

## EFFECT OF CALISTHENICS EXERCISE ON SELECTED MOTOR FITNESS VARIABLES AMONG SLUM BOYS DURING COVID-19

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### ABSTRACT

The COVID-19 pandemic brought forth new challenges to the lifestyles of people in every strata of society. Particularly, as a result of the lockdown and consequent forced curtailment of outdoor activity, even children who were hitherto accustomed to an active lifestyle witnessed health related fitness and motor fitness issues, brought about by a sedentary lifestyle. Under this scenario, Calisthenics would be an excellent fitness regime that may be performed by these children notwithstanding pandemic-related constraints like remaining indoors, and non-availability of gyms. In this study, we have analyzed whether calisthenics exercise caused improvements in selected motor fitness variable among slum boys during Covid-19. Accordingly, twenty slum boys (n=20) with ages ranging between 12 to 15 years, were selected from Chennai, Tamil Nadu. They were classified at random in two equal groups of 10 subjects each (n=10). Group - I (Experimental Group) underwent Calisthenics Exercise (CE) thrice a week for six weeks, while the Group – II (Control group, CG), did not participate in any kind of training programme apart from their regular daily activities. The selected motor fitness variable such as speed and agility were measured by 50-yard Run and Shuttle Run respectively for all the subjects, before and after the training period. The collected data was analysed statistically through analysis of covariance (ANCOVA) to find whether significance difference existed. The results of the study showed that there was a significant improvement in the selected motor fitness variables of the slum boys, as a result of performing CE.

**KEYWORDS:** Calisthenics exercise, Speed and Agility, Slum

### INTRODUCTION

Exercise proves elementary in measuring the effect of exercise and training on various systems of the human body. The exercise responses may vary with different types of exercises and training programs (i.e., strength, endurance, and speed) age, sex and level of fitness. The activity needed for different categories of people is tailored to their capabilities. Quality of life is ensured in the people by this activity. Today it has a unique opportunity of potentially contributing toward the positive-healthier life style in every individual (Sandhya Tiwari 1999).

However, the Covid-19 pandemic greatly affected the lifestyles of people across society and curtailed hitherto pursued activities. Popular sports activities like cricket, football; outdoor activities like running, cycling, recreational games; facilities-based activities such as working out

at gyms and swimming pools were suddenly no longer possible, and avenues for physical activity were reduced to a mere handful.

As a result, we observed most children restricted to the confines of their homes gained weight due to lack of activity, boredom-driven-eating etc. In addition to the moderation in fitness levels this reduced activity also contributed to stress, depression, change in sleep patterns etc for many. Therefore, any fitness regime that may be performed by people of all ages, despite the constraints of being indoors and without fitness equipment, becomes relevant and attractive. With the pandemic caused restrictions greatly reducing the number of fitness regimes that can be followed, one of the few options available is Calisthenics.

Calisthenics was invented in ancient Greece and linked to Greco-Roman gymnastics. The word calisthenics comes from the Greek words “kallos” for beauty and “thenos” for strength. Calisthenics is a form of exercise consisting of variety movements without the use of equipment or apparatus, but mainly using your own body weight. It's intended to increase body strength and flexibility with movements such as bending, jumping, swinging, twisting or kicking; using only one's body weight for resistance.

Callisthenics are aerobic and dynamic exercises and are suitable for sedentary and also for older people. They are rhythmic, smooth, enjoyable exercises that are easy to perform alone or in a group format, and can be modified according to subject's fitness levels. Callisthenics consist of a variety of simple movements that are intended to increase body strength and flexibility using the weight of one's own body for resistance. Callisthenic fitness training can develop both muscle endurance and cardiovascular fitness in addition to improving psychomotor skills such as balance agility and coordination. Callisthenics can be beneficial for both muscular and cardiovascular fitness

These calisthenics exercises are intended to provide an optimally balanced, sufficiently and flexibly demanding, and highly efficient complement to the practice of daily walking. Combined with walking or hiking, the calisthenics exercises allow us to systematically exercise our entire body and achieve complete natural conditioning in a surprisingly short amount of time. For most of us, a calisthenics workout will be done 3-5 days per week and each workout will last from 10- 30 minutes. As you will soon learn through their regular practice, calisthenics exercises do indeed bring both natural human beauty and strength to us, even at only a moderate level of intensity. Calisthenics greatly enhance our physical fitness and stamina, and markedly increase our personal vitality and overall preparedness for life.

## **STATEMENT OF THE PROBLEM**

The purpose of the study was to study the effect of calisthenics exercise on selected motor fitness variable among slum boys during Covid-19.

## **HYPOTHESIS**

It was hypothesized that performance of calisthenics exercise would produce a significant improvement on speed and agility among slum student during Covid-19

## **SELECTION OF SUBJECTS**

For the purpose of the study, twenty boys were randomly selected from slum areas in Triplicane, Chennai, Tamil Nadu. The age of the subjects ranged from 12 to 15 years. They were assigned randomly into two groups of ten subjects each - Group I underwent calisthenics exercise and Group II acted as the control group. The experimental group was subjected to the calisthenics exercise during three days for up to six weeks and Group II was not assigned any specific supervised activity, and were allowed to carry on their regular daily schedules.

## **SELECTION OF VARIABLES**

The calisthenics exercise was selected as the independent variable and the motor fitness variables of speed and agility were selected as dependent variable. The selected dependent variables were assessed by the standardized test items. Speed was assessed by 50 yards' dash test (unit of measurement in Seconds) and Agility was assessed by shuttle run (unit of measurement in Seconds).

## **DESIGN**

The experimental design selected for this study was pre and post test randomized design. The data were collected from each subject before and after the training period.

## **TRAINING PROGRAMME**

Pre-test was administered to all subjects in the first week of the study. Duration of the exercise activity was 30 - 40 minutes per session, three times per week for 6 weeks. As outlined earlier, the control group was not exposed to any form of supervised activity. The researchers organized training between 4.00pm-5.00pm to accommodate all participants who were in the experimental group. The post-test of selected motor fitness variables was performed once again on all subjects, after six week of training.

## **STATISTICAL TECHNIQUES**

Dependent 't' test and analysis of covariance (ANCOVA) was used.

## **ANALYSIS OF DATA**

The data collected before and after the experimental periods, on Speed and Agility of Experimental Group (Group-I) and Control Group (Group – II), were analysed and are presented in Tables – I & II. The level of significance was fixed at 0.05 level of confidence to test the 'F' ratio obtained by analysis of covariance.

**TABLE – I: ANALYSIS OF COVARIANCE FOR PRE AND POST DATA ON SPEED**

| Test           | Experimental Group - CE (Group I) | Control Group (Group II) | Source of variance | Sum of Squares | Df | Mean square | F             |
|----------------|-----------------------------------|--------------------------|--------------------|----------------|----|-------------|---------------|
| Pre-test mean  | 7.39                              | 7.72                     | Between            | 0.55           | 1  | 0.55        | 2.30          |
|                |                                   |                          | Within             | 4.33           | 18 | 0.24        |               |
| Post-test mean | 7.14                              | 7.73                     | Between            | 1.74           | 1  | 1.74        | <b>7.82*</b>  |
|                |                                   |                          | Within             | 4.05           | 18 | 0.22        |               |
| Adjusted mean  | 7.29                              | 7.57                     | Between            | 0.37           | 1  | 0.37        | <b>15.26*</b> |
|                |                                   |                          | Within             | 0.41           | 17 | 0.24        |               |

\*Significant at 0.05 level of confidence. (The table value required for significance at 0.05 level of confidence, with df 1 and 18 and 1 and 17, were 4.41 and 4.45 respectively).

The gained F value on pre-test scores of 2.30 was lesser than the required F value of 4.41 to be significant at 0.05 level. This proved that there was no significant difference between the groups at initial stage and the randomization at the initial stage was equal. The post- test scores analysis demonstrates that there was significant difference between the groups as the gained F value at 7.82 was greater than the required F value at 4.41. This proves that the differences between the pre and post-test mean scores of the subjects were significant. Further, adjusted mean scores for the pre and post test scores among the groups were calculated and subjected to statistical treatment. The obtained F value at 15.26 was significantly greater than the required F value at 4.45. This improvement in the post test mean over the pretest mean, clearly demonstrates the improvement in speed of subjects in the Experimental Group as a result of participation in calisthenics exercise.

**TABLE – II: ANALYSIS OF COVARIANCE FOR PRE AND POST DATA ON AGILITY**

| Test           | Experimental Group - CE (Group I) | Control Group (Group II) | Source of variance | Sum of Squares | Df | Mean square | F             |
|----------------|-----------------------------------|--------------------------|--------------------|----------------|----|-------------|---------------|
| Pre-test mean  | 11.26                             | 11.44                    | Between            | 0.15           | 1  | 0.15        | 0.97          |
|                |                                   |                          | Within             | 2.93           | 18 | 0.16        |               |
| Post-test mean | 10.84                             | 11.37                    | Between            | 1.40           | 1  | 1.40        | <b>15.95*</b> |
|                |                                   |                          | Within             | 1.58           | 18 | 0.88        |               |
| Adjusted mean  | 10.89                             | 11.31                    | Between            | 0.83           | 1  | 0.83        | <b>36.62*</b> |
|                |                                   |                          | Within             | 0.38           | 17 | 0.23        |               |

\*Significant at 0.05 level of confidence. (The table value required for significance at 0.05 level of confidence, with df 1 and 18 and 1 and 17, were 4.41 and 4.45 respectively).

The gained F value on pre-test scores of 0.97 was lesser than the required F value of 4.41 to be significant at 0.05 level. This proved that there was no significant difference between the

groups at initial stage and the randomization at the initial stage was equal. The post- test scores analysis demonstrates that there was significant difference between the groups as the gained F value at 15.95 was greater than the required F value at 4.41. This proved that the differences between the pre and post-test mean scores of the subjects were significant. Further, adjusted mean scores for the pre and post test scores among the groups were calculated and subjected to statistical treatment. The obtained F value at 36.62 was substantially higher than the required F value at 4.45. This improvement in the post test mean over the pretest mean, clearly demonstrates the improvement in agility of subjects in the Experimental Group as a result of participation in calisthenics exercise.

## CONCLUSIONS

As empirically demonstrated by this study, performing calisthenics exercises had a significant positive effect on selected motor fitness variables of speed and agility among slum boys during Covid-19.

The importance of maintaining physical & mental fitness were brought to the fore, once alternatives for exercise activities greatly reduced as a result of pandemic-related restrictions. Calisthenics would probably be among the top of the list of such reduced number of activities, that may be performed indoors sans any equipment.

Moreover, since these exercises are already part of school curriculum, most children would be familiar with commonly practiced routines. In fact, the researcher chose calisthenics sessions to be conducted via online classes to students in his school and observed good participation and results. We believe that awareness & regular practice of calisthenics routines can be a good fallback option during conditions similar to the recent pandemic, to maintain physical condition for people of all ages.

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