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Back Pain Facts and Medical Dynamics

Financial Implications

Back pain is one of the costliest health problems in the United States when the costs of doctor visits, treatments, medications and loss of productivity are combined into a total figure. In 2004, researchers from Duke University collected data from national surveys and found that Americans with back pain spent \$3,498 on medical care, compared with those without the condition spending \$2,178 – that's a 60% difference. Correlating this data to the entire U.S. population, the researchers estimate that Americans spend \$91 billion annually, *with \$26 billion going specifically for back pain*. And this figure does not take into account the costs of loss of work wages and job productivity.

Back Pain Gets Worse When Patient Is Inactive

Research published in the journal *Spine* has found that patients with lower back injuries wind up increasing their pain when they avoid exercising their muscles. The inactivity causes the muscles in the abdomen, and the oblique muscles on the sides of the torso, to contort (in a process of compensation), which increases pressure on the spine and damages the vertebral discs.

To prove the increase in spinal pressure, researchers monitored the electrical activity in the volunteer's muscles and compared the readings to the pressure on the spine (called spine loading) along with side-to-side pressure on the spine (called lateral shear). Patients with back injuries registered a 26% increase in spinal compression, 75% increase in lateral shear, while also using greater muscles activity for 10 muscles (as opposed to non-injured adults).

In another study, researchers had 20 healthy, young men lie in bed for 56 days. The long period of inactivity shrunk the deep support muscles of their backs so bad that even after 6 months of recovery, *their support muscles never return to normal size!*

So if you, or your loved one, follow a routine of driving to work, sitting at desk, going home and watching TV, and then going to bed, you're doubling your chances of back injuries.

Body Weight and Back Pain

The presence of extra body weight, or a protruding stomach contributes to creating or sustaining back problems. This is because a protruding stomach means one must always counterbalance the extra weight with more exertion in the back muscles that aren't as far from the spine. The body struggles, acting in a seesaw motion, with the back muscles not extended as far away from the fulcrum, as is the weight of the belly. These dynamics add up to extra strain on the back muscles (from the extra weight-bearing activity), resulting in muscle strain, muscle strains and painful inflammation of the muscles. Extra weight also exaggerates the natural curve of the lumbar spine, requiring the vertebrae to bear weight at abnormal angles.

Damages To The Spinal Tissues

Degenerative Changes

A term used when the effects of aging result in deteriorative changes in the disks and facet joints of the lumbar spine. Degeneration usually begins after 20 years of age, though MRI studies have found changes in some teenagers.

Compression Fracture

Medical term used when bones are weakened by osteoporosis (reduced bone mass) and a sudden trauma (even a violent sneeze), which fractures the weakened bone.

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Damages To The Spinal Tissues - continued

Sciatica

Refers to pain caused by compression and/or irritation of one of five nerve roots that are branches of the sciatic nerve, producing pain in the lower back, buttock, calf muscle or foot.

Preventing and Alleviating Back Pain

Therapeutic Stretching

Gentle stretching of the back muscles works to lengthen the spine and relieve compression of the spinal vertebrae. When performed regularly, just fifteen minutes a day can prevent a myriad of problems.

Resting To Relieve Strain

On the Rug

Lie in the fetal position on your back, with knees drawn up to your stomach, and arms wrapped around the legs. This position lengthens (stretches) the back muscles effectively, helping to relieve spasm and pain.

On the Bed

Lie on your side with a pillow between the knees. This position also lengthens the back muscles and relieves them of all weight bearing strain. The pillow helps to realign the legs and lower back to their natural, balanced position.

Sitting in a Chair

The most favorable position for the lower back is around a 135-degree incline (leaning back slightly; 90-degrees is sitting upright, adding 45-degrees is leaning back almost half-way.). For a more detailed explanation, see **Ergonomics and Preventing Injuries: Chronic Back Pain and Sitting Upright**.

Remedies

Icing the Lower Back Muscles

This is beneficial even if you do not have a serious problem. Lowering the temperature of the lower back muscles helps to reverse the effects of low-level inflammation, a natural by-product from the wear-and-tear of life. While you sit and watch TV, or listening to music, or read, just throw a cold pack behind you and forget about it. It requires so little effort and yields such valuable rewards.

Hot Baths

For thousands of years, hot baths have provided a natural cure for aching muscles and frazzled nerves. The hot water induces the muscles to sweat away impurities and waste products that cause stiffness, while the warm water also brings increased blood flow to the muscle fibers to increase their natural process of repair. Hot baths are also excellent for the skin, as they cleanse away dead cells and stimulate blood flow to nourish and revitalize the skin.

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Lifting Heavy Objects Properly

- Bend at the knees and lift straight upward. Focus on your legs doing the work, not your back.
- Carry the object close to the body. Holding objects at arm's length increases the strain on the spine by *15 times the original weight!*

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Sources: **Duke University:** *Pharmaceutical Economics & Policy Council PEPC Brief Summaries of Academic Research* Volume 2 Issue 1. Spring 2004 **Spine Loading Characteristics of Patients With Low Back Pain Compared With Asymptomatic Individuals** *Spine* 1 December 2001 - Volume 26 - Issue 23 - pp 2566-2574 **Classifying Subgroups of Chronic Low Back Pain Patients Based on Lifting Patterns** *Archives of Physical Medicine and Rehabilitation* 2008 Aug;89(8):1542-9 **Stress Tips Handbook** *Academy of Stress Management*; Richard Lewis ISBN 0-9664069-4-X **Wikipedia** (<http://en.wikipedia.org>)