

## EFFECT OF EIGHT WEEKS ELEVATED LEG RELAXATION TECHNIQUE ON PHYSIOLOGICAL PARAMETERS OF FEMALE SPORTSPERSONS DURING SECOND WAVE LOCKDOWN

**GAJANANA PRABHU B.\*, GOPAL NAYAK**

*Department of Studies & Research in Physical Education, Kuvempu University, Shimoga, Karnataka, INDIA.*

*\*Email: prabhuji888@gmail.com*

**How to cite this article:** Prabhu, B.G., & Nayak, G. (June 2022). Effect of eight weeks elevated leg relaxation technique on physiological parameters of female sportspersons during second wave lockdown. Journal of Physical Education Research, Volume 9, Issue II, 01-05.

**Received:** April 27, 2022

**Accepted:** June 20, 2022

### ABSTRACT

*The purpose of the study was to assess effect of eight weeks elevated leg relaxation technique on physiological parameters of female sportspersons during second wave lockdown imposed by Government of Karnataka, India. For the purpose of this study a total of 24 female physical education students (comprising 15 from B.P.Ed. and 9 from M.P.Ed.) were randomly selected as subjects. These subjects were pursuing their courses at Department of P. G. Studies and Research in Physical Education at Kuvempu University, Jnanasahyadri campus, Shankaraghatta. The blood pressure was assessed through a standard pre-calibrated automated Omron 10 Series blood pressure monitor. The data was collected twice in the present investigation – during pre and post test situations. The experiment was conducted through online mode during second wave lockdown in Karnataka. The female sportspersons selected for the present investigation were instructed to practice elevated leg relaxation technique in their respective houses for the specified number of days. Along with descriptive statistics, the data during pre and post-test were compared with paired sample t-test. Results indicated that, there was no significant difference in systolic blood pressure and pulse rate of female sportspersons from pre to post-test situations after performing eight weeks elevated leg relaxation exercise. Significant differences were found in diastolic blood pressure of female sportspersons from pre to post-test situations after performing eight weeks elevated leg relaxation exercise.*

**Keywords:** Physiological parameters, sport women, lockdown, blood pressure, relaxation.

### 1. INTRODUCTION

Relaxation techniques are a great way to help with stress management. Relaxation is a process that decreases the effects of stress on mind and body. Relaxation techniques can help in coping with everyday stress and with stress related to various health problems, such as heart disease and pain. There are different methods of relaxation such as deep breathing, massage, meditation, taichi, yoga, biofeedback, music and art therapy, aromatherapy and hydrotherapy etc.

Elevated leg relaxation (Legs Up the Wall Pose or Viparita Karani) is a restorative yoga posture that allows the mind and the body to relax, relieving stress and tension. It is one of the most approachable yoga poses as it doesn't require much flexibility or strength. But even though it's a passive pose, its benefits are pretty amazing. It is an excellent, calming pose for morning or bedtime meditations. It helps in calming nerves and make feel better. This pose can help with edema in the legs and feet, reversing gravity's effects on your lower body. It is one of the best ways to help drain tension and soothe swollen or cramped legs and

feet. This can be therapeutic after flying, physical activity, or from the detrimental effects of sitting/standing during the day. It gently stretches hamstrings, glutes, spine, and hips while taking pressure off of lower back. It also relieves pressure and tightness on the lumbar region, while also relaxing muscles in this area. Legs Up the Wall pose helps to gently stretch and relax the muscles in your neck, shoulders, and back while improving circulation of blood flow to your head.

Combination of longer hold of Legs Up the Wall with slow, rhythmic breathing, will be tapping into “rest and digest” nervous response. The semi-supine aspect of putting your legs up, combined with controlled breathing leads to a slowing down within body. By fully relaxing body and by focusing on deep breathing in Legs Up the Wall pose a meditative state is evoked. Just like yoga inversion, Legs Up the Wall pose can help to increase energy levels, reverse the effects of gravity on the whole system, help balance blood pressure, and soothe pain. The study was designed with the purpose to assess effect of eight weeks elevated leg relaxation technique on physiological parameters of female sportspersons during second wave lockdown imposed by Government of Karnataka, India.

## **2. METHODS AND MATERIALS**

### **2.1 Participants**

For the purpose of this study 24 female students of B.P.Ed. (n=15) and M.P.Ed. (n=9) were approached to serve as the subjects. These subjects were pursuing their professional courses in physical education at Department of P. G. Studies and Research in Physical Education at Kuvempu University, Jnanasahyadri campus, Shankaraghatta. The age of the subjects ranged between 21 to 28 years.

### **2.2 Research Design**

The single group pre-test post-test design used in the study. Following is the brief description of the research design.

<b>Stages</b>	<b>Protocol</b>
Pre-test	Measurement of pulse rate, systolic and diastolic blood pressure of female sportspersons prior to experimentation.
Experimentation	The subjects practiced elevated leg relaxation for twenty minutes a day X four days per week X eight weeks in their respective houses preferably between 5 to 5.20 pm.
Post-test	Measurement of pulse rate, systolic and diastolic blood pressure of female sportspersons after experimentation.

### **2.3 Variables and Tools of Data Collection**

The blood pressure and brachial pulse was assessed through a standard pre-calibrated automated Omron 10 Series blood pressure monitor. Spare time of subjects was made known and the subjects were asked to report in their respective class rooms before and after lockdown revoked.

### **2.4 Data Collection**

The data was collected twice for this investigation – during pre- and post-test situations. In this, a single group of research participants or subjects is pretested, they were given treatment or independent variable manipulation in the form of elevated leg relaxation, then post-tested.

The experiment was conducted through online mode during second wave lockdown in Karnataka. The female sportspersons selected for the present investigation were instructed to practice elevated leg relaxation technique in their respective houses for the specified number of days.

## 2.5 Statistical Analysis

The raw data on pulse rate, systolic and diastolic blood pressure was subjected to descriptive statistics like Mean and Standard Deviation were employed. Further, the data during pre and post-test were compared with paired samples 't' test.

## 3. RESULTS

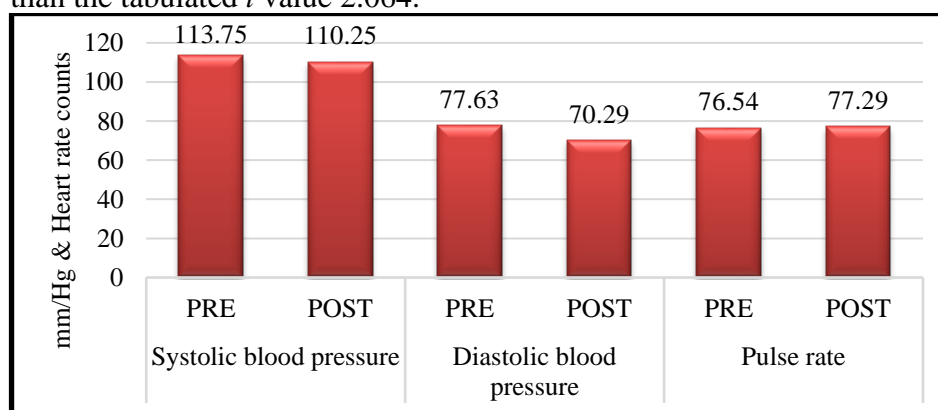
The descriptive results in terms of Mean and standard deviation of systolic and diastolic blood pressure is during pre and post-test situations is provided in Table 1.

**Table 1: Summary of *t*-test on differences in pulse rate, systolic and diastolic blood pressure in female sportspersons during pre and post-test situations**

Variable	Situations	Mean $\pm$ SD	<i>t</i>	df	Sig.
Systolic blood pressure	PRE	113.75 $\pm$ 8.09	1.994	23	0.058
	POST	110.25 $\pm$ 10.70			
Diastolic blood pressure	PRE	77.63 $\pm$ 8.74	4.089	23	0.000
	POST	70.29 $\pm$ 10.26			
Pulse rate	PRE	76.54 $\pm$ 9.00	-0.311	23	0.759
	POST	77.29 $\pm$ 10.59			

The obtained results are normally distributed and exhibits acceptable homogeneity expressed in terms of Standard Deviation. Paired sample *t*-test was employed to find the significant differences in systolic and diastolic blood pressure between pre and post-test situations. From Table 1 it is evident that there is no significant difference in systolic blood pressure and pulse rate in female sportspersons between pre and post-test situations. The obtained *t*-value of 1.994 and -0.311 for systolic blood pressure and pulse rate respectively is lower than the tabulated value (2.064) required for significance at 0.05 levels. Present investigation cannot make it clear whether there exists significant difference pre-test and post-test situations in female sportspersons under investigation.

It is also observed that there is significant difference exists in diastolic blood pressure of female sportspersons between pre-test and post-test situations. The obtained *t* value 4.089 is higher than the tabulated *t* value 2.064.



**Figure 1: Graphical representation of differences in pulse rate, systolic and diastolic blood pressure in female sportspersons during pre-test and post-test situations**

#### 4. DISCUSSION

The results of the study reveals that there is no significant difference in systolic blood pressure and pulse rate of female sportspersons performing elevated leg relaxation exercise for eight weeks. As per the results, it is clear that the elevated leg relaxation exercise performed for eight weeks in the present study did not have any favourable effect on the systolic blood pressure and pulse rate. In a similar study, Gangadharan and Madani (2018) found that the prevalence of depression, anxiety and stress among nursing students and to determine the effect of progressive muscle relaxation technique on reducing depression, anxiety and stress among students. In another study by Ozamiz-Etxebarria et al. (2020) the results revealed that Jacobson's progressive relaxation techniques, Schultz's autogenic training, abdominal relaxations, and visualizations are effective in lowering the anxiety levels of university students as an alternative to pharmacotherapy.

At the same time there was significant decrease, within normal range, in diastolic blood pressure of female sportspersons performing elevated leg relaxation exercise for eight weeks. This means, the diastolic blood pressure significantly reduced due to elevated leg relaxation exercise performed for 20 minutes/ thrice weekly/ for eight weeks. This result is very significant due to Covid19 pandemic. The elevated leg relaxation exercise performed during second wave lockdown has helped female sportspersons to overcome issues relating to high blood pressure. Lockdown definitely puts lot of pressure on individuals who stay at home within four walls. There will be many physiological changes associated with staying at home for couple of weeks during lockdown as per the directions of Government. The intension here is to 'stay home stay safe', which is quite inevitable from the point of view of safety of citizens. In order to overcome the ill effects of lockdown elevated leg relaxation exercise can be one of the best remedies to deal with elevated blood pressure. In a similar study, Arun (2017) investigated the effect of progressive muscle relaxation technique on stress among computer professionals working in selected private companies of Ernakulam District of Kerala. The objectives of the study were to assess the level of stress experienced by computer professionals, to assess the effect of progressive muscle relaxation technique on stress among computer professionals. The study revealed that there is a significant reduction in the stress level of subjects after the practice of progressive muscle relaxation. In another study Toussaint et. al., (2021) examined three different, commonly used approaches to stress relaxation - progressive muscle relaxation, deep breathing, and guided imagery and evaluated them in a head-to-head comparison against each other and a control condition. Results of their study lend support to the body of research showing that stress relaxation training can be effective in improving relaxation states at both the psychological and physiological level.

#### 5. CONCLUSION

On the basis of the findings of the present investigation, it is concluded that there is no significant difference in systolic blood pressure and pulse rate of female sportspersons from pre-test to post-test situations after performing eight weeks elevated leg relaxation exercise. Further, there was significant difference in diastolic blood pressure of female sportspersons from pre-test to post-test situations after performing eight weeks elevated leg relaxation exercise.

#### 6. REFERENCES

- Abdelmalek, S., Souissi, N., Chtourou, H., Denguezli, M., Aouichaoui, C., Ajina, M., ... & Tabka, Z. (2013). Effects of sleep deprivation on Proinflammatory cytokines, growth hormone, and steroid hormone concentrations during repeated brief sprint interval exercise. *Chronobiology International*, 30(4), 502-509.

- Andreassi, J. L. (2007). Introduction to psychophysiology. In J. L. Andreassi (Ed.), *Psychophysiology - Human behaviour and physiological response* (pp. 1-15). New York, NY: Psychology Press.
- Arun, M. (2017). Effect of progressive muscle relaxation technique on stress among computer professionals. *International Journal of Advance Research and Development*, 2, 108-147.
- Casman, & Nurhaeni, N. (2020). Best effect of progressive muscle relaxation (PMR) on children: A systematic review. *Science and Technology Publications*,
- Cullen, M. (2011). Mindfulness-based interventions: An emerging phenomenon. *Mindfulness*, 2, 186-193.
- Dhyani, D., Sen, S., & Raghunahanti, R. (2015). Effect of progressive muscular relaxation on stress and disability in subjects with chronic low back pain. *Journal of Nursing and Health Science*, 4, 40-45.
- Dickinson, H. O., Campbell, F., Beyer, F. R., Nicolson, D. J., Cook, J. V., Ford, G. A., & Mason, J. M. (2008). Relaxation therapies for the management of primary hypertension in adults: A Cochrane review. *Journal of Human Hypertension*, 22, 809-820.
- Domar, A. D., Eyvazzadeh, A., Allen, S., Roman, K., Wolf, R., Orav, J., Albright, N. & Baum, J. (2005) Relaxation techniques for reducing pain and anxiety during screening mammography. *American Journal of Roentgenology*, 184, 2.
- Eppley, K. R., Abrams, A. I., & Shear, J. (1989). Differential effects of relaxation techniques on trait anxiety: A meta-analysis. *Journal of Clinical Psychology*,
- Evetovich, T. K., Conley, D. S., Todd, J. B., Rogers, D. C., & Stone, T. L. (2007). Effect of mechanomyography as a biofeedback method to enhance muscle relaxation and performance. *Journal of Strength and Conditioning Research*, 21, 96-99.
- Gangadharan, P., & Madani, H. A. (2018). Effectiveness of progressive muscle relaxation techniques on depression, anxiety and stress among undergraduate nursing students. *International Journal of Health Science & Research*, 8(2), 155-163.
- Höfler, C., Osmani, F., & Schienle, A. (2020). Placebo effects on the quantity and quality of relaxation training. *Journal of Health Psychology*,
- Huntley, A., White, R. A., & Ernst, E. (2002). Relaxation therapies for asthma. *Thorax*, 57, 127-131.
- Kumar, S., & Raje, A. (2014). Effect of progressive muscular relaxation exercises versus transcutaneous electrical nerve stimulation on tension headache: A comparative study. *Hong Kong Physiotherapy Journal*, 32, 86-91.
- Manzoni, G. M., Pagnini, F., Castelnovo, G., & Molinari, E. (2008). Relaxation training for anxiety: a ten-years systematic review with meta-analysis,
- Ozamiz-Etxebarria, N., Santamaría, M. D., Munitis, A. E., & Gorrotxategi, M. P. (2020). Reduction of COVID-19 anxiety levels through relaxation techniques: a study carried out in Northern Spain on a sample of young university students,
- Subramanya, P., & Telles, S. (2009). Effect of two yoga-based relaxation techniques on memory scores and state anxiety. *BioPsychoSocial Medicine*,
- Toussaint, L., Nguyen, A. N., Roettger, C., Dixon, K., Offenbacher, M., Kohls, N., Hirsch, J., & Fuschia, S (2021). Effectiveness of Progressive Muscle Relaxation, Deep Breathing, and Guided Imagery in Promoting Psychological and Physiological States of Relaxation. *Evidence-Based Complementary and Alternative Medicine*,
- Wilczynska, D., Dornowski, M., & Skonieczny, P. (2019). Evaluation of the effectiveness of relaxation in lowering the level of anxiety in young adults – a pilot study. *International Journal of Occupational Medicine and Environmental Health*,