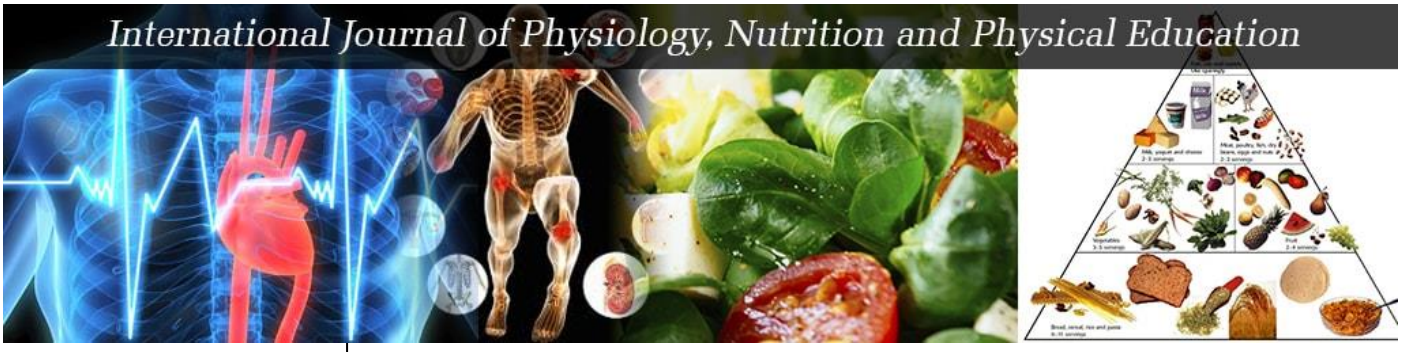

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Dr. Shrikant S Mahulkar
Director of Physical Education,
Late Dattatraya pusadkar Arts College, Nandgaon peth,
Amravati, Maharashtra, India

Correspondence
Dr. Shrikant S Mahulkar
Director of Physical Education,
Late Dattatraya pusadkar Arts College, Nandgaon peth,
Amravati, Maharashtra, India

Relationship of muscle strength with muscle flexibility

Dr. Shrikant S Mahulkar

Abstract
The purpose of the study was to find out the relationship of muscle strength with muscle flexibility. For the purpose of study forty male college students from different college of Amravati district were selected. Their age ranged from 18-25 years of age. For the present study researcher selected 30 subjects. In the present study the researcher adopted purposive sampling method for the selection of subjects. To find out the relationship between muscle strength with muscle flexibility, the descriptive statistics (i. e. Mean and Standard deviation) and correlation coefficient of grip strength, arm strength, abdominal strength, leg strength and flexibility was taken and significance was set at 0.05 levels. Result: There was significant relationship of flexibility with abdominal strength. But insignificant relationship of flexibility with right hand grip strength, left hand grip strength, arm strength and leg strength.

Keywords: muscle strength, muscle flexibility

Introduction
It is often said that strength training has a negative effect on flexibility. For example, someone who develops large bulk through strength training is often referred to as "muscle-bound". The term muscle-bound has negative connotations in terms of the ability of that athlete to move. We tend to think of athletes who have highly developed muscles as having lost much of their ability to move freely through a full range of motion. Occasionally an athlete develops so much bulk that the physical size of the muscle prevents a normal range of motion. It is certainly true that strength training that is not properly done can impair movement; however, there is no reason to believe that weight training, if done properly through a full range of motion, will impair flexibility. Proper strength training probably improves dynamic flexibility and, if combined with a rigorous stretching program, can greatly enhance powerful and coordinated movements that are essential for success in many athletic activities. In all cases a heavy weight-training program should be accompanied by a strong flexibility program [1].

Methodology
For the purpose of study forty male college students from different college of Amravati district were selected. Their age ranged from 18-25 years of age. For the present study researcher selected 30 subjects. In the present study the researcher adopted purposive sampling method for the selection of subjects.

Equipments used for collection of data
Following equipment was used for collection of data:

Sr. No.	Variables	Test
1	Grip Strength	Grip Dynamometer
2	Arm strength	Pull-Ups
3	Abdominal Strength	Bent knee Sit-Ups
4	Leg Strength	Standing Broad Jump
5	Flexibility	Sit and Rich Test

Statistical analysis
To find out the relationship between muscle strength with muscle flexibility, the descriptive statistics (i. e. Mean and Standard deviation) and correlation coefficient of grip strength, arm

Strength, abdominal strength, leg strength and flexibility was taken and significance was set at 0.05 levels. Mean scores and standard deviation of all selected variables are presented in Table - I

Table I: Mean and standard deviation of all selected variables

Variables	Mean	SD
Left hand grip strength	31.10	3.60
Right hand grip strength	32.47	5.30
Arm strength	10.60	3.02
Abdominal Strength	26.40	7.31
Leg Strength	207.90	13.38
Flexibility	13.53	4.49

The analysis of the data shows the results of the study of selected variables, right hand grip strength, left hand grip strength, arm strength, abdominal strength, leg strength and flexibility. The mean + Standard deviation of left hand grip strength in the test were (31.10±3.60) right hand grip strength (32.47±5.30), arm strength (10.60±3.02), abdominal strength (26.40+7.31), leg strength (207.90+13.38) and flexibility (13.53+4.49) respectively.

Table 2. Relationship of flexibility with muscle strength of college students

Variables	Correlation Coefficient
Left hand grip strength	0.255
Right hand grip strength	0.219
Arm strength	0.126
Abdominal Strength	0.513*
Leg Strength	0.159

Significant at .05 level of confidence .05(28) 0.361

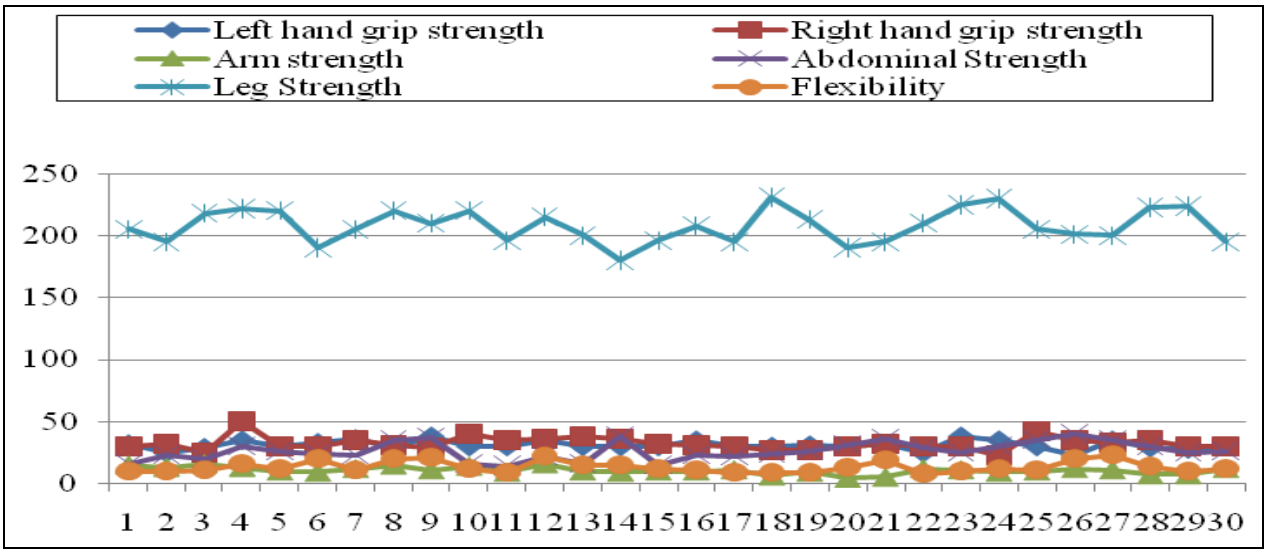
Table-2 reveals that flexibility of college students was significantly correlated to left hand grip strength (r=0.255) which was not statistically significant as the value obtained were much less than the tabulated value (0.361) with 0.05 significant level.

Table-2 reveals that flexibility of college students was significantly correlated to right hand grip strength (r=0.219) which was not statistically significant as the value obtained were much less than the tabulated value (0.361) with 0.05 significant level.

Table-2 reveals that flexibility of college students was significantly correlated to arm strength (r=0.126) which was not statistically significant as the value obtained were much less than the tabulated value (0.361) with 0.05 significant level.

Table-2 reveals that flexibility of college students was significantly correlated to abdominal strength (r=0.513) which was statistically significant as the value obtained were much greater than the tabulated value (0.361) with 0.05 significant level.

Table-2 reveals that flexibility of college students was significantly correlated to leg strength (r=0.159) which was not statistically significant as the value obtained were much less than the tabulated value (0.361) with 0.05 significant level.



Graph 1: Relationship of flexibility with right hand grip strength, left hand grip strength, arm strength, abdominal strength and leg strength

Conclusion

Within the limitations of the present study and on the basis of the findings the following conclusions were drawn.

1. There was insignificant relationship of flexibility with right hand grip strength.
2. There was insignificant relationship of flexibility with left hand grip strength.
3. There was insignificant relationship of flexibility with arm strength.
4. There was significant relationship of flexibility with abdominal strength.
5. There was insignificant relationship of flexibility with leg strength.

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