



Therapeutic View of Yoga towards Back pain

by

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Back pain –Problem of all

We are not too much aware about the vertebral column and associated muscles which works in various ways in our daily activities. Certainly we do not know, how we have been giving repeated and unnecessary strain on it. The school children, due to their bad sitting habits, the youngsters due to their competitive and stressful works, the office workers due to their prolonged malposture and inactivity, the housewives due to their exertion, all have possibilities to suffer from the back pain. No doubt, that most of the problems are due to strain and sprain of the paraspinal muscles. If we consider 5000 patients of back pain, near about 4000 are of muscular origin. But such muscular problems may become the cause of further various chronic conditions like spondilitis, spondylosis, spondilolishthesis etc. So we must not ignore these conditions which appears so simples and always tried to solve them by taking repeatedly symptomatic drugs. These chronic, degenerative problems becomes irreversible and makes difficult the daily simple activities like to go in bathroom, toilet or even dressing up. The recurrent nerve compression due to anatomical derangement in chronic degenerative pathology, not only produces the intense pain but also the atrophy of the related muscles which leads to permanent disability. Daily yogic practices not only prevents the complications but also at least makes able to do daily activities without pain though one suffers from various irreversible complications. Also one must consider the influence of chronic stress mechanism which reflects through the recurrent back pain.

Anatomy and physiology-

To understand the efficacy and limitations of yoga in such cases, we must study all these things through scientific view. Let us consider about the anatomy of vertebral column and associated muscles. Our spine is made up of 33 vertebrae, in which the last 9 are fused and resembles the part of pelvis (sacrum and coccyx). Middle 12 vertebrae get attached to ribs and becomes the part of thoracic cage. They have very little movements. Thus the cervical and lumbar vertebrae are the most moveable and active part of the spine. Also we have to consider them as a weak points of spine especially. L4-L5, L5-S1 and C4-C5 region. Because, the gravity works more on these particular parts, due to curving of spine in that region. During daily activities, especially lifting the weight and during jerky movements, most of the strain comes on these points. Eg. If we lift the weight more than 10 kg, through wrong manner (i.e. not using our other parts like thigh and pelvic parts) the pressure directly comes on the lumbar discs which is 20 times greater than the pressure in usual standing state. Thus the conditions like acute or chronic discitis and spondylosis are more related with these regions. In between two vertebral bodies, we have the disc, cushion like structure which provides the spring like action during movements, so that it becomes easy, quick and effective. Anatomically, each disc contains, nucleus pulposus and annulus fibrosus (outer elastic covering). Nucleus pulposus is a jelly like content which contain 70 to 80% water. Daily stressful activities or

irregular life style disturbs this water level to some extent. Such condition is more prone for the injury due to small jerk also.

Spine gives space to spinal cord and nerves. Another importance of it is the movements- backward, forward and lateral bendings and twistings. Variety of muscles takes part in it. In between two vertebrae, we have very small muscles called as intervertebral muscles which helps in very fine movements of the spine, especially twisting. Outer to these various muscles are arranged in each side of spine called as paraspinal muscles. These muscles protect the structure especially during heavy work. The weakness in these muscles may become the cause of discitis. Inactivity due to lack of regular exercise leads to stiffness of these big muscles which makes difficult to perform regular activities also. In such condition, if one try to perform sudden jerky movements, these muscles immediately goes in spasm which creates severe pain and restriction during very little movements also. Most of the time the imbalance in between symmetrical muscles leads to altered gait like scoliosis or lordosis. So, for the health of back one must consider these back muscles along with abdominal, pelvic and thigh muscles.

Pathology of spondylosis

It is a chronic degenerative disorder. Unfortunately, we see the young patients who get this. Actually it is the result of recurrent injury of the disc without proper repair. Due to the injury, the outer circular layers of annulus fibrosus get ruptured. The disc becomes edematous and from the cracked region, inner jelly comes out. This condition is called as prolapsed or slipped or herniated disc. Most of the time the jelly leaks towards the posterior part of vertebral body i.e. in vertebral canal. If the injury is very little, then without any complication the disc get repaired with proper rest, within 3 to 4 weeks. But when injury is hard, the jelly protrudes in the vertebral canal in large amount. Later on, due to absorption of the water part, the protruded material becomes hard which produces pressure on the nerve roots. The patient suffers from the radicular pain along its path and may produce either restriction in movements or disturbed gait or both simultaneously. When all symptoms becomes chronic and intermittent this indicates recurrent injury to the disc i.e. chronic discitis. This leads to the degeneration of disc along with associated ligament and muscle degeneration. Due to degeneration of disc, the distance between two vertebrae becomes less or sometimes they may get fused also. This is called as spondylosis. When the degree of degeneration is high, the condition becomes irreversible.

Efficacy and limitations of Yoga practices

Various books related with yogic practices gives tall claims about some particular asana. Unfortunately, most of these does not give proper scientific reasoning.

Sometimes, the specific practice is described scientifically but not applicable for the patient. Eg.-Setubandhasana is very good for low back pain and in case of lumbar spondylosis also. But it is very difficult to perform for obese persons. So we have to modify the practice schedule according to each patient and its present condition also. Now considering the pathological conditions, we can give excellent prognosis in case of muscular back pain (strain and sprain.) We can check the

degenerative pathology of disc with the help of regular yogic practices. In case of extensive spondylosis, since most of the time it is irreversible, at least we can mobilize the patient for his daily activities. Most of the time the complications of spondylosis get aggravated due to associated muscle weakness and imbalance. Through the proper training of muscles we can regain their activities and avoid the further complications. But we must know the limitations of our practices especially in spondilolithesis and central cannal stenosis. We can give positive result in early stage of ankylosing spondylitis but very difficult in later stage when the bamboo spine get arise.

Yoga in acute back pain

Very few asana work in acute condition. The aim is to give proper rest to the back muscles. Relaxative asana works more. But here instead of shavasana, we have to choose makarasana for the proper rest. Because of the natural curving in the lumbar region, this part remains above the floor in shavasana. So the muscles remains tense since they work against gravity. So, if already there is spasm or strain of lower back muscles, shavasana may aggravate the pain. Especially if there is lumbar lordosis, shavasana becomes more painful for him. We can overcome this weak point of shavasana by giving makarasana. Here, the antigravity force get arised by abdominal, chest and thigh muscles. The back muscles get total rest and also the spine remains in its normal curvature.

One can maintain this posture up to 20 to 30 minutes. We can modify this asana into matsyakridasana i.e. folding one leg in such a way, that the angle in knee and thigh joint becomes nearly 90 degree.

Pavanmuktasana without raising the head is one another posture which is useful in low back pain. In this posture, due to complete flexion of both hips, the surface of lumbar region comes in contact with floor, thus it helps to produce the antigravity force. We can maintain it easily up to 2 minutes more. Only one precaution should be take that the breathing should be kept normal. We can repeat this asana for 3 to 4 times in one practice. Regular practice of it helps to recover from chronic back pain by reducing the long standing spasm of lumbar intervertebral and paraspinal muscles.

Some other supportive therapies like, local steam, hot water bag, soft water enema or oil enema also helps in such situations.

In acute discitis, one has to take the rest for 3 to 4 weeks. Within this, he can do the above things. Sometimes after taking pain killers, the pain get subsided within 4 to 5 days and patient feels oneself suitable for other asanas. According to medical view, there should not be any extra activity during oedema of the disc. So wait for at least 3 weeks.

Yoga practice plan after subsiding acute back pain

Now, here our aim of practice is to give proper musculoskeletal training. Not only the back muscles but the abdominal, thigh and pelvic muscles takes important part in the movement of spine and the gait. Weak and stiff muscles increases the possibility of disc injury. Another thing is that after injury, especially the small intervertebral muscles, remains in spasm for a long time which

restricts the movements and disturbs the gait. In such conditions the patient tries to move with the help of other group of muscles. Thus one group remains without work and other group get exhausted due to overwork. This is a muscular imbalance, which weakens the muscles. This may leads to permanent musculoskeletal misalignment.(lordosis, scoliosis, limping gait etc) Such condition again increases the possibility of recurrent injury, which lastly turns into the chronic irreversible degeneration of disc and associated ligaments (posterior vertebral ligament rupture and degeneration, ligamentum flava thickening etc.)

For the proper training, we have to choose those asana which can be performed easily and safely in the particular pathological condition. It is not necessary to perform all asanas which described in various texts. But whatever we are performing, should be with proper sequence, maintenance and frequency. Let us consider some important asana-

1) Simple backward bending lying in prone position

These are very easy to perform and have maximum benefits. During back bend, anatomically, two adjacent spinous process comes nearer and the distance between two adjacent vertebral bodies get increased. Automatically this reduces the intradiscal pressure which in turn helps to repair it properly. Thus we can avoid the vicious circle of recurrent injury. (Just opposite to this is about forward bending where the pressure increases. So we have to avoid it). Another thing is that, during back bend we increases the blood flow towards the disc and intervertebral ligaments. Thus, proper nutrition helps in early and easy repair of the associated tissues also. We have to consider backward bending postures like Niralambasana, Simple bhujangasana and Marjarasana

2) Twisting postures in lying supine condition

In kaivalyadhama tradition, these termed as crocodile variations or merudandabhyasa i.e. specific spine exercise. This works more on intervertebral muscles – intertransverse and oblique muscles. Actually these muscles are very short and takes part in very fine movements of spine. Also these protects the disc and other vital parts in vertebral canal. Because of chronic disc injury, these muscles get repeatedly spasm and then get degenerated. Only twisting postures gives sufficient exercise to them. Crocodile variations also works on various muscles of the pelvis, abdomen and intercostals. It tones up the oblique muscles of abdomen and low back muscles. Also these mobilizes hip joint skillfully which remains very stiff in chronic stages.

3) Asana for strength of associated muscles

Here, we have to consider two important asanas- Uttanpadasana (Ardhalasana) and Ardhashalabhasana. The first uttanpadasana , (when we raise the leg up to 70 degree) contracts quadriceps and the muscles of anterior abdominal wall. The ardhashalabhasana contracts low back muscles with gluteus maximus and hamstrings. Both asana requires more energy and sometimes support especially when patient is obese. Regular practice tones up these muscles which bears the gravitational force during postures and movements. One should be clear that sometimes both asana create pain in chronic back pain. At that time avoid these for some days and try again.

4) Sitting and standing asanas

Practically, for preventive purpose the sitting meditative asanas are useful to relax the back. This reduces the tendency of recurrent muscular back pain, especially due to prolonged malposture in case of office workers. But when disc get injured, the sitting postures becomes painful. In chronic degenerative disc which is associated with muscular imbalance, we cannot perform these sitting poses. For some peoples we have to modify it as one can do in sitting on the chair. In standing asanas, parvatasana is the easiest and most effective posture for back pain. It stretches almost all muscles of back, especially the superficial and intermediate paraspinal group. This establishes the normal curvature of the spine by reducing scoliosis or kyphosis. One can practices it repeatedly in a day. Along with this, katichakrasana also helps to improve the flexibility of spine.

5) Mobilization of neck

Actually, cervical region is most delicate part of the spine. Even small jerk may produces disc injury. Furthermore, the vertebral artery (branch of subclavian artery) runs through the spine and supplies the most vital part of the brain (base of brain). Sometimes the jerky movements may produce pressure in it which disturbs the blood supply. Thus many times, in the cervical spondylitis or spondylosis, patients suffer from recurrent headache and giddiness. So the neck exercise should be done very cautiously under medical guidance. All movements should be very slow and gentle. Here brahammudra works effectively. Rotate the neck to right, left and upper side respectively. Hold each posture for at least 15 sec. We can repeat this cycle for many times in a day. However the forward bending of the neck should be avoided in case of disc injury or degeneration. Most of the time the simple rotation of shoulders and swings of arm helps a lot to reduce the stiffness associated muscles.

Progress after practice

We can observe this progress through following points.

1) Performance of asana

Thin peoples can do easily. For fatty peoples, breath holding asana like ardhshalabhasana and uttanpadasana becomes difficult. We have to give passive support for this. In massive degeneration of disc, instead of these two asana, simple padasanchalana (movement of hip and knee) is useful for them. In chronic discitis, though patient shows difficulty during these asana, after 2 to 3 weeks the maintainance of posture becomes easy and comfortable. Ardh-Shalabhasana should be maintained up to 5 sec only and uttanpadasana up to 10 to 15 sec. but one can repeat this for 3 to 5 times in the practice. Other therapy asana are easy to perform for all, patients of spondylosis.

2) About symptoms and investigations

When one performs all asanas regularly, the pain get subsided within 4 to 5 weeks. Also the gait get improved slowly slowly up to 2 to 3 months. We have checked MRI scan (after 6 month practice) which showed not much change in previous one but still the regular movements and gait improved clinically. At least there was no progress in degree of degeneration.

Some important instructions

- 1) Always take the support of hand while standing. This reduces the risk of pressure on disc and thus prevents the possibility of recurrent injury.
- 2) Wear a socks, especially in cold. Because the cold touch or environment may aggravate the pain and stiffness.
- 3) In the morning, do asana after hot water bath, so that the movements becomes easy.
- 4) For office workers, do parvatasana and brahammudra while sitting on the chair. Repeat it at least three times in a day.
- 5) Keep the bowel clear. Because the tendency of constipation and gases may aggravate the pain.
- 6) Apply hot water bag instead of taking painkillers.
- 7) There should not be any rapid and jerky movement while performing the asanas.
- 8) Avoid long driving, lifting the weights or carrying the heavy objects, prolonged sitting or standing etc.

Ideal yoga therapy plan for back pain

- 1) Makarasana- 2 min.
- 2) Niralambasana- 20 to 30 sec.
- 3) Simple bhujangasana- 30sec.
- 4) Ardha- shalabhasana- 5 sec.
- 5) Marjarasana- 15 sec.
- 6) Uttanpadasana- (With one leg only)-10 sec.
- 7) Pavanmuktasana- (without raising the head)-30 sec to 2 min.
- 8) Crocodile variations- 10 to 30 sec each.
- 9) Setubandhasana (cautiously) -5 to 15 sec.
- 10) Uttanmandukasana- 10 to 15 sec.
- 11) Katichakrasana- 10 sec.
- 12) Parvatasana- 30 sec to 2 min.
- 13) Brahammudra- 3 to 5 rounds.

THANK YOU
