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Effect of yogic practice and calisthenics on hormone Triiodothyronine (T3) in physical education students

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Abstract
The aim of the study was to determine the effect of selected yogic practices on hormones triiodothyronine. 20 trained sports men were selected randomly from Annamalai University their age group was between 18 - 25 years. Three groups were formed two experimental and one control group of 20 subjects each. The experimental group-1 participated in yogic practice training and experimental group -2 underwent Calisthenics for 10 week and the control group performed the routine work. The data was collected in the beginning and at the end. The training schedule was prepared systematically and carefully. The significance was tested at 0.05 levels.

Keywords: yogic practice, calisthenics**,** hormone triiodothyronine (T3)

Introduction

Yoga is a psycho-somatic-spiritual discipline for achieving union and harmony between our mind, body and soul and the ultimate union of our individual. Yoga is perhaps the only form of activity, which massages all the internal glands, and organs of the body in a thorough manner. Yoga acts in a healthy manner on the various body parts. This stimulation and massage of the organs in turn benefits the mass by keeping away diseases. Yoga ensures the optimum blood supply to various parts of the body, by gently stretching muscles and joints as well as massaging the various organs. Regular yoga practice brings about mental clarity and calmness, increases body awareness and also relieves chronic stress patterns, relaxes the mind, centers attention and sharpens concentration.

Calisthenics require minimal equipment and can be performed in almost any location. These exercises can be used to develop and maintain muscle strength and muscle endurance, and can be particularly useful when strength-training equipment is not available.

The thyroid is one of the largest endocrine glands shaped like a flat shield like surface that sits in front of the vocal cords, and just below your Adam's apple in the root of neck. The thyroid is responsible for production and secretion of the thyroxin (T4) and triiodothyronine (T3) hormones and calcitonin throughout the body. This output of hormones is regulated by pituitary gland. T3 has great effect on the way the body uses energy than t4. (sembulingam, 2002) [8].

Objectives of the Study

The core aim of the present study was to find out the effect of Effect of Yogic Practice and Calisthenics on hormone Triiodothyronine (T3) in physical education students.

Methodology

For the purpose of the study.20 physical education students were selected randomly from Annamalai university and their age group was between 18 - 25 years, with their consent. Three groups were formed group -1 yogic practice group and group-2 Calisthenicsgroup of with 20subjects in each group. The experimental groups participated in yogic practice and Calisthenics for 10 week and the control group performed the routine work. The data collected in the beginning and at the end. The training schedule was prepared systematically and carefully. The significance was tested at 0.05 levels. Blood samples were taken before and after 10 weeks of both yogic and calisthenics training.

Administration of test

Sample: fasting Serum

Radioimmunoassay (RIA)

Is an elegant technique in analytical biochemistry and plays a significant role in the diagnosis. (Ramakrishna and Swamy, 1995)

Reagents

Microwells coated with rabbit T3 antibody, T3 Conjugate, Substrate, Stop solution

Standards. Control serum, Wash solution

Procedure

The appropriate number of microwell strips were selected and secured them to the holding frame 50µl each of standards, control serum, and test samples were added to the wells and 100 µl of T3 conjugate was added to each well. The plate was covered, mixed well by swirling the plate gently for 30 seconds and incubated at room temperature for 1 hour. The supernatant from the entire well was drained thoroughly by inverting the plate and tapping vigorously on an absorbent paper towel to remove excess fluid. The well were washed five times with diluted wash solution 200 µl of substrate solution was added to each well mixed well by swirling the plate gently for 30 seconds covered the plate and incubated at room temperature for 30 minutes. 100 µl of stop solution was added to each and gently to mix the stop solution. The absorption was read to 450nm.

Calculation the concentration of T3 was interpolated from a standard curve, the serumT3 level is expressed as mg/dl.

Training protocol

The experimental groups underwent training regime that

consists of six to eight exercise session, two sessions a day four days a week for ten weeks. In the morning, yogic training and Calisthenics training administrated from Monday to Friday respectively, and the control group did not participated in any specialized training during this period of study.

Table 1: Schedule of yogic Practice

Name of the Asana	Duration Of Asana
Shavasana	15 minutes to 20 minutes
Sarvangasana	1/2 minute to 15 minutes
Matsyasana	1/4 minute to 6 minutes
Halasana	1 minute to4 minutes
Bhujangasana	10 minutes to1 minute
Dhanurasana	10 minutes to1 minute
Shavasana	15 minutes to 20 minutes

Table 2: Schedule of Calisthenics

Calisthenics	Sets
Stepping	6
Lunging (forward and Sideward)	6
bending	3
jumping	3
sitting	6
clapping	6

Note: For each exercise, with one set of eight reps. Each set take about one minute and rest for 60 seconds after each set.

Experimental Design and Statistical Procedure

The experimental group design used in this study was random group design involving forty-five subjects. (Clark *et al.,* 1972) [1] Analysis of covariance (ANOVA) was used for computing, further, since three groups were involved, whenever the 'F' ratio was significant, Scheff'e S post hoc test was used to determine which of the paired mean differ significantly. To be changed

Result and Discussion

The descriptive analysis of data collected on selected hormone triiodothyronine Prior to and immediately after the 10weeks of yogic practice and Calisthenics training is presented in the table-3.

Table 3: Analysis of mean value for Pre and Post Tests Data on Triiodothyronine (T3) of Experimental and Control Groups

	Yogic group	Calisthenics group	control
Pretest Mean	125.61	125.76	125.66
Post test mean	131.70	130.55	129.33

Table 4: Analysis of covariance value for Pre and Post Tests Data on Triiodothyronine (T3) of Experimental and Control Groups

Source of Variance	Df	Adjusted S.S	Adjusted M.S	F Ratio
Between Sets	2	396.71	198.35	
Within Sets	57	71.59	1.25	157.9*
Total	59	513.0		

* Significant at 0.05 level.

The table value required for significance at 0.05 level of confidence with degree of freedom 2, 57 is 3.16.

The 'F' ratio value of 157.9 for post-test data on Triiodothyronine is significant at 0.05 levels. It reveals that there is significant difference among the groups on Triiodothyronine because of training.

The results of Tukey's post-hoc test are presented in table-4.

Table 4: Tukey Test for the Differences between the Adjusted Post Test Paired Means on Triiodothyronine

Yogic group	Calisthenics	control	Mean Difference	Confidential Interval
131.70	130.37		1.33	2.18
	130.37	125.56	4.81*	2.18
131.70		125.56	6.14*	2.18

*Significant at 0.05 level

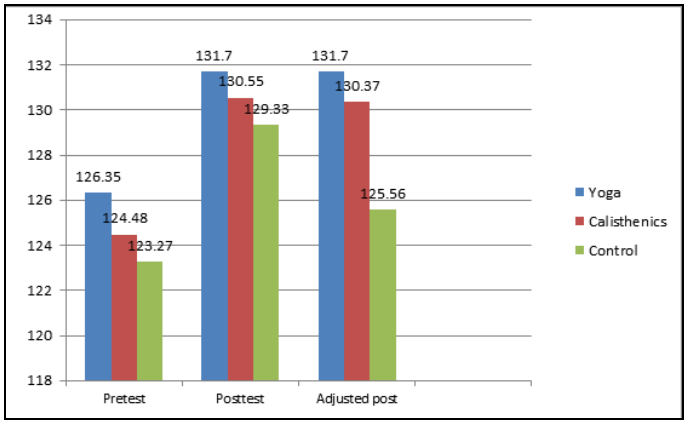

Fig 1: Graphical Representation of Pretest, Posttest and Adjusted posttest

The adjusted posttest for the paired mean difference of calisthenics group and control group and yogic training group and control group were 4.81and 6.41 are greater than the required confidential interval of 2.18 so there is significant difference among the calisthenics group and control group, yogic training group and yogic training group.

The adjusted posttest paired mean difference of yogic training group and calisthenics group is 1.33 is lesser than the required confidential interval of 2.18 so there is insignificant difference between the yogic practice group and calisthenics group.

Conclusion

It reveals yogic groups have significantly increased in Triiodothyronine compared to Calisthenics group and control group. and calisthenics group also has significantly increased compared to control group.

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