

Low Back PAIN

The statistics surrounding Low Back Pain (LBP) are staggering. At any given time, 31 million Americans experience some level of LBP. Experts estimate that at some point in their lives, 80% of the American population will experience LBP ranging from acute discomfort to chronic disability. Each year, Americans spend approximately \$50 billion on relief for back pain (and that's only the easily calculated costs associated with the condition). Back pain is the 2nd most common reason for doctor's visits after upper respiratory infections and is one of the leading causes of absenteeism (missed days of work). Chances are that working as a personal trainer will involve training clients who have, had, or will have lower back pain. It is important that you understand the condition thoroughly to identify the causes, need for referral, activities that contribute to LBP, and develop an understanding of both pre-habilitative as well as rehabilitative exercises.

The lower back has the potential for many issues due to the complex nature of the physio-mechanical properties. The lower back (skeleton) contains the 5 lumbar vertebrae (L1 – L5) and the sacrum and coccyx, a group of fused bones at the base of the spine. The most common sites for a lower back injury are between L4 – L5 and L5 – S1 (first sacral vertebrae). This is most likely due to the natural high frictional coefficient of the area, biomechanical dynamics between the spine and the pelvis and the potential for excessive stress placed on this region of the body from loading and poor biomechanics. In many cases the dysfunction is multifaceted as individuals chronically have poor posture, or surrounding tightness and weakness which cause the lower

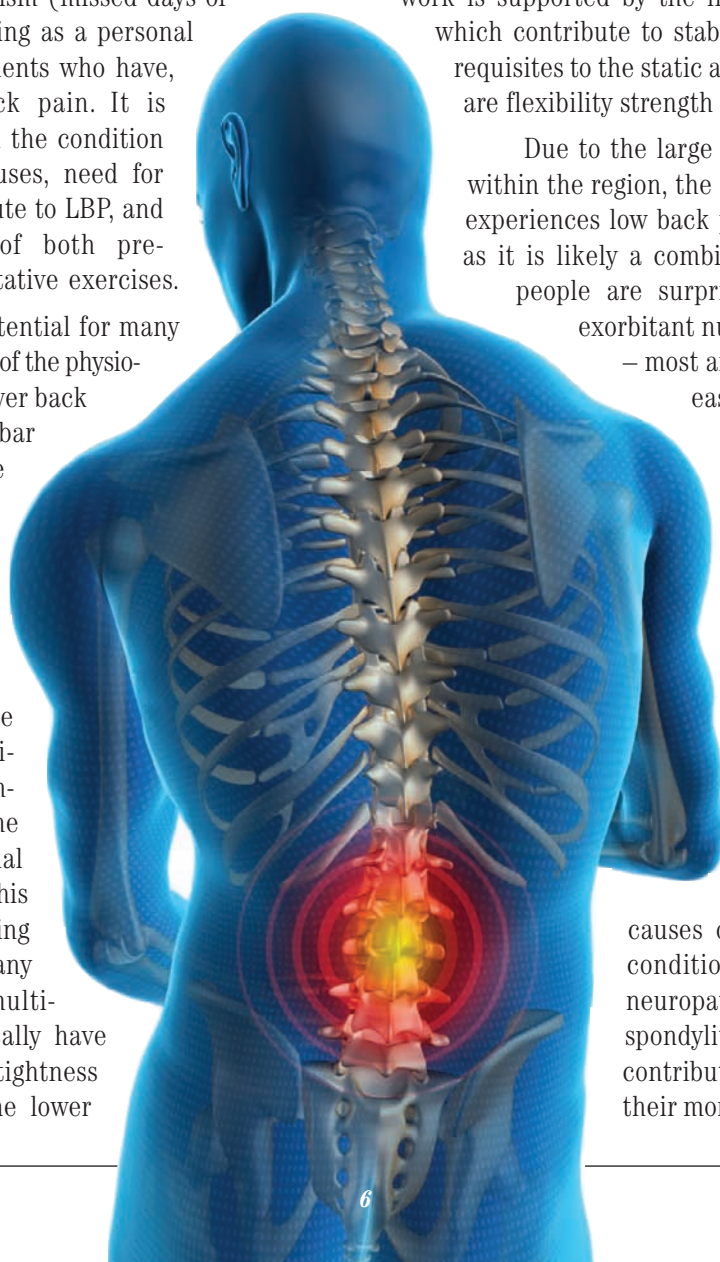
back to absorb the stress of activities inappropriately due to inefficient positioning. Each spinal articulation site is complemented by an intervertebral disc forming a motion segment. The discs are composed of spongy pads of cartilage that sit between each vertebra to allow for flexibility and movement and to provide shock absorption. When the vertebrae are stacked one on top of another they form a column housing the spinal cord. The nerves run off the central nervous system as a network of communication pathways to drive the systems of the body. The bony framework is supported by the ligaments, tendons, and muscles which contribute to stability and motor action. The two requisites to the static and dynamic activities of the body are flexibility strength (or weakness) and function.

Due to the large number of structures contained within the region, the exact cause of why an individual experiences low back pain can be difficult to pinpoint as it is likely a combination of several factors. Many people are surprised to find out there are an

exorbitant number of causes of low back pain – most are controllable and are relatively

easy to fix or manage but it is important to note back pain can be associated with more serious causes including cancer. For this reason a medical doctor should make the diagnosis. Some of the more common causes of low back pain include being overweight, having poor posture, a lack of physical activity, poor flexibility, decreased strength, poor sleeping position, stress, or acute trauma.

In addition to the more likely causes of low back pain, more serious conditions such as a pinched nerve, neuropathy, spinal stenosis, osteoporosis, spondylitis, and sciatica can certainly contribute to low back pain and due to their more serious nature, should be diag-



nosed and treated by a physician. However, when the cause of low back pain stems from musculoskeletal dysfunction, the role of the personal trainer can be paramount in protecting, strengthening, and stretching this area of the body.

Personal trainers working with clients who are experiencing low back pain will want to focus on a few of the key contributors to LBP. Firstly, ensuring that proper biomechanics/posture is utilized throughout all ranges of motion of daily tasks and exercise is vital. For many sufferers weight loss should also be a focus. As with any weight management plan place an emphasis on shifting the energy balance to the negative side through better nutrition. Aerobic activity also helps with low back pain and increased physical activity should ultimately lead to weight loss and a reduced risk for LBP. Stretching of traditionally tight muscles of the hip such as the hip flexors, rotators, extensors and abductors, (iliopsoas, piriformis, rectus femoris) while strengthening the commonly weak hip extensors such as the glutes, will go a long way toward improving pelvic control and stability, thereby reducing the likelihood of LBP. In addition to strengthening these muscles that flex/extend the hip,

particular attention should be paid to strengthening the core stabilizers, the abdominal muscles and the muscles of the lower back.

The efficiency of the spine and pelvis comes from proper management of force. Therefore, alleviating pulling stress from tight muscles while developing balanced pull strength between agonist and antagonist muscles should be the primary goal. These actions allow for a more functional skeleton. When the spine is effectively stabilized and lumbopelvic actions function efficiently most common contributors to back pain go away. Sectioning the prevention/rehabilitation plan into these areas will better ensure all contributing factors are accounted for properly. The exercises that follow are divided into groupings for Beginner, Intermediate, and Advanced exercisers. The movements are designed to focus on the key areas that affect pelvic positioning consequently contributing to low back pain, or as is the case with improvements in strength and flexibility, decreasing the risk and occurrence of low back pain. If pain is experienced during any of the exercises or stretches, discontinue the activity as it may aggravate the condition. ●

Lower Back Exercises • Beginner

Supine Pelvic Tilt



Opposite Raise

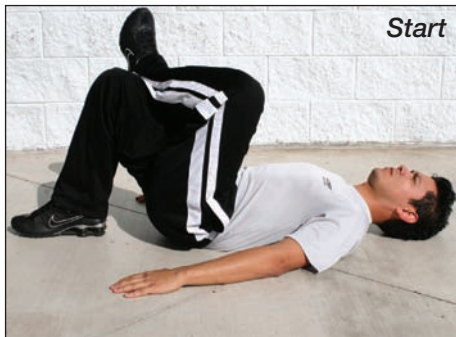


Supine Hip Extension

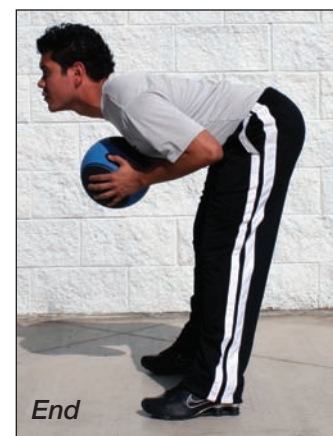
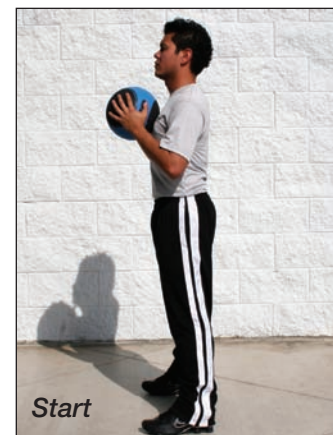


Lower Back Exercises • Intermediate

Leg Cross Hip Extension

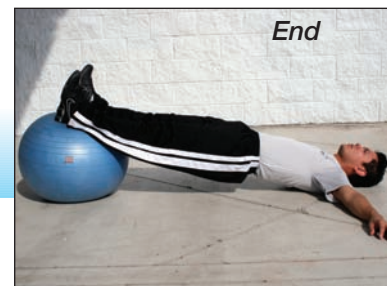


Bird Dog



Lower Back Exercises • Advanced

Hip Extension feet on ball



Opposite Raise on ball



Stretch Low Back Reach and Roll/Hip Flexor

