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Effects of submaximal aerobic training in combinations with psychological counselling on selected health related physical fitness components and hormonal variables among people with Hypothyroidism

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Abstract

To achieve the purpose of the study was to find out the effects of submaximal aerobic training in combination with psychological counseling on selected health related physical fitness components and hormonal variables among people with hypothyroidism. To achieve the purpose of the study, forty five subjects were selected at randomly, their age ranged from 30 to 45 years. The study was conducted on 45 subjects from Thyrocare centre, Coimbatore. The selected subjects were divided into three equal groups consisting of fifteen each. No attempt was made to equate the groups. Experimental Group I underwent the Submaximal aerobic Training group (SATG), Experimental Group II underwent the Submaximal aerobic Training with Psychological counseling group (SATPCG) for three days a week and for a duration of 6 weeks. Group III acted as control group (CG), the subjects in control group were not engaged in any training programme other than their regular work. At the end of the treatment period, as post-test, the subjects belonging to the treatment group namely experimental group-I Submaximal aerobic Training group (SATG), Experimental Group II – Submaximal aerobic Training with Psychological counseling group (SATPCG) and group III Control Group (CG) were tested on selected variables. Further, the group mean gains pre and post-test recorded by three groups during the experimental period of six weeks to the criterion measures were tested for significance by applying 't' – test.

Keywords: Submaximal Aerobic, Psychological Counseling, Hypothyroidism

Introduction

If food and work are either excessive or deficient, the three things enumerated by medical writers, flatulence, biliousness, and phlegm, will cause one disease.

Too much of anything is good for nothing goes a proverb that states the importance of right things at right proportions at the right time. In human body is no exception to it. Hormones are the kingmakers and man is at peace only till hormone homeostasis rules his body. Hormones are double edged sword, as its right amount is more important than mere presence or absence. In the game changer hormone thyroid always top the list of human concern. In excess it threatens with toxic symptoms like Weight gain with poor appetite, Shortness of breath, Poor memory and concentration and Abnormal sensation while in absence suppresses him with worsen symptoms. A sound mind in a sound body, thus hormone balance plays a vital role in physical, mental and financial state of a person and crippled is he with hormone imbalance.

The thyroid gland is covered by a thin fibrous sheath, the capsula glandulae thyreoideae, composed of an internal and external layer. The external layer is anteriorly continuous with the pretracheal fascia and posterolaterally continuous with the carotid sheath. The gland is covered anteriorly with infrahyoid muscles and laterally with the sternocleidomastoid muscle also known as sternomastoid muscle. On the posterior side, the gland is fixed to the cricoid and tracheal cartilage and cricopharyngeus muscle by a thickening of the fascia to form the posterior suspensory ligament of thyroid gland also known as Berry's ligament (Yalçin and Ozan, 2006) [4].

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Cardio respiratory endurance has long been recognized as one of the fundamental components of physical fitness. VO_2 max is probably the single most important factor determining success in an aerobic endurance sport. Cardio respiratory fitness is increased by exercise training, regardless of age, gender, race, and initial fitness level (Sabbaghian Rad *et al.*, 2012) [3]. From rest to maximal exercise the oxygen consumption will decrease and reaches almost 7 to 8 times more than the rest. During submaximal exercise the cardiac index decreases linearly which is caused by the increase of heart rate and stroke volume index or SVI (Sabapathy *et al.*, 2004) [2].

Counseling psychology is a psychological specialty that encompasses research and applied work in several broad domains counseling process and outcome; supervision and training; career development and counseling; and prevention and health. Some unifying themes among counseling psychologists include a focus on assets and strengths, person-environment interactions, educational and career development, brief interactions, and a focus on intact personalities (Gelso and Fretz, 2001) [1].

The purpose of this study was to find out the effects of submaximal aerobic training in combinations with psychological counseling on selected health related physical fitness components and hormonal variables among people with hypothyroidism.

Methodology

To fulfill the purpose of the study, totally forty five male people with hypothyroidism were treated as subjects. They were selected from the organization of Thyrocare, Coimbatore, Tamil Nadu. They were clinically and bio chemically confirmed, cases of hypothyroidism and their age ranged between 30 and 45 years. The subjects with any other complications of thyroidism were excluded. Only the

hypothyroidism subjects who were willing to participate in the experimental study were included in this study.

The study was formulated as a pretest and posttest random group design, in which forty five male people with hypothyroidism were randomly assigned in to three groups namely Experimental group-I submaximal aerobic training (SATG), Experimental group-II submaximal aerobic training with psychological counseling training (SATPCG), group-III Control Group (CG). Each group consists of 15 subjects. No attempt was made to equate the groups. The selected subjects were initially tested on criterion variables used in this study and this was considered as the pre-test. After assessing the pre-test, the subjects belonging to Experimental Group I underwent the training of submaximal aerobic exercises (SATG), Experimental Group II underwent the training of submaximal aerobic exercises with psychological counseling (SATPCG) and Group III acted as control group (CG), the subjects in control group were not engaged in any training programme other than their regular work. The subjects were free to withdraw their consent in case of feeling any discomfort during the period of their participation but there was no dropout during the study. After six weeks of their training programme again the subjects were tested on the same criterion variables as such in the pre-test and considered this as the post-test. Further, the group mean gains pre and posttest recorded by three groups during the experimental period of six weeks to the criterion measures were tested for significance by applying student's 't' - test.

Results and Discussion

All the subjects were tested on selected criterion variable prior to and immediately after the training period. The collected data will be comparing on balance to analyses in "t- ratio" will be used in 0.05 level of confidence.

Table 1: Pre Test and Post Test Mean Values of Submaximal Aerobic Training Group on Selected Health Related Physical Fitness Components and Hormonal Variables among People with Hypothyroidism

S. No	Variables	Pre test SD	Post test SD	Diff	SE	't' -ratio
1.	Muscular Strength and Endurance (numeric)	13.46 ± 2.16	15.46 ± 1.88	2.00	0.61	4.86*
2.	Cardio respiratory Endurance (meters)	789.06 ± 43.62	968.93 ± 32.74	179.87	0.69	3.94*
3.	Flexibility (centimeters)	4.84 ± 1.78	5.94 ± 2.55	1.10	6.87	4.34*
4.	T3(pg/ml)	0.89 ± 0.04	0.91 ± 0.06	0.02	0.01	1.40
5.	T4 (ng/dL)	6.63 ± 0.63	6.62 ± 0.58	0.01	0.07	0.19
6.	TSH (uIU/mL)	7.30 ± 0.47	7.29 ± 0.50	0.01	0.16	0.64

*Significant at 0.05 level of confidence (1, 14), 2.048

The obtained 't' - ratios on health related physical components, variables were greater than the critical value of 2.14 it was found to be statistically significant at 0.05 level of confidence for degrees of freedom 1 and 14. It was observed that the mean gains and losses statistically significant resulting that six weeks practice of submaximal aerobic training showed positive sign as having the significant improvement in Muscular strength and endurance (14.861%; $p < 0.05$), Cardio respiratory Endurance (22.72%; $p < 0.05$), Flexibility (22.72%; $p < 0.05$) and Six weeks practice of submaximal aerobic training showed negative sign as having the insignificant improvement in hormonal variables T3 (2.25%; $p < 0.05$), T4 (0.15%; $p < 0.05$) and TSH (0.14%; $p < 0.05$) from the base line. The submaximal aerobic training programme has produced a significant improvement on health related physical fitness components namely muscular strength and endurance,

Cardio respiratory endurance, Flexibility. Hence the investigator's hypothesis to this study was accepted. Further the submaximal aerobic training programme has not produced a significant improvement on hormonal variable of T3, T4 and TSH among People with hypothyroidism. Hence the investigator's hypothesis to this variable was rejected.

The obtained 't' - ratios on health related physical components, variables were greater than the critical value of 2.14 it was found to be statistically significant at 0.05 level of confidence for degrees of freedom 1 and 14. It was observed that the mean gains and losses statistically significant resulting that six weeks practice of submaximal aerobic training with Psychological Counseling showed positive sign as having the significant improvement in Muscular strength and endurance (17.32%; $p < 0.05$), Cardio respiratory Endurance (27.87%; $p < 0.05$), Flexibility

(27.95%; $p < 0.05$) and Six weeks practice of submaximal aerobic training showed negative sign as having the insignificant improvement in hormonal variables T3 (2.25%; $p < 0.05$), T4 (0.15%; $p < 0.05$) and TSH (0.14%; $p < 0.05$) from the base line. The submaximal aerobic training with Psychological counseling programme has produced a significant improvement on health related physical fitness components namely muscular strength and endurance,

Cardio respiratory endurance Flexibility. Hence the investigator’s hypothesis to this study was accepted. Further the submaximal aerobic training with Psychological Counseling programme has not produced a significant improvement on hormonal variable of T₃, T₄ and TSH among People with hypothyroidism. Hence the investigator’s hypothesis to this variable was rejected.

Table 2: Pre Test and Post Test Mean Values of Submaximal Aerobic Training with Psychological Counseling Group on Selected Health Related Physical Fitness Components and Hormonal Variables among People with Hypothyroidism

S. No	Variables	Pre test SD	Post test SD	Diff	SE	‘t’ -ratio
1.	M S & E (numeric)	14.26 ± 2.57	16.73 ± 3.05	2.47	0.99	7.50*
2.	C R E (meters)	844.46 ± 28.5	1077.33 ± 53.6	232.8	11.9	11.07*
3.	Flexibility (centimeters)	5.26 ± 2.57	6.73 ± 0.35	1.47	0.99	7.50*
4.	T3 (pg/ml)	0.89 ± 0.04	0.91 ± 0.06	0.02	0.01	1.55
5.	T4 (ng/dL)	6.63 ± 0.63	6.62 ± 0.57	0.01	0.05	0.89
6.	TSH (uIU/mL)	7.29 ± 0.41	7.29 ± 0.66	0.00	0.16	0.85

*Significant at 0.05 level of confidence (1, 14), 2.048

Table 3: Pre Test and Post Test Mean Values of Control Group on Selected Health Related Physical Fitness Components and Hormonal Variables among People with Hypothyroidism

S. No	Variables	Pre test SD	Post test SD	Diff	SE	‘t’ -ratio
1.	Muscular Strength and Endurance (numeric)	13.20 ± 1.51	13.54 ± 1.45	0.34	0.37	1.59
2.	Cardio respiratory Endurance (meters)	728.86 ± 45.55	890.26 ± 68.26	161.40	20.09	1.92
3.	Flexibility (centimeters)	4.20 ± 1.65	4.61 ± 1.69	0.41	0.36	0.54
4.	T3 (pg/ml)	0.94 ± 0.02	0.95 ± 0.03	0.01	0.01	0.90
5.	T4 (ng/dL)	6.63 ± 0.50	6.64 ± 0.79	0.01	0.15	0.08
6.	TSH (uIU/mL)	7.32 ± 0.47	7.31 ± 0.50	0.01	0.15	0.25

The obtained ‘t’ – ratios on health related physical components, variables were greater than the critical value of 2.14 it was found to be insignificant at 0.05 level of confidence for degrees of freedom 1 and 14. It was observed that the mean gains and losses insignificant resulting that the control group showed negative sign as having the insignificant improvement in Muscular strength and endurance (2.57%; $p < 0.05$), Cardio respiratory Endurance (22.14%; $p < 0.05$), Flexibility (9.76%; $p < 0.05$) and Six weeks practice of submaximal aerobic training showed

negative sign as having the insignificant improvement in hormonal variables T3 (1.05%; $p < 0.05$), T4 (0.15%; $p < 0.05$) and TSH (0.13%; $p < 0.05$) from the base line. The control group programme has not produced a significant improvement on health related physical fitness components namely Muscular strength and endurance, Cardio respiratory endurance, Flexibility and hormonal variables namely T₃, T₄ and TSH among People with Hypothyroidism. Hence the investigator’s hypothesis to this study was rejected.

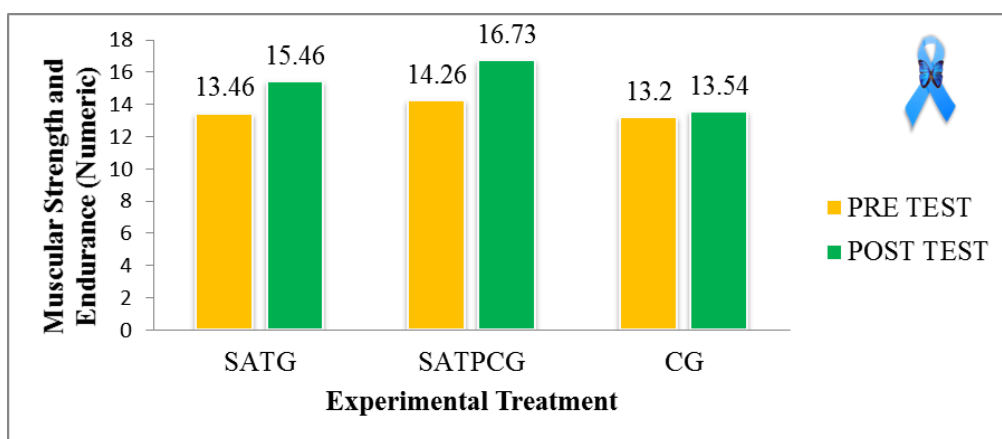


Fig 1: Graphical Representation Showing the Pre Test and Post Test Mean Values of Experimental Groups and Control Group on Muscular Strength and Endurance

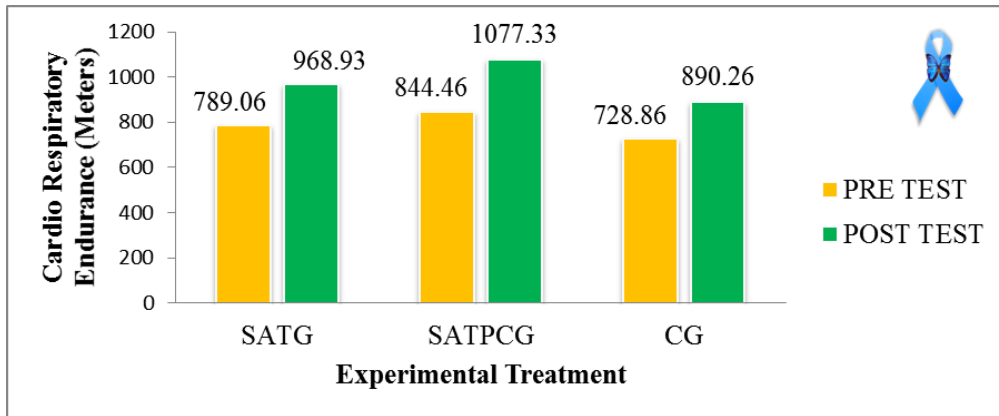


Fig 2: Graphical Representation Showing the Pre Test and Post Test Mean Values of Experimental Groups and Control Group on Cardio Respiratory Endurance

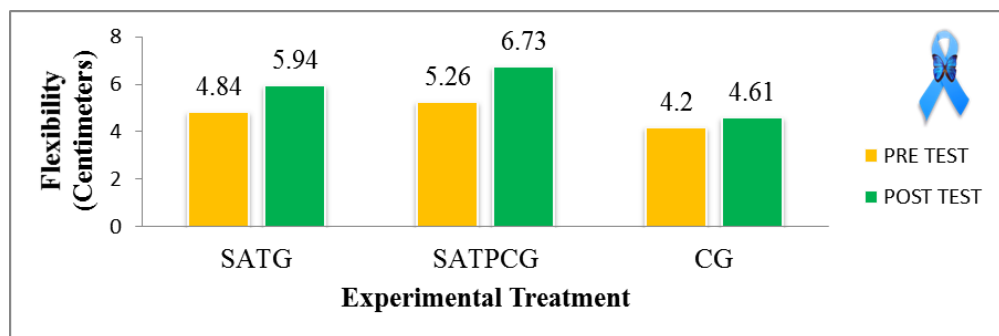


Fig 3: Graphical Representation Showing the Pre Test and Post Test Mean Values of Experimental Groups and Control Group on Flexibility

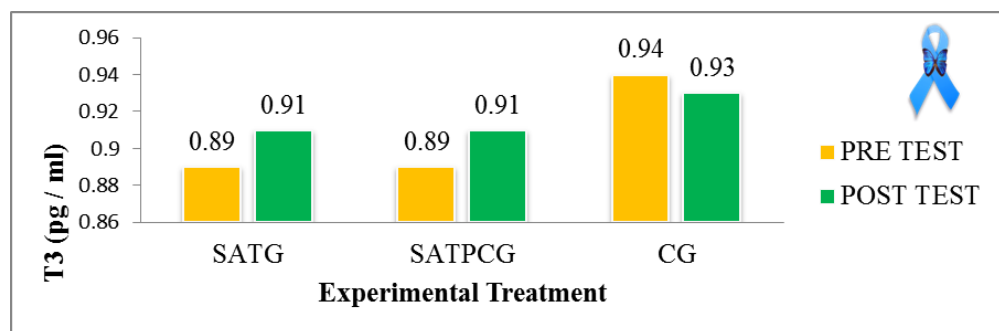


Fig 4: Graphical Representation Showing the Pre Test and Post Test Mean Values of Experimental Groups and Control Group on T₃

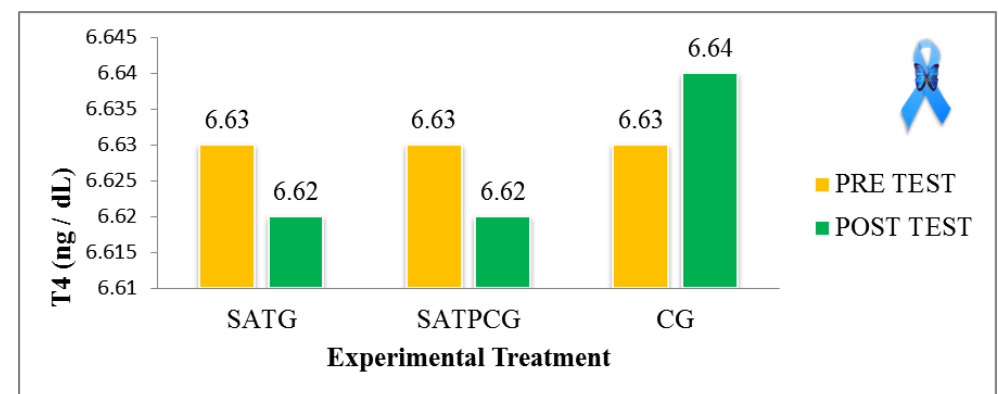


Fig 5: Graphical Representation Showing the Pre Test and Post Test Mean Values of Experimental Groups and Control Group on T₄

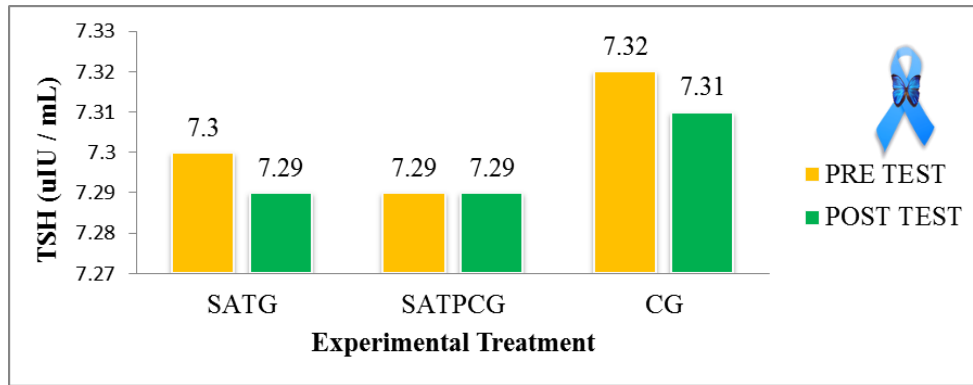


Fig 6: Graphical Representation Showing the Pre Test and Post Test Mean Values of Experimental Groups and Control Group on TSH

Discussion

- ❖ The result of the study showed that the Submaximal Aerobic training (SATG) had produced a significant improvement on selected variables among people with Hypothyroidism.
- ❖ The result of the study showed that the Submaximal Aerobic training with Psychological Counseling (SATPCG) had produced a significant improvement on selected variables among people with Hypothyroidism.

Conclusion

In light of the above findings of the present study the following conclusion have been made

- ❖ It was concluded that the Submaximal Aerobic training (SATG) had produced a significant improvement on selected variables among people with Hypothyroidism.
- ❖ It was concluded that the Submaximal Aerobic training with Psychological Counseling (SATPCG) had produced a significant improvement on selected variables among people with Hypothyroidism.

References

1. Gelso CJ, Fretz B. Counseling Psychology, (2nd ed.): Brooks Cole, 2001.
2. Sabapathy S, Schneider DA, Comadira G, Johnston I, Morris NR. Respiratory Physiology & Neurobiology, 2004; 139:203–213.
3. Sabbaghian Rad L, Gholami M. Annals of Biological Research, 2012; 3(4):1821-1827.
4. Yalçın B, Ozan H. February. Detailed investigation of the relationship between the inferior laryngeal nerve including laryngeal branches and ligament of Berry. Journal of the American College of Surgeons, 2006; 202(2):2916.