



ISSN (P): 2521-3466
ISSN (E): 2521-3474
© Clinical Orthopaedics
www.orthoresearchjournal.com
2021; 5(3): 38-45
Received: 08-05-2021
Accepted: 29-06-2021

Dr. Buddaraju Lalitha
Assistant Professor, ANH, Anil
Neerukonda College of
Physiotherapy Sangivalasa,
Visakhapatnam, Andhra
Pradesh, India

Dr. Mona M Salih
Lecturer, College of Medical
Technology, Tobrok, University of
Tobrok, Libya, North Africa

Dr. Siddaram Patil N
Director and Co-Ordinator, Anil
Neerukonda College of
Physiotherapy, Sangivalasa,
Visakhapatnam, Andhra
Pradesh, India

Dr. Rajini Cartor Medidi
Principal, VAPMS College of
Physiotherapy, Visakhapatnam,
Andhra Pradesh, India

Corresponding Author:
Dr. Buddaraju Lalitha
Assistant Professor, ANH, Anil
Neerukonda College of
Physiotherapy, Sangivalasa,
Visakhapatnam, Andhra
Pradesh, India

Effect of core stabilization exercises versus general back exercises in reducing chronic low back pain

Dr. Buddaraju Lalitha, Dr. Mona M Salih, Dr. Siddaram Patil N and Dr. Rajini Cartor Medidi

DOI: <https://doi.org/10.33545/orthor.2021.v5.i3a.290>

Abstract

Aim: Chronic low back pain is the most expensive benign condition in industrialized countries and the most common cause of activity. It is defined as pain that persists longer than 12 weeks and is often attributed to degenerative or traumatic conditions of the spine. Fibrositis, inflammatory spondyloarthropathy and metabolic bone conditions are also cited as causes. Although acute low back pain has a favorable prognosis, the effect of chronic low back pain and its related disability on society is tremendous.

Unlike acute low back pain, chronic low back pain serves no biologic purpose. However, it is a disorder that evolves in a complex milieu influenced by endogenous and exogenous factors, and it alters the individual's productivity to an extent beyond what the initiating pathologic dysfunction would have.

The purpose of this study is to determine the relative efficacy of core stabilization exercises compared to general low back exercises in reducing chronic low back pain.

Objectives

1. To study the effect of core stabilization exercises in relieving the pain in chronic low back pain patients.
2. To study the effect of general back exercises in relieving the pain in chronic low back pain patients.
3. To compare the effect of core stabilization exercise versus general back exercises chronic in relieving the pain in chronic low back pain patients.

Study method: This a short term study, where thirty chronic low back pain patients with pre-defined selection criteria were selected and assigned into equal experimental groups as group A (core stabilization exercises) and group B (general back exercise). The pre and post test outcomes of pain intensity are marked on the VAS. Then statistical comparison is drawn between the experimental groups mean values by using unpaired_t' test.

Results: The study results show that the pain intensity mean values have decreased to significant extent after the treatment period. The mean pretest values of both core stabilization exercises and general back exercise groups before the treatment are 5.5 and 5.2 respectively which have been decreased to 1 and 1.7 after the treatment.

Conclusion: Both the treatment procedures have shown an effective outcome, but core stabilization exercises have proven to be more effective than the general back exercise statistically.

Keywords: Stabilization, exercises, general, chronic, function

Introduction

The lower back has the unfortunate function of being responsible for supporting most of the body's weight, therefore making it particularly vulnerable to damage and strain. Low back pain can be broadly categorized into 5 clusters, including: (1) uncomplicated low back pain (nonradiating with no structural damage or defect), uncomplicated sciatica (radiating back pain that does not extend below the knee), (3) major neurologic dysfunction (loss of motor function or continence), (4) major mechanical problem (spinal fracture or instability), and (5) infection or neoplasm^[3, 5].

Low back pain effects at least 80% of us some time in our lives, perhaps 20- 30% of us at any given time. It is usually recurrent, and subsequent episodes tend to increase in severity. It is common in individuals who lead sedentary lives and in those who engaged in manual labor.

It can occur at any age but is most prevalent during the third to sixth decades of life [6].

The cause of chronic low back pain in individual is often elusive and it is well known that in these patients the pathology and objective signs correlate very poorly with subjective physical capacities and pain behaviour (Bendixet al 1997). It has also been shown that chronic low back patients experience substantial general mobility [7].

Low Back Pain has been and is currently treated with almost every modality known to man including prolonged bed rest, narcotics, surgery, heat, cold, exercise, immobilization, flexion, extension, traction, massage, manipulation, mobilization, muscle relaxants, etc., etc. low back pain is a self-limiting disease which means that in time most patients recover regardless of treatment; 80-90% of patients with acute low back pain recover in about six weeks, and nearly 60% of low back pain patients return to work within one week. Chronic low back pain is a common problem that causes discomfort and disability. Treatment goals include decreasing pain and helping patients resume their normal activities. Treatment options include exercise therapy, patient education, and pain-relieving drugs (such as nonsteroidal anti-inflammatory drugs). There are many forms of exercise therapies, and we do not know which particular types best improve results. Stretching and strengthening were the most effective exercises for improving pain and function, respectively. Exercise performed over longer periods of time seemed more effective than exercise involving less than 20 hours of total time. Also, supervised programs that were individually tailored seemed most effective [1].

The pathophysiology of chronic low back pain remains complex and multifaceted. Multiple anatomic structures and elements of the lumbar spine (eg. bones, ligaments, tendons, disks, muscle) are all suspected to have a role. Many of these components of the lumbar spine have sensory innervation that can generate nociceptive signals responses representing to tissue-damaging stimuli. Other causes could be neuropathic (eg, sciatica). Most chronic low back pain cases most likely involve mixed nociceptive and neuropathic etiologies. Biomechanically, the movements of the lumbar spine consist of the cumulative motions of the vertebrae, with 80-90% of the lumbar flexion/extension occurring at the L4 - L5 and L5 - S1 intervertebral disks. The spine position is most at risk for producing low back pain in forward flexion (lumbar bent forward), rotation (trunk twisted), and attempting to lift a heavy object without stretched hands. Axial loading of short duration is resisted by annular collagen fibers in the disk. Axial loading of a longer duration creates pressure to the annulus fibrosus and increased pressure to the endplates. If the annulus and endplate are intact, the loading forces can be adequately resisted. However, compressive muscular forces may combine with the loading forces to increase intradiskal pressure that exceeds the strength of the annular fibers [8].

Repetitive, compressive loading of the disks in flexion (eg, lifting) puts the disks at risk for an annular tear and internal disk disruption. Likewise, torsional forces on the disks can produce shear forces that may induce annular tears. The contents of the annulus fibrosus (nucleus pulposus) may leak through these tears. Central fibers of the disk are pain free, so early tears may not be painful. Samples of disk material taken at the time of autopsy reveal that the cross-linked profile of pentosidine, a component of the collagen matrix, declines. This may indicate the presence of increased matrix turnover and tissue remodeling [8].

Exercise is considered to be an essential component in the

multidisciplinary programs that have been shown to be beneficial in the treatment of chronic low back pain [4].

Positive results have been documented with the use of different types of exercises which are utilized by physical therapists suggesting there is little evidence that any particular type of exercise is better than the another.

As new training methods are emerging, a better understanding of the effects of such techniques on patients status is currently an important area of research [4]. Elastic equilibrium is a position where passive tissues on either sides of joint balance to zero movement exerting minimal joint load, this is the posture of lumbar spine with least elastic stretch. The stabilizing system of spine consists of 3 sub groups [9]. passive - ligaments vertebral bodies, zygapophysial joint. active - muscles of spine neural control.

The function of these three subsystems are interrelated reduced function of one subsystem may place increased demands on other subsystem to maintain stability. Paracetamol and non-steroidal anti-inflammatory drugs (NSAIDs) may be of short-term benefit, but no published data vindicate their long-term use for chronic low back pain [10-12]. Opioids are more effective than naproxen or placebo for relieving chronic low back pain. Antidepressants are slightly more effective than placebo for relief of chronic low back pain, but have not been tested for longer than 8 weeks. They provide only partial relief, and their utility is limited by side effects. Some muscle relaxants (eg, cyclobenzaprine) are effective for short-term relief, but are not available in Australia [16]. Orthoses, transcutaneous electrical nerve stimulation (TENS), and electromyographic biofeedback show no evidence of efficacy [10, 12]. Traction, acupuncture, magnet therapy, injections into trigger points, and hydrotherapy are no more effective than sham treatment, placebo, or being put on a waiting list [10, 12, 23, 24]. Manipulative therapy was found in the latest meta-analysis to be slightly more effective than sham therapy but not more effective than other forms of care, including care by a general practitioner, physiotherapy or exercises, "back school", or therapies known to be ineffective [10].

Massage is a relative newcomer as a scientifically tested treatment for chronic low back pain. Three controlled trials show that it is more effective than sham therapy. Self-care educational materials,

acupuncture, muscle relaxation and remedial exercises. Behavioural therapy is better than no therapy and better than placebo, but it is not better than exercise therapy, and provides no additional benefit when added to other interventions [10, 27].

Although some systematic reviews have concluded that back school is effective, this has been in the context of multidisciplinary treatment [10, 12].

Exercise therapy is more effective than usual care by a GP, 32 and better than back school; but the evidence is conflicting on whether exercise is more effective than an inactive, sham treatment. There is strong evidence that strengthening exercises are not more effective than other types of 18 exercises preferential retraining of the stabilizing muscles with their initial low level isometric activation and their progressive integration into functional tasks is proposed as an essential component of 4 back muscle rehabilitation [4].

It can be concluded that stabilization training for all patients with chronic low back pain have been useful in reducing pain dysfunction has appeared in the literature but their assertions have not been definitively demonstrated. Therefore this study is aimed to see if there is a real time effect of the stabilization

exercise for mechanical low back pain over the general back exercises program.

Aims / Objectives of Study

Aim: The purpose of this study is to determine the relative effect of core stabilization exercises compared to general back exercises in patients with chronic low back pain.

Objective: To reduce chronic low back pain by using core stabilization exercises alone, To reduce chronic low back pain by using general back exercises alone

Hypothesis

Null hypothesis (ho)

1. There is no significant effect for core stabilization exercises in reducing chronic low back pain.
2. There is no significant effect for general back exercises in reducing chronic low back pain.
3. There is no significant comparative effect between core stabilization exercises and general back exercises in reducing chronic low back pain.

Alternate hypothesis(ha)

1. There is significant effect for core stabilization exercises in reducing chronic low back pain.
2. There is significant effect for general back exercises in reducing chronic low back pain.
3. There is significant comparative effect between core stabilization exercises and general back exercises in reducing chronic low back pain.

Methodology

1. Study Design

It is an experimental design, a randomized control trial was performed with patients who were randomly assigned to A or B groups.

Group --A received trunk stabilization exercise program
Group B received general low back exercise (flexion & extension exercise).

The patients were not aware of the theoretical basics of each of the exercise regimes but they were briefed the study objective in the following way.

2. To identify with the performing of the exercise regime for the trunk muscles could make any difference in their pain levels.
3. **Subjects:** All the patients to the physical department were referred from orthopedic outpatient after proper detailed assessment by an orthopaedician.

Patients participated in this study after obtaining an informed consent. The rights of human subjects were protected at all time during the study.

Inclusive Criteria

1. Patients having a history of recurrent low back pain (repeated episodes of pain for the past year collectively lasting for less than 6 months)
2. Pain should be non specific in nature
3. Patients complaining of low back pain without identifiable specific anatomical or neuro physiological causative factors to establish this all patients who included in this trial underwent a proper detail assessment by an orthopaedician Defined as back pain complaints occurring without identifiable specific anatomical or neuro physiological causative factor. (to establish this, all patients included in

the trial had a prior clinical examination by orthopaedician, including a radiograph or an MRI scan)

4. Patients presenting with Posterior shear test (+ ve)
5. Prone instability test (+ ve) (Tests for lumbar instability).
6. The patients who are willing to participate in the exercise program and willing to travel independently to the hospital from the home.

Excluding Criteria

Patients with previous spinal surgery (Red Flags)

1. Serious spinal pathology or nerve root pain signs (as outlined in clinical standards advisory group report for back pain).
 2. Signs and symptoms of gross instability that would occur with presence of spondylitis or spondylolisthesis corresponding to a spinal level.
 3. Patients with following disorders were excluded Heart problems. Pregnancy Inflammation Renal problem Abdominal problem Piriformis syndrome. NSAID treatment.
- Patients who complain of catching, locking, giving away during the active movements of the lumbar spine.
All the subjects were employed at the time of study and were not involved in current litigation procedures.

Parameters

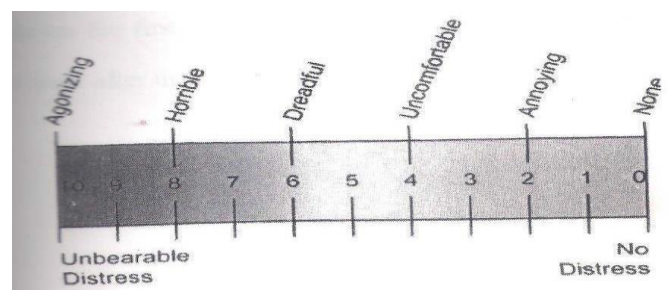
Pain can be recorded on Visual Analogue Scale (VAS) proposed by Melzack and wall. The visual analog scale is a straight line with the left end of the line representing no pain and the right end of the line representing the worst pain. Patients are asked to mark on the line (which is measured from 0 to 10), where they think pain is.

Visual Analog Scale:

0 5 10

No Pain	Directions: Ask the patient indicate on the line where the pain is in relation to the two extremes. Qualification is early approximate, for example a midpoint would indicate that the pain is approximately half of the worst possible pain.	Worst Pain
----------------	--	-------------------

‘0’ represents no pain, ‘5’ represents moderate pain, ‘10’ represents severe pain



Base Line for two groups:- Anthropometry:

Age (years)	-	30-40 years.
Height (cm)	-	165-175cm
Body masses (Kg)	-	55-75kg.
BM(Kg/m)	-	20-25.

History of low back pain

Time since I onset - 6months – 1 year Current duration- Above 3 weeks

Study Procedure

All 30 subjects are divided into 2 groups as Group A and Group B with subjects for core stabilization exercises and remaining for the general back exercises, both the groups are assessed for their pain intensity th by using the visual analogue scale on the first day before the treatment commences and on the 4th week and 8th week after the completion of the treatment.

Intervention Stabilization Group

The first session was performed on an individual bases for subjects assigned to this group and lasted 30-45 minute. Briefly low load activating of local stabilizing muscles was administered with no movements and minimally loading positions. (4 point)

1. Kneeling Supine lying Sitting Standing
2. Progressively the holding time and the number of contractions were increased in these positions up to 10 contractions x 10 sec duration each (1st & 2nd week).

The clinical measure used to ensure correct activation of the transverse abdominis muscle was to observe a slight drawing in maneuvers of the lower part of the anterior abdominal wall below the umbilical level consistent with the action of this muscle. In addition a building action of the multifidus should have been felt under the clinical physical therapist fingers when they were placed on either side of the spinous process of L4 and L5 vertebral levels directly over the belly of the muscles.

Various verbal commands and auditory clues were given to the patient to enhance the contractions and to get maximum corrective position and outcomes. Awareness of incorrect muscle activation was monitored throughout the exercise protocol. Too much effort of initial contraction of muscles were discouraged and taught to the patient.

Integration with dynamic function through incorporation of the stabilizing muscle co-contraction into light function tasks was advised as soon as. The specific pattern of co-activation was achieved in the minimally loading position. The subjects could comfortable performed 10 contraction repetition x 10 sec duration each (week 3-5). Heavier load functional tasks with exercises similar to their performed by the subjects.

General Exercise Group

Exercise activating the extension (Para spinal) and flexion (abdominis) muscle groups were administrated because muscle contraction occurring with these exercise imposes extra loading on the spinal tissue. The general exercises were selected on the basis of maximizing the contraction benefit. Spinal loading rotation according to recommendation provided from recent

experimental studies.

The same frequency programme duration 8 week and class duration (45-60 minutes) 4 days for each week for both groups. Based on the literature we set the total exercise time for general exercise 99min 10sec. This approach was followed to attempt to balance the groups with repeat to the amount of estimated total force output of the trunk muscle targeted by the exercises.

Statistical Analysis

In this study, statistics are used to compare Group A and Group B with Unpaired t test. And the improvement within the groups is analyzed using paired t test.

Statistical Tests

1. Paired, t test :

$$S = \sqrt{\frac{\sum d^2 - (\sum \bar{d})^2 \times n}{(n-1)}} \quad t = \frac{\bar{d}\sqrt{n}}{s}$$

2. Unpaired ' t ' test:

$$t = \frac{\bar{d}_1 - \bar{d}_2}{s} \sqrt{\frac{n_1 \times n_2}{n_1 + n_2}} \quad S = \sqrt{\frac{\sum (\bar{d}_1 - \bar{d}_1)^2 + \sum (\bar{d}_2 - \bar{d}_2)^2}{n_1 + n_2 - 2}}$$

Results

Out of 86 referrals to the trail 57 subjects fulfilled the set criteria for inclusion. From 54 randomly assigned subjects a dropped out of the program from stabilization group from general exercise group. Most of them due to time constrains and to form general exercise and from stabilization group dropped due to increased pain during exercise program. Data collected for most of the variables followed a normal distribution.

The pre & post test values of VAS for 4 weeks & 8 weeks within control group as well as in experimental group by using paired t test. They showed that there is fulfilled improvement in post t test VAS when compared to pre test VAS in both the groups. There is an more significant improvement for the first 4 weeks when compared to 8 weeks treatment in both groups. Again there is significant of results were calculated between post test values of control & experimental groups for 4 & 8 weeks in both period of 4 & 8 weeks trough chi - square test to know the significant between groups.

In both 4 & 8 weeks, the experimental group had shown greater significance than the control group. The results showed there is a significance after forth and eighth week values more in experimental group when compared to control group

Table 1: Master chart vas – for stabilization group for 4 weeks and 8 weeks after treatment

Sl.No.	Age	Sex	Pre test Values	Post test Vaues	
				After 4 Weeks	After 8 Weeks
1	37	M	7	4	1
2	33	F	8	3	0
3	34	M	8	6	2
4	33	F	7	4	2
5	39	M	6	4	1
6	33	M	6	3	0
7	33	M	7	4	1
8	37	F	7	4	2
9	36	M	6	3	2
10	36	M	6	3	2
11	34	M	7	3	1
12	37	M	7	3	1

13	33	F	6	3	0
14	37	M	6	4	1
15	33	F	6	4	2

Table 2: Master chart was – general back exercise group for 4 weeks and 8 weeks after treatment

Sl.No.	Age	Sex	Pre test Values	Post test Values	
				After 4 Weeks	After 8 Weeks
1	33	F	8	5	3
2	33	M	7	4	3
3	36	M	7	4	2
4	37	F	6	4	3
5	37	M	6	4	2
6	36	M	5	3	2
7	35	M	6	4	1
8	34	F	5	4	2
9	34	M	6	4	2
10	37	M	6	4	2
11	37	F	6	4	1
12	36	M	5	3	2
13	36	M	6	3	1
14	35	M	6	4	3
15	35	M	5	3	2

Table 3: Comparison of V.A.S. In Stabilization Group after 4 Weeks (Pre and Post Values)

Variable	Mean	SD	SE	T	Level of Significance
Pre-Test	5.5	0.785	0.1906	130.11	0.05
Post Test 4 weeks	3.0				

Table 4: Comparison of V.A.S. In Stabilization Group after 8 Weeks (Pre and Post Values)

Variable	Mean	SD	SE	T	Level of Significance
Pre-Test	5.5	1.5046	0.3647	4.13	0.05
Post Test 8 weeks	1				

Table 5: Comparison of V.A.S. In General Back Exercise Group after 4 Weeks (Pre and Post Values)

Variable	Mean	SD	SE	T	Level of Significance
Pre Test	5.2	0.659	0.1647	11.53	0.05
Post Test 4 weeks	3.3				

Table 6: Comparison of V.A.S. In General Back Exercise Group after 8 Weeks (Pre and Post Values)

Variable	Mean	SD	SE	T	Level of Significance
Pre-Test	5.2	1.126	0.2815	12.4	0.05
Post Test 8 weeks	3.7				

Table 7: Association of significance difference between stabilization exercise and general back exercise after 4 A weeks

Variables		Pre Test		Post Test
Stabilization Group	5.5	A	3.0	B
General Group	5.2	C	2.9	D

$$N = A+B+C+D$$

$$X^2 = N (ad - bc - N/2)^2$$

$$X = N (ad - bc - N/2) (a+b) (c+d) (a+c) (b+d) = 13.31$$

Table 8: Association of significance difference between stabilization exercise and general back exercise after 8 weeks

Variables	Pre Test			Post Test
Stabilization Group	5.5	A	1	B
General Group	5.2	C	1.7	D

$$N = A+B+C+D$$

$$X^2 = N (ad - bc - N/2)^2 (a+b) (c+d) (a+c) (b+d) = 0.067$$

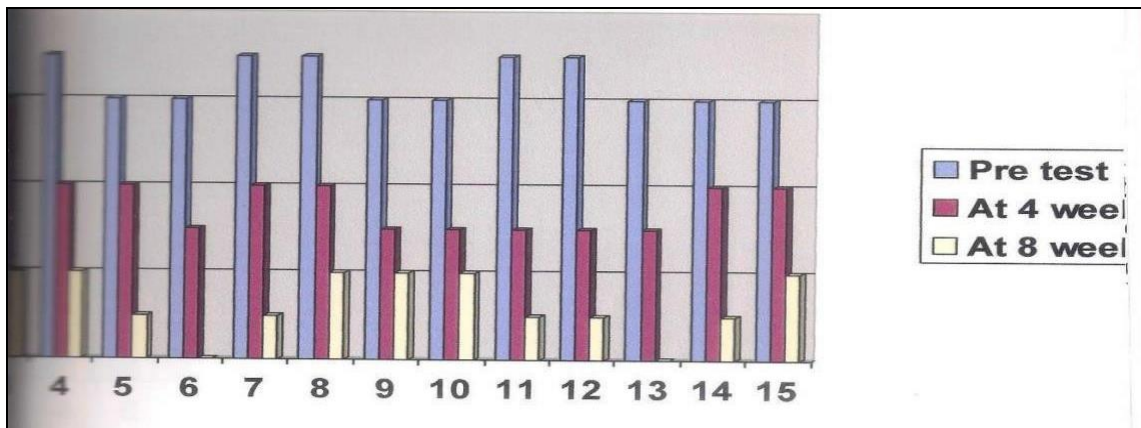


Fig 1: Difference in visual analog scale for stabilization group

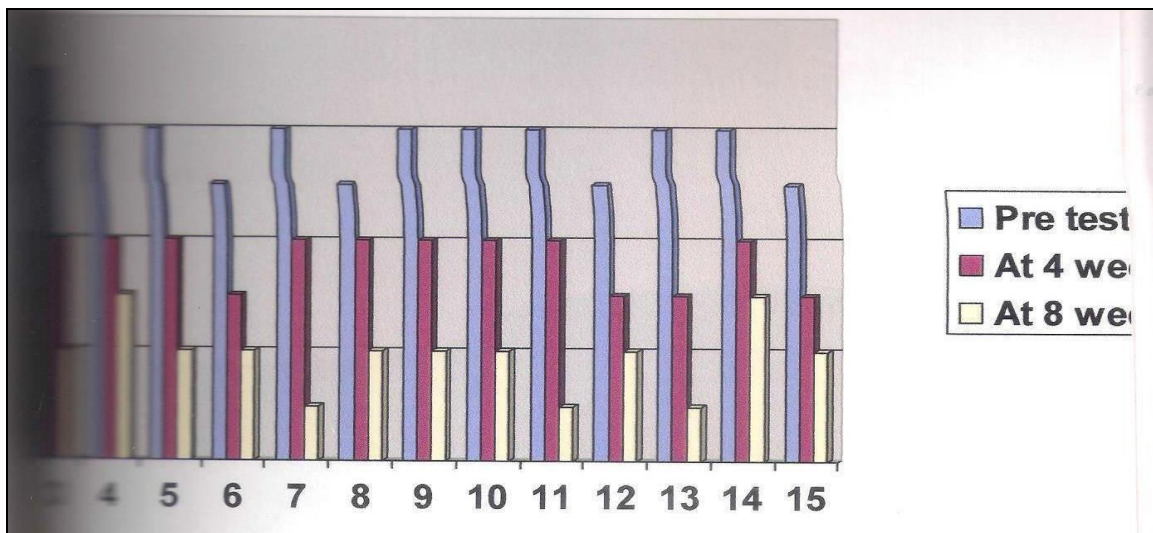


Fig 2: Difference in visual analog scale in general group

Discussion

The results of the study showed that stabilization group was superior to all back exercises for patients with chronic low back pain. The effects were largely significant during the 4 week period than the 8 week period in both the exercise protocol. The results suggest that hypothesis of stabilization exercises are superior general exercises for chronic low back pain. According to some authors, all patients with low back pain may benefit from spinal stabilization exercise retraining. Test this we repeated the intervention for subjects with chronic low back pain to acknowledge whether stabilization exercises are effective in chronic low back pain patients over general exercises for back. However our findings suggest that stabilization exercises reduce pain more effectively and immediately after the end of fourth and eighth week treatment protocol general exercise protocol with statistical significance. Minimal amount of significance is seen after 8 weeks of treatment for both the groups but statistically it has been proved that core stabilization exercises are superior when compared to general back exercises by the end of the eighth week. The greater improvement in stabilization exercises signify that specific stabilizing muscle training is more relevant in patients with gross spinal instability. From methodological point of view the frequency and duration of the study are deemed appropriate to produce demonstrable benefits, based on previous studies of similar or less exercise duration. Because increasing doses of low back exercise have been associated with an increase in reported benefits therefore I attempted to avoid confounding our results due to this factor.

Exercises were administered in a progressive manner for both groups and classes are supplemented with exercise leaflets to maintain motivation. The relatively high level of adherence both during classes and at home confirms patient motivation to complete the exercise program. The outcome results assessed by the physical therapist had extensive expertise in stabilization exercise intervention delivery through attendance of specialized seminars on the topic and its subsequent application. However, correct contraction of the stabilizing muscles could not be achieved in all subjects in the stabilization enhanced exercise group until 2 to 3 sessions had passed, and subjects had to be constantly corrected by the treating physical therapist each time new exercises were introduced, similar to the study by O Sullivan *et al.* However the subjects in general exercise group only could perform the exercises correctly by following the leaflets provided with minimal instruction from the physical therapist.

It has been shown theoretically that antagonistic trunk muscle co activations are necessary to maintain the lumbar spine in a stable equilibrium. The muscles act as guide wires that stiffen the intervertebral joints that they span. The control of spine equilibrium and mechanical stability however, requires appropriate muscle recruitment and timing. Muscular dysfunction and motor control errors in maintaining spine stability have been suggested as possible causes of some low disorders and chronic back pain. Antagonistic trunk muscle co activation has been observed during sudden loading of the torso, generation of trunk accelerations, isometric trunk moments,

axial trunk torques, and heavy exertions, and it has been explained as necessary for increasing spine stability. However, the stabilizing function of trunk musculature is especially important for the neural posture, where the spine exhibits the least stiffness. Clinical instability that must be compensated for by the trunk muscle to maintain the mechanical stability of the lumbar spine. In addition, a stable neutral spine posture without external loads must be maintained throughout the duration of the entire day. Biomechanical model analysis has indicated that, because of low levels of muscular activity, the lumbar spine is especially vulnerable to buckling in such a posture.

The authors of the present study hypothesized that there exists a necessary overlap of muscle activity at the point where the flexors and extensors switch as the trunk passes through the neutral posture during the slow trunk flexion and extension tasks.

The objective of the stabilization exercise is usually to stress both damaged tissue and healthy supporting tissues to foster tissue repair while avoiding further excessive loading, which can exacerbate an existing structural weakness. Hence, it showed more significant in early phase of treatment than the later phase. In chronic low back pain patients the neutral zone muscles get more affected than the other muscles of back. Hence, early rehabilitation of these muscles produce good results within short time.

From methodological point of view the frequency and duration of the study interventions for 8 weeks were deemed appropriate to produce demonstrable benefits, based on previous studies of similar or less exercise duration. I attempted to avoid confounding my results due to this factor by balancing the exercise dosage between the groups based on prior literature on the loading imposed on trunk muscles with each type of exercise.

Exercises were administered in a progressive manner for both groups, and classes were supplemented with exercise leaflets to maintain motivation. Two subjects dropped out from the stabilization enhanced exercise group due to complaints of pain. Their increase in pain, however could not be attributed with certainty to the exercises, because pain did not begin during performance time. The percentage of subjects from this group who developed pain was not alarmingly high enough to suspect that the increase in pain was due to the exercises administration nor has such an incident been reported in any similar previous study. An important finding of our study was that, although exercise was prescribed under a bio mechanical frame work (to train the muscle surrounding the spine in order to protect it) and we did not adopt strict psychological principles of exercise delivery, within - group improvement in 3 to 4 psychological outcome measures were documented for both groups. The characteristics of our subjects were similar to those of subjects in other studies, thus reinforcing the general stability of our findings. We considered within group changes in subjects reports of pain. Changes noted in our study were comparable to and slightly better than the changes reported for patients with chronic low back pain who were moderately disabled and who were more severely disabled possibly suggesting that shift beliefs are more likely to occur with therapeutic exercises in patients with chronic low back pain with less disability.

Limitations

A limitation to our study was that apart from the clinical physical therapist palpating the transversus abdominis and multifidus muscle contraction in the subjects in the stabilization enhanced exercise group, there was no other means of verifying

whether these muscles were recruited appropriately. However, due to our intention to monitor the effect of stabilization exercises delivered under pragmatic, clinical conditions used in everyday practice, the use of sophisticated devices such as electromyographic, biofeedback units or real time ultrasound scanners, as advised by some authors was avoided.

Conclusion

Conclusions are based on statistical significance. This study compared the stabilization exercise of trunk to that of general of back for chronic mechanical low back pain patients, on 30 patients. Both the exercise groups showed statistical significance but stabilization exercise group showed more significant over general exercise group both in fourth week and eighth week results in reducing pain in lower back. According to the results I believe that treatment regimen of stabilization exercise for low back pain is more effective and it is a God's Gift for such patients.

Summary: To compare the effect of core stabilization training exercises over general back exercise in chronic low back pain patients.

The Purpose of the Study

Do patients with chronic low back pain benefit from stabilization exercises?

Subjects were of chronic low back pain. The patients were examined and randomized into two groups. Experimental group patients were treated with stabilization exercises of low back for 8 weeks Control group patients were treated with general back exercises for 8 weeks. Each patient estimated their pain and reported on the VAS scale, measurements of pain were taken before treatment and after 4 weeks and 8 weeks intervention. Results showed that on average the initial pain was the same in both groups, both the groups showed significance in reducing pain but experimental group showed better significance over control group after both 4 weeks and 8 weeks of intervention. This study concludes that the stabilization exercise is beneficial in reducing pain in chronic mechanical low back pain patients

References

1. <http://www.annals.org/content/142/9/1-72.full>
2. [http://www.backpainexpert.co.uk/The PrevalenceOfBack Pain.html](http://www.backpainexpert.co.uk/The_PrevalenceOfBack_Pain.html)
3. http://www.jabfm.org/cgi/content/full/17/suppl_1/S23
4. Bill tancred and geoff tancred_physical exercise in the treatment of low back pain.
5. Zarkowska E, philips HC. recent onset vs persistent pain "evidence for a distinction pain 1986;25:365-72[medline]
6. [http://www.vhct.org/case_1699 /preval_costs.htm](http://www.vhct.org/case_1699_preval_costs.htm)
7. Bergmark stability of lumbar spine: a study in mechanical engineering, acta orthopscand 1989;60;5
8. <http://emedicine.medscape.com/article/310353-overview> Julie M Fritz - The Role of Muscle Strength in Low Back Pain- Orthopedic Physical Therapy clinics of North America 2000, 9.
9. Roland M. Morris - A study of the natural history of back pain, part of the development of a reliable and sensitive measure of disability in low back pain spine 1983;8:141-144.
10. Feurestein M, Beattie P. Biobehavioral factors affecting pain and disability in low back pain; mechanisms and assessment, physical therapy 1995;75:267-280.
11. Frost H. Klaber Moffett Randomised controlled trial for

- evaluation of fitness program for patients with chronic low back pain 1995;310:151-154.
12. Main CJ, Parker H. The evaluation and outcome of pain management programmes for chronic low back pain. In Roland Jenner back pain; New approach to A rehabilitation and Education. Manchester, UK 1989;129-156.
 13. Stratford PW, Binkley JM. Sensitivity to change of the Rolland - Morris back pain questionnaire part - I 1998;78:11.
 14. Paris physical signs of instability spine 1985;10:277-279.
 15. Lindgren K, Sihvonen T Leino - Exercise therapy effects on functional radiographic findings and segmental electromyographic activity in lumbar spine instability Arch Phys Med Rehabilitation 1993;74:933-939.
 16. Lackner JM, Carosella AM. Pain expectancies, pain and functional self-efficacy pain expectancies as determinants of disability inpatients with chronic low * tack di orders- 1996;64:212-220.
 17. Aline Newton MA. Core stabilization, Core coordination- 2004