

Exercises helpful in chronic lower back pain (LBP)

Abstract

Chronic Lower Back Pain is a common clinical disorder seen in adults. Its causes may be non-specific or specific. Exercises of back, abdominal and pelvic muscles have an important role in prevention, treatment and reducing disability due to Chronic Lower Back Pain. Exercises are useful for mobilization of joints, for strengthening muscles and to improve coordination and balance.¹

Keywords: lower back pain, exercises, mobilization of joints, non-specific, treatment

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Introduction

Lumbar spine problems causing Lower Back Pain (LBP) are one of the common problems in the adulthood. In USA it is found to be the 5th most common cause for visit to a doctor. About 80% adults experience back pain at some point in life time. It is a common cause of job-related disability also. In a large survey in USA more than 25% of surveyed persons suffered from back pain during the past 3 months.

Low back pain may be classified depending on its duration into three categories of acute, sub-acute and chronic LBP. Acute LBP lasts from a few days to the maximum 3-4 weeks. Majority of acute LBP are mechanical in origin and respond to bed rest for a few days, anti-inflammatory drugs and gentle stretching exercises of back started after 3-4 days of rest. Sub-acute LBP lasts between 6 weeks to less than 12 weeks.² This may be due to causes such as muscle strain, ligamentous sprain, and poor posture of back and need rest in acute exacerbation phase, mobilizing and stretching exercises besides local electro therapy, drugs and supportive treatment. Chronic LBP lasts 12 weeks or longer. This may be caused due to degenerative changes in vertebrae & its joints, inter-vertebral disc disease including prolapse, chronic strain, instability, osteoporosis, osteomalacia and other organic causes. This requires proper evaluation, x-ray & MRI (if needed), detailed analysis and follow up for proper management.³ About 20% of acute LBP sufferers develop into chronic LBP sufferers at one-year duration. Recurrent LBP, having repeated episodes of acute severe pain with mild pain in between, is quite common disturbing the quality of day today life and hampers job leading to absenteeism, demands of compensation and multiple activity limitation. Acute-on-chronic low back pain means increase in the intensity of pain, in a patient earlier having dull aching pain. Recurrent low back pain is defined as recurrence of back pain after an asymptomatic interval of 6 months.²

Depending on the intensity of pain LBP may range from benign lower back discomfort to acute inter-vertebral disc prolapse causing severe pain and disability associated with variable neurological deficit to recurrent LBP not responding to various modalities of treatment. Repeated lower back pain due to lumbar spondylosis and poor muscle tone associated with osteoporosis is quite common in the present-day sedentary life style. In the absence of a specific surgically/medically treatable cause, exercises of back have a definite role in prevention, treatment and avoidance of complications in lower back pain of all the above types. Avoidance of contact sports is considered as a component of non-surgical treatment of low back pain by many.⁴

Causes of low back pain

85% of LBP are Non-Specific in nature, not caused by a particular disease or spinal abnormality. The cause in these cases is muscle spasm, ligamentous strain, superficial nerve injury, early degenerative changes, obesity and osteoporosis.

Specific causes of LBP may be fracture of vertebrae, vertebral instability, spinal stenosis, disc degeneration, disc prolapse, facet joint syndrome, acute or chronic infection, benign or malignant spinal or neural tumor, spondylosis, spondylolisthesis, skeletal abnormalities, neurological disorders including radiculopathy, and sometimes abdominal or retro-peritoneal pathology.⁵

Types of exercises

Back exercises can be grouped depending on the movement produced, such as Forward Flexion exercises, Extension exercises, Lateral Flexion exercises, Stretching exercises and Rotational exercises

- i. Mobilizing/Stretching exercises, and Strengthening exercises
- ii. Isometric or static contraction exercises, and Isotonic exercises
- iii. Exercises for a common functional group of muscles such as flexors or extensors of back
- iv. Exercises for strengthening of specific muscles such as upper abdominals, Latissimus Dorsii etc.

Exercises beneficial in LBP

Stretching and mobilization of muscles of back, pelvis, hips and abdomen are very much helpful in chronic LBP. Regularity in exercise is important in prevention of LBP and maintaining strength of muscles. In general, exercises which increase the pain should be avoided in acute phase. In chronic cases, all groups of muscles need to be exercised including back flexors and abdominal muscles besides, back extensors. More stress on back extensors is needed in old cases of fractures for maintaining alignment and muscle strength. In lumbar canal stenosis & spondylolisthesis cases, flexion exercises are more beneficial than extension exercises as it increases neural canal space. Calcium, protein and vitamin B & vitamin D rich diet should also be taken routinely for bone & muscle health.

Exercises should be learnt from a doctor or physiotherapist initially and then done at one's place carefully. Each exercise should be repeated 5-10 times in each session and specific position of limb/back be maintained for a count of 10 each time. A minimum of one

session including all exercises should be practiced initially, increasing it to two sessions, later if possible. On an average, physical exercises may be done for a period of 15 to 20 minutes in each session. Figure 1 and Figure 2 show back & pelvis extension exercise and Leg stretching exercises respectively.

The important exercises for back health are as follows:

- i. Gluteus maximus strengthening by limb extension or buttock lifting
- ii. Transverse abdominis strengthening by pulling belly in spine or Drawing in maneuver
- iii. Hip abductor (Gluteus Medius) strengthening by leg raises in lateral position
- iv. Back Extensors strengthening by Superman position in prone position
- v. Abdominal muscles strengthening by hip flexion or leg raising or Partial curls
- vi. Stretching exercises including vertical stretch, forward stretch, backward stretch and sideways stretch
- vii. Hamstring stretching exercises
- viii. Aerobic exercises including walking, swimming, biking etc.
- ix. Pilates Moves/ exercises combine stretching, strengthening and core abdominal muscle exercises
- x. Breathing exercises including 'Pranayam' to strengthen function of lung, heart and blood vessels



Figure 1 Back and pelvic extension/ Bridge exercise.



Figure 2 Leg stretching exercises.

Precautions

- i. Start from a few exercises and increase gradually.
- ii. Should do within limits of one's strength and pain.
- iii. Proper guidance and training is essential.
- iv. Acute pain stage rest is important.
- v. Diet, drugs and ADL modifications are important.
- vi. Specialist consultation should be done in new cases, worsening in condition and chronic cases.

Message

Back, abdomen and pelvis muscle strengthening, mobilization and stretching are proven ways to prevent Recurrent LBP. Stronger core muscles help stability and decrease chance of injury. Modification in activities of daily living (ADL) like squatting down to pick up items off the ground instead of bending forward is important in adults besides balanced protein rich diet.

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Conflict of interest

The author declares no conflict of interest.

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