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Effectiveness of tanzberger exercises on pain and disability in chronic low back pain in females: A randomized controlled trial

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Abstract

Objective: To find the effect of Tanzberger Exercises on Pain and Disability in Chronic Low Back Pain in Females.

Subject and Method: 40 female subjects clinically diagnosed with chronic low back pain with age group between 25-50 years were taken. Subjects were divided into two groups -A and B with 20 each. Both the groups were explained the procedure. Group A received Tanzberger exercises which are type of pelvic floor muscle exercises along with conventional regimen. Group B received only conventional regimen exercises. Tanzberger Exercises comprised of rolling the ball forward and back-to-back sitting on swiss ball for 4 weeks, 3 sessions per week where each session was about 20-30 minutes with sufficient rest between each exs followed by conventional regimen. Conventional Regimen consisted of Short Wave Diathermy (continuous mode,co-planar method for 15 minutes) followed by lumbar strengthening exercises (prone leg elevation, chest elevation in prone, supine bridging) comprising of 2 sets of 10 repetitions per exercise, 3 sessions per week for 4 weeks. Outcome Measures in the form of pain (Numerical Pain Rating Scale-NPRS) and disability (Oswestry Disability Index-ODI) assessment were taken pre and post 4 weeks of intervention.

Result: Mean values for age for Group A were 36 ± 8.790 and Group B were 35.75 ± 7.840. Mean values for NPRS scale were 4.8 ± 1.056 and 5.6 ± 1.188 for Group A and B respectively. $p<0.0001$. When both the groups were compared p value was 0.0363 which was considered significant. Mean values for ODI scale were 36.83% ± 8.274% and 42.62% ± 8.037% for Group A and B respectively. $p<0.0001$. When both the groups were compared the 't' value obtained was 2.245 with 37 degrees of freedom and p value was 0.0308 which is considered significant.

Conclusion: This study showed that Tanzberger Exercises in combination with conventional treatment provided significant benefits in terms of pain relief and disability over routine treatment alone. Tanzberger Exercises along with conventional regimen had an additive effect in pain relief levels and reduction of disability in patients with chronic low back pain.

Keywords: chronic low back pain, tanzberger exercises, pelvic floor muscles, NPRS, ODI

1. Introduction

Low back pain is defined as pain located between twelveth rib and the inferior gluteal folds, with or without leg pain and about 90% of cases are non-specific [1]. A survey of over 11,000 working age adults in rural North India revealed a prevalence of low back pain 23.09% [2]. Low back pain (LBP) is a common disorder involving the muscles, nerves and bones of the back. Pain can vary from a dull constant ache to a sudden sharp feeling [3]. Chronic low back pain prevalence was 4.2% in individuals aged between 24 and 39 years old and 19.6% in those aged between 20 and 59 years. Chronic low back pain prevalence increases linearly from the third decade until the 60 years of age, being more prevalent in women [4]. If LBP persists for at least 3 months (>12 weeks) it is termed as chronic low back pain [5]. Low back pain is one of the most common conditions affecting all population, worldwide. It is ranked first as cause of disability and inability [6]. 60-80% of people are affected with LBP at some time in their lives [7]. Population in occupations requiring forward bending, lifting heavy weights, exposure to vibration caused by vehicles or industrial machines is at greater risk to develop LBP [8].

Common causes of LBP is a torn or pulled muscle and/or ligament. Low back muscle strain and ligament sprain can happen suddenly or can develop slowly over time from repetitive movements. Strains occur when a muscle is stretched too far and tears, damaging the muscle itself. Sprains happen when over -stretching and tearing affects ligaments, which connects the bones together. Common causes of sprain and strain include:

- Lifting of heavy object, or twisting the spine while lifting.
- Sudden movements that place too much stress on the low back, such as fall.
- Poor posture overtime.
- Sports injuries, especially in sports that involve twisting or large forces of impact.[9]

Lumbar herniated disc, degenerative disc diseases, facet joint dysfunction, spinal stenosis, osteoarthritis, infections, tumors, spondylolithesis are also some of the causes of chronic LBP [9]. Dysfunction of spinal stability seems to be one of the causes of LBP. It is thought that a large number of muscles have a role in spinal stability including pelvic floor muscles (PFM) [10]. Furthermore, the pelvic floor muscles play an important role in the dynamic stability of

the musculoskeletal structure, affecting the spine and lower back and in load management through the sacroiliac joints to the coxal bones and distal to the legs, minimizing musculoskeletal strain [11]. As a result of various etiological factors weak pelvic floor muscle strength may be one of the causes of chronic LBP. A cross-sectional study was conducted on non-pregnant women presenting with lumbopelvic pain to one of seven outpatient orthopaedic clinics in Canada. The study included 85 subjects and reported 71% of the participants had pelvic floor tenderness, 66% had pelvic floor weakness and 41% were found to have a pelvic organ prolapse [12].

The pelvic floor muscles consist of 67-76% of slow twitch fibers and 23-30% of fast twitch fibers [13]. The layers of the pelvic floor are; Superficial layer (Outlet): Ischiocavernous, Bulbocavernous, Superficial transverse perineal, External Anal Sphincter. Urogenital Diaphragm layer (perineal membrane): Deep transverse perineal, Compressor urethrae, Urethrovaginal Sphincter. Pelvic Diaphragm layer (primary muscular support): Levator Ani muscles (Pubococcygeus, Puborectalis, Iliococcygeus and Coccygeus) [14]. In which the superficial layers consisting of fast twitch fibres and the deepest layers consisting of slow twitch fibers [15]. LBP has a major effect on health and health related quality of life, diminishing the capacity for standing, walking and sitting [16]. Recent surveys have stated that approximately 550 million days of work are lost annually as a result of pain and that LBP constitutes 56% of this pain complaints. It has been suggested that the overall mechanical stability of the spinal column, is provided by the spinal column and the precisely coordinated surrounding muscles especially in dynamic conditions and under heavy loads [17].

- The spinal stabilizing system of the spine includes three subsystems:
- The spinal column for providing intrinsic stability;
- Spinal muscles (surrounding the spinal column) for providing dynamic stability; and
- The neural control unit for evaluating and determining the requirements for stability and coordinating the muscle response.

Under normal conditions, the three subsystems work in harmony and provide the needed mechanical stability [18].

Physiotherapy has been commonly used in management of patients with back pain for many years. This typically involves exercises, advice, mobilization by Maitland, the McKenzie method, abdominal muscles exercises, pulsed short-wave diathermy, interferential therapy, therapeutic ultrasound as well as in numerous other less commonly used interventions [19].

Exercise is commonly used in the management of chronic low back pain, mainly the training of core stabilizing muscles including pelvic floor muscle [20]. In addition to the well documented role of pelvic floor muscle (PFM) in patients with urinary and faecal incontinence [21], the PFM have also an important role in proper muscular activation for lumbar stabilization [22].

Pelvic Floor muscle exercies - Kegel 's exercises - this traditional method brings about contraction of only the pubococcygeus muscles. In order to bring about the contractions of the other group of muscles, Tanzberger Exercise Concept found by a German Physical Therapist, Renate Tanzberger is used [13]. Tanzberger exercises incorporate the use of Swiss ball for the retraining of the weak pelvic floor musculature. Exercises are functional because they activate the pulmonary diaphragm, the abdominal and back muscles which results in the restoration of the pelvic floor and with each, movement the sensory awareness of the pelvic floor is also improved [23]. Strengthening is done for the fibres running in all direction whereas, Kegels exercises help in strengthening of the muscle fibres running in only one plane [15].

2. Materials and Methods

2.1 Selection of subjects

40 female subjects clinically diagnosed with non-specific chronic LBP for > 3 months [22] between the age group 25-50 years [22] and with weak pelvic floor muscle (MOS≤ 3) were included in this study. Subjects were divided into two equal groups -A and B with 20 each. Subjects with previous spinal or pelvic surgery, structural anomaly, severe cardiovascular or metabolic disease, diabetic neuropathies, pregnancy, underlying pathology of infections, tumors, osteoporosis, ankylosing spondylitis, spinal or any lower limb fractures, inflammatory process, radicular syndrome or caudal equine syndrome, congenital urological disease, UTI's, Neurogenic bladder, tumors of the bladder, women with prolapse and the ones with previous attendance at any structured PFM training programmes were excluded from this study.

2.2 Outcome Measures

1) Numerical Pain Rating Scale: (Validity - 0.95, Reliability - 0.96) [24]

This is 11- point scale used to assess pain. It ranges from 0 - 10 (where 0 - No pain, 5- moderate pain and 10- extreme / worst pain).

2) Oswestry Disability Low Back Pain Scale: (Reliability - 0.8777, Validity - 0.71) [24]

The Oswestry Disability Index (also known as the Oswestry Low Back Pain Disability Questionnaire) is an extremely important tool that researchers and disability evaluators use to measure a patient's permanent functional disability. The test is considered the ‘gold standard’ of low back functional outcome tools.

Scoring Instructions

For each section the total possible score is 5: if the first statement is marked the section score = 0; if the last statement is marked, it = 5. If all 10 sections are completed the score is calculated as follows:

Example: 16 (total scored)

50 (total possible score) x 100 = 32%

If one section is missed or not applicable the score is calculated:

16 (total scored)

45 (total possible score) x 100 = 35.5%

Minimum detectable change (90% confidence): 10% points (change of less than this may be attributable to error in the measurement).

Interpretation of Scores

0% to 20%: minimal disability: The patient can cope with most living activities. Usually no treatment is indicated apart from advice on lifting sitting and exercise.

21%-40%: moderate disability: The patient experiences more pain and difficulty with sitting, lifting and standing. Travel and social life are more difficult and they may be

disabled from work. Personal care, sexual activity and sleeping are not grossly affected and the patient can usually be managed by conservative means.
41%-60%: severe disability: Pain remains the main problem in this group but activities of daily living are affected. These patients require a detailed investigation.
61%-80%: crippled: Back pain impinges on all aspects of the patient's life. Positive intervention is required.
81%-100%: These patients are either bed-bound or exaggerating their symptoms [25].

2.3 Procedure
Prior to giving the first treatment session, assessment of the pelvic floor muscle strength was done.

- Assessment of the Pelvic Floor Muscle Strength:

The strength of the pelvic floor muscles was done manually using the Modified Oxford Scale (MOS) (Laycock and Jerwood, 2001). It is a 6- point scale described as: grade zero- no contraction, grade one- flicker of contraction, grade two- weak contraction, grade three- moderate contraction (with lift), grade four- good contraction (with lift), grade five- strong contraction (with lift). The participant was asked to lie on her back, with the lower body exposed and the legs abducted. The labium was separated and the gloved index finger was used to palpate the walls of the vagina. The participants were then asked to contract the pelvic floor muscles by squeezing on the finger and the pelvic floor strength was graded accordingly [15].
Group A: Rehabilitation of Tanzberger Exercises: Rehabilitation was done using the Tanzberger Exercises, given by German Physical Therapist, Renate Tanzberger. The participant was made to sit on a Swiss Ball (approx. 68-70cm in diameter), with the hip and the knee flexed to 90° and the feet properly placed on the ground. The participants were explained in detail about the PFM. The landmarks were explained by making them sit on a firm surface (chair) and by making them feel for the contraction and relaxation of the gluteal, anal and the vaginal muscles.

1. Exercise 1- Rolling the Ball Forward: The participant was asked to roll the ball forward towards the knee without lifting off the feet and keeping the lumbar spine erect. While rolling, contraction of the PFM was to be done and while returning, relaxation. (Figure 1)
2. Exercise 2-Back to Back Sitting: The participant and the therapist sat on the Swiss Ball back to back. The participant was asked to pull the ball towards the knees which do not move and this activity was restricted or slowed down by the therapist who tried to pull the ball in opposite direction. This brings about the isometric contraction of the pelvic floor muscles. (Figure 2) The participant was asked to contract the pelvic floor muscles (50 contractions for each exercise) while exhaling and relax while inhaling. Treatment was given for 4 weeks, 3 sessions per week. Each session continued for about 20-30 minutes depending upon the fatigue level of each individual subject with sufficient rest break in between each exercise. At the end of the last session, the pelvic floor muscle strength was assessed again.[15]

Fig 1

Fig 2

Along with Tanzberger exercises patients were also given conventional regimen for 4 weeks.

Conventional Exercises
Patients received treatment of Short-Wave Diathermy (continuous mode, coplanar method for 15 min) and lumbar strengthening exercises (prone leg elevation, chest elevation in prone and supine bridging) [22].
-Frequency - 3 days/ week
-Duration - 4 weeks
-Sets - 2/ exercise
-Repetitions - 10/exercise

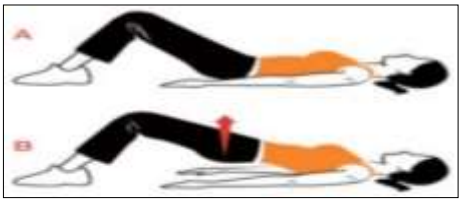


Fig 3

1. supine bridging exercise

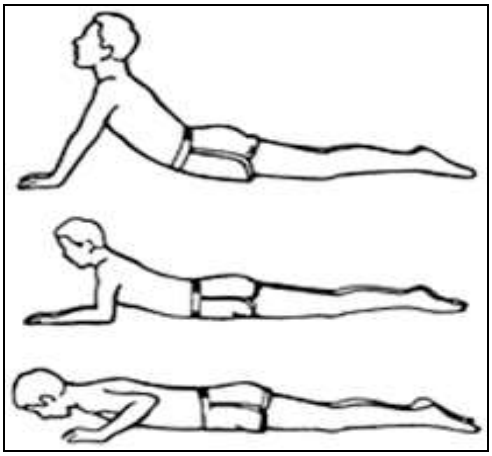


Fig 4

2. chest elevation exercises in prone lying

Fig 5

3. Prone Leg Elevation Exercise

Group B (Control Group)**:** Only conventional regimen exercises will be given.

3. Statistical Analysis

Statistical analysis was done for Group A and Group B using outcome measures Numerical Pain Rating Scale (NPRS) and Oswestry Disability Index (ODI) respectively. The data passed the normality test with p>0.05.

Pre and post data analysis for Numerical Pain Rating Scale (NPRS) for Group A was done by Wilcoxon rank test. Non-parametric test.

Pre and post data analysis for ODI for Group A was done by paired t test. Parametric type.

Pre and post data analysis for Numerical Pain Rating Scale (NPRS) for Group B was done by Wilcoxon rank test. Non-parametric test.

Pre and post data analysis for ODI for Group B was done by paired t test. Parametric type.

Group A and Group B Intergroup data analysis for NPRS, the Mann -Whitney U test, non- parametric type and intergroup analysis for ODI was done using unpaired t test.

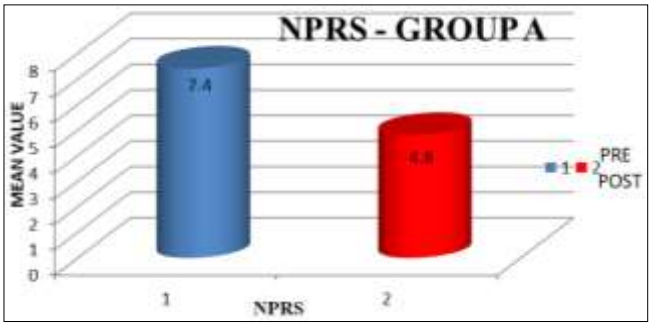
4.Findings

4.1 Intragroup Analysis

1.Intragroup NPRS: Group a (Tanzberger Exercises along with Conventional Regimen)

Table 1: Pain Assessment (NPRS) of Group A comparing pre and post treatment.

NPRS (Group A)	PRE	POST
Mean ± Standard Deviation (SD)	7.40± 1.142	4.40± 1.056
P- value	< 0.0001	
Result	considered extremely significant	



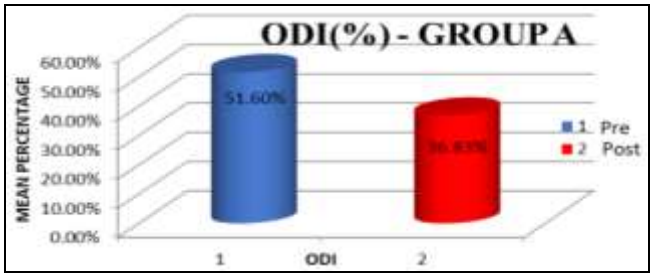
Graph 1: Pain Assessment (NPRS) of Group A comparing pre and post treatment.

2. Intragroup ODI: Group a (Tanzberger Exercises along with Conventional Regimen)

Table 2: Functional Disability Assessment [Oswestry Disability Index (ODI)] of Group A comparing pre and post treatment in percentage (%)

ODI (Group A)	PRE	POST
Mean± SD	51.600%± 8.416%	36.830%± 8.274%
P- value	< 0.0001	
Result	considered extremely significant	
t- value	10.342	

Degrees of freedom= 19

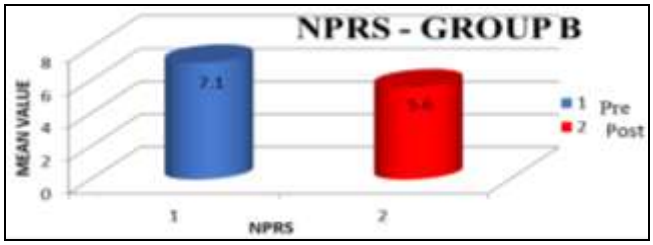


Graph 2: Functional Disability Assessment [Oswestry Disability Index (ODI)] of Group A comparing pre and post treatment in percentage (%).

3. Intragroup Nprs: Group b (ONLY Conventional Regimen)

Table 3: Pain Assessment (NPRS) of Group B comparing pre and post treatment.

NPRS (Group B)	Pre	Post
Mean± SD	7.100± 1.165	5.600± 1.188
P- value	< 0.0001	
Result	considered extremely significant	



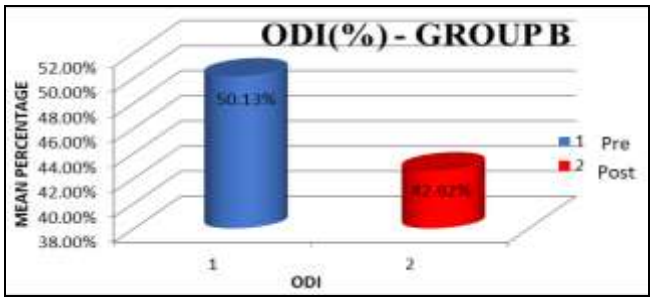
Graph 3: Pain Assessment (NPRS) of Group B comparing pre and post treatment.

4. Intragroup ODI- Group B (Only Conventional Regimen)

Table 4: Functional Disability Assessment [Oswestry Disability Index (ODI)] of Group B comparing pre and post treatment in percentage (%).

ODI (Group B)	Pre	Post
Mean± SD	50.125% ± 6.869%	42.620% ± 8.037%
P- value	< 0.0001	
Result	considered extremely significant	
t- value	8.198	

Degrees of freedom = 19



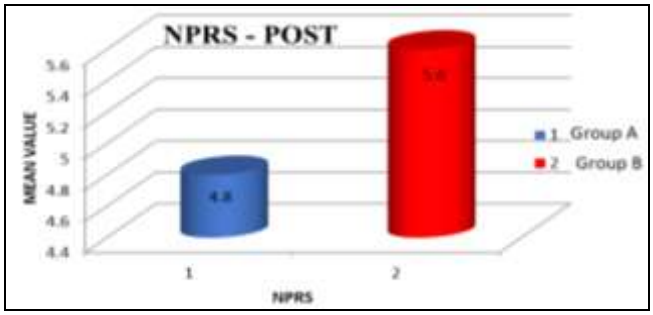
Graph 4: Functional Disability Assessment [Oswestry Disability Index (ODI)] of Group B comparing pre and post treatment in percentage (%).

4.2 Intergroup Analysis

5. Intergroup Analysis for NPRS (Group A and Group B)

Table 5: Pain Assessment (NPRS) comparing post treatments of Group A and B.

NPRS	Group A	Group B
Mean± SD	4.800± 1.056	5.600± 1.188
P- value	0.0363	
Result	considered significant	



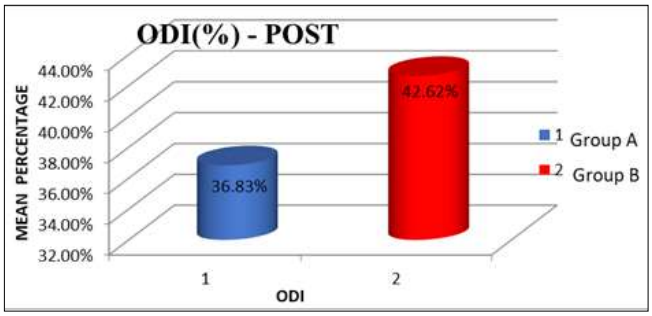
Graph 5: Pain Assessment (NPRS) comparing post treatments of Group A and B.

6. Intergroup Analysis for ODI (Group A and Group B)

Table 6: Functional Disability Assessment (ODI) comparing post treatments of both the groups-Group A and B (%).

ODI	Group A	Group B
Mean± SD	36.830% ± 8.274%	42.620% ± 8.037%
P- value	0.0308	
Result	considered significant	
t- value	2.245	

Degrees of freedom= 37
By Welch Correction.



Graph 6: Functional Disability Assessment (ODI) comparing post treatments of both the groups-Group A and B (%).

5. Result

Age

- Mean values for age for Group A were 36 ± 8.790 and Group B were 35.75 ± 7.840.

NPRS Score

- Mean values for NPRS scale were 4.8 ± 1.056 and 5.6 ± 1.188 for Group A and B respectively. p <0.0001
- Mann Whitney U test was used to compare effectiveness in both the groups.
- The p value was 0.0363 which was considered significant.

ODI Score (%)

- Mean values for ODI scale were 36.83% ± 8.274% and 42.62% ± 8.037% for Group A and B respectively. p <0.0001
- Unpaired t-test, parametric type with assumption of different SD's was used to compare the effectiveness in both the groups.
- The 't' value obtained was 2.245 with 37 degrees of freedom and p value was 0.0308 which is considered significant.

6. Discussion

Low back pain is defined as pain located between twelveth rib and the inferior glutei folds, with or without leg pain and about 90% of cases are non-specific [1]. Low back pain (LBP) is a common disorder involving the muscles, nerves and bones of the back [3]. If LBP persists for at least 3 months (>12 weeks) it is termed as chronic low back pain [5]. Low back pain is one of the most common conditions affecting all population, worldwide. It is ranked first as cause of disability and inability [6]. Dysfunction of spinal stability seems to be one of the causes of LBP. It is thought that a large number of muscles have a role in spinal stability

including pelvic floor muscles (PFM) [10]. As a result of various etiological factors weak pelvic floor muscle strength may be one of the causes of chronic LBP [12]. The present study was to check the effectiveness of Tanzberger Exercises by using Numerical Pain Rating Scale (NPRS) for assessment of pain and Oswestry Disability Index (ODI) for assessing functional disability in patients with chronic low back pain in females. In the present study we have used Tanzberger exercises which is also a form of pelvic floor muscle exercises. This study included 40 subjects in the age group 25-50 years, the mean age being 36 ± 8.790 for Group A and 35.75 ±7.840 for Group B. Pre and post analysis was done for both the groups. The subjects were divided into two groups by simple random sampling by chit method. The treatment duration was 4 weeks with treatment given 3days/week. Conventional regimen comprised of treatment of Short-Wave Diathermy (continuous mode, coplanar method for 15 min) and lumbar strengthening exercises (prone leg elevation, chest elevation in prone and supine bridging) [22]. for both the groups. The outcomes were measured in the form of the NPRS scores and functional disability scale -ODI pre and post treatment.

Group A received Tanzberger Exercises along with the conventional regimen for 4 weeks. When pre and post analysis was done within the Group A it showed that the technique was effective in pain relief and reduction of disability levels. The data analysis by paired t testing showed significant statistical difference in both the outcome measures. Gaurav Bhatnagar *et al*. in their study stated that, the pelvic floor muscles play an important role in the dynamic stability of the musculoskeletal structure, affecting the spine and lower back and in load management through the sacroiliac joints to the coxal bones and distal to the legs, minimizing musculoskeletal strain [22] which reduces the pain. The Pelvic Floor Muscles (PFM) make up a large part of the body's core, which is the foundation for all movements, balance, stability and flexibility. The pelvic floor muscle exercise was designed to co-activate superficial and deep core muscles. PFM have an important role in proper muscular activation and lumbar stabilization [22]. According to Pel JJM *et al*. in pelvis, PFM may help the coxal bones to support the sacrum by compression forces, while shear forces between sacrum and coxal bones are minimized [11]. PFM contribute to the stabilization with respect to the sacrum [11]. The PFM oppose lateral movement of the coxal bones, which stabilizes the position of the sacrum between the coxal bones (the pelvic arc). Their result suggests that training of M. tranversus abdominis and the PFM could help to relieve SI joint related pelvic pain [11]. Self bracing in reducing shear forces resulted from the tranversus muscle ventrally and caudally by PFM to SI joint [11]. Heena A. Bhatt *et al*. in their study stated that in Tanzberger exercises strengthening is done for the fibres running in all direction whereas, Kegels exercises help in strengthening of the muscle fibres running in only one plane [15]. Tanzberger Exercises incorporate the use of Swiss ball for the retraining of the weak pelvic floor musculature. Exercises are functional because they activate the pelvic diaphragm, the abdominal and back muscles which results in the restoration of the PFM strength and with each movement the sensory awareness of the pelvic floor is also improved [15]. Tanzberger Exercises were found to be more functionally additional. Strengthening of core muscles was also achieved as the pelvic movements were performed on the ball and activating the core muscles as well [15]. Reduction in pain and improvement of strength of surrounding muscles including pelvic floor muscles might have helped in enhancing function and in reducing the functional disability.

Within the Group B (Only conventional regimen group), pre and post analysis within the group done by paired t test also showed significant statistical difference post the intervention in reducing pain and disability levels. Byoung-Hwan Oh *et al*. in their study stated that lumbar stabilization exercises leads to reduction of stress, as much as possible when mechanically applied to human spinal structure while performing the functions of daily life and professional activities [26]. In addition to helping to maintain appropriate neuromuscular control and co-ordination, these exercises are capable of expanding the shorter parts of muscles by developing and strengthening the spine standing muscles that are involved in the stabilization of abdominal and lumbar muscles [26]. Due to reduction of pain and forces the disability might have reduced.

The intergroup analysis was done using unpaired t test showed that while both the techniques were individually effective in reducing pain and disability levels, the Tanzberger Exercises along with conventional regimen (Group A) was more effective when compared to only conventional regimen (Group B). Group A (Tanzberger exercises along with conventional regimen) was more effective than Group B (only conventional regimen) as it included pelvic floor muscle exercises along with the lumbar strengthening exercises which plays an important role in lumbar stabilization and also maintained the position of sacrum and minimized the forces acting as overload upon it and also helped in caudal self-bracing as opposed to only ventral strengthening in the conventional regimen thus reducing pain and disability.

The result of this study according to the statistical analysis showed that after 4 weeks Group A patients who were given Tanzberger exercises along with the conventional regimen showed considerable significant statistical difference in improvements of pain relief levels on NPRS and reduction of disability on ODI scale in the post treatment measures when compared to Group B patients who were given only conventional regimen.

7. Conclusion

This study showed that Tanzberger Exercises in combination with conventional treatment provided significant benefits in terms of pain relief and disability over routine treatment alone. Tanzberger Exercises along with conventional regimen had an additive effect in pain relief levels and reduction of disability in patients with chronic low back pain.

8. Limitations

- Sample size was small.
- Only the subjects who were diagnosed with chronic low back pain were included in the study.
- Long term follow- up of patients was not done.
- Subjective method was used to assess pelvic floor strength.

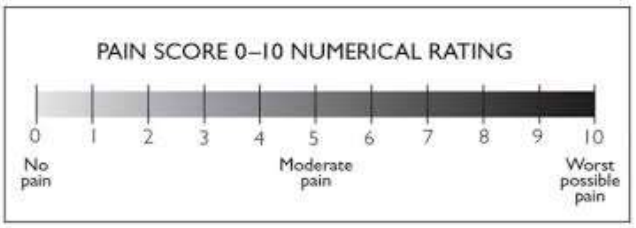
The study population included patients with chronic nonspecific low back pain, it is not possible to generalize these findings to those with low back pain of specific cause.

9. Future Scope of Study

- Further studies with larger sample size can be conducted.
- Long term effects of the intervention should be checked by timely follow up of the patients.
- Better objective methods that are available can be used to assess pelvic floor strength.

Further comparative studies between Tanzberger and Kegel's Exercises on chronic low back pain can be carried out.

10. Annexures



Numerical Pain Rating Scale

oswestry low back pain questionnaire

name ..... address ..... date .....
date of birth ..... age..... .....
occupation ....
how long have you had back pain? ..... years ..... months ..... weeks
how long have you had leg pain? ..... years ..... months ..... weeks

please read:

this questionnaire has been designed to give the doctor information as to how your back pain has affected your ability to manage in everyday life – please answer every section, & mark in each one only the *one box* which applies to you. we realise you may consider that 2 statements in any 1 section relate to you, but please *just mark the box which most closely describes your problem*

section 1 - pain intensity
- ❑ I can tolerate the pain I have without having to use pain killers
- ❑ the pain is bad but I manage without taking pain killers
- ❑ pain killers give complete relief from pain
- ❑ pain killers give moderate relief from pain
- ❑ pain killers give very little relief from pain
- ❑ pain killers have no effect on the pain and I do not use them

section 2 - personal care (washing, dressing, etc)
- ❑ I can look after myself normally without causing extra pain
- ❑ I can look after myself normally but it causes extra pain
- ❑ it is painful to look after myself and I am slow and careful
- ❑ I need some help but manage most of my personal care
- ❑ I need help every day in most aspects of self care
- ❑ I do not get dressed, wash with difficulty and stay in bed

section 3 - lifting
- ❑ I can lift heavy weights without extra pain
- ❑ I can lift heavy weights but it gives extra pain
- ❑ pain prevents me from lifting heavy weights off the floor, but I can manage if they are conveniently positioned, eg on a table
- ❑ pain prevents me from lifting heavy weights but I can manage light to medium weights if they are conveniently positioned
- ❑ I can lift only very light weights
- ❑ I cannot lift or carry anything at all

section 4 - walking
- ❑ pain does not prevent me walking any distance
- ❑ pain prevents me walking more than 1 mile
- ❑ pain prevents me walking more than 1/2 mile
- ❑ pain prevents me walking more than 1/4 mile
- ❑ I can only walk using a stick or crutches
- ❑ I am in bed most of the time and have to crawl to the toilet

section 5 - sitting
- ❑ I can sit in any chair as long as i like
- ❑ I can only sit in my favourite chair as long as i like
- ❑ pain prevents me from sitting more than 1 hour
- ❑ pain prevents me from sitting more than 1/2 hour
- ❑ pain prevents me from sitting more than 10 minutes
- ❑ pain prevents me from sitting at all

comments

section 6 - standing
- ❑ I can stand as long as I want without extra pain
- ❑ I can stand as long as I want but it gives me extra pain
- ❑ pain prevents me from standing for more than 1 hour
- ❑ pain prevents me from standing for more than 1/2 hour
- ❑ pain prevents me from standing for more than 10 minutes
- ❑ pain prevents me from standing at all

section 7 - sleeping
- ❑ pain does not prevent me from sleeping well
- ❑ I can sleep well only by using tablets
- ❑ even when I take tablets I have less than six hours sleep
- ❑ even when I take tablets I have less than four hours sleep
- ❑ even when I take tablets I have less than two hours sleep
- ❑ pain prevents me from sleeping at all

section 8 - sex life
- ❑ my sex life is normal and causes no extra pain
- ❑ my sex life is normal but causes some extra pain
- ❑ my sex life is nearly normal but is very painful
- ❑ my sex life is severely restricted by pain
- ❑ my sex life is nearly absent because of pain
- ❑ pain prevents any sex life at all

section 9 - social life
- ❑ my social life is normal and gives me no extra pain
- ❑ my social life is normal but increases the degree of pain
- ❑ pain has no significant effect on my social life apart from limiting my more energetic interests, eg dancing etc
- ❑ pain has restricted social life and I do not go out as often
- ❑ pain has restricted my social life to my home
- ❑ I have no social life because of pain

section 10 - travelling
- ❑ I can travel anywhere without extra pain
- ❑ I can travel anywhere but it gives me extra pain
- ❑ pain is bad but I manage journeys over two hours
- ❑ pain restricts me to journeys of less than one hour
- ❑ pain restricts me to short necessary journeys of less than 1/2 hour
- ❑ pain prevents me from travelling except to the doctor or hospital

from: Fairbank J C T, Couper J, Davies J B & O'Brien J P Physiotherapy 1980; 66: 271-73

Oswestry Disability Index

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