RUTGERS COOPERATIVE EXTENSION

NEW JERSEY AGRICULTURAL EXPERIMENT STATION

Preventing Low Back Pain in Agriculture

Low back pain is a common occupational health problem. The National Safety Council's 1991 *Accident Facts* reports that back injuries are the most frequent of all disabling work injuries in the United States. Statistics reveal that about 31% of all workers' compensation cases are related to back injuries. Farmers are especially vulnerable to developing back problems, because their work frequently incorporates activities that are thought to be risk factors for developing low back pain.

Risk Factors

- Lifting objects heavier than 25 pounds or repeatedly lifting lighter objects;
- Awkward body posture while working;
- Prolonged driving of such vehicles as tractors, trucks, and other farm equipment that cause whole body vibration;
- Slips and falls and other traumatic injuries associated with adverse working conditions;

Men and women are both prone to work-related back pain and the first episode usually occurs between the ages of 20 and 40 (4). Activities that put excessive stress on the spine seem to play a role in developing low back pain (2).

Manual lifting of heavy objects is the most commonly cited risk factor causing low back pain. Agricultural workers commonly lift heavy objects such as bales of hay, sacks of feed, or even animals, during the course of a work day. They may also be subject to stresses associated with repetitive lifting, such as moving bulky equipment during milking or loading and unloading trucks and wagons. Additionally, whole body vibration delivered by way of the buttocks and spine from vibrating vehicles such as tractors, is thought to play a role in the development of low back pain.

Most low back pain associated with overexertion is short-lived. Half of those who seek medical attention improve in the first week and over 90% of them improve within two months, regardless of treatment (1). Nevertheless, because people may experience multiple episodes of back pain that may be incapacitating, (a person suffering a low back incident appears to have about a 2 to 4% chance of it becoming a permanent disability), low back pain remains a significant cause of missed work days and worker discomfort (2).

The severity of symptoms associated with a low back disorder can vary, ranging from relatively mild and short in duration to pronounced and incapacitating. A low back problem can result in stiffness and pain, along with inability to move. These symptoms may not appear until 12 to 36 hours after the incident occurs. Sciatica-type back pain is associated with a pain down one or both legs and frequently numbness or tingling in the foot and toes. Normal walking may become difficult.

Fortunately, most sufferers from lower back pain respond to the conservative medical management prescribed by their doctors. Therapy frequently includes bed rest, controlled physical activity, physical therapy, and medication. For those receiving conservative medical therapy, follow-up evaluation is very important (1).

Prevention and Control Methods

Once high risk activities are recognized, then prevention and control come into play. A combination of the following strategies will help reduce the occurrence and severity of back disorders in agriculture.

Job design

Although no single lifting technique is best for all situations, the following guidelines will be helpful in most instances:

- The load should be as compact and light as possible.
- Lift only loads that can be handled safely. Test the weight of the load before trying to lift it; if it is unmanageable, get help.
- When lifting and lowering, get a good grip on the object and keep it close to the body. Place your feet close to the load and lift slowly,

smoothly, and mostly by straightening the legs. Even relatively light loads lifted away from the body can create injurious stress levels on the spine.
- Lifting and lowering should be restricted to the range between the level of the hands, when standing with the arms hanging in a relaxed position, and shoulder height.
- Do not lift or lower with the arms extended.
- Minimize reaching forward for an object. Move objects out of the way first to get to the needed items.
- While lifting, always rotate the body by moving the feet, rather than twisting or bending the trunk.
- Avoid repetitive lifting—alternate the task with other tasks.
- Use mechanical assistance—lift tables, hoists, and conveyors—whenever possible.
- Reduce whole body vibration by driving vehicles with suspension seats that have appropriate vibration-damping characteristics.
- Use motor vehicles with good seat positioning and lumbar support.
- Maintain flexibility in the workplace to accom modate people of different sizes and shapes.

Education and training
- Consult your doctor about safe lifting techniques.
- Strength and fitness conditioning—Evidence suggests back strength and overall fitness may be associated with a lower risk for developing acute back pain.
- Back schools teach spinal mechanics, exercise, and fitness to individuals with back pain—contact your doctor or local hospital for information.

Job placement
- Job placement is an attempt to identify appropriate jobs for people with various physical capabilities. People exhibit a large variation in lifting capability.
- The goal is to obtain a good match between workers and tasks so people can be productive in their jobs. This approach appears promising, but its effectiveness is as yet unproven (3).

Professional medical care
- Medical evaluation is especially important for anyone who is at increased risk for developing low back pain or who already experiences back pain.
- Medical treatment and rehabilitation, along with job modification, may enable people with mild back pain to continue working.

References

1. Borenstein D: "Low Back Pain," in Barker LR, Burton JR (eds): *Principles of Ambulatory Medicine.* Baltimore, Williams and Wilkins, 1991.

2. Chaffin DB: "Biomechanics of Manual Materials Handling and Low Back Pain," in Zenz C (ed): *Occupational Medicine Principles and Practical Applications.* Chicago, Year Book Medical Publ., 1988.

3. Snook SH, Fine LJ, Silverstein BA: "Musculoskeletal Disorders," in Levy BS, Wegman DH (eds): *Occupational Health Recognizing and Preventing Work-Related Disease.* Boston, Little Brown, 1988.

4. Young BB, Rock A, Kraus J: "Musculoskeletal Injuries: Impact on Quality of Life and Productivity," in Holland WH, Detels R, Knox G (eds): *Oxford Textbook of Public Health*. Oxford, Oxford Publ., 1991.

Additional References

- American Public Health Association: "Low Back Pain Syndrome," in Weeks JL, Levy BS, Wagner GR (eds): *Preventing Occupational Disease and Injury*. Washington D.C.: 1991
- Keyserling WM: "Occupational Ergonomics: Designing the Job to Match the Worker," in Levy BS, Wegman DH (eds): *Occupational Health Recognizing and Preventing Work-Related Disease.* Boston, Little Brown, 1988.
- Kroemer KH: "Ergonomics," in Plog (ed): *Fundamental of Industrial Hygiene.* Chicago, National Safety Council, 1988.

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