WWW.IJRPR.COM

International Journal of Research Publication and Reviews

Journal homepage: www.ijrpr.com ISSN 2582-7421

THE EFFICACY OF SWISS BALL TRAINING PROGRAMME IN REDUCING PAIN AND IMPROVING FUNCTIONAL ABILITY IN WORK-FROM-HOME PROFESSIONALS WITH MECHANICAL LOW BACK ACHE

Dr. N N Bobby PT

Associate Professor, Thanthai Roever College of Physiotherapy, Perambalur, Trichy Tamilnadu. India

ABSTRACT

INTRODUCTION: - Low back pain has been and continues to be, one of the enigmas of the modern medicine. The epidemic low back pain and the disability associated with it have appeared to escalate, at the same time that the greatest ttechnology advances related to diagnosis treatment and rehabilitation have been made. **AIM:-** The study was done to find out the efficacy of Swiss ball exercises in reducing pain and improving functional ability in work-from-home professionals with mechanical low back ache. **OBJECTIVE: -** 1. To evaluate the effects of effective Swiss ball exercises in relieving pain in low back pain for work-from-home professionals by using NPRS scale. 2. To evaluate the effects of effective Swiss ball exercise on functional performance in low back pain for work-from-home professionals using oswetry disability index questionnaire. **METHODOLOGY**: The present study was an experimental study design that included 10 individuals, with mechanical LBA in the age group of 25–35 years of both sex , height of 5cm to 170 cm and working from home professionals.**Data Collection-Parameters** (i) Numerical Pain Rating Scale Numerical Pain Rating Scale [NPRS] (ii)Oswetry disability index. [ODI] **Intervention** Included Swiss Ball Exercise program for 30 min, five sessions per week over a period of 4 weeks. Patients were assessed at the baseline using NPRS, oswetry index and reassessed after 4 weeks. **Results**: There was statistical significance in all the outcome measures with $P < 0.0001$. **Conclusion**: The study concluded that conservative therapy (Swiss ball training) is effective in mechanical low back pain for work-from-home professionals.

Key Words: Swiss ball training, NPRS, Oswetry disability index.

INTRODUCTION

Low back pain has been and continues to be, one of the enigmas of the modern medicine. The epidemic low back pain and the disability associated with it have appeared to escalate, at the same time that the greatest technology advances related to diagnosis treatment and rehabilitation have been made. Survey suggested that the life time incidence of low back pain ranges from 60% to 90% within 5% annual incidence. For persons younger than 25 years, mechanical low back pain represent the most common cause of disability than in person aged older than 45 years. Mechanical low back pain is described as a musculoskeletal pain which varies with physical activities and not involving root compression or serious spinal disease.

Age, gender, occupation, recurrent weight lifting, weakness of trunk and abdominal muscles, obesity, smoking, increased lumbar lordosis and scoliosis are some of the known risk factors of LBP.A muscle is a potential source of LBP.

The present study does not deal with LBP that result from any trauma, osteoporotic fractures, infections, neoplasm's, and other pathologies .But instead with Mechanical low back pain in undergraduate students due Failure in the muscles protective function which may cause excessive loading and damage to the pain sensitive structures due to poor muscle endurance of the trunk. This leads to the strain of its passive structures, early muscle fatigue and an inability to rightly respond to the demands of unexpected loads. Thus, enhancing back muscle strength and endurance could help reduce the occurrence of LBP.

The primary goals of using effective Swiss ball exercise in the management of mechanical low back pain is to gain the muscle strength, flexibility and endurance, to reduce the pain and to contribute to the ability to sustain normal life activities.

The term "Swiss ball" was coined because one of the earliest noted uses of an exercise ball was 1965 in Switzerland where a group of physical therapist used it in their work with children with cerebral palsy. The exercise ball may be referred to as gymnast ball, stability ball, physio ball, The Swiss ball is widely used in the recreational training environment to be a training device for core stability and strengthening exercise. The Swiss ball is a conservative treatment option for back pain sufferers and is designed to help prevent further episodes of low back pain as part of a rehabilitation program.

NEED FOR THE STUDY

- The study in young people is Important because the pain at an early age can be a risk factor for experiencing pain in adulthood.
- A primary benefit of exercising with a Swiss ball as apposed to exercising directly on a hard flat surface is that the body responds to the instability of the ball to remain balanced, engaging many more muscles. Those muscles become stronger over time to keep balance. Most frequently, the core body muscles- the abdominal muscles and back muscles are the focus of exercise ball fitness program.
- An unstable surface increase activation of rectus abdominal muscles (abdominals) and allow for greater activity per exercise when compared to stable surface.

AIM:

The study was done to find out the efficacy of Swiss ball exercises in reducing pain and improving functional ability in work-from-home professionals with mechanical low back ache.

OBJECTIVES:

1. To evaluate the effects of effective Swiss ball exercises in relieving pain in low back pain for work-from-home professionals by using NPRS scale.
2. To evaluate the effects of effective Swiss ball exercise on functional performance in low back pain for work-from-home professionals using oswetry disability index questionnaire

MATERIAL AND METHODOLOGY

Study design – Experimental study design
Study setting – JAS CLINIC, Tennur, Trichy. TN.
Sampling method – purposive sampling
Sample size – 10
Duration of the study – 1 month

Inclusion criteria:

- Both males and females.
- Age group between 25 - 35 years.
- Height of the subject between 155 cm – 70 cm
- Work-from-home professionals.
- Subject diagnosed with mechanical low back pain.
- Subject with minimum to moderate disability (up to40%) on ODI.
- Subject with NPRS grade 5 and above.

Exclusion criteria:

- Subjects who are on regular fitness program.
- Subjects with nerve root pain signs.
- Past history of abdominal surgery.
- Spondylolisthesis.
- Past history of fractures (spine, rib) or injury.
- Systemic disorders like tuberculosis of spine orrheumatoid arthritis.

Material used:

- ✓ Swiss ball
- ✓ Towel
- ✓ Stationery (pen, pencil and paper)
- ✓ NPRS scale
- ✓ Questionnaire (oswetry disability index)

OUTCOME MEASURESNPRS:

- ✓ Numeric Pain Rating Scale [NPRS]

- ✓ Oswetry disability index questionnaire:

Methodology:

After obtaining ethical clearance 10 subjects were selected on thebasis of inclusion criteria.
Subjects were assessed through Performa and informed consent was taken. Pre-test low back pain and disability was assessed by VAS and ODI respectively. Subjects were instructed to do warm up exercises for 5 minutes, which consisted of spot jogging, followed by some free exercises and light stretches held for 15 seconds.

Exercise Protocol:

Rest time: 2-3 minutes in between sets of exercise with appropriate stretch. At the end of each day exercise program, subjects were asked to do cool down exercises, which involve aerobic exercises followed by stretching exercises, again before starting the training for next session, the subjects were asked for any discomfort.
At the end of 4 weeks of exercise program, post test scores were measured using same measurement tools. At the end of the study, the pre score values were compared with post score values.

SWISS BALL EXERCISES

The use of Swiss ball exercise training in treating and preventing lumbago and condition to be popular in professionals working from home.

HEIGHT AND BALL SIZE

The selection of the right ball size according to the height is important for the efficacy of the exercises.

HEIGHT (Standard)	**BALL SIZE** (Standard)	**HEIGHT** (Metric)	**BALL SIZE** (Metric)
4'6" & Under	12 inch	137cm & Under	30 cm
4'6" - 5'0"	18 inch	137 –152 cm	45 cm
5'1" - 5'7"	22 inch	155 – 170cm	55 cm
5'8" - 6'2"	26 inch	173 – 188 cm	65 cm
6'2" & Above	30 inch	188 cm & Over	75 cm

Effective Swiss Ball Training Programme are as follows:

- ✓ **Bridging on Swiss ball.**
- ✓ **Front plank on Swiss ball.**
- ✓ **Supine hip twist on physio ball.**
- ✓ **Abdominal crunches on physio ball.**
- ✓ **Abdominal draw in with leg extension.**
- ✓ **Russian twist, seated on physio ball.**
- ✓ **Stability ball wall squat.**
- ✓ **Stability ball V-pass**

.

DATA ANALYSIS

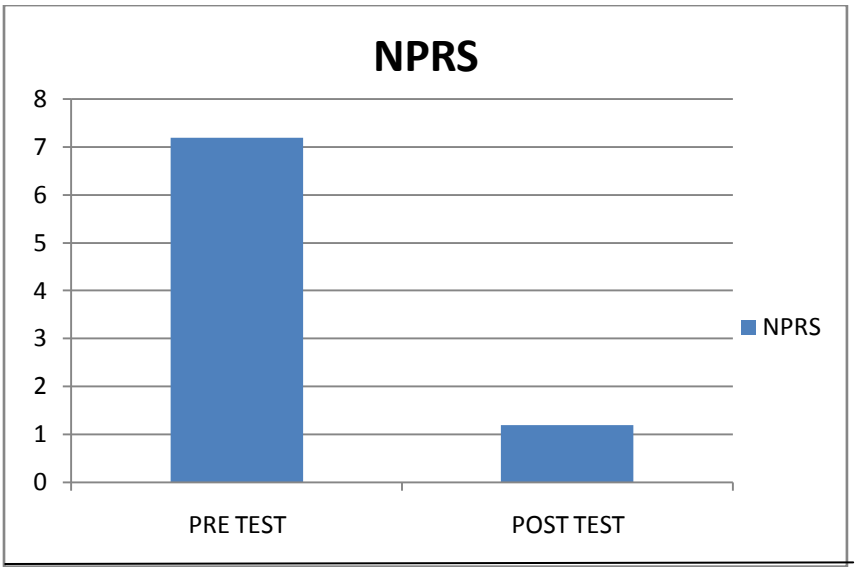
TABLE 1 – REPRESENTING NPRS VALUES

TOOL	N	PRE SCORE MEAN	POST SCORE MEAN	MEAN DIFF	SD	t - value	df	Std error difference
NPRS	10	7.2	1.2	6	1.32	15.2	9	0.4

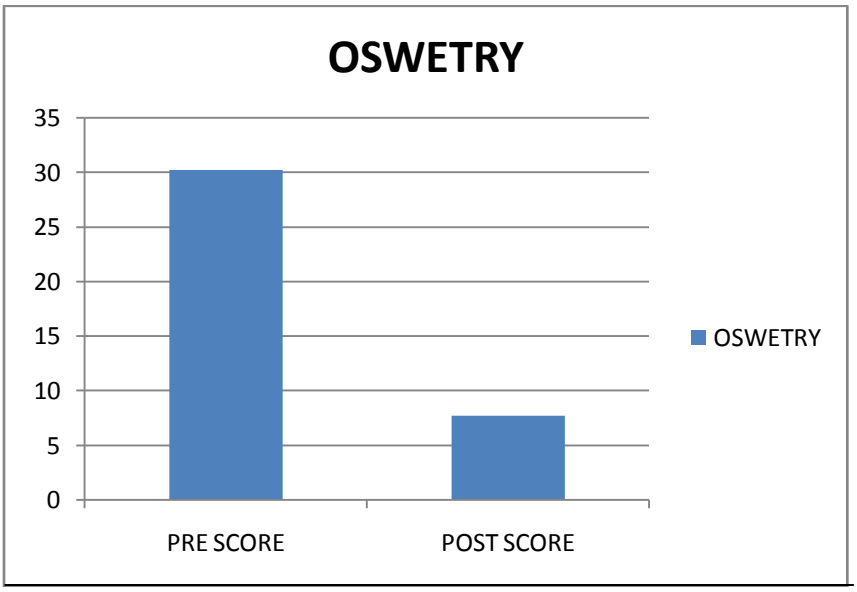
TABLE 2 – REPRESENTING OSWETRY QUESTIONNAIRE VALUES

TOOL	N	PRE SCORE MEAN	POST SCORE MEAN	MEAN DIFF	SD	t - value	df	Std error difference
OSWETRY	10	30.2	7.7	22.5	1.9	43.1	9	0.5

GRAPE 1 REPRESENTS PRE AND POST MEANS SCORE OF NPRS



GRAPE 2 REPRESENTS PRE & POST MEANs SCORE OF OSWETRY DISABILITY INDEX QUESTIONNAIRE



RESULT

This result suggests that the strengthening and endurance exercise with Swiss ball is more effective in relieving pain and improving ability among mechanical low back ache subjects.

DISCUSSION

The findings of this study indicated that subjects had significant decrease in pain and disability. The data showed that with the use of one month protocol, there was significant difference between post treatment values of VAS score and ODI score

CONCLUSION

From the above analysis, the study states that the Swiss ball exercises relieves pain, Improves functional ability in work-from-home professionals with mechanical low back pain. It is clear that the Swiss ball exercises are effective in relieving pain andimproving functional ability.

REFERENCES

- Core stability exercise on and off a Swiss ball. Arch Phys Med Rehab 2005; 86:242-9.
- Minimal Clinically Important Change for Pain Intensity, Functional Status, and General Health Status in Patients with Nonspecific Low Back Pain. SPINE 2006; 31(5):578-582
- Core stability exercises on and off a Swiss ball. Arch Phys Med Rehab 2005; 86:242-9. Access on 2006
- Minimal Clinically Important Change for Pain Intensity, Functional Status, and General Health Status in Patients with Nonspecific Low Back Pain. SPINE 2006;31(5):578-582.
- Low back pain : early management of persistent non-specific low back pain, may 2009
- Effects of Physio ball and Conventional Floor Exercises on Early Phase Adaptation In Back and Abdominal Core Stability and Balance in Women. The Journal of Strength and Condition Research; 2002;17(4):721725.
- Role of Swiss ball exercises in reducing pain, disability and improving muscle endurance in patients with mechanical low back ache. Int j physiotherapy res 2017;5(2):19661970. Doi: 10.16965/ijpr.2017.117.