Musculoskeletal Injuries
Rebar Workers
CM 598 A

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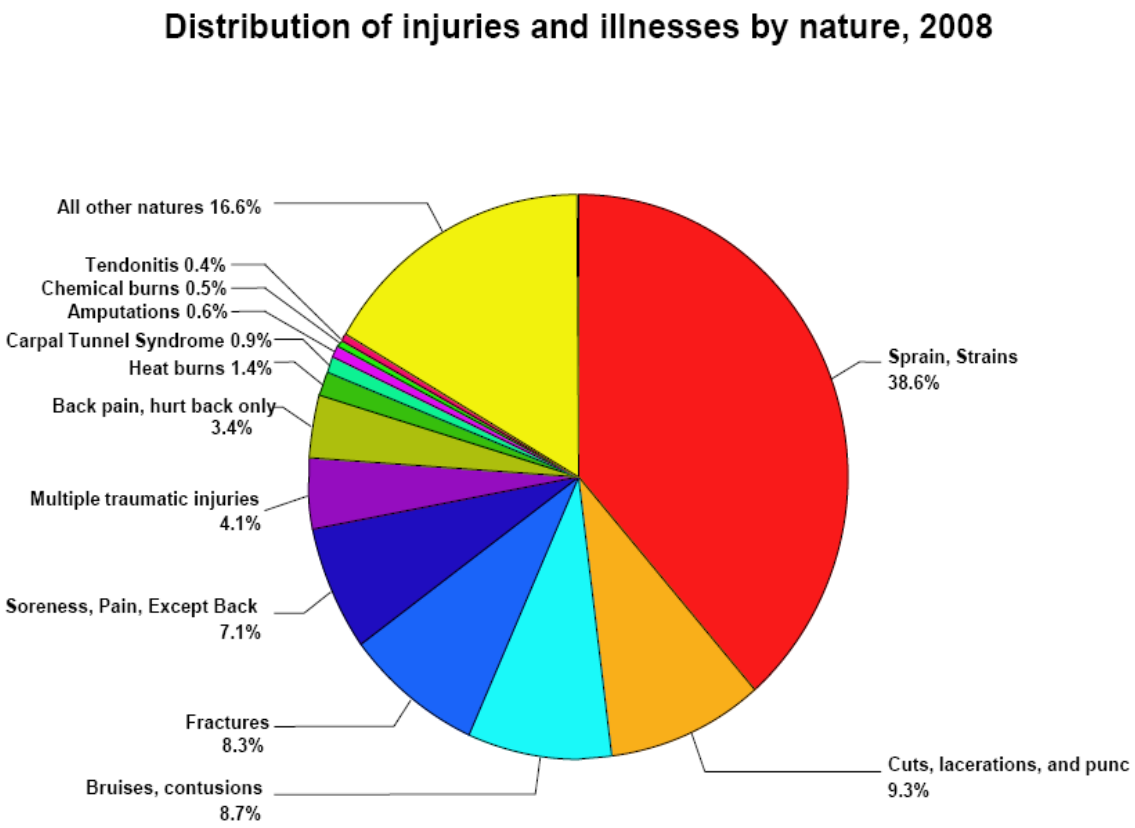
Musculoskeletal Disorders

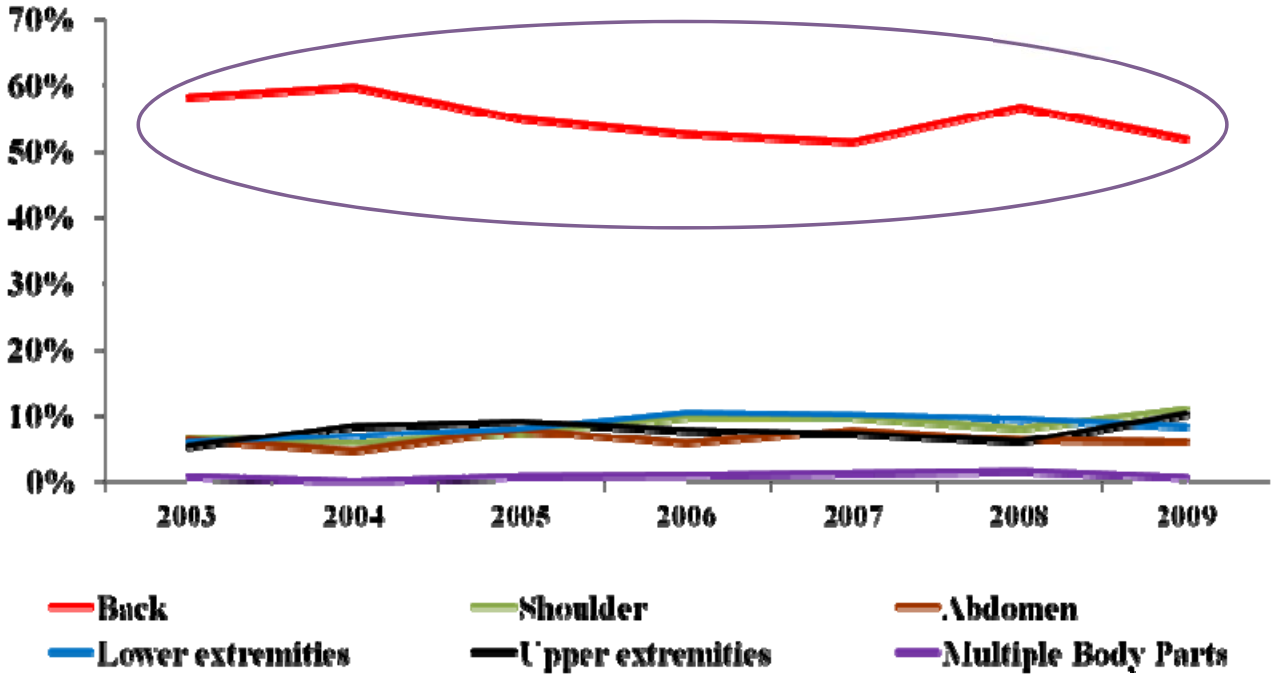
- An injury or disorder of the muscles, nerves, tendons, joints, cartilage, and spinal discs.
- A *Sprain* is an injury to a ligament, the tough, fibrous tissue that connects bones to other bones. Sprain injuries involve a stretching or a tearing of this tissue. Ankle, knee and wrist injuries account for the majority of sprains.
- *A Strain* is an injury to either a muscle or a tendon, the tissue that connects muscles to bones. **Back injuries are the most prevalent in regard to strains**. Depending on the severity of the injury, a strain may be a simple overstretch of the muscle or tendon, or it can result in a partial or complete tear.

Musculoskeletal Disorders



Source: Bureau of Labor Statistics (BLS)

Body Parts Affected

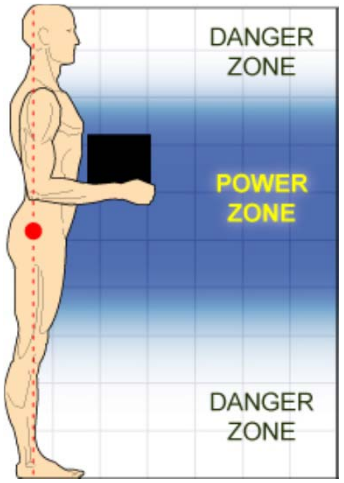


Source: U.S. Bureau of Labor Statistics, Survey of Occupational Injuries and Illnesses, Calculations by The CPWR Data Center. Graph: CPWR Data Center.

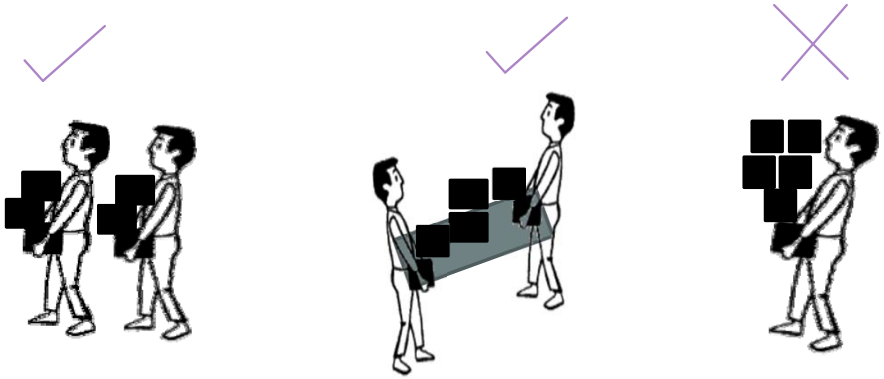
Reasons for Back Injuries (Rebar workers)

- Lifting, exceeds the limits of the human joint system capacity
- Reaching
- Poor posture
- Repetition
- Bending and Twisting
- Poorly Designed Tools
- Some personal factors have been associated with overexertion injuries:
  - Age factor
  - Poor physical condition
  - Overweight

Lifting



- Assess the weight of the load.
- Bend at the knees.
- Hug the load
- Keep the back straight.
- Avoid twisting.
- Avoid heavy loads (lighten if possible).
- Get help with heavy loads.



Reaching

https://www.shutterstock.com/image-photo/construction-worker-tying-rebar-concrete-reinforcement-510385

Repetition and Poor posture

https://www.shutterstock.com/search/rebar+isolated

Bending and Twisting

Poorly Designed Tools

Photo Source: Construction Solutions: Solution: Rebar-Tying Tools, CPWR

Photo Source: Rebar-Tying Machines Part 1 (Part of Construction Safety Magazine, Volume 12, Number 4, Winter 2001/02, Ontario Canada.)

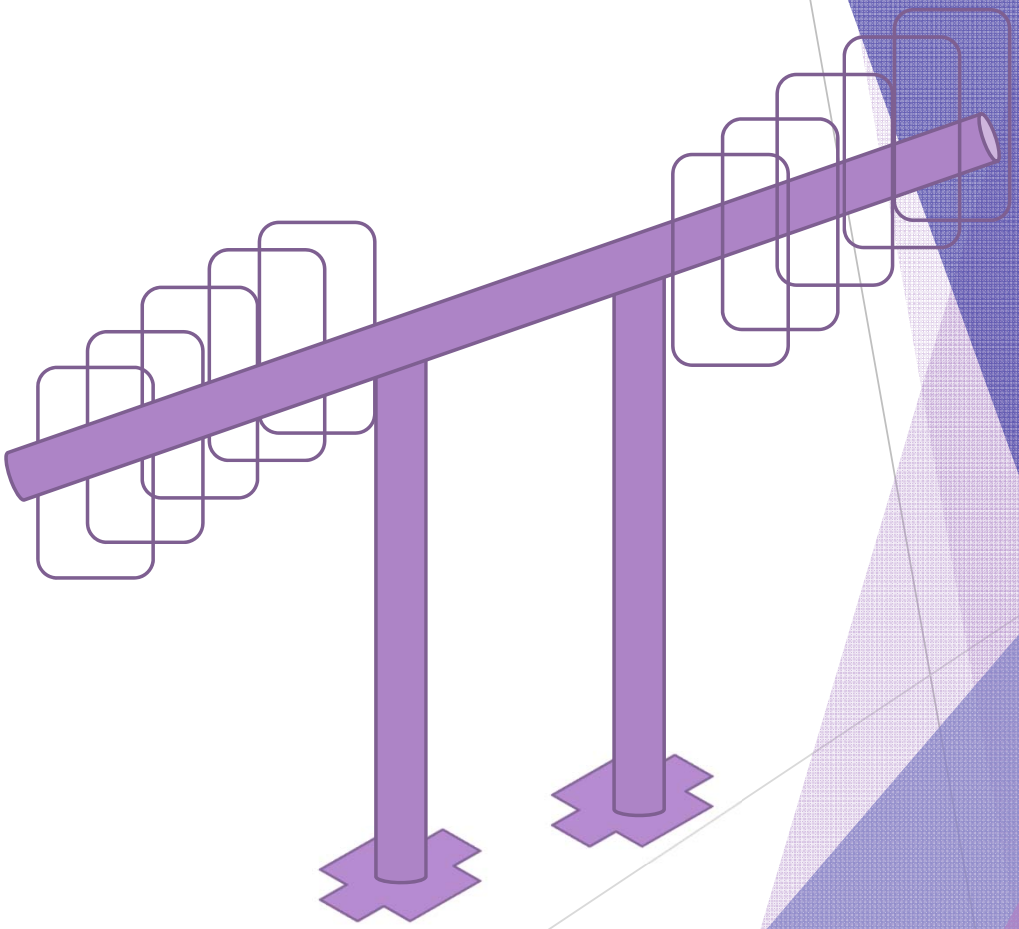
Personal Factors

- Age factor
- Poor physical condition
- Overweight

Planning

https://www.pinterest.com/joetown5039/iron-workers/

Planning



http://www.trusupply.com/rebar-caps.htm

Administrative Controls

- Training
- Production schedule demands
- Rest breaks
- Not enough workers
- Planning
- Supervision
- Stretch and flex

NIOSH Study

- NIOSH studied rebar tying during the construction of a freeway bridge deck. Rodbusters' hand/wrist movements and body positions were measured, first when using pliers to twist 16-gauge wire, and then when using a powered tie gun with 21-gauge wire. The tie gun was used alone, and then used again with a 3-foot extension handle.
- The results showed that:
- Twisting with pliers required harmful hand/wrist motions, increasing the chance of a serious injury.
- Unsupported stooping when twisting with pliers at ground level, using both hands, increased the risk of back pain and injury.
- Power rebar tying tools reduced harmful hand/wrist movements.
- Tying rebar at ground level, using an extension handle on a powered rebar tying tool, gave the most protection against back pain and injury
- Using a powered rebar tying tool was faster than hand-twisting wire.

http://www.forconstructionpros.com/concrete/equipment-products/article/10883759/rebar-tying-tools-help-prevent-worker-injury-on-concrete-construction-projects

Thank you