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Crop Circle

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SPECIAL BACK
ISSUE

Inside this issue:

The Back	2
Why Is This Important To Me?	2
What If I Already Have Back Pain?	3
Accommodating a Back Injury On the Farm	3
Preventing Back Injury	5
Quick Back Saving Tips	5
Back Lifting Technique Sheet	

Special points of interest:

- * Why so many farmers and ranchers experience back injuries.
- * How to ease your back pain.
- * Techniques to modify your farm
- * Tips you can use to prevent back injury

Welcome!

From Robert J. Fetsch, Director of Colorado AgrAbility and Colorado State University Professor

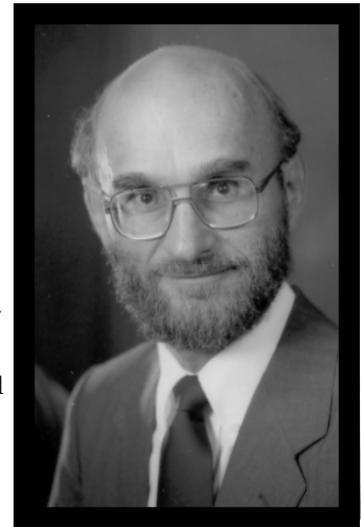
Welcome to the New Colorado AgrAbility News! We are pleased to have this opportunity to communicate with you about AgrAbility in Colorado.

What is AgrAbility?

AgrAbility is a joint program between Colorado State University Cooperative Extension (CSUCE) and Easter Seals Colorado (ESC). CSUCE provides information and education; ESC provides information and service. Together we serve the informational, educational, and service needs of farm and ranch families with disabilities who want to continue doing what they love—farming and ranching.

Our **objective** with this newsletter is to provide information to farm and ranch families with disabilities. Cooperative Extension Agents, rural health professionals, and other agriculture related agency professionals.

We hope that you find your newsletter informative. We welcome your comments, questions, and ideas for improving this newsletter at any time. Feel free to call editor Carla Wilhite at 303.937.7713 ext. 224 or myself at 970.491.5648.



Dr. Robert J. Fetsch

You can email Carla at wilhitec@cess.org or myself at fetsch@cahs.colostate.edu.

Colorado AgrAbility

At Easter Seals Colorado AgrAbility project we are currently assisting many farmers, farm family members and agricultural workers to increase their independence by overcoming barriers caused by disability.

How do we do this? We give on-the-farm technical

assistance, provide work site assessments, make referrals to appropriate agencies, and provide case management. We also provide information and educational presentations on topics such as adaptive and assistive technology on the farm, equipment modifications, farming with diabe-

tes or arthritis, and caregiving skills.

If you think you may benefit from our services or would like to get involved, contact Carla Wilhite at the above information or

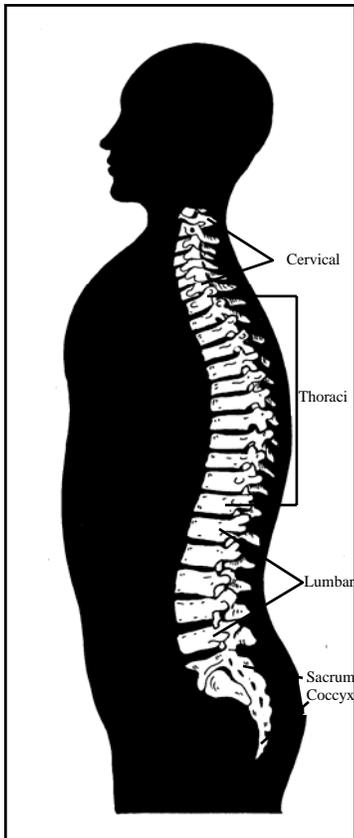
Visit our web site at: www.eastersealsco.org

THE BACK

The spine is made up of 33 different bones called vertebrae. The vertebrae are stacked on top of each other and are held together by tough bands of tissue called ligaments. Shock-absorbing fibrous, elastic pads called discs separate each vertebra. Together, the vertebrae and the discs create the spinal column.

The back also consists of 32 pairs of nerves that pass through the openings between the vertebrae, 40 muscles, and many connecting tendons and ligaments that keep the spinal column from collapsing.

There are five sections of the back. The first seven vertebrae, the cervical vertebrae (C-1 to C-7), form the neck. These are the smallest of the vertebrae. The next twelve vertebrae, or the thoracic vertebra (T-1 to T-12), make up the next portion of the back. The largest of all the vertebrae are the five lumbar vertebrae (L-1 to L-5). These vertebrae support the most weight and make up the lower portion of the back, or the small of the back. The sacrum, a triangular structure of five fused vertebrae, forms the base of the spinal column. Finally, the coccyx, four attached vertebrae, is the lowest part of the spinal column (tailbone).



Why Is This Important To Me?

Although back injury is usually preventable, experts claim that 4 out of 5 Americans will experience back pain. Many injuries are due to repetitive movements and fatigue resulting from natural stresses and strains on the body. Farmers and ranchers are particularly at high risk for developing back problems because their work often involves

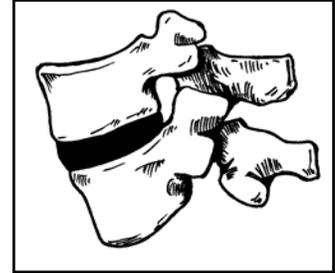
"Most back injuries can be prevented...farmers and ranchers are at high risk for back problems."

lifting heavy objects, extended amounts of time sitting on farm equipment, and using awkward postures to do farm work.

Injuries can either be acute, meaning the pain comes on suddenly and intensely, but only lasts a short while, or chronic where the pain can be recurring and lingering.

The two most common types of back injuries are strains, sprains, spasms (reported most by farmers) and disc problems.

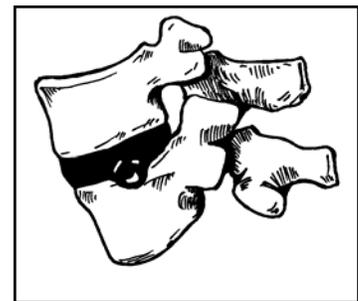
A muscle strain refers to excessive compression or tension on muscles due to overexertion, while a sprain is tension on the ligaments due to overexertion. A spasm, on the other hand, may be the body's way of protecting itself from further injury.



A Normal Vertebrae and Disc (in black)

spasm may occur after an accident and is intended to immobilize the individual to prevent further damage.

Two of the most common disc problems are herniated discs and ruptured discs. Discs are comprised of a tough fibrous outer layer, inner structural walls, and a soft gel in the center. When a disc herniates, the soft gel protrudes from the center, through the inner walls, and often bulges out between vertebrae. Pain results when the bulging places pressure on a nearby nerve. A ruptured disc occurs when the bulge bursts open. This may cause pain and muscle spasms including sciatic pain (severe pain spreading down one leg and often into the foot).



Herniated Disk (in black)

What Can I Do If I Already Have Back Pain?

If you experience back pain or think you may have injured your back, STOP what you're doing immediately. Most minor back pain and injuries can improve in a few days. If pain persists or is recurrent, contact your physician or primary health care provider.

Most people do not need surgery. Instead, a few days of bed rest may be all that is needed to cure a painful back. Two to three days, followed by an exercise program, is all that is necessary to relax strained muscles and take pressure off the nerves of the lower back. Exercise accelerates healing and prevents future injury. In addition, exercise stimulates the body's natural painkillers.

Applying heat and cold can also help with pain relief. Cold should be used the first 48 hours after the injury to reduce swelling, muscle spasms, and pain. Cold therapy can be applied using an ice pack, ice cube, or even a bag of frozen vegetables. Be careful not to apply cold

or ice directly to the skin. Instead, wrap the ice pack or cold product in a towel first. Do not leave the ice on long enough for the skin to become numb because frost bite could occur.

Heat therapy can be used 48 hours after the initial injury to relax muscles, increase blood flow, and soothe painful areas. Heat can be applied using a heat pad, warm compress, and a warm shower or bath. Once again, never apply heat directly to the skin. Both heat and cold should not be used for longer than twenty-minutes at a time, but can be applied several times during the day.

During acute back pain, medication can be used. Try not to use medications that may cause drowsiness as it may be necessary to still drive, operate large machinery, or tend to livestock. Over the counter anti-inflammatory drugs such as acetaminophen (Tylenol) or ibuprofen may be all that is needed to reduce pain. More severe pain may require prescribed

medications such as Tylenol with Codeine or Demerol.

Less than ten percent of people require surgery. An orthopedist can help you determine whether back surgery is needed. An alternative treatment such as visiting a chiropractor or receiving acupuncture may be recommended.

Remember, before trying any of these techniques, contact your primary physician or caregiver.

Exercise

Exercising can be a great way to prevent new back injuries and decrease recurrence of previous back pain. Exercise along with a balanced diet can help you lose excess weight, which may be putting stress on the back. Strengthening your abdominal muscles can help relieve pressure off the spine, stabilize the spine, and keep the spine aligned. Consult your physician before beginning any exercise program, especially if you have had a history of back pain.

Accommodating a Back Injury On the Farm

There are many modifications, techniques, and adaptive equipment that can be used to decrease the risk of back injury on the farm or ranch. There are several low cost, easy to do, homemade modifications that can be done to reduce the risk of injury for many farm or ranch chores and tasks.

First, consider if the task can be done an alternative way. Can you rearrange your work area to reduce the need for risky postures and lifting? This may include rotating jobs with other family members or farm hands, adding a rubber mat to prevent standing on concrete for long periods of time, or alternating standing tasks with sitting tasks. There are however, many tasks that may require more high-tech alterations at a higher cost.

Livestock

The unpredictability of livestock can pose several barriers for a person with a back

injury. Many products such as the Warrie Back-Aid, Caf-Cart, and a Donkey stool can be used to make doing farm tasks safer and easier. In addition, more high-tech alterations can be made such as creating a sunken dairy parlor to prevent excessive bending.

Farm Equipment Operation



Caf-Cart helps reduce back strain while lifting and carrying

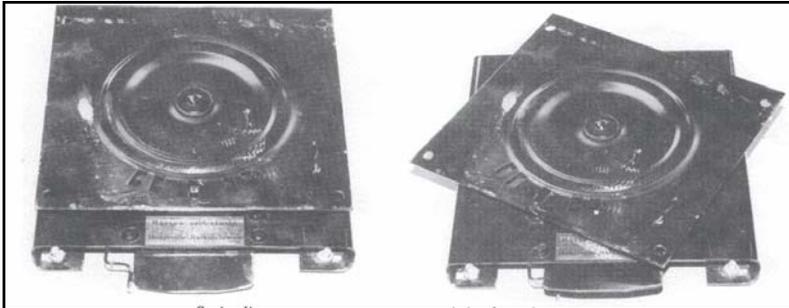
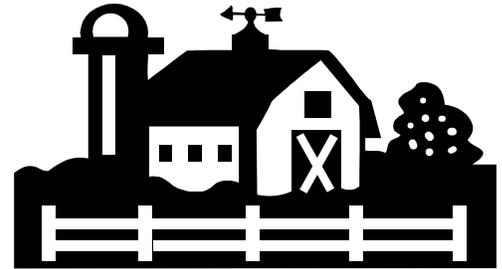
Prolonged sitting and the vibration of the vehicle along with poor posture while performing fieldwork can be dangerous for a person with a back impairment. Twisting the upper body to monitor implements while operating controls; unexpected and powerful jerks or bouncing while operating equipment; and attaching implements to equipment may also increase the risk for back injury.

There are several products that can be bought or modifications made to reduce the chance of back injury while working with farm equipment. Try updating an old tractor seat with a new swivel seat mount to make it more comfortable to look behind the machine. Large side view mirrors can also be added to easier view trailing implements. In addition, an extra step can be added onto the ladder of a

Continued on page 4

tractor to make the first step less difficult to reach. This is especially handy if the back is already aggravated. Take advantage of times when it is necessary to get off the tractor or other farm vehicle and stretch out tight muscles.

them off of high shelves. Flat-sole, shock absorbent shoes should be worn when working in the shop, especially on concrete. A stepstool may also be beneficial for reaching high shelves or making machinery repairs.



Swiveling seat mount: Allows you to see trailing implements without twisting

Shop

There are also several hazards found in the shop that may increase the risk of back injury. The shop floor should be clutter free to avoid tripping and be free of water, mud, grease, and oil to prevent slipping and falling. Shelves and racks can be installed to keep tools at waist level to prevent bending or overhead reaching. A reacher or a long pole with a magnet at the end can be bought or constructed to aid in picking up items from the floor or getting

Lawn, Garden, and Orchard Work

Gardening, vegetable, and fruit harvesting traditionally requires bending, stooping, kneeling, and squatting. A work stool or built up garden can be used to prevent excessive bending. Likewise, a footstool may be used to avoid repetitive overhead reaching, such as picking fruit from a tree. More high-tech products such as an automatic planter trailed behind a garden tractor or vegetable harvesting aid can also prevent bending and stooping.

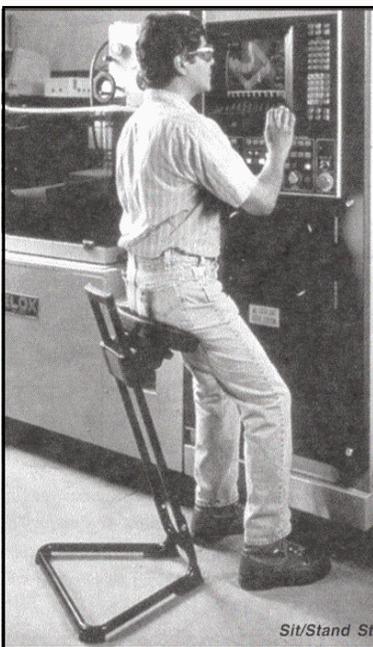


Little Mule Wheelbarrow: makes lifting and hauling safer and more convenient.

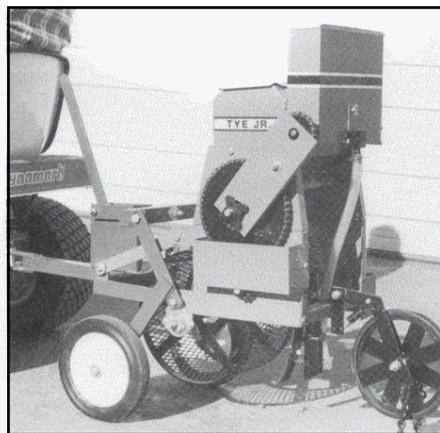
Materials Handling

Many farm chores are very harmful to the back such as lifting heavy bales of hay, handling feed, and carrying fertilizer bags. When possible, eliminate the need for lifting, twisting, or other activities that may increase the risk of back injury.

Some solutions may be as simple as having feed and fertilizer delivered in bulk to eliminate the need to lift heavy bags. A wheelbarrow or feed cart can be used to help more evenly distribute the weight of the materials, reducing the need for awkward carrying. Instead of baling hay in small squares, change to large round bales where a three-point hitch can be used. This way, the tractor does all the work, not your back. If lifting cannot be avoided, use proper techniques as illustrated on the pull out sheet.



Sit-Stand Stool-tilts, raises, lowers, and swivels to provide comfortable working



Mechanical garden seeder

PREVENTING BACK INJURY

Changing our posture and body mechanics can prevent most back injuries. Poor posture makes the back more susceptible to injury and pain in the neck, shoulders, and lower back. The natural curve of the spinal column should resemble the letter "S" with a curve at the neck, middle back, and lower back. Proper posture should be used to maintain all three curves when standing, sitting, and lying down.

Standing

Standing for long periods of time can aggravate low back pain, especially standing on concrete. Try to stand with a straight back, keeping the stomach and buttocks tucked in and

knees slightly bent. Move close to the work area and face the task to avoid twisting and bending the body. If you stand for long periods of time, alternate propping up one foot on a stool, bottom shelf of a workbench, or a bucket and wear flat, soft-sole shoes (i.e. try wearing work boots as opposed to cowboy boots).

Sitting

The three natural curves of the back should also be maintained while sitting. The upper back should remain straight, shoulders relaxed, and stomach muscles pulled in. Use the big muscles of the legs to lower into sitting by bending the knees instead of bending forward at the waist. If

needed, a small cushion or rolled up towel behind the lower back will help maintain the natural curve of the spine. Your knees should be kept slightly higher than your hips with your feet flat on the floor. If the seat you are sitting in is too tall to put your feet flat on the floor, use something under them such as a footstool or phonebook. If a lot of time is spent in a specific chair, such as in a workshop, a more permanent footrest can be constructed by making a box out of two 2x4s for the sides and two pieces of plywood for the top and bottom.

Lying Down

The best position for lying down is on your side with your knees pulled up. The second best position is on your back. Lying on your stomach places the most strain on your lower back. Avoid propping your head or upper body up on an arm and hand. Propping compromises the neck, shoulder, arms, wrists, and hands. To improve alignment of the spine and lessen back strain, use a pillow between your knees if sleeping on your side and under your knees if lying on your back. Even if a pillow can only be used between or under the knees for the first hour of sleep, this is better than not at all.

RISK Factors For Back Injury

- lifting objects heavier than 50 pounds or repeatedly lifting lighter objects
 - awkward body posture while working
 - using poor body mechanics
- prolonged driving of farm equipment that causes whole body vibration (trucks, tractors, ATV's)
 - slips and falls associated with adverse working conditions
 - weak abdominal muscles
- smoking (nicotine restricts blood flow needed to deliver oxygen and nourishment to the spine)
 - obesity and lack of exercise

Quick Back Saving Tips

- Work at a table or workbench at an appropriate height, above elbow height for precision work (between 37 and 43 inches while standing), just below the elbow for light work (between 34 and 37 inches while standing), and at four to six inches below elbow height for heavy work (between 28 and 33 inches while standing).
- Square up your shoulders with the object. Whether welding in the shop or lifting bales of hay, do not approach the object diagonally.
- Avoid excessive reaching above your head or out to either side. Try using a ladder or stepstool to make equipment repairs or to place things on high shelves. If overhead reaching cannot be prevented, decrease the weight of the load that must be lifted overhead. If you find you are reaching a lot from a chair, GET UP!!! The amount of time it takes to get out of your seat is nothing compared to the amount of time you could be laid up with a back injury.
- Whether sitting or standing, take mini-breaks at least once an hour. Walk around, do some stretches, change positions. This will give you a chance to relieve muscle tension.
- Eat a nutritional diet following the food pyramid, exercise regularly, and get enough sleep (approximately 8 hours).
- STOP SMOKING!!! Nicotine restricts blood flow needed to deliver oxygen and nourishment to the spine.

Colorado AgrAbility



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Thanks to Erin Kernodle, Occupational Therapy Student from the University of Southern Indiana at Evansville, for researching and writing this summers's Crop Circle.

Please contact us if you have any questions or comments about this issue. Please feel free to make copies or give this to a friend.

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