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## Effect of calisthenics exercise on selected motor fitness components of undergraduate students

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### Abstract

The aim of the study was to investigate the effect of Calisthenics Exercise on Motor Fitness Components of (Rural and Urban) undergraduate students. 30 female students are selected from JAV Girls Degree College, Baraut, Baghpat and their age range between 18-22 years. The subjects of the study were selected with their prior consent for voluntary participation in research. The research scholar has an informal discussion with all the subjects about the requirements of the project and appraised with the purpose of study. The experimental research method was applied for the purpose of the study. In order to analyze, the data, the t-ratio was used to find out the means of pre and posttest. The level of significance was at.05 level. On the basis of analysis of data, the conclusion was drawn that there is significant difference between pre and post scores of speed, agility, flex, strength endurance of abdomen and cardiovascular endurance of Rural Callisthenic group of students. The difference between pre and post scores of Speed, Agility, Flexibility, Strength endurance and Cardiovascular Endurance of urban callisthenic group of found significant.

**Keywords:** Callisthenic exercise, motor fitness components, under graduate girls

### Introduction

Fitness for effective living has many interdependent components involving intellectual emotional as well as physical factors. Fitness rests first upon a solid foundation of good health. Fitness for effective living implies freedom from disease enough strength, agility, endurance and skills to meet the demands of daily living; sufficient reserves to withstand and ordinary stresses without causing harmful strain; and mental development adjustments appropriate to the maturity of the individual. Fitness does not come in a "have" or "not have" package. The level of fitness attained is a result of ability to cope with the varied and interacting stress of life.

A well-rounded individual should be high in all four levels of development. The well-rounded individual, when involving such popular terms as physical, mental and motor fitness, even emotional and financial fitness becomes a trite expression. Such board terms as "total" or "well-rounded" can be applied to all education, to life itself, but as the whole is the sum of its parts, can we not discuss the relationship of parts? We must isolate physical fitness as the primary objective of physical education of human being wants to be free from diseases, of live most and serve best, he must develop his capacity of body as well as of mind and spirit. They all are interdependent. Physical fitness is one's own capacity for sustained physical activity with emphasis on quantity. It is a quality of body and mind, which not only supplies day-to-day energy but also provides reserve capacity enabling a person to preserve difficult circumstances and on the other hand general motor ability, is capacity of individual for physical activity.

In recent year jogging which is basically a combination of walking and running has become popular as an aid to keeping physically fit, as it is sustain type of exercise that is non-competitive. Dr. Kenneth H. Copper has stated that exercises such as jogging force the body to become conditioned to, can increased need for oxygen. When the body reaches certain level of fitness that meets the need, the cardio-pulmonary and oxygen transport systems become more efficient. Among other benefits, jogging also helps the healthy individual who wants to lose weight. Hence, the coaches and physical education teachers realize the importance of general

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motor ability in various games and sports and other physical activities. Therefore; researcher has made an attempt to ascertain the effects of yogic practices and free hand exercises on general motor ability. Yogic practices and free hand exercises form an important part of physical education programme in schools. Once the superiority of one training method over the other is determined, teachers of physical education and coaches will be able to employ yogic practices and free hand exercises single or in combination for improving general motor ability.

Cureton postulated flexibility exercises may be incorporated in conditioning as these exercises help in producing "physical elongation and strengthening of the musculature" and condition the muscles, tendons, ligaments and bones to greater "tensile strength and elasticity". The factors, which are basic to prevent injuries in many sports apart from this insufficient flexibility prolongs the period to learning acts as a bottleneck in developing other qualities and moves.

Copper and his colleagues conducted a study on 1,215 students in an aerobic conditioning programme for the Fort Worth Texas Schools, two groups were formed out of which 778 students from five schools were placed in experimental group and 437 students from four schools were included in the controlled group. Each student was pre and post tested according to Cooper 12 minutes run and walk test. The students in experimental group added jogging to their daily physical education classes; initially they run 5 to 6 minutes and gradually progress to 14 minutes by the end of experimental period. The control group participants continued their normal activity. No student was required to run more than 300 yards except during the pre and posttests.

The result of this programme showed that the endurance of students in experimental group increase by 17.5 percent; whereas the endurance of control group participants remained relatively constant; and was concluded that an endurance training programme could be implemented effectively in an entire school system and that the change in fitness can be expected to be significant.

**Procedure**

Each subject was selected with prior consent for voluntary participation. Training was given for 24 weeks to callisthenic exercise group. Pre training and posttest is taken.

1. Time taken to run distance of 50mtr. dash as far as possible and recorded to the nearest 1/10<sup>th</sup> of a second with the help of stop watch.
2. Time taken to shuttle a distance of ten meter four times and recorded the nearest 1/10<sup>th</sup> of a second with the help of stop watch.
3. The degree of trunk flexion recorded to the nearest centimeters with the help of scale.
4. Strength endurance of abdomen was recorded by using sit-ups tests.
5. Distance covered in 9 minutes recorded by using 9 minute run/walk test.

The experimental research method was applied for the purpose of the study. Callisthenic exercises are the independent variable and motor fitness components are the dependent variables.

**Results and conclusion of the study**

**Table 1:** Effect of calisthenics exercises on motor fitness components of under graduate girls students of rural area

Component		N	Mean	SD	't' score
Speed	Pre	15	9.95	0.68	4.73*
	Post	15	8.96	0.42	
Agility	Pre	15	11.90	0.61	9.17*
	Post	15	10.88	0.57	
Flexibility	Pre	15	33.53	7.87	1.06
	Post	15	32.20	8.40	
Strength Endurance (Abdomen)	Pre	15	28.20	8.21	5.19*
	Post	15	32.73	8.42	
Cardio vascular Endurance	Pre	15	1649.13	241.31	3.01*
	Post	15	1702.67	242.52	

\* Significant at 0.05 level of confidence and DF (28) = 2.05

Table no. 1 revealed the average scores of Pre data of Speed, Agility, Flexibility, Strength Endurance and Cardiovascular Endurance of rural girls students of Calisthenics group were 9.95, 11.90, 33.53, 28.20 and 1649.13 respectively, whereas the average scores of Post data of Speed, Agility, Flexibility, Strength Endurance and Cardiovascular Endurance of rural girls students of Calisthenics group were 8.96, 10.88, 32.20, 32.73 and 1702.67 respectively. The table also revealed a significant difference between Pretest and Post test data of students in Speed, Agility, Strength Endurance and Cardiovascular Endurance. The obtained 't' score of Speed (4.73), Agility (9.17), Strength Endurance (5.19) and

Cardiovascular Endurance (3.01) were found higher than the required table value 2.05 to be significant at 0.05 level of confidence at DF 28. It shows that the post test scores of the rural girl students of calisthenics group in relation to Speed, Agility, Strength Endurance and Cardiovascular Endurance were found better than the pretest scores of the students. Flexibility found insignificant difference between Pretest and Post test data of rural girl students of calisthenics group. The obtained 't' score of Flexibility (1.06) was found lower than the required table value 2.05 to be significant at 0.05 level of confidence at DF 28.

**Table 2:** Effect of Calisthenics Exercises on Motor Fitness Components of Under Graduate Girls Students of Urban Area

Component		N	Mean	SD	't' score
Speed	Pre	15	9.81	0.81	4.27*
	Post	15	8.83	0.31	
Agility	Pre	15	12.08	0.73	7.21*
	Post	15	11.04	0.39	
Flexibility	Pre	15	33.67	5.93	2.74*

	Post	15	31.33	7.00	
Strength Endurance (Abdomen)	Pre	15	20.27	9.42	4.58*
	Post	15	25.40	10.70	
Cardio vascular Endurance	Pre	15	1727.33	612.54	2.15*
	Post	15	1804.33	203.17	

\* Significant at.05 level of confidence and DF (28) =2.05

Table no.2 revealed the average scores of Pre data of Speed, Agility, Flexibility, Strength Endurance and Cardiovascular Endurance of urban girls students of Calisthenics group were 9.81, 12.08, 33.67, 20.27 and 1727.33 respectively, whereas the average scores of Post data of Speed, Agility, Flexibility, Strength Endurance and Cardiovascular Endurance of urban girls students of Calisthenics group were 8.83, 11.04, 31.33, 25.40 and 1804.33 respectively. The table also revealed a significant difference between Pretest and Post test data of students in Speed, Agility, Flexibility and Strength Endurance. The obtained 't' score of Speed (4.27), Agility (7.21), Flexibility (2.74), Strength Endurance (4.58) and Cardiovascular Endurance (2.15) were found higher than the required table value 2.05 to be significant at 0.05 level of confidence at DF 28. It shows that the post test scores of urban girl students of Calisthenics group in relation to Speed, Agility, Flexibility and Strength Endurance were found better than the pretest scores of the students.

### Conclusion

Within the limitations of the present study and on the basis of the analysis of data, the following conclusion was drawn:

- There is significant difference between pre and post scores of speed, agility, strength endurance and cardiovascular endurance of rural callisthenic group students and found insignificant difference between pre and post test data of flexibility of rural callisthenic group students.
- There is a significant difference between pre and post scores data of speed, agility, flexibility, strength endurance and cardiovascular endurance of urban callisthenic group students.

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