



ANXIETY & BLOOD PRESSURE SCORE AFTER YOGA SESSION

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ABSTRACT

INTRODUCTION - Anxiety disorders are, the most common prevalent psychiatric illnesses in the general community are present in 15-20% of medical clinics patient. Hypertension is one of the leading causes of global burden of disease, doubles the risk of CHD, CHF, Stroke, Renal Failure, PAD

OBJECTIVES - To know post Yoga 10 hr & 1 hr anxiety & blood pressure score

METHOD - Informed consent was taken from 14 University Students of mean age group 21.57 years & of Yoga Teacher (those answered NO to all physical activity readiness questions, Health Canada) which had an intervention of 60 minute duration of Yoga & Sports. Then recording of Spielberger's state anxiety (how respondents feel "right now") and trait anxiety (how respondents feel "generally") inventory questionnaires reply score & Blood Pressure recording in mm Hg by sphygmomanometer was done as given in Hutchison's Clinical Methods. Comparison in same Post Exercise Group {after 10 hr rest & after 1 hr rest} was made by applying student t test for equality of means at significance at p value < 0.05.

RESULT - In Comparison of same Post Yoga Group {after 10 hr rest & after 1 hr rest} mean score were; state anxiety 35.36 & 32.14, trait anxiety 36.43 & 33.79, total anxiety 71.79 & 65.93 (p > .05) Blood Pressure SBP 129.1 & 119.6, DBP 85.0 & 78.57, MABP 99.69 & 92.24 (p < 0.05)

CONCLUSION - Yoga intervention after 1 hr of rest having Anxiolytic and Normotensive effect in University Students

KEYWORDS : Yoga Anxiety Blood Pressure Reduction

INTRODUCTION -

Anxiety disorders, the most common prevalent psychiatric illnesses in the general community are present in 15-20% of medical clinics patient. Anxiety defined as subjective sense of unease, dread, or foreboding, can indicate a primary psychiatric condition or can be component of reaction to a primary medical disease (1) Population based studies across the world have shown that anxiety disorders are most common class of mental disorders. Anxiety disorders are associated with intense subjective distress and social impairment, and their childhood & adolescent onset can interfere with accomplishment of social, educational, and occupational functioning. The most recent estimate of the global burden of anxiety reveal that in anxiety disorder occur 10% of disability adjustment life years for all mental, neurological, and substance use disorders, second only to major depression (2) Study showed that state anxiety responses to 60 minutes of cross training (combination of 30 minutes of aerobic and resistance exercise) in a single session is associated with state anxiety reduction after 10 minutes and 60 minutes (p < .05) after exercise, but not at 0 minutes that is just at the end of exercise. (3) Aerobic exercise influence occurs on brain activation, EEG affect. Affective responses seem to be mediated in part by differential resting levels of activation in the anterior brain regions. (4) Psychological benefits of exercising include reduced anxiety and depression, diminished stress responsibility, enhanced self-efficacy, improved cognitive functioning, enhanced marital and sexual functioning, modification of type A behaviour pattern. (5) Hypertension is one of the leading causes of global burden of disease, doubles the risk of CHD, CHF, Stroke, Renal Failure, PAD (6) Many factors contribute to development of hypertension includes renal dysfunction, peripheral resistance, vessel tone, endothelial dysfunction, autonomic tone, insulin resistance and neurohumoral factor factors. In 95% cases no specific underlying cause can be found known as Essential Hypertension. Important environmental factor

causing hypertension includes high salt intake, heavy consumption of alcohol, obesity & lack of exercise. B Hypertension is usually asymptomatic until the diagnosis is made at routine physical examination or when a complication arises (7) hypotensive effects was observed after resistance exercises performed at different intensities and same work volumes. (8)

METHODS -

Informed consent was taken from 14 University students of mean age group 21.57 years & of Yoga Teacher (those answered NO to all physical activity readiness questions) (9) which had an intervention of 60 minute duration of Yoga & Sports. Then recording of Spielberger's state anxiety and trait anxiety inventory questionnaires reply scoring was done. It shows individuals respond to each item on a four-point Likert scale, indicating the frequency with which each strategy is used. Example The **State-Anxiety scale** consists of twenty statements that evaluate how respondents feel "right now, at this moment." The **Trait-Anxiety scale** consists of twenty statements that assess how respondents feel "generally." Scoring and Norms: Scores on the STAI have a direct interpretation: high scores on their respective scales mean more state or trait anxiety and low scores mean less. Scores on the STAI-Anxiety scale increase in response to physical danger and psychological stress, and decrease as a result of relaxation training. On the STAI-Trait-Anxiety scale, consistent with the trait anxiety construct, psychoneurotic and depressed patients generally have high scores. In interpretation each STAI item is given a weighted score of 1 to 4. A rating of 4 indicates presence of high level of anxiety The scoring weights for the anxiety absent items are reversed ie. Responses marked 1, 2, 3 or 4 are scored 4, 3, 2 or 1 respectively. Score for both the state anxiety and trait anxiety scales can vary from a minimum 20 to maximum 80 score. Template keys are available for scoring the scales. It should be made certain that appropriate key for each scales are placed on the test form

and add the the response values printed on the key for the twenty items ,this can be done with simple hand counter ,but an adding machine or disk calculator may also be used .Score in range of 20-39 indicates low anxiety,40-59 indicates moderate anxiety,60-80 indicates high anxiety.(10) The major population with whom the STAI has been used besides college students include high school,working adults ,psychiatric, psychosomatic ,medical,surgical, and dental patients, military personel & prison inmates.(11) Blood Pressure was

recorded by sphygmomanometer as given in Hutchison's Clinical Methods (12) Interpretation of blood pressure measurement was done as given in JAMA (13) All the observations were taken in resting condition. Comparison of anxiety & blood pressure in same Post Exercise Group {after 10hr rest & after 1hr rest } was done by applying student t test for equality of means at significance (2-tailed) at p value<0.05. (SPSS version 16 was used)

Observation table	Age (inYears)	State Anxiety score	Trait Anxiety score	Total Anxiety score	SBP mm Hg	DBP mm Hg	MABP mm Hg
n=14 Post Yoga Anxiety and Blood Pressure Score after 10 hour rest.							
Mean	21.57	35.36	36.43	71.79	129.1	85	99.69
SD	2.311	13.01	11.92	24.37	9.483	4.69	5.375
SE	0.6176	3.476	3.186	6.512	2.534	1.254	1.437
Median	21.5	32.5	36	66.5	128	85	99.33
Minimum	17	22	20	43	114	78	90
Maximum	25	60	64	124	142	90	106.7
n=14 Post Yoga Anxiety & Blood Pressure score after 1 hour rest.							
Mean	21.57	32.14	33.79	65.93	119.6	78.57	92.24
SD	2.311	7.863	8.322	15.51	7.45	6.947	4.63
SE	0.6176	2.101	2.224	4.145	1.991	1.857	1.237
Median	21.5	29.5	34	66	118	80	92.33
Minimum	17	21	21	42	110	60	84
Maximum	25	46	50	96	138	88	100
n =14 Comparison between Same Post Yoga Group {after 10 hr rest & after 1hr rest} t test for equality of means of Anxiety & Blood Pressure Score							
t- test		1.165	1.009	1.164	4.895	3.687	5.624
p value df=13		0.265	0.331	0.265	0.00*	0.003*	0.00*

*Significance at p value <0.05.2

RESULT -

In Comparison of same Post Exercise Group {after 10 hr rest & after 1hr rest} mean score result were; state anxiety 35.36 & 32.14 ,trait anxiety 36.43 & 33.79 ,total anxiety 71.79 & 65.93 (p>.05) Blood Pressure SBP 129.1 & 119.6, DBP 85.0 & 78.57, MABP 99.69 & 92.24 (p <0.05). Means Post yoga after 1 hr rest ; Reduction in Speilbergers's Low anxiety score was observed . As per blood pressure classification JAMA interpretation; result showed that ,Pre Hypertensive University students become Normal after 1 hour rest of yoga intervention.

DISCUSSION -

In Physiological basis ;Genetic Variant BDNF (Val66Met) Polymorphism Alters Anxiety-Related Behavior (14) Regular exercise results in physiological changes and adaptations in the human body & is associated with lower sympathetic nervous system and hypothalamic-pituitary-adrenal (HPA) axis reactivity(15)Research showed that despite high dose glucocorticoid pretreatment, intense exercise can override the glucocorticoid negative feedback of hypothalamic-pituitary-adrenal activation in most normal men and women. This ability to override cortisol negative feedback inhibition may relate to the magnitude of the Plasma arginine vasopressin (AVP) response, the potency/specificity of the stressor to elicit a CRH/AVP response, and/or the sensitivity of the glucocorticoid negative feedback system at the time of the stress.(16) Neurobiology & neuroscience of anxiety disorders involves Noradrenergicsystem,HPAaxis,CRH,Dopaminergic system, Serotonergic system,GABA Benzodiazepine system , Neurost eroids, Arginine Vasopressin, Oxytocin, NeuropeptideY, Galanin ,Cholesystokinin, Endocannabinoid system.(17)In another study among diseased subjects significant improvement was seen in the anxiety levels of patients of hypertension,coronary artery disease ,obesity ,cervical spondylitis and those with psychiatric disorders. Considerable evidence exists for the place of mind body medicine in the treatment of anxiety disorders.(18) Effect of different levels of exercise on several cardiovascular

variables showed that arterial pressure increases slightly during exercise increase in cardiac output is proportionally greater than decrease in PR and post exercise recovery occurs when exercise stops, sympathetic activity to the heart ceases and heart rate and cardiac output decreases peripheral sympathetic activity also decreases and coupled with resistance vessel dilatation caused by accompanied vasodilator metabolites, arterial pressure falls often below the pre-exercise level.(19) study showed that after 45 minutes of exercise at 30%, 50%, 80% of VO₂ peak, systolic mean and diastolic BP after exercise were significantly lower than baseline.(20) Life style modification to manage hypertension includes weight reduction BMI <25kg/meter square,Diety salt restriction <6gram NaCl/day, Adapt DASH type dietary plan that consist of diet rich in fruits,vegetables,low fat dairy products with reduced content of saturated and total fat ,Moderation of alcohol,consumtion less than 2 drink/day in men & less than 1 drink /day in women ,Regular aerobic physical activity eg. brisk walking for 30 minutes/day.(21) study showed that yoga based meditation on psychological health of coronary patients led to a significant increase in EEG frequency and significant decrease in the systolic and diastolic pressure as well as scores on depression ,state and trait anxiety ,and three component of anxiety namely the somatic ,behavioural and affective components and indication of calming and relaxing effects of the treatment.(22)in another observation; after 12-weeks of Tai Chi training, the treatment group showed significant decrease in systolic blood pressure of 15.6 mm Hg and diastolic blood pressure 8.8 mm Hg. The serum total cholesterol level decreased 15.2 mg/dL and high-density lipoprotein cholesterol increased 4.7 mg/dL. By using STAI evaluation, both trait anxiety and state anxiety were decreased.(23)

In another research; the performance of 25 subjects in three reaction tasks of different complexity was compared at different activation levels induced by five different work loads on a bicycle ergometer. Heart rate and blood pressure were used as indexes of activation. The results were in agreement

with the Yerkes-Dodson law in that the optimal physiological activation level for rapid performance varied with the degree of task difficulty, relatively lower activation being more favorable the more difficult the task.(24)

CONCLUSION -

Yoga intervention after 1 hour of rest having Anxiolytic and Normotensive effect in University Students.

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