

### Low Back Health

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Talk about a real pain in the back. The leading result of accident to those under the age of 45 is low back injury. In 2004, the Virginia Workers' Compensation Commission report cited that \$53,183,275 was attributed in total expenditure to lower back injuries. Low back injury is pretty common and there are many factors that contribute to it. First and foremost, the lower back's anatomical positioning: It is in the middle of our body. Very simply, if you compress most anything from the ends, the weakest area, the middle, will bend. The same thing happens with the human body when subjected to workloads that are too heavy. Additionally, our body has the ability to twist, bend, and position as we move, all of which compromises our hinge point, the low back, even more. We've all heard that weak abdominal muscles contribute to low back pain and injury. Exercising this collection of muscles, also known as "core" muscles, will help decrease the incidence of low back pain. There are actually 3 types of muscles that support the spine: extensors (back muscles and gluteal muscles), flexors (abdominal muscles and iliopsoas muscles), and obliques or rotators (side muscles).

In many instances of low back injury, the particular individual is simply not physically conditioned to perform the task that injures them. Just as an athlete conditions to compete, non-athletic folks need to participate in consistent exercise routines that help them maintain the ability to perform physical work without injury. When lifting, make sure your feet are shoulder width apart or just outside of shoulder width to create a good base. Bend your legs and lift with your legs. Keep your head up and back straight. Keep the object you are lifting close to your body. The further away from your body it is, the greater the potential of your not being able to control it. Body mechanics are extremely important to low back health. Twisting or reaching across or behind your body to move an object can harm your lower back. Take the time to warm-up. At rest, your muscles do not have a great amount of blood in them. Very simply, your skeletal muscles are much like a sponge: The more fluid (blood) you can saturate them with, the more pliable (squishy) they become. When your muscles are more pliable, as they are after an active warm-up, your chance of injury decreases *substantially*. Many injuries are the result of rigid, tight muscle being subjected to an abrupt, heavy work load and not being adequately prepared to deal with that workload.

The majority of acute lower back pain episodes are caused by a muscular strain. Even though this doesn't sound like a serious injury, the low back pain can be very severe and last for several hours, several days or even a couple of weeks. When the muscles in the back are damaged, the areas around the muscles can become inflamed. With inflammation, the muscles in the back can spasm and cause both severe lower back pain and difficulty moving.

An episode of low back pain that lasts for more than two weeks can lead to muscle weakness (since the muscle hurts, the tendency is to avoid using them). This process leads to muscle atrophy which, in turn, causes more low back pain because the muscles are less able to support the spine.

***If you injure your lower back, seek medical attention as soon as you can.***

What may seem to be a minor injury may actually be more serious than you think. Allowing a lower back injury to persist and attempting to "tough it out" can lead to a chronic injury, weakening the area further.

## **Low Back Pain and Manual Materials Handling**

The most likely cause of on the job low back injury comes from improper MMH or Manual Materials Handling. In order to prevent occupational back injuries, we need to apply an ergonomic approach, using knowledge of engineering, environment, human capabilities, and limitations. Always consider the following:

- organization of work flow
- job design/redesign
- preplacement procedures when necessary
- training

Very often, poor planning of work flow can result in needless or repeated carrying of the same object. If articles are temporarily kept in one place, moved to another place, stored, and moved again, this can potentially lead to lifting and carrying injuries. Redesigning jobs can also reduce the risk for back injury. Eliminate heavy materials handling by using powered or mechanical handling systems.

If mechanical aids cannot eliminate the manual handling then the lifting demand must be decreased. This can be done in several ways. First of all, decrease the weight of handled objects to acceptable limits. This can be done by 2 people being assigned to lift the load or if possible splitting the load into 2 or more containers. The use of light plastic containers will decrease load weight. From a physical standpoint, lowering objects causes less stress than lifting those same objects, pulling an object is easier than carrying, and pushing is less demanding than pulling.

Reducing travel distances for carrying, pushing or pulling and changing work area layouts by reducing the horizontal/vertical distances of lifting also decreases the chance of injury. Additionally, employers can assign more time for repetitive handling jobs. Alternating heavy tasks with lighter ones also helps to reduce fatigue.

It's important that the design of heavy materials allows the worker to perform tasks without excessive bending and twisting. As mentioned previously, these body motions can be especially dangerous and can cause back injury even when not combined with handling loads.

Improving the work environment also reduces the risk for injury due to MMH. Examples would be:

- 1) Keeping the temperature of the work area between 64F – 70F when practical
- 2) Ensure an adequate work/rest schedule
- 3) Illuminate the work area effectively.
- 4) Use angular lighting and color contrast to improve depth perception. This helps in climbing stairs or moving in passageways.

Pre-placement screening is occasionally justified where a job involves heavy MMH in an unpredictable or uncontrolled environment. Examples of this would be firefighters, police, mine workers, and water rescue personnel. Of course, the best pre-selection method is performance of the actual task.

A good training program should make the worker aware of the hazards of MMH, demonstrate ways of avoiding unnecessary stress and teach the worker to handle materials safely.

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