Back pain solutions

By Nick Talarczyk, PT



espite technological and medical advances, back and neck pain continue to affect 80 percent of the U.S. population at some time in their lives. For many, some degree of pain and limitation is considered "normal." Other than a traumatic injury, what leads to these problems and what, if anything, can be done about them?

We have a significant ability to adapt to our environment. Unfortunately our environment has become more sedentary, with extended periods of repetitive movement added to the sedentary postures. As we sit more often and longer, postural adaptations lead to physical changes that make us more susceptible to pain and injury. Driving, sitting at work, computer use, standing at a table or counter looking down, and reaching in front and pulling lead to muscular adaptations that can lead to acute and chronic pain.

To better understand these adaptations, some appreciation of these changes is helpful. Our muscles work in opposing balance. For example, the biceps muscle at the front of the arm flexes or bends the elbow; the triceps muscle on the back of

the arm straightens the elbow. If one of these muscles shortens or thickens due to static positions or limited movement, the opposing muscle will lose some ability to function due to disuse and neurological influences.

This principle applies to all the joints and muscles throughout the body. The specific changes and adaptations that affect the neck and back are numerous. Hip flexors, powerful muscles that originate on the front of the spine from the lower ribs and lower back that attach at the top of the thigh, shorten. This tilts





the pelvis anteriorly or forward, increasing the arch of the lower back, tightening the back muscles. The opposing muscles, the gluteals or hip extensors, are inhibited by the tight flexors and lose the ability to function well. They are the most powerful lifting muscles we have. Their inability to function contributes to low back pain. Over time, substitution patterns occur and can produce pain in the hips and/ or knees as well as the back. In the head, neck, shoulders and upper back, the static postural stressors gradually pull the head and shoulder forward over time, flattening the normal curve of the neck and increasing the forward curve in the upper back. Our shoulders round forward pulling the shoulder blades around the rib cage, stretching some muscles and shortening others. The anterior neck muscles shorten and the small muscles at the top of the neck tighten, putting pressure at the base of the skull. The result is neck pain, headaches, shoulder and arm pain.

These changes and adaptations are the source of acute and nagging pain that seems to come out of nowhere. The altered movement patterns cause wear in the spine, resulting in arthritic changes. These degenerative changes are so prevalent that a degree of arthritis and disc degeneration is considered "normal" on X-rays and MRIs as we age.

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Treating these acute and chronic problems becomes a process. Physical therapy utilizing manual, hands-on care and exercise instruction and progression can correct and manage the pain associated with muscle imbalance and postural changes.

Through hands-on corrections, postural awareness and correction, pelvic and neck and shoulder deviations are minimized or eliminated.

To address the ongoing physical stresses that contribute to the original problem, core and posterior chain exercises are often indicated. Retraining the core and posterior chain allows long-term self-management. The core can be visualized as the cylinder of muscles from the lower ribs through the pelvis. These include the rectus abdominus in front, and to either side the obliques and quadratus

lumborum. Posteriorly, the spinae erectors and the gluteal musculature work with the abdominals to brace and support the spine and allow us to lift, twist, turn and straighten. Posterior chain includes the hamstring muscles of the posterior thigh, the lower leg muscles, the gluteal muscles, the scapular retractors and spinal erectors.

Activating and reeducating these muscles to lift properly allows pain-free movement and comfortable rest positions. Awareness of optimal movement patterns allows performance of required activities and tasks throughout the day without constant wear and strain on our bodies.



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