



Authors

John Shutske, University of Minnesota
Michele Schermann, University of Minnesota

Reviewers

Liz Wagstrom, National Pork Board
Kerry Leedom-Larson, National Pork Board

Repetitive Motion

Introduction

Repetitive motion injuries occur as a result of performing the same motion over and over again, day after day and year after year. In fact, repetitive motion injuries caused more days of missed work than any other occupational injury or illness in 2001 (median of 18 days away from work). [1]

Repetitive motion injuries are common in the pork industry. Workers in large sow complexes may wind up processing several hundred pigs in one day. As a result of repeating the same physical motion, workers are at risk of developing repetitive motion injuries. How a worker uses his or her body to perform a certain task can increase or decrease the likelihood of a repetitive motion injury.

Work-Related Musculoskeletal Disorders (MSDs) are musculoskeletal disorders caused or made worse by the work environment. Work MSDs can cause severe and debilitating symptoms such as pain, numbness, and tingling; reduced worker productivity; lost time from work; temporary or permanent disability; inability to perform job tasks; and an increase in workers compensation costs.

An epidemic of repetitive motion disorders is occurring in general industry. Possible causes include increased demands for production, out-of-shape workers, inadequate education on prevention of injuries, as well as poor tool design. Workers in swine industries frequently report similar problems [2].

Sources of injury in swine workers include lifting or moving swine, handling feed, and vaccinating or bleeding swine. Improper lifting, bending or stooping frequently strains the muscles in the back. Occasionally, back pain may be so severe that the worker experiences lost work time. The workers should be adequately educated on proper lifting techniques, i.e., lifting at the knees without twisting while keeping the load close to the body. The use of back belts is controversial. Job rotation may be another option that allows muscles time to recover from overuse. [2]

Frequent injections or bleeding of swine is associated with complaints of wrist or arm pain. If recovery time between these activities is insufficient and forceful or awkward postures are involved, the risk for developing a repetitive motion disorder is high. Conditions such as tendonitis, tenosynovitis, and carpal tunnel syndrome may occur. To prevent these injuries from occurring, the worker should try to alternate hands and maintain their wrist in neutral positions. Knee pads will help decrease pressure on the knees. Hand stretching exercises may also be useful. There is a need for a multiple injection needle which can be re-used and requires little force to work the equipment effectively. [2]

OSHA Rule(s)

The Occupational Safety and Health Act (OSH Act) requires employers to comply with hazard-specific safety and health standards. In addition, pursuant to Section 5(a)(1) of the OSH Act, often referred to as the General Duty Clause, employers must provide their employees with a workplace free from recognized hazards likely to cause death or serious physical harm, including ergonomic hazards. OSHA will cite for ergonomic hazards under the General Duty Clause or issue ergonomic hazard letters where appropriate as part of its overall enforcement program.

Hazard

Many activities can contribute to work-related musculoskeletal problems including: repetitive, forceful, or prolonged exertions of the hands; frequent or heavy lifting, pushing, pulling, or carrying of heavy objects; prolonged awkward postures; and vibration. Working conditions that combine risk factors will increase the risk for musculoskeletal problems. The level of risk depends on how long a worker is exposed to these conditions, how often they are exposed, and the level of exposure. Repetitive motion injuries are most commonly caused by work done during the processing stage of pork production. These tasks include clipping teeth, giving shots or cutting tails. A repetitive motion injury exposure is determined by the way you use your body when completing these tasks.

The most common repetitive motion injury is carpal tunnel syndrome, a disorder that occurs when a nerve that runs from the forearm into the hand becomes pressed or squeezed at the wrist. Carpal tunnel is characterized by discomfort and weakness in the hand. A person may have symptoms in one or both hands. Among the symptoms a worker may first notice in the dominant hand are:

- Numbness or tingling in the hand and fingers (thumb, index and middle finger)
- Pain in the wrist, palm or forearm
- More numbness or pain at night than during the day
- More pain as the hand or wrist is used
- Trouble gripping objects
- Weakness in the thumb

If an employee has symptoms of carpal tunnel syndrome they should see a doctor to receive treatment for the illness.

Prevention & Control

Musculoskeletal disorders are often confused with ergonomics. Ergonomics is the science of fitting workplace conditions and job demands to the capabilities of workers. In other words, musculoskeletal disorders are the problem and ergonomics is a solution [3].

Training

Advise your employees on avoiding improper ways to use their body:

- Twisting their body when carrying animals or other heavy objects
- Continuously bending or twisting their wrists
- Working from an awkward position
- Reaching above shoulder level again and again
- Using hands to push, pound or in some manner exert strong force
- Gripping tools that dig into their palm

Administrative

Encourage your employees to follow these guidelines to decrease their chances of suffering a repetitive motion injury:

- Allow short "stretch" breaks when employees are repeatedly performing the same task.
- Rotate assigned tasks performed during the day.

- Cross-train employees to multiple tasks and encourage or schedule job/task switching

Engineering

- Redesign the job/task
- Consider using tools designed with ergonomics in mind.
- If possible, adjust working heights or surfaces to help employees maintain proper posture

Reduce the Risk of Developing Carpal Tunnel Syndrome

- Physically alter how the repetitive activity is performed (such as by changing hands).
- Keeping the wrist in a neutral position, if possible.
- Gently stretching hands and fingers during short breaks can also help.

Summary

To reduce the possibility of repetitive motion injuries; Work in a comfortable position, Take short “stretch” breaks when performing repetitive motion tasks, Change your position following a break, and Know how to recognize the symptoms of repetitive motion injuries.

DO:

- Work in a comfortable position.
- Take short “stretch” breaks when repeatedly performing the same tasks. Gently stretch the parts of the body you have been using.
- If possible, rotate the tasks you perform during the day.
- Always maintain good posture.

DON'T:

- Continuously bend or twist your wrists.
- Work from an awkward position.
- Reach above shoulder level again and again.
- Use your hands to push, pound, or in some manner exert strong force.
- Grip tools that dig into your palm.
- Ignore the symptoms of repetitive motion injuries.

References

1. NIOSH Publication number 2004-146. Worker Health Chartbook 2004. Figure 1-42 available at <http://www2.cdc.gov/niosh-Chartbook/imagetdetail.asp?imgid=42> accessed September 19, 2007.
2. Langley, R. 1995. Occupational hazards on swine farms. In proceedings of North Carolina Healthy Hogs Seminar. NCSU. Available at <http://mark.asci.ncsu.edu/HealthyHogs/book1995/langley.htm> accessed September 19, 2007.
3. NIOSH Document number 705005. 1997. Work-Related Musculoskeletal Disorders. Available at <http://0-www.cdc.gov.mill1.sjlibrary.org/niosh/muskdsfs.html> accessed September 19, 2007.

Additional Resources

Ergonomics for the Prevention of Musculoskeletal Disorders. Guidelines for the Poultry Industry. Many of the concepts from this guideline are adaptable to the swine industry, especially those related to conducting a job hazard analysis, recordkeeping, and solutions. (<http://www.osha.gov/ergonomics/guidelines/poultryprocessing/poultryprocessing.html>)

1993 Ergonomics Program Management Guidelines for Meatpacking Plants (<http://www.osha.gov/Publications/OSHA3123/3123.html>)

NIOSH Publication No. 97-117: Elements of Ergonomics Programs. A Primer Based on Workplace Evaluations of Musculoskeletal Disorders. Not specific to swine production, but concepts can be applied. (<http://www.cdc.gov/niosh/docs/97-117/>)

CHECKLISTS for ergonomic risk assessment

Ergonomic Risk Factor Checklist (Labour Canada)

Ergonomics Risk Factor Checklist (UC Davis) (http://ag-ergo.ucdavis.edu/help/risk_fac.pdf)

General Ergonomics Risk Analysis Checklist (CDC NIOSH) (<http://www.cdc.gov/niosh/docs/97-117/eptbtr5a.html>)

Hazard Zone Jobs Checklist (Washington State)

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