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## Efficacy Of Selective Vestibular Exercise On Depression, Anxiety And Stress Scores In Hypertensive Working Women.

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### ABSTRACT

Cardiovascular diseases are the reason for many deaths throughout the world every year. Early diagnosis and effective change in the life style will help the individual to overcome these heart diseases. Vestibular exercises helps to control not only the postural stability but also the emotional behavior and decision making. The present study was undertaken to observe the efficacy of selective vestibular exercise on depression, anxiety and stress scores in hypertensive women. The present study was an observational study. The present study includes 20cases of working women with untreated pre-hypertension to stage I hypertension, after obtaining written and informed consent. Hypertensive working women were administered vestibular exercises for 12 weeks. No intervention for control group. After recording the baseline values, 12 weeks of intervention was offered to intervention group and no intervention for the control group. After 12 weeks, again the parameters were recorded. There was significant decrease in the scores of negative emotions after the intervention. There was a significant decrease in the scores of depression, anxiety and stress in the intervention group when compared with the control group. The present study support the earlier studies as there was significant decrease in the negative emotional scores followed by intervention. Further detailed studies are recommended in this area.

**Keywords:** Vestibular exercise, negative emotions, Depression, anxiety, stress.

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## INTRODUCTION

Cardiovascular diseases are the reason for many deaths throughout the world every year. Early diagnosis and effective change in the life style will help the individual to overcome these heart diseases. In current years there is drastic change in the life style in India. Indians are losing their own tradition and adopting western tradition and surprisingly all other countries are adopting Indian tradition. Psychological issues were increasing in current life style and least importance was given to these negative emotions like stress and anxiety. If they were not diagnosed in time and treatment not offered, it will causes depression and further suicidal behavior. Further, these negative emotions were higher in hypertensive individuals. Still more negative emotions can be observed in the working women as they have to do multiple tasks at home as well as at office. Vestibular system plays immense role in the homeostasis through its connections with all vital centers in the brain and spinal cord. Vestibular exercises helps to control not only the postural stability but also the emotional behavior and decision making [1]. Hence, vestibular exercises can be adopted as an alternative therapy for management of the negative emotions. The present study was undertaken to observe the efficacy of selective vestibular exercise on depression, anxiety and stress scores in hypertensive women.

## MATERIALS AND METHODS

**Study design:** The present study was an observational study.

**Study setting:** The study was conducted at Little Flower Medical research centre, Angamaly, Kerala, India.

**Study participants:** The present study includes 20cases of working women with untreated pre-hypertension to stage I hypertension, after obtaining written and informed consent. The following criteria were used in selection of the participants.

**Inclusion criteria:** Willing working women with at least 8 hours of work and aged between 25-50 years, untreated pre-hypertension to stage I hypertension were included in the study.

**Exclusion criteria:** Participants with any sever complications and unwilling participants were excluded from the study.

Group A (n=10): Hypertensive working women without any intervention. (Control group)

Group B (n=10): Hypertensive working women with vestibular exercises for 12 weeks

**Vestibular exercises:** Six minutes of vestibular exercises according to the Cawthorne and Cooksey's protocol was given as intervention to hypertensive group. Professional expert physiotherapist trained the participants for a week days to perform the exercises in proper way and later 11 weeks the participants performed exercise at their home under supervision of the expert physiotherapist through video call [2].

**Assessment of depression, anxiety and stress:** Depression, anxiety and stress scores were assessed using the DASS 42 questionnaire [3].

**Data analysis:** Data was analyzed using SPSS 20.0. Student t test was used to observe significant of difference between the groups. Probability value less than 0.05 was considered as significant.

## RESULT

Table no 1 presents the depression, anxiety and stress scores in intervention group before and after the intervention. The two-tailed P value equals 0.0054 for depression scores. By conventional criteria, this difference is considered to be very statistically significant. The two-tailed P value equals 0.0004 for anxiety. By conventional criteria, this difference is considered to be extremely statistically significant. The two-tailed P value equals 0.0009 for stress. By conventional criteria, this difference is considered to be extremely statistically significant (table 1). Table no 2 presents the depression, anxiety and stress scores in control group before and after the intervention. The two-tailed P value equals 0.6903 for depression. By conventional criteria, this difference is considered to be not statistically significant. The two-tailed P value equals 0.5942 for anxiety. By conventional criteria, this difference is considered to

be not statistically significant. The two-tailed P value equals 0.7175 for stress scores. By conventional criteria, this difference is considered to be not statistically significant.

**Table 1: Depression, anxiety and stress scores in intervention group before and after the intervention. (Data was presented as mean and SEM). (\*P<0.05, \*\*P<0.01, \*\*\*P<0.001).**

Parameter	Before (n=10)	After (n=10)	P value
Depression	14±1.26	9±0.95	0.0054**
Anxiety	12±0.95	7±0.63	0.0004***
Stress	19±1.90	10±1.26	0.0009***

**Table 2: Depression, anxiety and stress scores in control group before and after the intervention. (Data was presented as mean and SD). (\*P<0.05, \*\*P<0.01, \*\*\*P<0.001).**

Parameter	Before (n=10)	After (n=10)	P value
Depression	13±1.90	12±1.58	0.6903
Anxiety	13±0.95	12±1.58	0.5942
Stress	19±2.21	18±1.58	0.7175

## DISCUSSION

Vestibular exercises can be adopted as an alternative therapy for management of the negative emotions. The present study was undertaken to observe the efficacy of selective vestibular exercise on depression, anxiety and stress scores in hypertensive women. There was significant decrease in the scores of depression, anxiety and stress scores in the intervention group when compared with control group. The action of vestibular stimulation in the management of negative emotions was described by earlier studies. It was explained that the two axes related to these negative emotions that is hypothalamic-pituitary-adrenal axis and sympathetic adrenal medullary axis both are inhibited by vestibular stimulation. Vestibular system was reported to maintain the balance between the sympathetic and vagal nuclei. It inhibits the sympathetic system and at same time stimulates vagal nuclei within the normal limits. Hence, the variation of parameters followed by vestibular stimulation was in normal limits [4].

Earlier studies applied vestibular stimulation by swing to alleviate stress in young adults and it was very effective for young adults [5]. But in case of working women getting time for swinging may be a tough task as they have to deal with work at home and at office. Hence, the present study designed 6 minutes exercise which is simple and easy to practice. Reducing stress and anxiety and depression is most important in these population or else if untreated proper ways, it may lead to the diseases like schizophrenia and mental illness and suicidal thoughts. Hence, it is the need of time to screen the negative emotions regularly and offer adequate treatment [6].

While stimulation or training the individuals one should observe the sensitivity of the vestibular system of the individual. Because some are very sensitive so that these exercises may provoke over stimulation and leads to conditions like vomiting, nausea etc. Stimulation was designed and standardized for 6 minutes and 2 minutes of each type of exercise. The participants have to follow this time or else they get results of over stimulation. These exercises are especially designed for working women [7].

## CONCLUSION

The present study support the earlier studies as there was significant decrease in the negative emotional scores followed by intervention. Further detailed studies are recommended in this area.

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