Rural Areas:
Innovations in Physical Activity

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How we Protect:
1. Ongoing needs assessment of Ag producer needs (following Total Farmer Health)
2. Train rural health professionals across the nation
3. Establish partnerships with NIOSH Ag Centers, rural research centers, and other NPOs
4. Maintain a culture of readiness and organizational expectation to protect and respond
Farm & ranch work requires upper and lower body strength as well as involves repeated twisting and turning.
Contributing Factors to Injury
Physiological & Social Factors

- Working alone
- "Shift time" varies frequently and is seldom an 8-hour day
- Age
- Hearing acuity
- Visual acuity
- Arthritis
- Osteoporosis / Osteopenia
Contributing Factors to Injury

- Running
- Carrying objects that are too heavy or cumbersome
- Distraction by other individuals or groups of people
- Not using handrails when present
- Improper ladder/equipment dismount
- Improper rope/harness/lead & lunge line use
- Clothing entanglement dangers
- Cleaning or working on equipment with tools placed out of reach
- Exiting moving equipment or equipment designed for only one person
- Mobile device conversations/texting *(illegal in some states when operating vehicles on roadways)*
Contributing Factors to Injuries

- Lifting objects that are too heavy
- Repeated reaching overhead
- Awkward working positions and body postures
- Continual repetition of a specific work process
- Vibration from hand tools
- Static load on arms and upper body muscles
- Inadequate design or size of hand tools
Most Frequent Factors in Slip, Trip & Fall Incidents

- 54% Human Factors
- 25% Wet or Slippery Surfaces
- 16% Housekeeping Issues
- 2% Stairs
- 2% Ladders
- 1% Poor Lighting
### Farmer Pain

- **Musculoskeletal Disorders (MSD); NIOSH Musculoskeletal Health Program**
  - Injury to soft-tissues caused by sudden/sustained exposure to repetitive motion, force, vibration, and awkward positions

<table>
<thead>
<tr>
<th>Study</th>
<th>Findings</th>
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<tbody>
<tr>
<td>Kolstrup CL. <em>Work-related musculoskeletal discomfort of dairy farmers and employed workers</em>. <em>J Occup Med Toxicol</em>. 2012.</td>
<td>Most frequently reported MSD: <strong>lower back</strong> (50%, 43%) and <strong>shoulders</strong> (47%, 43%). Female farmers and farm workers reported higher frequencies of MSD in neck, hands/wrists, and upper and lower back.</td>
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<td>Osborne A, Blake C, McNamara J, Meredith D, Phelan J, Cunningham C. <em>Musculoskeletal disorders among Irish farmers</em>. <em>Occup Med (Chic Ill)</em>. 2010.</td>
<td>Of 600 surveyed farmers, <strong>56% had experienced a MSD in the last year</strong>. Most common MSD were back pain (37%) and neck/shoulder pain (25%).</td>
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<td>Nonnenmann MW, Anton D, Gerr F, Merlino L, Donham K. <em>Musculoskeletal symptoms of the neck and upper extremities among Iowa dairy farmers</em>. <em>Am J Ind Med</em>. 2008.</td>
<td><strong>75% of respondents reported pain</strong> at any site with <strong>shoulder pain</strong> being the most frequently reported (54%), followed by neck pain (43%).</td>
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Physical Factors – Body Mass Index (BMI) Impacts Balance Ability

Normal weight- Line of gravity
- Through jaw
- Front of shoulder joints
- Through or behind hip joints
- Front of knee and ankle joints

Obesity: Line of gravity shifts forward, causing all posterior muscles to work harder
Incidence Rate of Injury and Illness cases for Nonfatal Injuries & Illnesses by Industry, All Participating States, 2016

- Wholesale trade: 2.8
- Utilities: 2.1
- Transportation and warehousing: 4.6
- Retail trade: 3.3
- Real estate and rental and leasing: 2.7
- Professional, scientific, and technical services: 0.9
- Other services, except public administration: 2.3
- Mining: 3.6
- Manufacturing: 3.6
- Management of companies and enterprises: 0.9
- Leisure and hospitality: 3.4
- Information: 1.3
- Health care and social assistance: 4.2
- Financial activities: 1.1
- Finance and insurance: 0.6
- Educational services: 2.0
- Education and health services: 3.9
- Construction: 3.2
- Transportation and warehousing: 3.4
- Utilities: 2.6
- Retail trade: 4.2
- Real estate and rental and leasing: 2.7
- Professional, scientific, and technical services: 0.9
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Why do we need to design warm-up exercises that match farm tasks?

A warm-up activity serves two major purposes: to enhance performance and prevent injury.

Warmups and cool-downs generally involve doing your activity at a slower pace and reduced intensity.
Think about your favorite sports team, do the players warm-up before a big game?

In the same way, farmers should be engaging in a “warm-up” before a long day of hard work and a “cool down” after that long day.
Profile of Female Agriculturists
The placement of levers and the strength required to move them, may be more suited to the average male. (Carruth et al., 2001).

We know this photo should show a ROPS-but the reality is that women are often using smaller, older tractors to perform farm and ranch chores that are not retro-fitted.
Whole Body Vibration

Health Effects:
- Speech interference
- Increased heart rate and blood pressure
- Muscle fatigue and cramping
- Disruption of balance and perception
- Increased breathing rate
- Low back pain and damage to the spine
Prevention Strategies – Protecting Muscles, Tendons, & Ligaments

- Education on proper lifting and handling techniques – excellent resources are available for healthcare providers and business managers
- Promotion of early back care and posture habits
- Awareness of the impact arthritis may have on back, hand, joint function
- Review of ergonomics in the work sites (include office workspaces)
You give your car time to warm-up so why not your muscles?

- Warming up helps prepare your body for aerobic activity.
- A good warm-up before physical activity dilates your blood vessels, ensuring that your muscles are well supplied with oxygen.
- Warming up may also help reduce muscle soreness and lessen the risk of injury.
- It increases the temperature and flexibility of your muscles and helps you to be more efficient and safer during physical activity.
- Cooling down after your workout allows for a gradual recovery of pre-exercise heart rate and blood pressure.
AgriSafe has designed these resources to contain exercises that utilize the same muscle groups as many daily farm activities.

Resources include:
- Yoga & Pilates Poster
- Yoga on the Farm Videos
- Ready to Farm Resource
Yoga and Pilates Posters
Ready to Farm Resource (also available in Spanish)
AgriSafe Yoga Videos

- Yoga the AgriSafe Way: Truck Edition
- Yoga the AgriSafe Way: Grain Bin Edition
- Yoga the AgriSafe Way: Wall Edition
To access these resources head to the AgriSafe Learning Lab

1. Visit learning.agrisafe.org
2. Create a Free Account (Takes less than a minute)
3. Once logged in go to the Resources section