



International Journal of Allied Medical Sciences and Clinical Research (IJAMSCR)

ISSN:2347-6567

IJAMSCR | Volume 6 | Issue 4 | Oct - Dec - 2018
www.ijamscr.com

Research article

Medical research

Effect of Yoga V/S Pilates mat exercises on pain, disability and core stability on working young women with non specific low back pain: a randomized control trial

Shilpa Khatri^{1*}, Ujwal Yeole², Purva Raut³.

¹Dr. Shilpa Khatri, corresponding author, assistant professor, Department of Physiotherapy, Tilak Maharashtra Vidyapeeth, Pune-37.

²Dr. Ujwal Yeole, associate professor, Department of Physiotherapy, Tilak Maharashtra Vidyapeeth, Pune-37.

³Purva Raut-intern, Department of Physiotherapy, Tilak Maharashtra Vidyapeeth, Pune-37.

*Corresponding Author: Shilpa Khatri

Email id: evergreenshilpa89@gmail.com

ABSTRACT

Background

Low back pain (LBP) is one of the most common complaints and is the main reason for discomfort experienced by adults younger than 45 years of age. Weak co-ordination and stabilization of the trunk muscles is one of the main causes of LBP.

Objectives

To study the effects of Yoga and Pilates mat exercises on pain, disability and core stability using Modified Oswestry Disability Index, Unilateral Hip Bridge Endurance test and Trunk Stability Test.

Material and Methodology

Total number of 60 female participants between the age 18-35 years with non specific Low back pain for more than 3 months were selected by simple random sampling. Modified Oswestry Disability Index, Unilateral Hip Bridge Endurance Test and Trunk Stability Test were used to assess pain, disability and core stability pre and post intervention. Participants were divided in 3 groups, Group A was given Yoga Mat exercises, Group B was given Pilates mat exercises and Group C was given conventional exercises for Low back Pain.

Results

After comparing pre and post intervention data using paired and unpaired t test results showed, there was significant improvement in pain, disability ($p < 0.0001$) and core stability ($p < 0.0001$) in both group A and B but no significant change in Group C.

Conclusion

Both Yoga and Pilates mat exercises have equal effects on pain, disability and core stability in young working women with non specific Low back pain.

Keywords: Non specific Low back pain, Young working women, Flexibility, Core stability, Yoga, Pilates.

INTRODUCTION

Low back pain (LBP) is one of the most common complaints and is the main reason why adults younger than 45 years of age experience discomfort. Weakening back pain that continues for more than 3 months is considered chronic and occurs due to weak co-ordination and stabilization of the trunk muscles; it negatively affects the trunk including its strength and endurance and brings about abnormal changes in the neuromuscular mechanism that influences trunk stability. [1]

Non-specific chronic low back pain, defined as pain duration > 3 months, is associated with variations of recurrent or persistent pain. Chronic low back pain has various impacts on body functions, activity and participation in daily life and it is a common cause for attending healthcare. [2] Amongst the many exercises for chronic Low back pain patients, the most widely used are stabilization exercises that strengthen abdominal and pelvic muscles for improving spine stabilization and posture maintenance. [1]

Yoga is a form of mind-body exercise and stabilization exercise which couples physical exercise with mental focus through breathing and meditation. A frequently practised form of Yoga (Hatha Yoga) comprises of three aspects- asanas or physical postures, pranayama or breathing exercises, meditation or relaxation. [3]

Originally called contrology, Pilates (a form of stabilization exercise) was designed by, 'Joseph Pilates' as a form of low impact exercise, suitable for use by anyone. The six major components of Pilates were found to be- centering, concentration, control, precision, flow and breathing. Pilates has many perceived benefits; both physical (such as balance, flexibility, pain reduction, disability reduction) and psychological (improved mindfulness, improved affect).⁴Pilates training was found to have significant improvement in general muscular strength. [12]

There are also some other conventional exercises for LBP like Static back exercise, Straight leg raise, cat camel stretch, etc. which are given for a number of reasons but the main objective usually is to stress both the affected and unaffected tissues to foster tissue repair. [8]

There are studies done on exercises improving the core strength and reducing the low back disability. The findings of our study may bring out

the best approach for low back disability in terms of improving the core strength and reducing the low back pain in women. Hence, the need of the study.

MATERIALS AND METHODOLOGY

A pre-post experimental study was CONDUCTED where in 60 females with low back pain were selected according to inclusion and exclusion criteria using simple random sampling. Active young women with low back pain more than 3 months were included. Participants with any recent fracture or ligament injury to the spine or lower limb, radiculopathy and prolapsed intervertebral disc within the past 6 months, pregnant women were excluded.

PROCEDURE

Synopsis was submitted to Institutional Ethical clearance to Tilak Maharashtra Vidyapeeth, Department of Physiotherapy. General population of women with Low back pain were approached and 60 samples were randomly selected. Informed consent was taken and subjects were explained the aim and objectives of the study. Demographic data is obtained by using data collection sheet. The subjects were instructed to carry out slow relaxed breathing throughout the intervention program. Modified Oswestry Disability Index [5], Unilateral Hip Bridge Endurance Test and Trunk Stability Test [6] was taken pre and post intervention outcome measure. Interventions will be in form of Yoga mat exercises for Group A and Pilates mat exercises for Group B.

YOGA MAT EXERCISES [7, 8] POSITIONS

4 weeks – 3 times a week, Duration- 30 min session, Hold for 10-12 breaths, Repetitions – 3

- a) The half moon pose
- b) Warrior pose
- c) Tree pose
- d) Knee to chest pose
- e) Chair pose
- f) Palm tree pose
- g) Triangle pose
- h) Camel pose

PILATES MAT EXERCISES [1, 8] POSITIONS

4 weeks- 3 times a week, Duration- 30 min session, 10 repetitions -3 sets.

- a) Arm circles
- b) Knee over knee twist stretch
- c) Seated Hip stretch
- d) Swimming
- e) Roll over
- f) Child position

- g) Hip opener
- h) Roll up

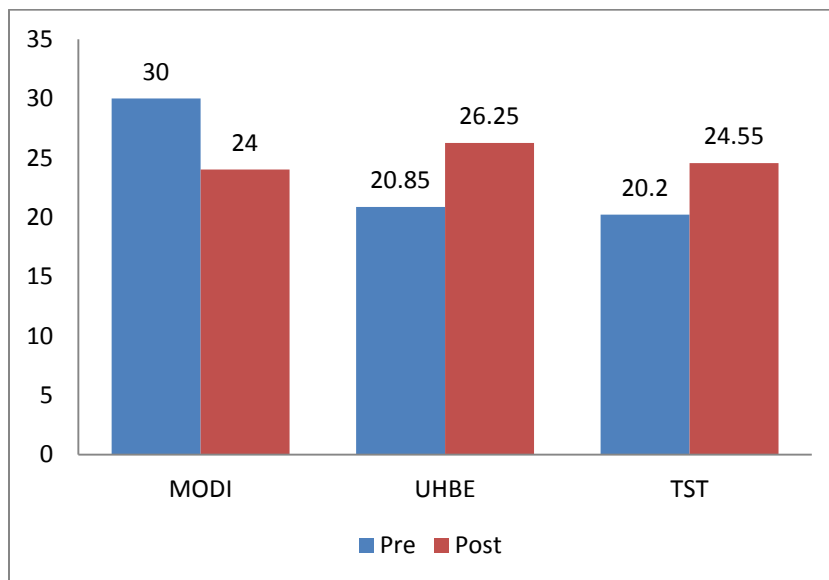
STATISTICAL ANALYSIS

Microsoft office excel 2007 was used and statistical analysis was done by Instat software. Paired and unpaired t test and repeated measures ANNOVA was used for normalised data with p<0.0001. Mean Age was found to be 28.71.

RESULTS

Table no. 1

Outcome measures		Group A (Mean ± SD)	Group B (Mean ± SD)	Group C (Mean ± SD)	P value
Age		28.35±4.017	28.95±3.154	28.85±3.843	0.8595
BMI		27.17±3.537	26.395±4.665	26.49±4.52	0.5573
Years of working		5.150±2.889	5.250±2.633	5.45±3.26	0.9095
MODI	Pre	30±10.53	26.8±11.2	27.6±10.45	0.3738
	Post	24.4±9.65	21.1±10.1	26.4±10.30	0.2275
	P value	< 0.0001	< 0.0001	0.0190	
UHBE	Pre	20.8±8.5	24.55±6.7	22.2±6.90	0.2904
	Post	26.25±7.7	32.6±6.5	22.1±6.81	0.0001
	P value	< 0.0001	< 0.0001	0.5770	
TST	Pre	20.2±7.32	22±5.48	21.2±6.03	0.3846
	Post	24.55±7.3	28.35±5.8	22.15±6.81	0.0077
	P value	< 0.0001	< 0.0001	0.1625	

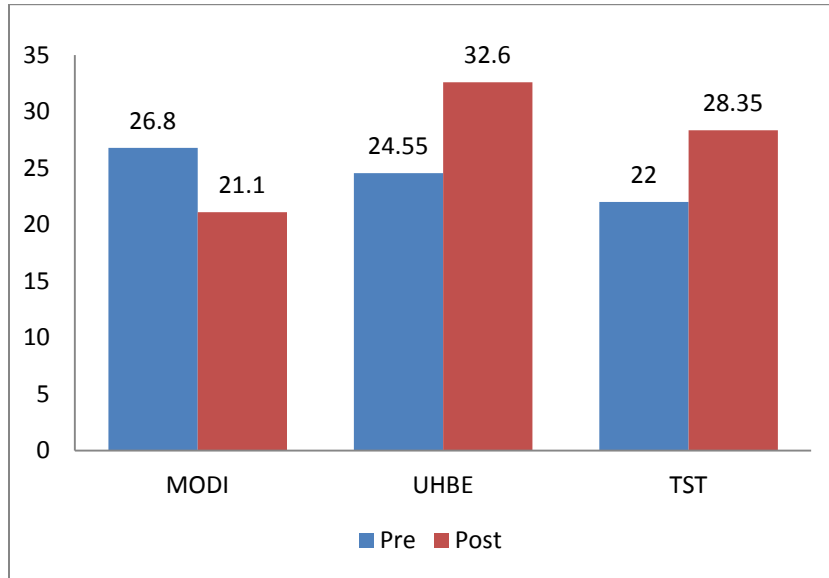


Graph 1:

Interpretation

This graph describes the pre and post intervention mean values of Modified Oswestry Disability Index, Unilateral Hip Bridge Endurance

test and Trunk Stability Test for Group A(YOGA) and shows significant improvement.



Graph 2:

Interpretation

This graph shows the pre and post intervention values of Modified Oswestry Disability Index, Unilateral Hip Bridge Endurance Test and Trunk Stability Test for Group B(PILATES) and shows significant improvement.

DISCUSSION

In this study effect of Yoga v/s Pilates mat exercises on pain, disability and core stability in working young women with non specific Low back pain was checked. Low back pain occurs when co-ordination and stabilization of the trunk muscles are weak; it negatively affects the trunk including its strength and endurance and brings about abnormal changes in the neuromuscular mechanism that influences trunk stability. [1]

Based on previous studies women were found to have a greater risk for non specific chronic low back pain and it was suggested when studying prognostic factors to assess women separately. Since there is difference in the course of non-specific acute Low Back Pain and Chronic Low Back Pain, more knowledge of prognostic factors

for varying outcomes in patients with non specific Chronic Low back pain. [2]

Results of present study shows that there is significant improvement in pain, disability and core stability by both Yoga mat exercises and Pilates mat exercises, which is supported by the study done by Susan Sorosky et al in which it was stated that given the interest of general population in Yoga and Pilates and the emergence of information it supporting their use for CLBP, it appears these mind body exercises may be helpful in managing LBP. [3]

Sherman et al investigated several possible mediators, including serotonin, cortisol and brain derived neurotrophic by which Yoga may affect LBP.

Lee et al. investigated the effect of yoga on pain, BDNF and serotonin levels in CLBP patients in which it was found that beneficial effect of Yoga are decreased BDNF and unchanged serotonin. [3] Whitehead et al conducted a study stating that Yoga is either as or slightly more effective than non Yoga exercise interventions in chronic non specific LBP. [11]

In the present study the pain intensity and sitting were the components of MODI which showed maximum improvement post treatment.

This is supported by previous studies done by Emery K et al. which stated that Pilates was effective in improving abdominal strength. Pilates training program was found to be effective in improving abdominal strength and posture. Pilates training, continuously stimulating the abdominal musculature provides a stronger core, essential for set and support for the kinetic chains required, the constant contraction of core muscles and gluteal muscles in Pilates is the cause of improvement in muscle strength. [9]

Another study done by Sekendiz B et al, supports the present study by stating that Pilates mat exercises were found to bring significant changes in abdominal, low back strength, trunk flexibility and abdominal muscle endurance in sedentary adult females. [10]

REFERENCES

- [1]. Chae-Woo Lee, PT, MS, Ju Hyun, PT, MS, Seong Gil Kim, PT, MS ,Influence of Pilates Mat and Apparatus Exercises on Pain and Balance of Businesswomen with Chronic LBP, J. Phys. Ther. Sci., 26, 2010, 475-477
- [2]. Lena Nordeman, Lena Thorselius, Ronny Gunnarsson, Predictors for future activity limitation in women with chronic low back pain consulting primary care: a 2 year prospective longitudinal cohort study, Journal of ClinicalPathology, 7(6), 2017.
- [3]. Susan Sorosky, Sonja Stilp; Yoga and Pilates in management of LBP, Musculoskeletal Med., 2008
- [4]. Keira Byrnes, Mchiroprac, Ping-Jung Wu, Mchiroprac, StephneyWhillier, PhD Lecturer, Is Pilates an effective rehabilitation tool? A Systematic Review, Journal Of Bodywork & Movement Therapies, 22, 2018, 192-202
- [5]. Fritz JM, IrgangJJ, A comparison of Modified Oswestry Disability Questionnaire and The Quebec Back Pain Disability Scale, Physical Therapy, 81, 2001, 776-788
- [6]. Courtney M. Butowitz, Msed, D. David Ebaugh, PhD, Brian Noehren, PhD, PT , Validation of two clinical measures of core stability, The Intenational Journal Of Sports Physical Therapy, 11(15), 2016.
- [7]. SeongSik Kim, PT, The effects of VR-based Yoga on Physical Function in middle-aged female Low back pain patients, J. Physical Therapy Sci., 26(4), 2014.
- [8]. Stuart M McGill, Low back exercises: Evidence for improving exercise regimens, J. Phys. Ther., 78(7), 1998.
- [9]. Emery K, De Serres SJ, McMillan A, JN., The Effects of Pilates training Program on Arm Trunk Posture and Movement, Journal of Clinical Biomechanics 25, 2010, 124-130
- [10]. BetilSekendiz, FezaKorusuz, Effects of Trunk Strength, Endurance and Flexibility in Sedentary Adult Females; Journal of Bodywork and Movement Therapies, 11, 2007, 318-326
- [11]. Whitehead, Physllis, Brown, PhD, The effect of Yoga on Chronic Nonspecific Low back pain: AJN,American Journal Of Nursing, February 1118(2), 2018, 64
- [12]. Rasika Panse, Priyanka Pawal, UjwalYeole, Effect of Standing Pilates on Balance in Basketball Players; Journal of Sports and Physical Education, 4(1), 2017, 35-38.

CONCLUSION

Our study concluded that both Yoga and Pilates mat exercises have similar effects on pain, disability and core stability in young working women with Non specific Low back pain.

Limitations

This study evaluated the effects of yoga and Pilates mat exercises on pain, disability and core stability in young working women with non specific low back pain. But in this study limited area for collection was considered and as the study duration was short long term effects of the intervention programmes couldn't be recorded.

Future scope of study

Further study can be done considering both genders with a longer study duration to evaluate the long term effects of both yoga and Pilates mat exercises.

How to cite this article: Shilpa Khatri, Ujwal Yeole, Purva Raut. Effect of yoga V/S Pilates mat exercises on pain, disability and core stability on working young women with non specific low back pain: a randomized control trial. Int J of Allied Med Sci and Clin Res 2018; 6(4): 882-886.

Source of Support: Nil. **Conflict of Interest:** None declared.