

Role of yoga in the clinical management of low back pain – a review
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Abstract:

Low back pain is the most common problem in all age groups. Prevalence of low back pain increases sharply from teenage till old age. Low back pain associated with activity limitation increases with the age. It is the major reason of disability globally resulting into a significant societal burden. In majority of low back pain cases it is difficult to pinpoint the cause but various types of spinal disorders are responsible for producing low back pain. It may seem as a very common and non life threatening symptom but it affects Quality of Life as well as productivity of a person by decrease in physical activity.

Exercise and Physical therapy is suggested in various guidelines for low back pain. Yoga through various *asanas*, *pranayama* and meditation techniques can help to alleviate the pain, emotional and physical stress. According to the acute and chronic stages of low back pain, appropriate selection of *Asanas* and relaxation techniques is necessary. This integrative approach will enable faster

recovery and economical treatment option for the Low Back Pain.

Keyword: *Yoga, Low back pain, Therapeutic Yoga, Spinal Disorders*

Introduction:

Low back pain is one of the major reasons of disability in the world. From 1990 to 2015, years lived with disability caused by low back pain have increased over 50% globally. This surge in low back pain cases is caused by increased population, ageing and steep increase in prevalence in low and middle income countries. Low back pain is a common symptom and not a disease, which may arise due to various known and unknown physical or physiological abnormalities and diseases. Low back pain typically is seen in between the lower rib margins and the buttocks. Specific nociceptive source of the pain in all cases can not be identified. Such type of pain can be classified as non-specific low back pain. Persistent low back pain is caused by various reasons ranging from infection, fracture, inflammatory disorders or malignancy. Other physical and mental

health problems including pain in other sites of body is more common in cases with low back pain as compared to others. ⁽¹⁾

Aims and Objectives:

Aim:

To study the role of Yoga in the management of low back pain

Objectives:

- 1) Systematic search of classical texts and research studies related to Yoga and low back pain
- 2) To analyze the role of Yoga in the clinical management of low back pain

Materials and Methods

- Screening of relevant material from the classical texts of Yoga.
- Systematic search of Pubmed, Google Scholar and other resources for published articles on low back pain and its management through yoga and similar physical therapies.
- A thorough search of reference lists to identify relevant studies and their full paper analysis.

Observation:

Causes of low back pain:

Specific pathological causes of low back pain which require appropriate clinical treatment include inflammatory disorders like *spondyloarthritis*, vertebral fractures, and malignancy in vertebral column, infection and intra-abdominal causes. Vertebral fractures are more common in people aged more than 50

years because of degenerative changes like osteoporosis. Axial spondyloarthritis is a chronic inflammatory disease that primarily affects axial skeleton in age group of 20 to 40 years. It includes both non radiological *spondyloarthritis* and *ankylosing spondyloarthritis* cases with structural damage in sacroiliac joints or spine. Infections in the spine like *spondylodiscitis*, vertebral *osteomyelitis*, tuberculosis, brucellosis, facet joint infections and epidural abscess cause low back pain. Metastatic cancer cases with vertebral metastases and spinal tumors can cause persistent low back pain. ⁽²⁻¹⁰⁾

Clinical Management of low back pain

After careful history taking and physical examination of patients, they are categorized into 3 broad categories like non-specific low back pain, back pain associated with radiculopathy or spinal stenosis and back pain associated with another specific spinal cause. Patients with non-specific low back pain are usually not recommended any radiological or similar diagnostic tests. They are treated symptomatically with the help of NSAIDs and other type of painkillers. Patients with persistent low back pain are advised radiological and other diagnostic tests to find out nociceptive source. Potential candidates for surgery or epidural steroid injection are determined by the use of MRI or CT scans. ⁽¹¹⁻¹³⁾

Exercise and Physical Therapies for low back pain

Various guidelines for clinical management of low back pain advise judicious use of imaging followed by

medication and surgery. These guidelines also recommend use of non-invasive and non-pharmacological interventions. These include education of patient, behavioral changes and exercise. Physical therapy interventions recommended in guidelines include stretching, hydrotherapy exercises, Tai Chi, McKenzie exercise approach and Yoga.⁽¹⁴⁻¹⁶⁾ But other passive physical or electrical methods viz. Short-wave diathermy, TENS (transcutaneous electrical nerve stimulation) back support, traction are not recommended by clinical guidelines.⁽¹⁷⁻¹⁹⁾

Yoga and Manifestation of low back pain

Pathophysiology of low back pain according to yoga can be explained through manifestation of various signs and symptoms at particular levels of *Panchakosha*. In *Annamaya Kosha*, various lifestyle changes like sedentary lifestyle, lack of exercise, overwork or physical stress cause structural defects. Any physical impact or injury, imbalance between physical activity and relaxation hampers free flow of *prana*. Physical stress followed by emotional stress and anxiety affects adversely *Manomaya kosha*. Lack of physical awareness, hectic lifestyle, busy schedules and demanding nature of work produces ill effects in *Vijnanamaya kosha*. Lifestyle associated behavioral changes and improper utilization of strength, weakness and potentials affects *Anandamaya kosha*. Pathological changes may arise in any *Kosha* and it may spread to subsequent or previous *kosha* producing a full blown pathology.

Assessment of patient through history taking, physical examination followed by categorization of patient is essential for proper Yogic management of low back pain. Proper analysis of clinical manifestation at *Panchakosha* level may help to treat the patient appropriately using various modalities of Yoga. (Table 1)

Sr. No.	<i>Panchakosha</i> level affected	Treatment modalities for particular <i>Kosha</i>
1	<i>Annamaya Kosha</i>	<i>Shatakarma</i> , <i>Pathya Apathya</i> , Medication
2	<i>Pranamaya Kosha</i>	<i>Pranayama</i> , Breathing Techniques
3	<i>Manomaya Kosha</i>	<i>Dhyana</i> , <i>Dharana</i> , Meditation and relaxation techniques
4	<i>Vijnanamaya Kosha</i>	Education of Patient, Awareness expansion techniques, Guided Relaxation techniques and Counseling
5	<i>Anandamaya Kosha</i>	Analysis of Strength, Weakness and Potentials along with their proper utilization

Table 1: Treatment modalities according *Panchakosha* level

Yogasanas for Low back pain

Hathayoga explains *Asana* as first part of *Shadanga Yoga*. *Asana* should impart

stability and happiness to the yogi. *Asanas* through physical postures and stretching help in improvement of muscle strength and regain the flexibility. ⁽²⁰⁾

Yogasanas and stretching techniques mentioned in Table 2 should be associated with breathing exercise. These *yogasanas* should be selected or modified according to the clinical condition of patient and his disability. Acute forward bending, acute backward bending and sudden jerk should be avoided in all types of low back pain. In all low back pain cases, *Yogasanas* should be started with *Sookshma vyayama* or loosening exercises and it should end with guided relaxation technique or *shavasana*.

Sr. No.	Category of low back pain	<i>Yogasanas</i> and stretching techniques to be recommended
1	Acute Inflammatory low back pain	Only Shavasana
2	Acute Non-inflammatory low back pain	<i>Sukshma Vyayama</i> , <i>Ardha Shalabhasana</i> , <i>Bhujangasana</i> , Folded leg lumbar stretch, crossed leg lumbar stretch, Straight leg raise with breathing
3	Sub-acute low back pain	<i>Sukshma Vyayama</i> , <i>Shashankasana</i> , <i>Ardha Ushtrasana</i> , <i>Vakrasana</i> , <i>Setubandhasana</i> with support, <i>Ardha</i>

		<i>Dhanurasana</i> , <i>Ardha Pavanamuktasana</i>
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Table 2 : Yogasanas and stretching techniques according to grade of low back pain

Pranayamas for low back pain

Pranayama helps to restore the unhindered flow of *Prana* in the body. All types of *pranayama* can be performed by people with low back pain. But these *pranayama* should be adjusted according to the cause of low back pain, condition of patient, environment and other related factors. *Nadishuddhi Pranayama* and *Bhramari Pranyama* help to relieve stress, increase the vital energy of the body, increase pain threshold and calms mind to produce a sound sleep.

Meditation and relaxation for Low back pain

Meditation improves the stability of mind. It clarifies mind and improves pain tolerance levels of the patient. Calmness endowed by meditation help to reduce anxiety and stress associated with chronic pain. Guided relaxation techniques help to relieve the stiffness of muscles and regain the ability for active contraction and relaxation with natural balance. Relaxation techniques with breathing also help to decrease stress and improve mental health.

Discussion:

Hatha yoga improves functional ability of patient with enhanced balance, muscle flexibility, decreased disability

and depression.⁽²¹⁾ Low back pain involves spinal misalignment and imbalanced posture due to involvement of musculoskeletal components. *Asanas* like *shavasana* and *makarasana* produce relaxation in the muscles. *Ardhakatichakrasana* and *Ardhamatsyendrasana* stretch the muscles in the lumbar region. *Bhujangasana* and *Shalabhasana* help in the strengthening of muscles. A combination of these *asanas* starting with relaxation followed by stretching and strengthening ensures proper and timely improvement in the stability and posture.⁽²²⁻²⁴⁾

Yoga intervention not only reduces pain but also improves Quality of life of people with low back pain. Behavioral changes imparted by Yoga protocol containing *Asanas*, *Pranayama*, Meditation and Self awareness expansion help in improvement of parameters mentioned in Quality of life scales like HRQoL.⁽²⁵⁾

Chronic pain may change the breathing pattern making it shallow, thoracic and irregularly strained. This kind of sustained stress affects neuronal flow along with higher levels of *cortisol*. *Pranayama* helps in deep breathing which relaxes most of the muscles of the body bringing an equilibrium between Sympathetic and parasympathetic components of nervous system.⁽²⁵⁾

Yoga protocol acts on physical, cognitive, emotional, behavioral and social dimensions of the one's health. Active involvement, improved body awareness helps patients to embrace pain and disability positively. It helps to improve the mental health and reduce

pain associated anxiety which may deteriorate the prevalent painful condition. Such multidimensional effectiveness of Yoga makes it an unique tool in the clinical management of low back pain.⁽²⁶⁾

Conclusion:

Low back pain has increased prevalence in recent years across the age groups. It produces significant disability related burden on the society. Non-pharmacological and non-invasive interventions like Yoga therapy are economical and effective in low back pain. Yoga acts at physical, physiological, cognitive and emotional level. Hence Yoga treatment should be adopted for faster and better recovery of patients from the low back pain. In this era of integrative medicine, Yoga has an important role to reduce the disability burden due to low back pain through its different modalities.

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