



ISSN: 2456-0057

IJPNPE 2018; 3(2): 991-993

© 2018 IJPNPE

www.journalofsports.com

Received: 10-05-2018

Accepted: 12-06-2018

**Jaspreet Kaur**

Assistant Professor, GHSK. Girls  
College, Karhali, Patiala,  
Panjab, India

**Amarpreet Singh**

Assistant Professor, Department  
of Physical Education, Punjabi  
University, Patiala, Panjab,  
India

## Biochemical parameters of active sedentary and yoga practitioner: An analytical study on middle aged women

**Jaspreet Kaur and Amarpreet Singh**

### Abstract

The purpose of the study was to compare the biochemical parameters of active sedentary and yoga practitioner middle aged women. Total Forty five (45) middle aged women were selected as subjects. The study aimed at studying the biochemical parameters of active sedentary and yoga practitioner on middle aged women. The variables selected for the study were cortisol hormone and thyroid hormone. The data was analyzed to find out the significant difference between the groups. ANOVA test statistical technique was used to analyze the significant difference and the level of significance was set at 0.05.

**Keywords:** Active, sedentary, yoga, thyroid, cortisol, hormone

### Introduction

The body is the temple of soul and to reach a harmony of the mind, body and spirit, the body must be physically fit. Throughout the ages, man has had to be physically active in order to procure his daily food to succeed in the battle of survival. For every individual physical activity is essential for harmonious physical and mental development. (Charles A. Bucher, 1985) <sup>[1]</sup>

In today's society, with computers, televisions and cars most people do not have sufficient physical exercise to maintain adequate health. In fact, many people have become so sedentary; that their life style has become a serious threat to their health and their lack of physical exercise has began to lead to an increased deterioration of the human health and often to a premature illness and death. Many technological advances are intended to alienate physical exertion from everyday activities. The automobile and television are the contributors to our sedentary lifestyle.

Young adulthood typically covers the period from 20-35 years of age, when both biological function and physical performance reach their peak. During young middle-age (35-45 years), physical activity usually wanes, with a 5-10 kg accumulation of body fat. Active pursuits may be shared with a growing family, but it becomes less important to impress either an employer or persons of the opposite sex with physical appearance and performance. During later middle-age (45-65 years), women reach the menopause, and men also substantially reduce their output of sex hormones. Career opportunities have commonly peaked, and a larger disposable income often allows energy demanding domestic tasks to be deputed to service contractors. The decline in physical condition thus continues and may accelerate. Ageing is associated with a continual change in all body systems. Research over the last 20 years has shown that some of these decline, such as that in maximal oxygen consumption (VO<sub>2</sub> max), can be acted on and slowed down by endurance training.

The endocrine or ductless glands secrete substances called hormones which are poured directly into the blood. The term 'Endocrine' means 'I separate within' while 'Exocrine' refers to glands whose secretion is delivered through a duct into the lumen of the specific organ or tract. The term 'Hormone' was first introduced by 'Starling' in 1905 and means 'I excite'. Endocrine glands release hormones directly into the blood to alter the activity of tissues possessing receptors to which hormones can bind.

**Correspondence**

**Jaspreet Kaur**

Assistant Professor, GHSK. Girls  
College, Karhali, Patiala,  
Panjab, India

These substances were released in minor amounts resulting in very low concentrations in the blood (<1 mmol) and they exerted their function on tissues in other region of the body. (Laycock, 1983) [3] Physical activity is an inherent trait of a human being. It becomes all the way imperative to identify the nature and the degree of this natural talent and to nurture, modifies and refines it to get the cherished outcomes. The children perform a lot of activities such as running, jumping, throwing, catching, kicking and striking etc. The activities are known as natural or universal skills. The twenty first century is the most rapidly of changing century of all time. Rapidity of changes created unusual demands on individuals and on system of education. Today education must not only include the body and knowledge, but also to develop inquiring minds that will enable them to comprehend and accept what is to come tomorrow.

Cortisol is a steroid hormone, in the glucocorticoid class of hormones, and is produced in humans by the zona fasciculata of the adrenal cortex within the adrenal gland. It is released in response to stress and low blood-glucose concentration. It functions to increase blood sugar through gluconeogenesis, to suppress the immune system, and to aid in the metabolism of fat, protein, and carbohydrates. It also decreases bone formation. (Chyun ys *et al.* 1984) [2] Hydrocortisone is a name for cortisol when it is used as a medication. Hydrocortisone is used to treat people who lack adequate naturally generated cortisol. It is on the World Health Organization's List of Essential Medicines, the most important medications needed in a basic health system. (World Health Organization 2014) [5] The thyroid gland is a butterfly shaped gland that lies across the trachea at the base of the throat, just below the larynx. It is one of the larger endocrine glands, weighing between 15 and 20 g. The thyroid gland function is controlled by the anterior pituitary hormone thyrotropin, also known as thyroid stimulating hormone, or TSH. Thyroid-stimulating hormone (also known as thyrotrophic, thyrotrophic hormone, TSH, or TSH for human TSH) is a pituitary hormone that stimulates the thyroid gland to produce thyroxine (T<sub>4</sub>), and then triiodothyronine (T<sub>3</sub>) which stimulates the metabolism of almost every tissue in the body. It is a glycoprotein hormone synthesized and secreted by thyrotrope cells in the anterior pituitary gland, which regulates the endocrine function of the thyroid. (Sacher R *et al.* 2000) [4]

**Objective**

The objective of the study was to compare the biochemical parameters of active sedentary and yoga practitioner middle aged women.

**Hypothesis**

There will be insignificant difference of biochemical parameters of active sedentary and yoga practitioner middle aged women.

**Material & Methods**

**Selection of Subjects:** Total Forty five (45) middle aged women were selected as subjects. They were divided into three groups named: active, sedentary and yoga practitioner. Each group had fifteen (15) subjects.

**Selection of variables:-**The following two biochemical parameters were selected for the purpose of this research.

1. Cortisol hormone
2. Thyroid hormone

**Statistical Procedure**

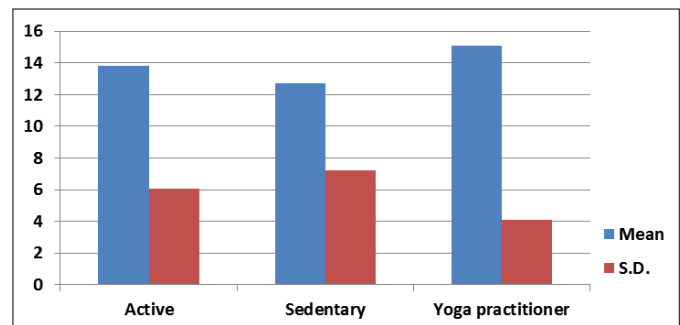
After the collection of relevant data, to compare the selected biochemical parameters of active, sedentary and yoga practitioner middle aged women. ANOVA test was employed with the help of Statistical package for the social sciences (SPSS). The level of significance was set at 0.05.

**Analysis of Data and Results**

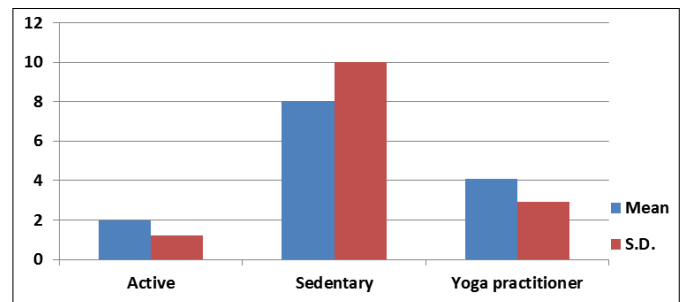
**Table 1:** Means and SDs of Cortisol hormone and Thyroid hormone of active, sedentary and yoga practitioner middle aged women

Variable	Group	Mean	S.D.
Cortisol hormone	Active	13.795	6.083
	Sedentary	12.735	7.208
	Yoga practitioner	15.065	4.224
Thyroid hormone	Active	1.983	1.217
	Sedentary	8.026	10.020
	Yoga practitioner	4.100	2.937

Level of Significance .05



**Fig 1:** Comparison of Mean difference of Cortisol hormone of active, sedentary and yoga practitioner middle aged women



**Fig 2:** Comparison of Mean difference of Thyroid hormone of active, sedentary and yoga practitioner middle aged women

**Table 2:** Analysis of variance (ANOVA) results of cortisol hormone among active, sedentary and yoga practitioner middle aged women

Source of Variation	Sum of Squares	Degree of Freedom	Mean Square	F-value	P-value (Sig.)
Between Group	40.826	2	20.413	.573	.568
Within Group	1495.315	42	35.603		
Total	1536.140	44			

\*Significant at 0.05

**Table 3:** Analysis of variance (ANOVA) results of Thyroid stimulating hormone among active, sedentary and yoga practitioner middle aged women

Source of Variation	Sum of Squares	Degree of Freedom	Mean Square	F-value	P-value (Sig.)
Between Group	282.092	2	141.046	3.829	.030
Within Group	1547.085	42	36.835		
Total	1829.177	44			

\*Significant at 0.05

**Table 4:** Multiple Comparison of Thyroid stimulating hormone among active, sedentary and yoga practitioner middle aged women

(I) Group	(J) Group	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Active	Sedentary Yoga practitioner	-6.04333*	2.21616	.009	10.5157	-1.5709
		-2.11733	2.21616	.345	-6.5897	2.3551
Sedentary	Active Yoga practitioner	6.04333*	2.21616	.009	1.5709	10.5157
		3.92600	2.21616	.084	-.5464	8.3984
Yoga practitioner	Active Sedentary	2.11733	2.21616	.345	-2.3551	6.5897
		-3.92600	2.21616	.084	-8.3984	.5464

\*The mean difference is significant at the 0.05 level.

### Discussion and Findings

The statistical analysis of data shows that the results showed that there were insignificant differences for cortisol hormone among the three groups. But significant difference was found in relation to thyroid hormone. Sedentary women had the highest amount of thyroid hormone followed by active and yoga practitioner women.

On the basis of the results of the study, the hypothesis that there will be no significant difference of is accepted in case of cortisol hormone but rejected for thyroid hormone. The findings are in consonance with the study undertaken by (Bhangle et.al.)

### References

1. Charles A. Bucher and William E. Prentice. Fitness for college and Life: C. V. Mosby Company, Toronto, 1985, 27.
2. Chyun YS, Kream BE, Raisz LG. Cortisol decreases bone formation by inhibiting periosteal cell proliferation: Journal of the Endocrinology. 1984; 114(2):477-480.
3. Laycock JF, wise PH. Essential Endocrinology: Oxford University press, New York, 1983, 67.
4. Sacher R, Richard A. McPherson. Widmann's Clinical Interpretation of Laboratory Tests, 11th ed. F.A. Davis Company, 2000. ISBN: 0-8036-0270-7.
5. WHO. Cortisol as Medicine, World Health Organization, 2014. Retrieved from: [Http://www.who.int](http://www.who.int).