

### **ASSESSMENT OF MUSCULAR ENDURANCE** AND FLEXIBILITY BETWEEN ACTIVE AND **INACTIVE MALE COLLEGE STUDENTS**

International Journal of

Physical Education and **Sports Sciences** 

Vol. VII, Issue No. XIV, January-2015, ISSN 2231-3745

AN INTERNATIONALLY **INDEXED PEER** 

**REVIEWED & REFEREED JOURNAL** 

www.ignited.in

# Assessment of Muscular Endurance and Flexibility between Active and Inactive male college students

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Abstract – Objectives: The purpose of this study was to compare the Muscular Endurance and Flexibility between Active and Inactive male college students.

Selection of Subjects: The subjects were 30 volunteer male college students. They were 19-23 years old who were assigned into active (n=15) and inactive (n=15) groups. Subjects of the active group participated continuously in ten sessions of physical activity per week from LNIPE, Guwahati, while subjects in inactive group had no specific exercises from various Education colleges. The criteria for participating in the study included having public health and a specific diet, lack of a regular training program for inactive group, and having a regular training program for the active group. After selection, purpose and methodology as well as the research applications were explained to the subjects. Confidentiality of response was guaranteed.

Methods and Materials: The following Muscular Strength and Flexibility were selected as variables for the study.

The Muscular Endurance was measured by one minute correct Curl- up (Crunch) Abdominal Endurance (in Nos.) and Flexibility was measured by YMCA Adult trunk flexion (Sit and reach) test (in Inches).

Statistical Analysis: To Compare Muscular Endurance and Flexibility between Active and Inactive male College students Mean, Standard Deviation and t-test was used. The Level of Significance was set at .05 levels.

Conclusions: The results of the present study showed significant differences in Muscular Endurance and Flexibility components between Active and Inactive male College students, where Active students were found better than Inactive students.

Key word: Muscular Endurance, Flexibility.

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#### **INTRODUCTION:-**

Many people are currently not involved in fitness training programs and efforts to promote participation in all forms of physical activity are being developed and implemented. Thus, the need for exercise is evident. Based on the existing evidence concerning assessment of Muscular Endurance and Flexibility between Active and Inactive male college students is the need for guidelines, for making the following recommendations for the exercise training Programme for developing and maintaining fitness, muscular endurance and flexibility in the healthy adult.

Fitness is defined as the ability to perform moderateto-vigorous levels of physical activity without undue fatigue and the capability of maintaining this capacity throughout life. The definition of health-related fitness involves exercise activities that you do in order to try to improve your physical health and stay healthy, particularly in the categories of cardiovascular endurance, muscular strength, flexibility, muscular endurance and body composition<sup>1</sup>.

Physical fitness has been defined as "the ability to perform physical work satisfactory"<sup>2</sup>.

Physical fitness is a set of attributes that people have or achieve that relates to the ability to perform physical activity<sup>3</sup>.

In the recent decade, a decline in physical activity among college students has been observed<sup>4</sup>.

Numerous studies have indicated the importance of physical inactivity in the development of type 2 diabetes $^{5}$ .

Muscular Endurance is the ability to exert a sub maximal force repeatedly over an extended period of time. This component plays a vital role in activities of daily living and quality life.

Flexibility often also referred to as joint mobility or suppleness, can be defined as the ability to perform movement with *greater range* of motion or large amplitude.

Tight muscles limit lengthening of the antagonist muscles and thus reduce the range of movement of body segments. Low back pain is one of the most common complaints among the Inactive students.

Fitness is needed to carry out on daily routines and be free of disease associated with sedentary life style. In developing physical fitness, individual should participate in activities designed to help them understand the value of fitness that contribute to make to a healthy lifestyle.

#### PURPOSE OF THE STUDY

The purpose of this study was to compare the Muscular Endurance and Flexibility between Active and Inactive male college students to find out which of these two categories is fit and healthy in response to tests administered so as one can improve the standard and level of physical fitness in Active and Inactive college students.

#### MATERIALS AND METHODS

The subjects were 30 volunteer Institute students. They were 19-23 years old who were assigned into active (n=15) and inactive (n=15) groups. Subjects of the active group participated continuously in ten sessions of physical activity per week from LNIPE, Guwahati, while subjects in inactive group had no specific exercises from various Education colleges. The criteria for participating in the study included having public health and a specific diet, lack of a regular training program for inactive group, and having a regular training program for the active group. After selection, purpose and methodology as well as the research applications were explained to the subjects. Confidentiality of response was guaranteed.

# SELECTION OF VARIABLE AND THEIR CRITERION MEASURES

Table 1 presents the Muscular Endurance and Flexibility which was selected for the present study and was measured<sup>6</sup>.

Table 1: Selected variables and their criterionmeasures

S. No	Variables	Criterion measures
1.	Muscular Endurance	One minute Curl- up (Correct Crunch) Abdominal Endurance (in
		Nos.)
2.	Flexibility	YMCA Adult trunk flexion (Sit and
		reach) test (in Inches)

#### STATISTICAL ANALYSIS

To Compare Muscular Endurance and Flexibility between Active and Inactive College male students Mean, Standard Deviation and t-test was used. The Level of Significance was set at .05 level.

#### FINDINGS AND CONCLUSIONS

Mean and standard deviation of Muscular Endurance and Flexibility of Active and Inactive college male students were computed. Its results have been depicted in table 2 and table 3.

### Table 2- Mean and Standard Deviation of selectedVariables of Active College students

<b>S</b> .	Variables	Active College Students	
No.		Mean	S.D.
1.	Muscular Endurance	37.53333	2.948769
2.	Flexibility	4.066667	0.820859

Table 2 depicts that the mean and standard deviation values of Muscular Endurance and Flexibility of Active college students. These values were recorded as variable wise, Muscular Endurance 37.5333 and 2.9487 and Flexibility 4.0667, respectively.

## Table 3- Mean and Standard Deviation of selectedVariables of Inactive College students

<b>S.</b>	Variables	Inactive College Students	
No		Mean	S.D.
1.	Muscular Endurance	28.8	3.668398
2.	Flexibility	3.2	0.621059

#### International Journal of Physical Education and Sports Sciences Vol. VII, Issue No. XIV, January-2015, ISSN 2231-3745

Table 3 depicts that the mean and standard deviation values of Muscular Endurance and Flexibility of Inactive college students. These values were recorded as variable wise, Muscular Endurance 28.8 and 3.6683 and Flexibility 3.2 and 0.6210, respectively.

#### Table 4- Comparative analysis of Muscular Endurance of Active and Inactive college students

	Active	Inactive
Mean	37.53333333	28.8
Variance	8.695238095	13.45714286
Observations	15	15
Pooled Variance	11.07619048	
Hypothesized Mean		
Difference	0	
Df	28	
t Stat	7.186467411	
P(T<=t) one-tail	4.0174E-08	
t Critical one-tail	1.701130908	
P(T<=t) two-tail	8.03479E-08	
t Critical two-tail	2.048407115	

Table 4 revealed that significant difference was found between the means of Active and Inactive College students in Muscular Endurance, Since the calculated value of t (=7.18646) which was higher than tabulated t .05 (1.701), it may be concluded that the mean of Muscular Endurance of Active College students (ACG) was significantly higher than of the Inactive College students (ICS) at the significance level 0.05.



Figure 1: Graphical Representation of Muscular Endurance of Active and Inactive college students.

#### Table 5- Comparative analysis of Flexibility of Active and Inactive college students

	Active	Inactive
Mean	4.0666666667	3.2
Variance	0.673809524	0.385714286
Observations	15	15
Pooled Variance	0.529761905	
Hypothesized Mean Difference	0	
df	28	
t Stat	3.260936655	
P(T<=t) one-tail	0.001458565	
t Critical one-tail	1.701130908	
P(T<=t) two-tail	0.00291713	
t Critical two-tail	2.048407115	

Table 5 revealed that significant difference was found between the means of Active and Inactive College students in Flexibility, Since the calculated value of t (=3.2609) which was higher than tabulated t .05 (1.701), it may be concluded that the mean of Flexibility of Active College students (ACG) was significantly higher than of the Inactive College students (ICS) at the significance level 0.05.



Figure 2: Graphical Representation of Flexibility of Active and Inactive college students.

#### DISCUSSION

Daily exercise will also enhance one's mental wellbeing and promote healthy musculoskeletal function throughout life. Although habitual physical activity is an attainable goal on the path to a healthier life, more than half of U.S. adults do not get  $\geq$  30 minutes of moderate-intensity exercise per day at least 5 days per week'.

The results of the present study showed significant differences in Muscular Endurance and Flexibility components between Active and Inactive male College students, where Active students were found better than Inactive students. This might be due to the reason that Active students perform more

physical activities related to Muscular endurance and Flexibility. As assessment of Muscular Endurance and Flexibility Components level between Active and Inactive male college students the similar study also done by **Md. Dilshad Ahmed** on Comparative study of wellbeing, thought control, academic achievement and health related fitness of active and inactive adolescents school students where he was found 12 minutes run and walk, Bent Knee sit ups, Fat weight and lean body weight showed significant difference between the active and inactive adolescent school students.

It has been noted that even with the generally decreasing physical demands of modern occupation, the work capacity of ageing workers decreases to a critical level if there is no fitness promoting physic al activities during leisure time. Good physical fitness is therefore an indispensible component of overall wellbeing among the middle aged and elderly<sup>9</sup>.

According to the results of this study, it is suggested that the minimal Physical fitness activity of about 30 minutes or more is carried out in all the Institutions and each student is needed to compulsory participate in different types of physical activity so that their Muscular Endurance and Flexibility is maintained.

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