young students has more high level of perceived stress due to academic stress, to be financially independent, and how to survive in the competitive world. This study clearly indicates that now a day's young students has low level of physical fitness as they pay less attention towards their physical health and result in physical inactivity. It is important to create awareness regarding the importance of physical fitness and what are its benefits.

## Conclusion

The present study showed that there is significant decrease in level of physical fitness and level of mental stress in young students. These means that there is less awareness due to which students are less engaged in physical activity in their daily life.

## References

1. American College of Sports Medicine. ACSM's guidelines for exercise testing and prescription. Lippincott Williams & Wilkins; 2013 Mar 4.
2. Kisner C, Colby LA, Borstad J. Therapeutic exercise: foundations and techniques. Fa Davis; 2017 Oct 18.
3. Parmar D, Modh N. Study of physical fitness index using modified harvard step test in relation with gender in physiotherapy students. International Journal of Science and Research (IJSR). 2013 Jan;4(7).
4. American College of Sports Medicine. ACSM's exercise is medicine: a clinician's guide to exercise prescription. Lippincott Williams & Wilkins; 2009.
5. Araújo CG. Physical Activity, Exercise and Sports and Covid-19: What Really Matters. International Journal of Cardiovascular Sciences. 2021 Feb 26;34:113-5.
6. Wiriawan O, Wibowo S, Kusuma DA, Kaharina A. The Level of Physical Activity and Fitness Among University Student. In International Joint Conference on Arts and Humanities (IJCAH 2020) 2020 Dec 3 (pp. 1288-1292). Atlantis Press.
7. Improvement of Physical Fitness Through Management of Daily Physical Activity of Elementary School Students Sasminta Christina Yuli Hartati<sup>1</sup>, Taufiq Hidayat<sup>2</sup>, Hari Wisnu<sup>3</sup>, Bayu Budi Prakoso<sup>4</sup> (ICIRAD 2019).

8. Sharma P, Sharma R, Choudhary A, Vats H, Kataria J, Asif M. Assessment of level of physical fitness and level of mental stress in exercising and non-exercising physiotherapy students. Assessment. 2018 Sep;3(5).
9. Mehrad A. Relationship Between Stress, Physical Exercise, and Mental Health Among Athletes. Journal of Educational, Health and Community Psychology. 2017;6(1):18-23. 2017;6(1):18-23.
10. Bushman B, American College of Sports Medicine. ACSM's Complete Guide to Fitness & Health, 2E. Human Kinetics; 2017 Jan 23.
11. Sharma P, Sharma R, Choudhary A, Vats H, Kataria J, Asif M. Assessment of level of physical fitness and level of mental stress in exercising and non-exercising physiotherapy students. Assessment. 2018 Sep;3(5).
12. Parmar D, Modh N. Study of physical fitness index using modified harvard step test in relation with gender in physiotherapy students. International Journal of Science and Research (IJSR). 2013 Jan;4(7).
13. Singh, D., & Tilak, G. (2019). Effect of Technology Devices on Health of Youth in Pune City.