



ISSN: 0976-3031

Available Online at <http://www.recentscientific.com>

CODEN: IJRSFP (USA)

International Journal of Recent Scientific Research
Vol. 8, Issue, 8, pp. 19614-19617, August, 2017

**International Journal of
Recent Scientific
Research**

DOI: 10.24327/IJRSR

Research Article

CHRONIC LOW BACK ACHE AND LUMBAR DISC LESION TREATED WITH COMBINED PILATES, PHYSIOTHERAPY AND MCKENZIE: AN EVIDENCE BASED STUDY

Subramanian S.S*

The Principal, Sree Balaji College Of physiotherapy, Chennai – 100

DOI: <http://dx.doi.org/10.24327/ijrsr.2017.0808.0730>

ARTICLE INFO

Article History:

Received 10th May, 2017
Received in revised form 14th
June, 2017
Accepted 08th July, 2017
Published online 28th August, 2017

Key Words:

Pilates, McKenzie protocol, Oswestry
lowback Pain Score, NMRI

ABSTRACT

Lowback ache was the most common musculoskeletal disorder recorded among software professionals. With chronic lowback ache soft tissue changes resulting in decrease in productivity and subjects quality of life. **Aims & Objective** of this study was to analyse the impact of combined McKenzie protocol Pilates and physiotherapy among a chronic lowback pain subject. **Materials & Methodology:** Subject was treated with McKenzie method, Pilates exercises and physiotherapy using air inflated Physioball. With a frequency of thrice weekly for one month duration in March 2017. Exercises were progressed gradually with number of repetition, postures and period of holding. Results: pre and post Oswestry lowback pain questioner revealed ($P < .01$) statistically significant results. Conclusions: Conservative physiotherapy combining concepts of various techniques was effective in the rehabilitation of chronic lowback pain subjects.

Copyright © Subramanian S.S, 2017, this is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution and reproduction in any medium, provided the original work is properly cited.

INTRODUCTION

- Schoenfeld 2010 lumbar disc herniation is a common condition that frequently affects the spine in young and middle aged patients (Anderson *et al* 2008). The lumbar intervertebral disc is a complex structure composed of collagen, proteoglycans and sparse fibrochondrocytic cells that serve to dissipate forces exerted on the spine. As part of the normal aging process the disc fibrochondrocytes can undergo senescence, the proteoglycans production diminishes. This leads to a loss of hydration and disc collapse, which increases strain on the fibers of the annulus fibrosus surrounding the disc. Also a large biomechanical force placed on a healthy, normal disc may lead to extrusion of disc material in the setting of catastrophic failure of the annular fibers.
- Back pain may occur due to disc protrusions that do not enter the canal or compromise nerve roots (Bono *et al* 2006). The more treatable condition of lumbar radiiculopathy, arises when extended disc material contacts or exerts pressure, on the thecal sacs or lumbar nerve roots. The pain associated with lumbar radiiculopathy occurs due to a combination of nerve root ischemia and inflammation resulting from local pressure and neuro chemical inflammatory factors present within the disc material (McCulloch *et al* 2002)
- Lumbar disc herniations to be asymptomatic in 50% in certain population and level IV – V evidence exists, suggesting that 90% of patients with lumbar disc herniations will resolve their symptoms without substantial medical intervention (Carragee 2006)
- Disc disorders, back pain and radiiculopathy have discrete effect on economy, in terms of days lost to work and reduced productivity as related to common cause of disability with US health care system spending \$ billion annually and lumbar discectomy procedure annual costing to \$ 300 million (Schoenfeld & Weiner 2010)
- Acute episodes of lowback pain have quite a good prognosis with a variety of treatment as evidenced by many reviews (Macintyre *et al* 2010)
- 10-30% of acute lowback pain patients evolving in to chronic with frequent relapses and persistence of symptoms of 1 year (Stanton *et al* 2008)
- Differential diagnosis of acute lowback pain with compression fracture, spinal stenosis, herniated nucleus pulposus, lumbar strain, spondylosis, systemic and referred causes (MC Intosh and Hall 2011)
- Pilates McKenzie method was shown with evidence more effective in lowback pain treatment (Machmado *et al* 2010) sekendiz *et al* 2010 have recorded Pilates form of exercises effective in spinal rehabilitation

*Corresponding author: Subramanian S.S

The Principal, Sree Balaji College Of physiotherapy, Chennai – 100

Aims & Objective of this Subject

To analyse the impact of McKenzie, Pilates and physiotherapy on a subject with chronic lowback pain

MATERIAL AND METHODOLOGY

This subject with chronic lowback ache was treated in the beginning with McKenzie protocol with emphasis on spinal extension exercises in first few sessions, in few days stretching of various soft tissue structures including hamstrings were added Pilates exercises using Physioball was included from 4th session onwards. Gradual progression with exercises in various positions, increase in number of exercises, repetition, isometric work were added as per ACSM guidelines. Each session lasted for 25-30 minutes he was treated with weekly thrice frequency during the month of March 2017 and the results of pre and post Oswestry lowback pain questionnaire were recorded and analyzed using due statistical methods.

Background Information

Mr.XXX, aged 30 years, mesomorph, non vegetarian, alcoholic, smoker, father of two children employed as a software programmer in a multinational company for the last 15 years. Nature of work involves long time sitting, with sedentary lifestyle

C/O

Acute lowback ache since a week with inability to sit for few minutes, stand erect and walk freely

Medical H/O

Previous episodes of lowback ache treated with NSAID, inter ferrentail therapy and exercises. Since 2010 NMRI taken in December 2016 revealed L4, L5 subject was advised for disectomy with neural foraminal compression

- Obliterated cervical lumbar lordosis
- Tightness of spinal extensors
- Bilateral pes planus
- Hip abductors extensors - 3/5 hamstring Gastrocnemius – 3/5
- Abdominal muscle III/V
- Tender LS region
- Spinal ROM flexion increase pain
- Sitting for few minutes increase lumbar pain and radicular symptoms down the left leg posteriorly

Table 1 Results of pre and post Oswestry lowback pain score on student 't' test

	Oswestry Low Back Ache Score					
	Pre	Post	SD	SE	t	p
Oswestry	58	26	18	10.66	3.00	X<.01

SD- Standard deviation, P – Level of Significance, SE – Standard Error, X- Highly Significant Statistically

DISCUSSION

Hypothetical Questions

Lowback ache for six years? Clinical Presentation, Complications Physiotherapy in acute lumbar disc lesion how much effective?

Valet *et al* 2010 have low level of evidence on the conservative treatment of sciatica (Valat *et al* 2010). Van Tulder *et al* 2010

have recorded conservative treatment is first line option in patients with sciatica and patient preference seems to be an important factor in the clinical management (Van Tulder *et al* 2010). Also there is no evidence for bed rest, tractions, manipulations, hot packs, muscle relax mate, opioids (Luister Berg *et al* 2007). Promoting and self management programmes despite weak evidence for chronic back pain represent the best way forward (May *et al* 2010) and acceptance of pain is significantly associated with quality of life (Manson *et al* 2008). Moderate quality evidence that post treatment exercises programs can prevent recurrence of back pain (Choi *et al* 2010). 13% of persons with lowback pain will not recover fully within 6 months (Carey *et al* 1996). Recurrent back pain occurs in 25-62% of patients with in one to two years, with up to 33% having moderate pain 15% having severe pain (Stanton *et al* 2008). Moderate quality evidence suggests that bed rest is less effective at reducing pain and improving function at 3-12 weeks than a device to stay active (Hagen *et al* 2004) lowback pain is a very common disorder (Woolf & Pleger 2013) a leading disability contributor (Lim *et al* 2013) may result in a reduced level of physical capacity negative psychological effects (Wang *et al* 2014) and reduction in the quality of life (Gatchel *et al* 2007)

Subject advised for disectomy can be helped with exercises?

Rainville *et al* 2009 has with evidence reported that conservative management aims at to improve patients function and surgery focused on the alternation of structures perceived to be the sources of pain. Surgery for leg pain (Radiculopathy) with herniated lumbar disc is associated with short term benefits compared to non surgical therapy for lowback pain, through the surgical benefits diminish with long term follow up. Among chronic lowback pain patients surgically and non surgically treated between the age group of 18-55 years, had no evidence that surgery was any more beneficial than intense rehabilitation, surgery, cost more, had potential risks and was not cost effective (Rainville *et al* 2009).

Conservative spinal rehabilitation how effective is it?

Hidalgo *et al* 2014 in a systematic review reported that evidence are better for spinal stabilization exercises at short term follow up, few trails reported adverse events associated with traction. With no evidence to support the efficacy of manipulation compared with other treatments such as traction, electrotherapy modalities, NSAID, magnetic corsets, herbal medication in LDH with radiculopathy.

Shorter duration of rehabilitation is it possible with combined MC kenzie, Pilates yoga, resisted exercisers using Physioball?

Mckenzie method has been shown to be slightly more effective than other common lowback pain treatments and evidence on this effect on disability is conflicting (Machado *et al* 2010). Spine stabilization exercises have been shown to decrease pain, disability and risk of recurrence after a first episode of back pain (Hides *et al* 2001). NSAID, heat application have low quality evidence in the first 7 to 14 days (French *et al* 2006). Massage, lumbar support, traction have no quality evidence among acute or chronic back pain (Walker *et al* 2011)

CONCLUSION

Conservative management of chronic lowback pain improves confidence of the subject, increase productivity and the need to undergo surgery was thus postponed, as to sustain the achieved progress regular monitoring by the physical therapist and to adhere home programme with a set of exercises. Also based on the evaluation application of the therapy with various concepts facilities early recovery.

Limitations of this original research report was being single subject studied, short duration and only subjective rating on the impact of therapy was used to measure the outcome of this study.

Further recommendations with larger sample size, long term follow-up among subjects with chronic lowback ache. Also other variables such as NMRI can be used to evaluate the efficacy of the treatment outcome.

References

1. Schoenfeld and Bradley K Weiner. Treatment of lumbar disc herniation: Evidence-based practice. *Int J Gen Med.* 2010; 3: 209-214.
2. Anderson PA, McCormick PC, Angevine PD. Randomized controlled trials of the treatment of lumbar disk herniation: 1983-2007. *J Am Acad Orthop Surg.* 2008; 16:566-573.
3. Bono F, Ebert J, Lorentzen E, Conti E. The crystal structure of the exon junction complex reveals how it maintains a stable grip on mRNA. *Cell.* 2006 Aug 25; 126(4):713-25.
4. McCulloch V, Seidel-Rogol BL, Shadel GS. A human mitochondrial transcription factor is related to RNA adenine methyltransferases and binds S-adenosylmethionine. *Mol Cell Biol.* 2002 Feb; 22(4):1116-25.
5. Carragee E. Surgical treatment of disk disorders. *JAMA.* 2006; 296:2485-2487.
6. Macintyre PE, Schug SA, Scott DA, Visser EJ, Walker SM: Acute Pain Management: Scientific Evidence (3rd edition). APM:SE working group of the Australian and New Zealand college of anaesthetists and faculty of pain medicine, Melbourne, Australia (2010)
7. Stanton TR, Henschke N, Maher CG, Refshauge KM, Latimer J, McAuley JH: After an episode of acute low back pain, recurrence is unpredictable and not as common as previously thought. *Spine* 33(26), 2923-2928 (2008).
8. McIntosh G, Hall H. Clinical Evidence. Low back pain (acute). <http://www.clinicalevidence.com> (subscription required). Accessed May 2, 2011.
9. Machado, Chris G Maher, Rob D Herbert, Helen Clare, and James H McAuley. The effectiveness of the McKenzie method in addition to first-line care for acute low back pain: a randomized controlled trial. Published online 2010 Jan 26. doi: 10.1186/1741-7015-8-10
10. Sekendiz, Betul, Mutlu, Kakkusuz, Feza on effects of Swiss ball core strength training on strength, Endurance, flexibility and balance in sedentary women. National strength and conditioning association 2010, J strength cond res 24(11) - 3032 - 3040, 2010. Studied on core strength training on trunk extensor, flexor, lower limb extensor and flexor
11. Valat JP, Genevay S, Marty M, Rozenberg S, Koes B: Sciatica. *Best Pract. Res. Clin. Rheumatol.* 24(2), 241-252 (2010).
12. Van Tulder M, Peul W, Koes B: Sciatica: what the rheumatologist needs to know. *Nat. Rev. Rheumatol.* 6(3), 139-145 (2010).
13. Luijsterburg PA, Verhagen AP, Ostelo RW, van Os TA, Peul WC, Koes BW: Effectiveness of conservative treatments for the lumbosacral radicular syndrome: a systematic review. *Eur. Spine J.* 16(7), 881-899 (2007).
14. May S: Self-management of chronic low back pain and osteoarthritis. *Nat. Rev. Rheumatol.* 6(4), 199-209 (2010).
15. Mason VL, Mathias B, Skevington SM: Accepting low back pain: is it related to a good quality of life? *Clin. J. Pain.* 24(1), 22-29 (2008).
16. Choi BK, Verbeek JH, Tam WW, Jiang JY: Exercises for prevention of recurrences of low-back pain. *Cochrane Database Syst. Rev.* 1, CD006555 (2010).
17. Carey TS, Evans AT, Hadler NM, Lieberman G, Kalsbeek WD, Jackman AM, Fryer JG, NcNutt RA. Acute severe low back pain: a population-based study of prevalence and care-seeking. *Spine.* 1996; 21:339-344. doi: 10.1097/00007632-199602010-00018.
18. Hagen KB, Hilde G, Jamtvedt G, Winnem M. Bed rest for acute low-back pain and sciatica. *Cochrane Database Syst Rev.* 2004 Oct 18;(4):CD001254.
19. Woolf & Bruce Pflieger. Burden of major musculoskeletal conditions. *Bulletin of the World Health Organization* 2003, 81 (9).PP : 646- 656
20. Lim SS, Vos T, Flaxman AD, et al. A comparative risk assessment of burden of disease and injury attributable to 67 risk factors and risk factor clusters in 21 regions, 1990-2010: a systematic analysis for the Global Burden of Disease Study 2010. *Lancet.* 2013; 380(9859):2224-60.
21. Wang, L. Yao, L. Liu, X. Yang, H. Wu, J. Wang, L. Wang. The mediating role of self-efficacy in the relationship between Big five personality and depressive symptoms among Chinese unemployed population: A cross-sectional study *BMC Psychiatry*, 14 (2014), p. 61, 10.1186/1471-244X-14-61
22. Gatchel RJ, Peng YB, Peters ML, Fuchs PN, Turk DC. The biopsychosocial approach to chronic pain: Scientific advances and future directions. *Psychological Bulletin.* 2007; 133:581-624.
23. Rainville, Rosalyn Nguyen, and Pradeep Suri. Effective Conservative Treatment for Chronic Low Back Pain. *Semin Spine Surg.* 2009 Dec 1; 21(4): 257-263.
24. Hidalgo, Christine Detrembleur, Toby Hall, Philippe Mahaudens, and Henri Nielens. The efficacy of manual therapy and exercise for different stages of non-specific low back pain: an update of systematic reviews. *J Man Manip Ther.* 2014 May; 22(2): 59-74.
25. Hides JA, Jull GA, Richardson CA. Long-term effects of specific stabilizing exercises for first-episode low back pain. *Spine* (Phila Pa 1976). 2001 Jun 1; 26(11):E243-8.

26. French SD, Cameron M, Walker BF, Reggars JW, Esterman AJ. Superficial heat or cold for low back pain. *Cochrane Database Syst Rev.* 2006;(1):CD004750.
27. Walker BF, French SD, Grant W, Green S. A Cochrane review of combined chiropractic interventions for low-back pain. *Spine (Phila Pa 1976).* 2011; 36(3): 230-242

How to cite this article:

Subramanian S.S.2017, Chronic Low Back Ache and Lumbar Disc Lesion Treated With Combined Pilates, Physiotherapy And Mckenzie: An Evidence Based Study. *Int J Recent Sci Res.* 8(8), pp. 19614-19617.

DOI: <http://dx.doi.org/10.24327/ijrsr.2017.0808.0730>
