ISSN 2515-8260 Volume 09, Issue 02, 2022

Effect of Core Stabilization exercises in Physiotherapist with work related Musculoskeletal disorders involving Lower back.

Dr. Reshma Khurana[1] (Principal, Paramedical Courses), Dr. D.C. Jain[2](Professor)

[1]Index Medical College (Paramedical) Hospital & Research Centre, Malwanchal University, Indore, M.P.
[2]Maharaj Vinayak Global University, Jaipur, India
First Author: Dr. ReshmaKhurana
Corresponding Author: Dr. D.C. Jain

Abstract:
Background &Method: The aim of this study is to study the Effect of Core Stabilization exercises in Physiotherapist with work related Musculoskeletal disorders involving Lower back. Out of 54 subject, 50 volunteered for participation in the study. Of them, 4 were screened out on the basis of exclusion criteria. Remaining subjects (50 in number) were divided into control group (group A) and experimental group (group B). group A had 25 subjects and group B had 25 subjects.

Result:

Conclusion: This study concludes that core stability training is effective in improvement of lower trunk endurance performance. Previous studies have shown that trunk endurance performance is directly linked to the prevention of low back pain and the improvement in sports performance. Thus core stability training is effective to lower the risk of developing low back pain or low back injury among recreationally active population. The present study evaluated only the isometric endurance performance, thus further studies may evaluate the effect of core stabilization training on the dynamic lower trunk endurance performance.

Keywords: Core, Stabilisation, Physiotherapist & Musculoskeletal.

Study Designed: Prospective Observational Study.

1. INTRODUCTION

Low back pain is an extremely common patient complaint with approximately 80% of the World population developing low back pain at some point[1]. It is the main cause of years lived with disability[2]. It is among 10 of the leading reasons for patient visits to medical facilities.[4] Non-specific low back pain is tension/soreness and or stiffness in the lower back region whereby it is not possible to find a cause for the pain[3]. Most cases resolve fairly quickly, but a significant number of patients develop chronic lower back pain. Patients experience unremitting pain and often become functionally impaired. Chronic LBP represents a greater financial burden in the form of direct costs resulting from loss of work and medical expenses, as well as indirect costs.

Generally there is a scarcity of information on the prevalence and incidence of chronic low back pain, partly due to lack of agreement about its definition. Chronic low back pain is mostly defined as persistent pain occurring on most days and lasting longer than 3 months[5]. Others also define it as pain exceeding normal healing times and frequently reoccurring back pain over long periods. Acute and chronic LBP warrant separate consideration as they may respond differently to the same interventions.

The longer the patient suffers from back pain the worse the prognosis. The chance of low back pain resolving is its highest during the first week. By the end of year one that chance diminishes significantly. In 1999 reported similar outcomes at 1 year with 10% of patients complaining of the same back pain form the first episode[6]. Carey et al. 2000 found that 2/3 of patients with chronic low back pain at 3 months still had functionally disabling symptoms at 22months and only 16% of patients became symptom-free[7]. Most patients on disability for more than 6 months will not return to work. The number of patients returning to work approaches zero at 2 years.

2. MATERIAL & METHOD

METHOD

Subjects

50 physiotherapists (20 males, 30 females) the study was conducted from July 2021 to Dec 2021.

Inclusion criteria

1. without any known neuromuscular, orthopedic or cardiovascular conditions
2. area of involvement was low back only.
3. both male and female.
4. Physiotherapist who were doing clinical practice for minimum 8 hours.
5. Physiotherapist having minimum 1 year of experience.

Exclusion Criteria

1. Subjects who were participating in any fitness training program or professional sports training
2. history of any surgery or previous fracture in any part of body.
3. history of low back pain during last six months.

Materials used with reliability and validity

The Quebec pain disability scale

Core stability training exercise protocol.

Randomization

Out of 54 subject, 50 volunteered for participation in the study. Of them, 4 were screened out on the basis of exclusion criteria. Remaining subjects (50 in number) were divided into control group (group A) and experimental group (group B). group A had 25 subjects and group B had 25 subjects.

Two separate boxes (one for group A names and other for group B names) with chits having names written on it and were well shuffled. One unrelated person withdrew 10 chits from each box (thus 5 group A and 5 group B chits), and whose names appeared on the chits were allocated to groups.

Similarly another unrelated person withdrew 10 chits from each box and persons, whose name appeared on chits, were allocated to group A (control group). Thus both training and control group consisted of 25 and 25 subjects each, who was selected randomly.

ISSN 2515-8260 Volume 09, Issue 02, 2022

Procedure

Selected candidates underwent consent taking and were explained the procedure of testing and training. All subjects received the explanation and the familiarization trials of the testing procedures. A gap of two days (to avoid the fatigue due to familiarization trials) was kept between the familiarization session and the pre-test data recording session.

Group A was control group (CG) which did not receive any training and group B was core stability training group (CSTG), which received six weeks of core stability training (Table 1). Both groups had 25 subjects each.

Participants were instructed not to change their training schedule or activity level acutely during the period of the entire study.

Protocol of the Training

Interventions were given for CSTG at a frequency of three sessions per week for six weeks (total 18 sessions). Each session lasted approximately 40—50 min (initial sessions took some less time because of lesser sets and less repetitions) for each participant. The CG did not participate in any training. The post-test readings were taken two days after the last day of the 6-week training sessions. The exercise program for CSTG consisted of progression over the period of six weeks. Initial exercises focused on the training of the deep lumbar stabilizer in isometric fashion in a variety of positions. Then the progression consisted of utilizing this contraction through a variety of functional positions

This training was carried on Swiss ball, plane surfaces in single as well as multiple planes of movements. The post-training data was recorded in both training groups as well as CG two days after the last training session.

3. RESULTS

Table 1: Descriptive Statistics of Subjects (Group Wise), Baseline Comparison.

Characteristics	**Group A (n = 25) Mean ± SD**	**Group B (n = 25) Mean ± SD**	**P Value**
Gender	28M ± 22F	32M ± 18F	
Age (years)	23.85 ± 1.38	24.62 ± 1.29	
Weight (kg)	65.8 ± 8.37	64.7 ± 10.42	
Height (cm)	168.63 ± 2.83	168.2 ± 3.51	
BMI (kg/m2)	23.15 ± 2.92	22.92 ± 3.69	

ISSN 2515-8260 Volume 09, Issue 02, 2022

Table 2: Group A

	Mean	Std. Deviation	Minimum	Maximum
Out of bed	4.28	.737	3	5
Night sleep	4.36	.638	3	5
Bed turning	4.80	.408	4	5
Car ride	4.68	.557	3	5
Stand 20-30 Min.	4.44	.583	3	5
Sit in a chair	4.56	.583	3	5
Climb stairs	4.40	.707	3	5
Walk 300-500m	4.28	.678	3	5
Walk kilometres	4.60	.577	3	5
Reach high shelves	4.64	.569	3	5
Throw ball	4.00	.866	3	5
Run 100m	4.68	.476	4	5
Food out refrigerator	4.64	.490	4	5
Make bed	4.60	.577	3	5
Put socks	4.60	.500	4	5
Bend over	4.52	.586	3	5
Move a chair	4.44	.583	3	5
Pull or push	4.64	.490	4	5
Carry two bags	4.40	.577	3	5
Lift and carry	4.48	0.51	4	5

Table 3: Group B Pre

	Mean	Std. Deviation	Minimum	Maximum
Out of bed	1.80	.500	1	3
Night sleep	1.56	.507	1	2
Bed turning	1.76	.597	1	3
Car ride	1.52	.586	1	3
Stand 20-30 Min.	1.64	.569	1	3
Sit in a chair	1.56	.507	1	2
Climb stairs	1.72	.678	0	3
Walk 300-500m	1.44	.712	0	2
Walk kilometres	1.52	.586	1	3
Reach high shelves	1.64	.638	1	3
Throw ball	1.44	.583	1	3
Run 100m	1.68	.476	1	2
Food out refrigerator	1.24	.523	1	3
Make bed	1.84	.473	1	3
Put socks	1.52	.510	1	2
Bend over	1.44	.507	1	2
Move a chair	1.08	.759	0	2
Pull or push	1.28	.737	0	3

Carry two bags	1.76	.436	1	2
Lift and carry	1.80	.408	1	2

Table 4: Group B Post

	Mean	Std. Deviation	Minimum	Maximum
Out of bed	4.72	.458	4	5
Night sleep	4.36	.490	4	5
Bed turning	4.64	.490	4	5
Car ride	4.48	.510	4	5
Stand 20-30 Min.	4.68	.476	4	5
Sit in a chair	4.56	.507	4	5
Climb stairs	4.48	.653	3	5
Walk 300-500m	4.28	.678	3	5
Walk kilometres	4.52	.714	3	5
Reach high shelves	4.76	.436	4	5
Throw ball	3.56	.507	3	4
Run 100m	4.76	.436	4	5
Food out refrigerator	4.52	.510	4	5
Make bed	4.72	.458	4	5
Put socks	4.64	.490	4	5
Bend over	4.76	.436	4	5
Move a chair	4.32	.557	3	5
Pull or push	4.68	.476	4	5
Carry two bags	4.56	.507	4	5
Lift and carry	4.96	.200	4	5

4. DISCUSSION

Mechanical low back pain is described as a musculoskeletal painwhich varies with physical activities and not involving root compressionor serious spinal diseases[8].
The primary aim of this study was to determine performingexercises for the core stabilization resulted in reducing backpain more effectively. Exercise programs that aim to improve thestability of the lumbar spine are widely utilized in the managementof patients with chronic low back pain. These programs target avariety of trunk muscles and aim to optimize the control of segmentalmotion, spinal stability, spinal stiffness, spinal orientation,or a combination of these characteristics[10].
Franca et al compared the efficacy of two exercisesprograms-segmental stabilization and superficial strengthening ofabdominal and trunk muscles-on pain, functional disability, andactivation of the TrA muscle in individuals with chronic low backpain. Both techniques resulted in pain amelioration and reduceddisability[9&10].
Similar studies by Koumantakis and O'Sullivan of chroniclow back pain, spondylolysis or spondylolisthesis demonstrateda decrease in pain in subjects allocated to the core stabilizationgroup[11]. Core stabilization exercise enhances the ability of the segmentalmuscles that result in improved function and decreasedpain in the subject with chronic nonspecific low back pain[12].

ISSN 2515-8260 Volume 09, Issue 02, 2022

5. CONCLUSION

This study concludes that core stability training iseffective in improvement of lower trunk enduranceperformance. Previous studies have shownthat trunk endurance performance is directlylinked to the prevention of low back pain and theimprovement in sports performance. Thus corestability training is effective to lower the risk ofdeveloping low back pain or low back injuryamong recreationally active population. The presentstudy evaluated only the isometric enduranceperformance, thus further studies mayevaluate the effect of core stabilization training onthe dynamic lower trunk endurance performance.

6. REFERENCES

[1] Deyo RA, Weinstein JN. New England Journal of Medicine. NEJM. 2001;344(5)):363-70.

[2] Savigny P, Watson P, Underwood M. Early management of persistent non-specific low back pain: summary of NICE guidance. Bmj. 2009 Jun 4;338:b1805.

[3] Vos T, Flaxman AD, Naghavi M, Lozano R, Michaud C, Ezzati M, Shibuya K, Salomon JA, Abdalla S, Aboyans V, Abraham J. Years lived with disability (YLDs) for 1160 sequelae of 289 diseases and injuries 1990–2010: a systematic analysis for the Global Burden of Disease Study 2010. The lancet. 2012 Dec 15;380(9859):2163-96.

[4] Patel AT, Ogle AA. Diagnosis and management of acute low back pain. American family physician. 2000 Mar;61(6):1779-86.

[5] Dagenais S, Caro J, Haldeman S. A systematic review of low back pain cost of illness studies in the United States and internationally. The spine journal. 2008 Jan 1;8(1):8-20.

[6] Maher CG. Effective physical treatment for chronic low back pain. Orthopedic Clinics. 2004 Jan 1;35(1):57-64.

[7] Thomas E, Silman AJ, Croft PR, Papageorgiou AC, Jayson MI, Macfarlane GJ. Predicting who develops chronic low back pain in primary care: a prospective study. Bmj. 1999 Jun 19;318(7199):1662-7.

[8] Carey TS, Garrett JM, Jackman AM. Beyond the good prognosis: examination of an inception cohort of patients with chronic low back pain. Spine. 2000 Jan 1;25(1):115.

[9] Franca FR, Burke TN, Hanada ES, Marques AP. Segmental stabilization and muscular strengthening in chronic low back pain: A comparative study. *Clinics (Sao Paulo).* 2010; 65(10): 1013-1017.

[10] Waddell G, Schoene M. The back pain revolution. Elsevier Health Sciences; 2004.

[11] Sierpina V, Curtis P, Doering J. An integrative approach to low back pain. Clinics in Family Practice. 2002 Dec;4(4):817-31.

[12] Akhtar MW, Karimi H, Gilani SA. Effectiveness of core stabilizationexercises and routine exercise therapy in managementof pain in chronic nonspecific low back pain: A randomized controlledclinical trial. Pak J Med Sci. 2017; 33(4): 1002-1006.