

Effect of Regular Exercise on Prolactin Secretion: A Pilot Study

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Abstract:

Introduction: Evidence suggested that exercise may affects release of prolactin hormone. Participation in exercise may increase secretion of prolactin hormone and may give sharp decrease in secretion of prolactin and not only that published work demanded that there is no effect of exercise on secretion of prolactin. In this context the researcher intend to know whether exercise affects positively or negatively or not on the release of prolactin hormone. **Aim:** Determine whether participation in exercise may increase the level of secretion of prolactine hormone or not. **Method:** Only two female students 29 years aged were participated in this study. They were regularly practiced yogic asana and pranayam for 1 hour per day in the evening, 6 days per week, for 8 weeks. The level of prolactin hormone was assessed by CLI method. In the present study all the measurements were done at the baseline and 8 weeks of exercise training. Simple percentage calculated from the mean value to see the quantitative changes in secretion of prolactin due to participation in the exercise training. **Result:** Pre test mean was 5.80 and post test mean was 17.63 which imply that 203.96% increase in secretion of prolactin significantly. **Discussion and Conclusion:** Level of secretion increased may be due to multiple neural pathways that influence PRL secretion converges on the hypothalamus from other parts of the brain; the effect of exercise on the secretion of PRL may also reflect the action of different neural inputs on the activity of the hypothalamic-pituitary axis.

Key word: Exercise; Prolactin.

I. Introduction

It is already established that exercise may affects release of prolactin hormone. Participation in exercise may increase secretion of prolactin hormone.^{1,2,3,4,5,6,7,8,9} On the other hand few researchers were shown exercise may give sharp decrease in secretion of prolactin.^{10,11} not only that published work established that there is no effect of exercise on secretion of prolactin.^{12,13,14} In this context the researcher intend to know whether exercise affects positively or negatively on the release of prolactin hormone.

II. Aim

Determine whether participation in exercise may increase the level of secretion of prolactine hormone or not.

III. Method

Only two female students 29 years aged were participated in this study. They were regularly practiced yogic asana and pranayam for 1 hour per day in the evening, 6 days per week, for 8 weeks. The level of prolactin hormone was assessed by CLI method. **Hormonal assay:** Basal level of prolactine measured by Chemiluminescence immunoassay (CLIA). **Specimen collection and preparation:** Following an overnight fasting venous blood sample were taken via a disposable plastic syringe inserted into an antecubital forearm vein. Blood (3ml) was allotted to colt for one hour in a plain test tube (burocell) and then centrifuged (REMI) at 30 ° Celsius for 5 minutes at 6000 rev min⁻¹ to separate the serum form the cell before proceeding with CLIA test. **Regent preparation: Wash buffer:** Dilute 20 ml wash buffer mixed with 1000ml distilled water and kept at room temperature (20-27 ° Celsius). **Working substrate solution:** The content of amber vial labeled solution "A" poured into the clear vial labeled solution "B" mixed and labeled accordingly stored at 2-8 ° Celsius). **Testing procedure:** Formatting the micro plate' wells for each serum reference add 13 µl of sample/stander into the wells. Add 50 µl biotin reagents. Mix the well properly for 60 seconds and incubation

for 30 minutes at room temperature (22-26° Celsius). Wash 5 times by 350 µl of working wash buffer. Add 50 µl of tracer reagent. Mix the well properly for 60 seconds and incubation for 30 minutes at room temperature (22-26° Celsius). Wash 5 times 350 µl of working wash buffer. Add 50 µl working signal reagent and incubation for 5 times at room temperature. **Recording of result:** The micro plates were passed under the CLIA reader machine and recorded in µg/ml. In the present study all the measurements were done at the baseline (before onset of training) and 8 weeks of exercise training. Simple percentage calculated from the mean value to see the quantitative changes in secretion of prolactin due to participation in the exercise training.

IV. Results

Pre test prolactin level was 7.05 and post test prolactin level was 26.11 in case of subject -1 which imply that 355.46% increase in secretion of prolactin significantly. In case of subject -2 same trends was shown that is Pre test prolactin level was 4.55 and post test prolactin level was 9.15 which imply that 101.09% increase in secretion of prolactin significantly.

Table no. 2: Mean and percentage

	Pre test prolactin	Post test prolactin	Percentage increased
Subject - 1	7.05	26.11	355.46 %
Subject - 2	4.55	9.15	101.09 %
Mean	5.80	17.63	203.96 %

Pre test mean was 5.80 and post test mean was 17.63 which imply that 203.96% increase in secretion of prolactin significantly.

Fig no.1: Comparison of prolactin secretion level

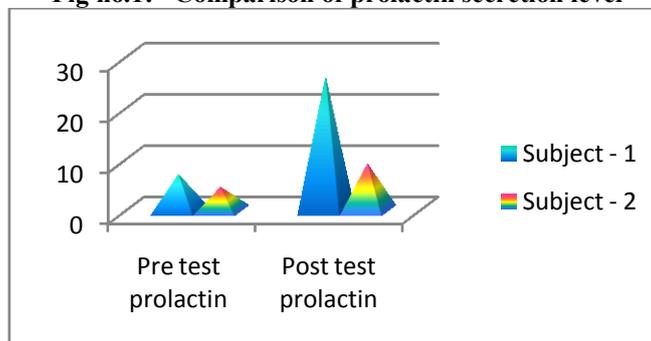
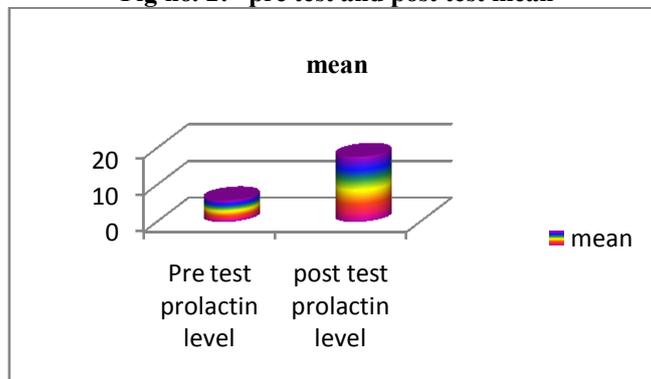


Fig no. 2: pre test and post test mean



V. Discussion

The endocrine system is an amazing sophisticated control system. When your body experiences exercise stress the hypothalamus in the brain is activated to put out a hormone called TRH. This hormone in turn stimulates the pituitary to put out two hormones; TSH and Prolactin. TSH in turn stimulates thyroid function. Prolactin, among other things, stimulates milk production in the breasts. The curious result of this crossing of hormone pathways is that 30 minutes of aerobic exercise will probably result in as much Prolactin release as two sessions of pumping during the day. Exercise stimulates increase Growth Hormone release. Multiple neural pathways that influence PRL secretion converge on the hypothalamus from other parts of the

brain, the effect of exercise on the secretion of PRL may also reflect the action of different neural inputs on the activity of the hypothalamic–pituitary axis.¹⁷

VI. Conclusion

It may be concluded that exercise may increase the level of secretion of prolactin hormones and if it is necessary to increase the secretion of female hormone we may prescribe exercise for long duration.

Exercise practice protocol for eight weeks						
Events	Variations	Duration	Repetition	Recovery	Volume	Total Time
Pranayam	Sitting on the floor	-	-	Nil	Nil	15.00 min.
Utthita Padmasana	01. left leg inner side	30 sec.	2	30 sec.X2	1.00min.	2.00 min.
	02. Right leg inner side	30 sec.	2	30 sec.X2	1.00min.	2.00 min.
Salvasana	No variation	30 sec.	2	30 sec.X2	1.00min.	2.00 min.
Uthkatasana	No variation	30 sec.	2	30 sec.X2	1.00min.	2.00 min.
Baisistasana	1	30 sec.	2	30 sec.X2	1.00min.	2.00 min.
	2	30 sec.	2	30 sec.X2	1.00min.	2.00 min.
Janusirasana	1	30 sec.	2	30 sec.X2	1.00min.	2.00 min.
	2	30 sec.	2	30 sec.X2	1.00min.	2.00 min.
Ardha Chakrasana	No variation	30 sec.	2	30 sec.X2	1.00min.	2.00 min.
Dandasana	No variation	30 sec.	2	30 sec.X2	1.00min.	2.00 min.
Dhanurasana	No variation	30 sec.	2	30 sec.X2	1.00min.	2.00 min.
Padahastasana	No variation	30 sec.	2	30 sec.X2	1.00min.	2.00 min.
Mayurasana	No variation	30 sec.	2	30 sec.X2	1.00min.	2.00 min.
Ardha Masyendrasana	1	30 sec.	2	30 sec.X2	1.00min.	2.00 min.
	2	30 sec.	2	30 sec.X2	1.00min.	2.00 min.
Birvadasana	1	30 sec.	2	30 sec.X2	1.00min.	2.00 min.
	2	30 sec.	2	30 sec.X2	1.00min.	2.00 min.
Bagrasana	No variation	30 sec.	2	30 sec.X2	1.00min.	2.00 min.
Naukasana	No variation	30 sec.	2	30 sec.X2	1.00min.	2.00 min.
Natarajasana	1	30 sec.	2	30 sec.X2	1.00min.	2.00 min.
	2	30 sec.	2	30 sec.X2	1.00min.	2.00 min.
Sovasana	Relaxation	60sec.	1	Nil	1.00min.	1.00 min.
Om Chanting	01. O-M.....	10 sec.	1	10 sec.X1	.10 min.	.20 min.
	02. O-M.....	10 sec.	1	10 sec.X1	.10 min.	.20 min.
	03. O-M.....	10 sec.	1	10 sec.X1	.10 min.	.20 min.
Total time =						60.00 min.

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