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Effects of Callisthenic Training on Selected Physical and Physiological Variables among the Postural Deformities of Engineering Students

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Abstract – The purpose of the study was to find out the effects of callisthenic training on selected physical and physiological variables among engineering students with postural deformities. To achieve the purpose of the study, fifty Engineering students with postural deformities were selected randomly from Anna University, Chennai. The subjects aged from 18 to22 years. The selected subjects were divided into two equal groups namely experimental and control groups of 25 subjects each. The training period was limited to eight weeks and for six days per week. The callisthenic training was selected as independent variables and VO2max, Resting pulse rate, Flexibility and Balance were selected as dependent variable and it was measured by VO2max, cardio radial pulse, sit and reach, and stroke stand. All the subjects were tested two days before and immediately after the experimental period on the selected dependent variables. The obtained data from the experimental group and control group before and after the experimental period were statistically analyzed with dependent't'-test to find out significant improvements. The level of significance was fixed at 0.05 level confidences for all the cases. Significant improvement was found on VO2max, Resting pulse rate, Flexibility and Balance of experimental group due to the effect of callisthenic training when compared to the control group.

Keywords: VO2max, Resting Pulse Rate, Flexibility and Balance.

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INTRODUCTION

Calisthenics is a form of exercise consisting of a variety of movements that exercise large muscle groups, such as running, standing, grasping, pushing, etc. These exercises are often performed rhythmically and with minimal equipment, as bodyweight exercises. They are intended to increase strength, fitness, and flexibility, through movements such as pulling, pushing, bending, jumping, or swinging, using one's body weight for resistance. Calisthenics can provide the benefits of muscular and aerobic conditioning, in addition to improving psychomotor skills such as balance, agility, and coordination.

Individuals and groups train to perform advanced calisthenics skills such as muscle-ups, levers, and various freestyle moves such as spins and flips.

Sports teams and military units often perform leader-directed group calisthenics as a form of synchronized physical training often including a customized "call and response" routine to increase group cohesion and discipline. Calisthenics is also popular as a component of physical education in primary and secondary schools over much of the globe.

In addition to general fitness, callisthenic exercises are often used as baseline physical evaluations for military organizations around the world.

METHODOLOGY

For the purpose of this study, altogether fifty were engineering students with postural deformities chosen on random basis from Anna University, Chennai. Their age group ranges from 18 to 22 years. They were divided into two groups of 25.The Experimental group I would undergo callisthenic training. The second group was assumed as Control group II.Pre – test and post –test would be conducted. Treatment would be given for eight weeks. It would be find out finally the effect of

calisthenics training on the working women's in scientific methods.

The selected tests were measured by following units for testing:

Criterion Variables	Test Items	Unit Measurements
VO2max	Margaria Kalamen Step Test	Seconds
Resting Pulse Rate	Cardio Radial Pulse	Seconds
Flexibility	Sit and Reach	Centimeters
Balance	Stroke Stand	Seconds

TRAINING PROGRAMME:

The following schedule of training was given for the calisthenics training group.

Group	Design of the Training
Experimental Group I	Calisthenics training
Control Group II	Did not do any Specific Training
Training Duration	90 Minutes
Training Session	6 Days a week
Total Length of Training	Eight weeks

EXPERIMENTAL DESIGN

The experimental group was given calisthenics exercises after taking an initial test. After the initial test selected calisthenics exercises were given for six weeks in all days except Sunday. The time of practice was from 7.00A.M to 8.30A.M.The control group were not participating in any of the special training programme. However they were allowed to do their regular official and personal work.

STATISTICAL TECHNIQUE

The collected data from pretest and post test were statistically evaluated with dependent t-test to discover obtainable significant development. The level of significance was secured at 0.05 Level of confidence for all the cases.

RESULTS AND DISCUSSIONS

The effect of calisthenics training on each criterion variables was considered by dependent 't' – test on the data achieved for breath holding time, resting pulse rate, flexibility and balance. The pretest and post test means of experimental group and control group have been analyzed and existing in Table I.

TABLE – I

MEAN AND DEPENDANT 't' – TEST FOR THE PRE AND POST TESTS ON VO2 MAX, RESTING PULSE RATE,FLEXIBILITY AND BALANCE OF EXPERIMENTAL AND CONTROL GROUPS

S. No	Variables	Group/Test	Mean	SD	SEM	DF	't' ratio
1	VO2max (Scores in Seconds)	Experimental Pre - test	27.53	0.89	0.23	2.6	14.34*
		Experimental Post - test	24.93	3.33			
		Control Pre - test	24.66	1.17	0.29	1.2	1.11
		Control Post - test	25.86	1.20			
2	Resting Pulse Rate (Scores in seconds)	Experimental Pre - test	82.53	8.53	1.80	8.53	4.71*
		Experimental Post- test	74	7.01			
		Control Pre - test	84.26	2.18	0.55	2.6	1.56
		Control Post - test	86.86	2.60			
3	Flexibility (centimeters)	Experimental Pre - test	3.68	1.75	7.2	24	8.68*
		Experimental Post - test	4.65	1.84			
		Control Pre - test	3.64	1.29	.54	23	1.06
		Control Post - test	3.41	1.37			
4	Balance (Scores in seconds)	Experimental Pre - test	13.15	1.69	.64	24	7.58*
		Experimental Post - test	15.70	1.49			
		Control Pre - test	13.17	1.73	1.10	23	2.08
		Control Post - test	11.48	3.70			

*Significance at 0.05 level of confidence

The table I, shows that, the obtained 't'–ratio between the pre and post test means of experimental group were14.34,4.71,8.68,7.58 and control group were 1.11, 1.56,1.06,2.08 respectively. The table value required for significant difference with df 24 at 0.05 level of confidence, was 2.063. Since the obtained t' – ratio value of experimental and control group on VO2max, Resting pulse rate, Flexibility and Balance were greater than the table value 2.063, it was concluded that the callisthenic training had significantly improved VO2max, Resting pulse rate, Flexibility and Balance of experimental group.

The pre and post test mean value of experimental and control group on VO2max, Resting pulse rate, Flexibility and Balance were graphically represented in the figure 1.

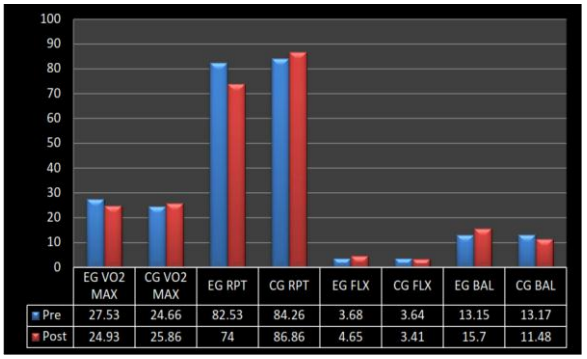

FIGURE I

BAR DIAGRAM SHOWING THE PRE AND POST MEAN VALUE FOR CALLISTHENIC TRAINING GROUP OF ENGINEERING STUDENTS WITH POSTURAL DEFORMITIES

DISCUSSION ON FINDINGS

The finding of the study reveals that the callisthenic training group cause significant improvement on VO2max, Resting pulse rate, Flexibility and Balance. In the view of control group there was no significant improvement in their physical and physiological variables. The findings of the study corroborate with **Yardi N., (2001), Gharote ML. (1990), Sreekumar JP(1968)** callisthenic training exercise developed physical and physiological variables.

CONCLUSIONS

Improvement of on VO2max, Resting Pulse Rate, Flexibility and Balance was found significantly on experimental group due to the effect of callisthenic training when compared to the control group.

REFERENCES

1. Prem Sunder. Yoga for Fitness, (New Delhi; Khel Sahitya Kendra Published, 2009, 32.

2. Yardi N. Yoga for control of epilepsy. Seizure. 2001; 10(1): pp. 7-12.

3. Gharote ML. Applied Yoga (Lonavala: Kaivalyadhama, S.M.Y.M. Samiti, 1990, pp. 7.

4. Sreekumar JP (1968). Simple Yoga, (Madras: Yoga Brotherhood Publishing, pp. 6.

5. Spielberger CD (1972). Anxiety: Current trends in theory and research. Acadmic Press.

6. Bhole MV, Kasambalkar: Effect of yogic treatment on Blood pressure in Asthma patients, Yoga Minamsa, 2:1.

7. K.Murugavel and E. Balaji (2014) Effects of Resistance Training and Detraining Programme on Upper Body Strength and Leg Explosive Power of University Men Handball Players, International Interdisciplinary Research Journal, Volume 4 Issue 5 Pages 216-223.

8. Nandagopal D and Murugavel K (2019) Impact of resistance training on physical fitness variables of school level men soccer players, Bharathiar National Journal of Physical Education and Exercise Sciences ISSN-0976-3678 vol. 10, no (2) pg. 12-17.

9. Nirendan, J., & Murugavel, K. (2019). Impact of low intensity sports specific resistance training with yoga on selected osteokinematics variables of badminton players.

10. A Sreemathi and K Murugavel (2017). Comparative effect of two different frequency of plyometric training on explosive power parameters of college women players. International Journal of Physiology, Nutrition and Physical Education; 2(2): pp. 72-76.

11. Saravanan, E and Pushparajan (2010) A Effects of various sports specific training methods on range of motion physical physiological psychological and performance related variables of male cricketers. Shodhganga@INFLIBNET, http://hdl.handle.net/10603/101323.

12. Tamilselvan G and Rajkumar M (2019) Effect of Game Specific Training on Selected Physical and Physiological Variables among College Men Kabaddi Players, BHARATHIAR NATIONAL JOURNAL OF PHYSICAL EDUCATION AND EXERCISE SCIENCES ISSN-0976-3678 2019, Vol.10, No (2) pp. 1-6

13. Nirendan, K. Murugavel (2019). Influence of Resistance Training on Selected Osteokinematics Variables of Badminton Players International Journal of Physical Education & Sports Sciences [IJOPESS] (Vol:14/ Issue: 2) DOI: 10.29070/IJOPESS.

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