



EFFECT OF CORE TRAINING WITH AND WITHOUT YOGIC PRACTICES ON BODY COMPOSITION VARIABLE AMONG WOMEN STUDENTS

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ABSTRACT

The present study attempted to examine the effect of core training session with and without yogic practices on body composition variable among women students (age 18 ± 3 years). A random selection of 45 female students from the Government Arts and science college Thiruvannamalai in Tamil Nadu, India was carried out. They were grouped into three groups with fifteen members each such as yogic practice group, core strength group and combined yogic core strength training group. The body mass index (BMI) is selected as body composition variable and is tested with height weight ratio calculation in kg/m^2 . The subjects underwent training for 12 weeks, 4 days a week and 45 to 60 minutes per day with suitable warming up and cooling down exercise. The criterion variable was tested before and soon after subsequent training sessions. A statistical analysis of the obtained data was carried through analysis of covariance. For the evaluation of paired mean difference at the optioned 'F' ratio with a significant level at 0.05, the Scheffe's post hoc test was utilized. After investigation it was observed that, there occurred a significant difference among experimental groups on selected Body composition parameter.

KEYWORDS: Core Training, Yogic Practices, Body Composition, Women Students.



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INTRODUCTION

In the modern world physical activity plays an important role in building an effective system and function of a human body. Man becomes fit for physical activities by developing required skills, body composition and flexibility. Motor skills are maximum trainable in the course of early adolescence and the pre-pubertal years are the most beneficial period for starting the basic motor skill training.¹ Men should be more fit than what the daily necessities of his life require, so that they can meet the occasional emergencies that arise. These emergencies may include sudden need to increase great efficiency in their working hours to take care of some immediate situation. The situation may be very vital and upsetting. Whatever the emergency that thrusts it on man, he has to carry on. Sports are a means of developing these emergency fitness.² Training through exercises helps the respiratory muscles to gain their strength and endurance, reduces the resistance in respiratory canals, builds up the elasticity of lungs and the expansion of alveoli.³ The beneficial outcomes of normal physical activity in the protection of antioxidant and the peroxidation of lipid damage might be impaired by the growing age old process and that ordinary physical activity in older adults ought to hold age-related decreases in antioxidant protection.⁴ Core strength is the truncal capacity to help the exertion and powers of the arms and legs so the muscles and joints can work in their most grounded, most secure and best position. It is the strong stable support required for the proper functioning of any lever framework. Under such situations, the muscles of the middle balance out the spine to give a strong establishment to development in the arms and legs.⁵ During an act of throwing, one of the variables that impact the speed of the kinetic chain is the cooperation of the musculature with the inclusion of the core muscles. The incorporation of the trunk and pelvic muscles, which are responsible for keeping up spinal and pelvic stability is carried out by core musculature and helps in creating and exchanging energy from expansive to little body parts.⁶ Core stability is defined as the controlling capacity of the trunk's position and movement above the pelvis and legs for ideal generation, exchanging and managing force and movement to the end section in kinetic chain exercises that are integrated. Heavy endurance exercise helps the muscles of contraction for the flow of blood equal to 80% or exceeding it and reduces the flow to the liver and kidneys. The flow of blood equal to 25 times or more than that to the active muscles is observed with such redistribution with the raise in cardiac output.⁷ The concurrent training status of the players has an independent effect on molecular responses triggered through exercises.⁸ Training of sequencing strength before the concurrent training endurance seems to be beneficial for the adaptations of lower body strength, even as the development of aerobic potential isn't always affected by training order.⁹ The effective approach of concurrent resistance and endurance training enhances health along with improvement of life.¹⁰ Yoga involves the utilization of breathing methods, meditation and exercise which lead to the enhancement of wellbeing and happiness. It comes from the Sanskrit word that means union. Patanjali was a pioneer of

traditional yoga. He characterized it as the discontinuance of the adjustment of the psyche. With the origination in old India, it has a few subtypes and joins physical stances (asanas), controlled breathing (pranayama), profound relaxation and meditation. Standard routine regarding to yoga upgrades wellness and coordination to the mind and solid exercises.¹¹ The body mass index (BMI), or Quetelet index, is quantification of relative size in view of the mass and tallness of an individual. The advanced term "weight list" (BMI) used for the proportion of weight to squared tallness shows its prominence to a published paper in the journal of Chronic Disease by Ancel Keys. Body Mass Index (BMI) is a measurement of a man's weight as for his or her height.¹² It is a great amount of a pointer than an immediate measurement of a man's aggregate muscle to fat ratio and it connects with add up to muscle versus fat. With the increase in the score builds of BMI, there completes a man's aggregate muscle to fat ratio. The WHO characterizes an overweight adult with BMI ranging from 25 to 29.9, a fat adult with 30 or higher, an underweight with 18.5, and solid weight adult between 18.5 and 24.9. Enhancing and keeping up a proper range of joints movement upgrades an individual's life. General adaptability of a particular joint scope of movement needs is highly essential as the joints of an individual differ. Adaptability loss can be an inclining factor for torment disorders or adjust issues. Sex, age, and hereditary qualities are critical for scope of movement. Stretching exercises and yoga frequently enhance adaptability.

MATERIAL AND METHODS

The study involved a random selection of 45 female students as subjects from the Government Arts college, Thiruvannamalai, Tamil Nadu, India. They were grouped into three with fifteen students such as yogic practice group, core strength group and combined yogic core strength training group. Body mass index based on height and weight was tested for the measurement of *body fat* of the students. The experimental groups underwent training for 12 weeks, 4 days per week, 45 to 60 minutes per day with suitable warming up and cooling down exercise at the ground of Government Arts College, Thiruvannamalai. The core training group underwent training on sit ups, modified abdominal curl, crunch, cross curl up and so on, the yogic practice group underwent various asanas like Bhadrasana, Bhujangasana, Halasana, Arthachakrasana, Yogamudra, Paschimottanasana, Pranayama and the combined training group underwent training on both core training and yogic practices in an alternative day respectively. The criterion variables were measured before and subsequent to the training period. The obtained data were statistically evaluated with the use of ANCOVA in SPSS package. For the evaluation of paired mean difference under the significance of optioned 'F' ratio, the test of Scheffe's post hoc was utilized. The significant level was maintained at 0.05.

STATISTICAL ANALYSIS

The statistical analysis of the collected data was carried out through Analysis of covariance (ANCOVA) using

SPSS 20.0 (SPSS Inc Software) and the F ratio was determined. Scheffe's post hoc assisted in the evaluation of paired mean difference with the appropriate fixation of 0.05 level of significant level. The

results of the analysis indicated the occurrence of significant difference between the experimental groups on the selected criterion variable namely body composition parameter.

RESULTS

Table 1
ANCOVA of BMI among the training groups of Yogic practice, Core and Combined method

Test		Core Training Group	Yogic Group	Combined Group	Source of Variation	Sum of Squares of variation	Degree of Freedom	Mean Square	F Value
Pre Test	Mean	29.25	29.06	29.02	B	3.69	2	3.69	0.10
	SD	1.28	2.34	2.69	W	56.39	42	3.06	
Post Test	Mean	26.36	26.29	25.26	B	198.45	2	198.45	14.78*
	SD	1.06	2.70	3.50	W	563.96	42	13.42	
Adjusted post test					B	155.58	2	155.58	8.08*
	Mean	26.03	26.53	25.03	W	789.25	41	19.25	

*Significant confidence level at 0.05, the table values required for df 2 and 42, 2 and 41 were 3.22, 3.23

The table 1 shows that the occurrence of significant difference of the post test mean adjusted on body composition among yogic practice group, core strength training group and combined yogic practice core

strength training group. Since the 'F' value was significant, the Scheffe's post hoc test was utilized to examine the paired mean difference was used and shown in table 2.

Table 2
Scheffe's post hoc test on BMI among Yogic practice group, Core training group and Combined training group

Variables	Test	Yoga Group Vs Core Strength Group	Yoga Group Vs Combined Group	Core Strength Group Vs Combined Group
		Mean difference	0.50	1.50
Body composition	P - Value	0.077	0.002	0.001
	Significance	In. Sig	Sig	Sig

The table II presents the results of Scheffe's post hoc test on body composition and the significant difference among the yogic practice group and combined yogic practice core strength training group and core strength training group. The analysis also reveals the significant difference found among the yogic practice group and core strength training group. The result shows that there was a significant increase on body composition due to twelve weeks of yogic training, core strength training

and combined yogic core strength training. Also it can be concluded that. the combined yogic practice core strength training group showed better improvement on Body composition when compared with isolated yogic and core strength training group. The mean values obtained from the pretest, posttest and the adjusted post-test of the all the three selected groups trained on body composition are represented graphically in Figure 1.

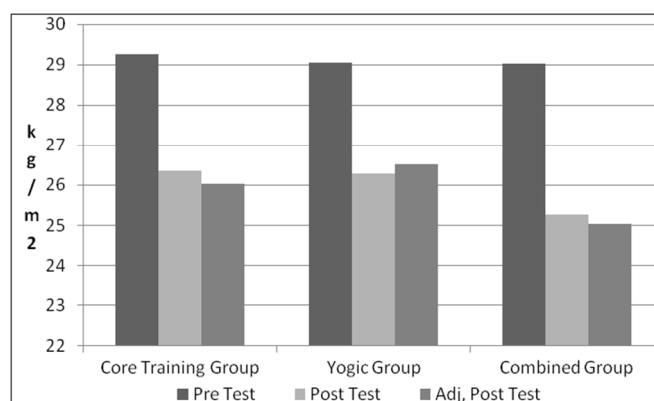


Figure 1
Bar diagram of mean values on body composition among Yogic practice group, Core strength training group and Combined training group

DISCUSSION

The result showed that the significant improvement on body composition among the combined training group. Since the isolated groups shows initial improvement on criterion variables therefore the combined group shows better due to the combination of both the aerobic metabolism. Various factors are involved in the training combination to be effective. They are genetic potential of the athlete, the period of training, the present physical training form, the level of intense and degree of training, optimal systematic planning, nutritional additives etc., The combined method of training on strength and endurance increases the anaerobic capacity and the intake of maximum oxygen. A number of previous studies reported the greatest reduction in body fat in the group of endurance training than the combined group, whereas other studies examined the maximal reduction in the percentage of body fat in group of combined training. Therefore, this kind of training is effective in the reduction of body fat and improvement of body composition. The training of strength and endurance at the same time, a might result in the possible intrusion in the development of strength.¹³The results of this study also revealed the significant increase of the aerobic capacity subsequent to the training in both groups of exercise in comparison with the control group. In line with this, most of the previous studies reported an increase in Body composition in endurance and combined groups. However, some of these studies suggested significant reduction in Body composition in the resistance training group.¹⁴ Moreover, many previous studies have demonstrated the impact of combined method of training on muscle strength and endurance, and maximal aerobic capacity reported little improvement in the aerobic capacity in non-trained

people subsequent to 12 weeks of combined training in accordance with resistance and endurance with regard to the training of endurance. The result showed the significant improvement in the lean body mass of the groups of resistance, also the significant reduction in the body percentage of body fat of groups of endurance and combined method, and also the specific increase in the body composition of the endurance group.

CONCLUSION

The study concluded that the combined training was the best training method for improving Body composition. The conclusion of this study may help the trainer design the optimal exercise program for women athletes.

AUTHORS CONTRIBUTION STATEMENT

R. Meera and Dr. R. Mohana Krishnan designed the study. R. Meera involved in the implementation of the research, analysis of the result and writing of the manuscript.

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CONFLICT OF INTEREST

Conflict of interest declared none.

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