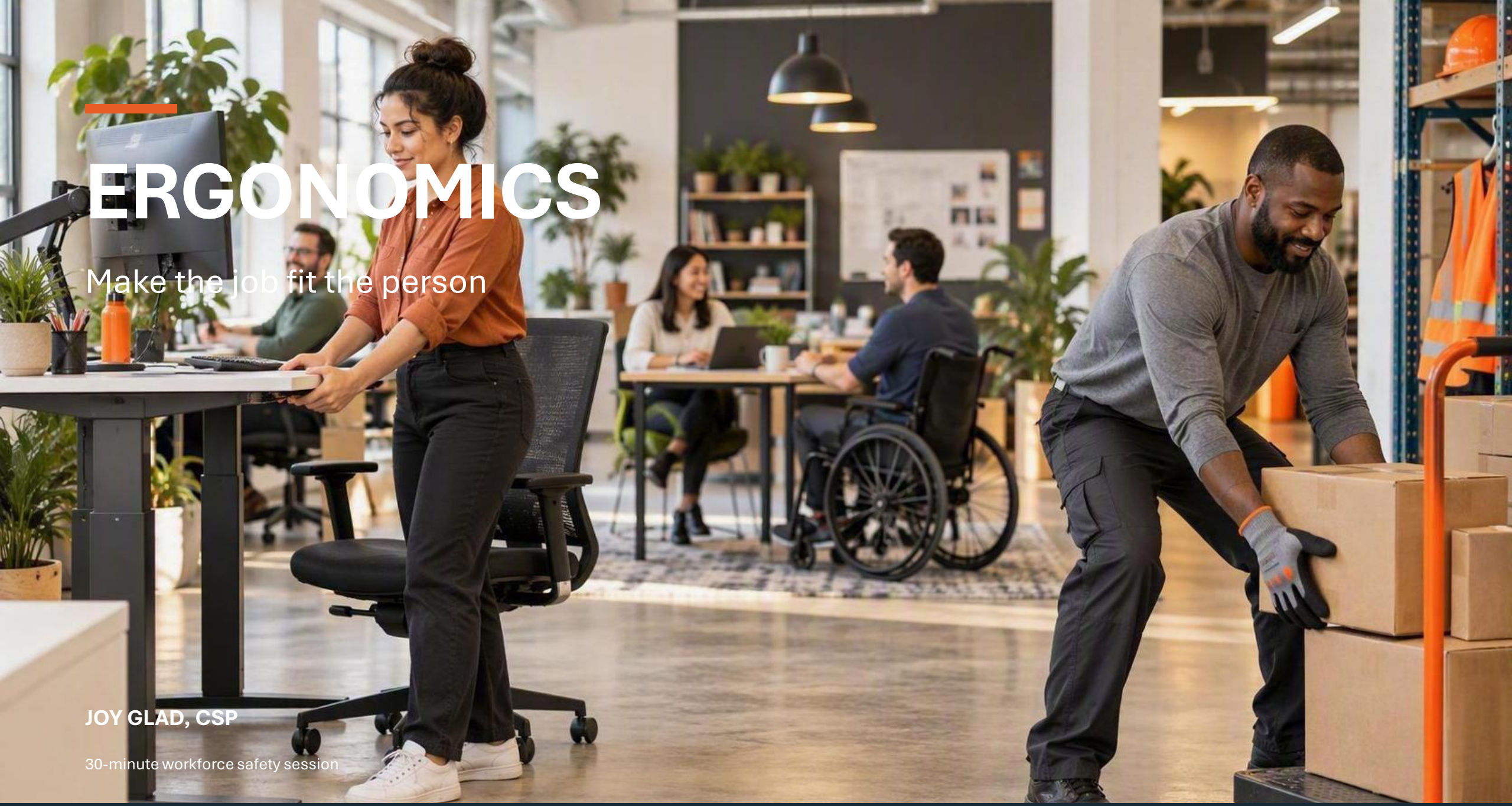


ERGONOMICS

Make the job fit the person

JOY GLAD, CSP

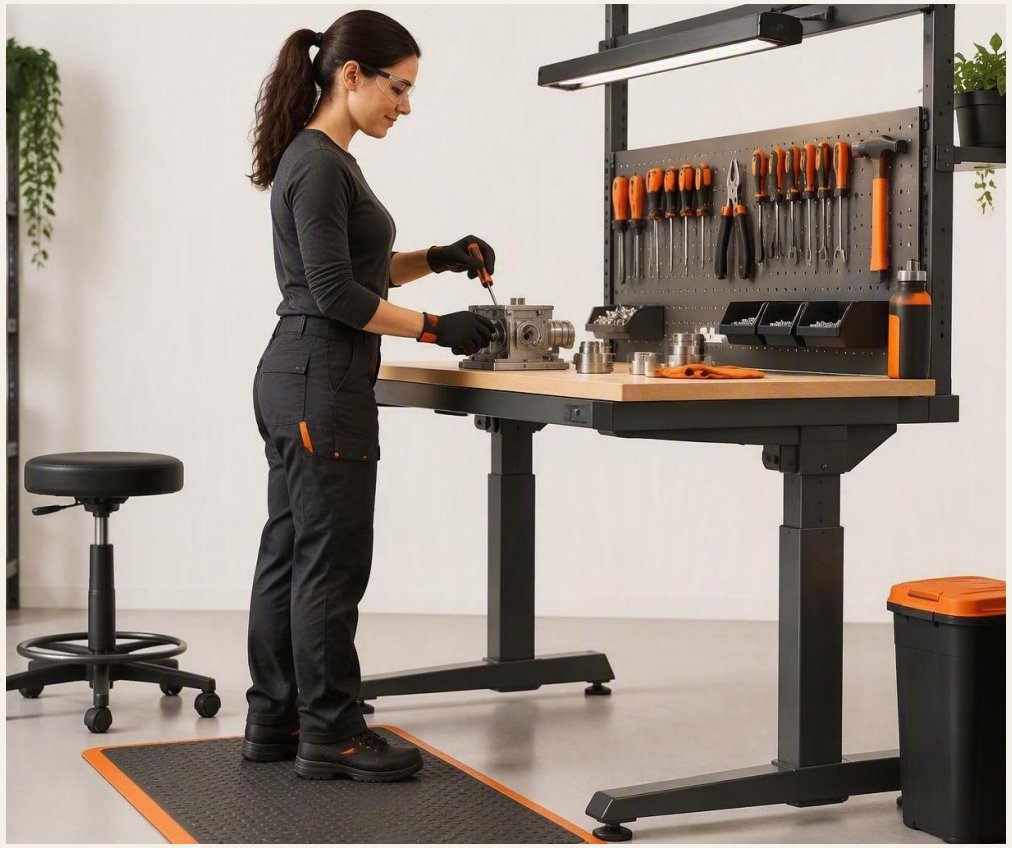
30-minute workforce safety session

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START WITH THE FIT

Good ergonomics reduces the mismatch between people and work

Ergonomics is the design of work to fit people's capabilities and limitations.



PERSON

Size • strength • reach • experience

TASK

Force • repetition • duration • pace

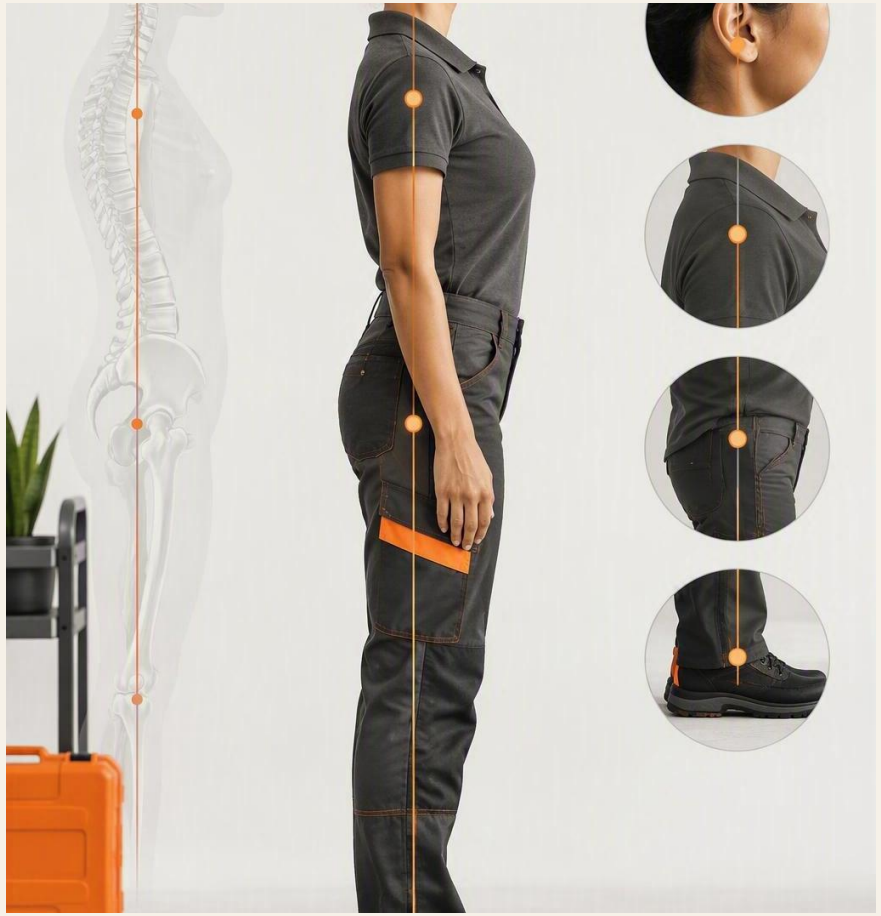
ENVIRONMENT

Space • lighting • floor • tools

Sources: OSHA Ergonomics; CDC/NIOSH About Ergonomics

BODY MECHANICS

Neutral positions keep force close to the body’s strongest ranges



NEUTRAL ≠ RIGID

It means joints are near the middle of their range—while you keep moving and changing position.

- **Head** balanced over shoulders
- **Shoulders** relaxed; elbows near the body
- **Wrists** straight, not bent or twisted
- **Spine** natural curves; hips and feet stable

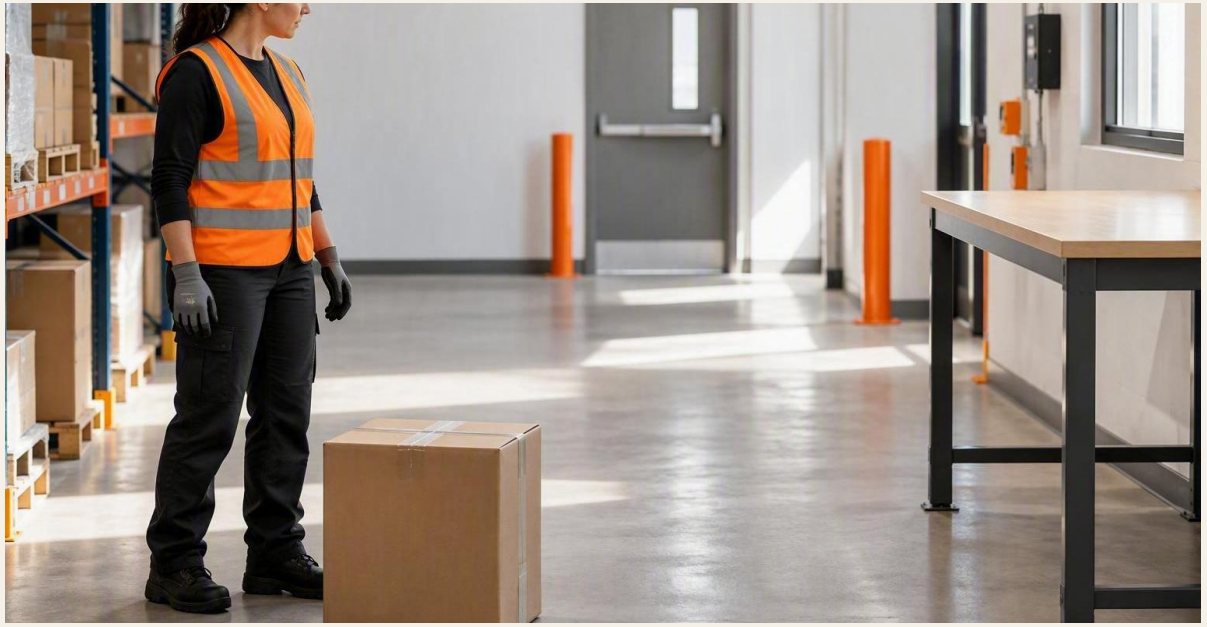
Sources: OSHA Computer Workstations; NIH Back Health

PLAN BEFORE FORCE

Before every lift, pause and plan the path

A five-second scan prevents the awkward save.

01	**LOAD**	Stable? Good handholds?
02	**ROUTE**	Clear, dry, wide enough?
03	**DESTINATION**	Ready at a good height?
04	**HELP**	Aid, smaller load, or teammate?



If the answer is uncertain, stop and change the plan.

Sources: CDC/NIOSH Manual Material Handling; UNC EHS

LIGHT OBJECTS

For light objects, keep the load close and move with your feet



1. **Get close**
   Bring your center to the load.
2. **Set your feet**
   Use a stable, balanced stance.
3. **Grip securely**
   Use handles when available.
4. **Lift smoothly**
   Keep natural curves; avoid jerking.
5. **Turn with feet**
   Do not twist under load.

Sources: NIH Back Health; UNC EHS

Heavy or awkward loads call for an aid, a redesign, or help

There is no universal “safe weight.”
Risk changes with…

- distance from body
- lift height and travel
- frequency and duration
- grip, stability, twisting

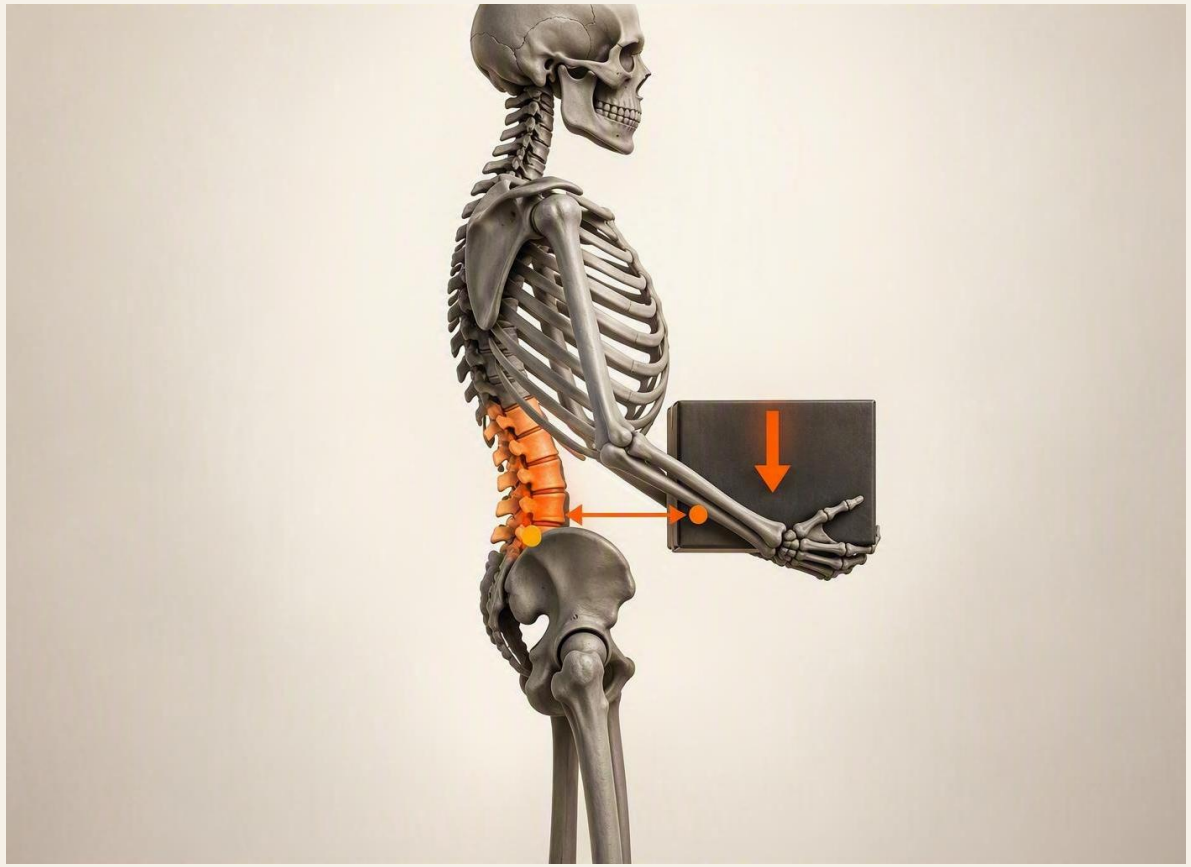


Best order of control: MECHANICAL AID → SMALLER LOAD → TEAM LIFT → PAUSE & REDESIGN

Sources: OSHA Control Hazards; CDC/NIOSH RNLE; NIOSH Manual Material Handling

BIOMECHANICS

The load’s distance matters as much as its weight



MOMENT = FORCE × DISTANCE

Moving the same load farther from your body increases the turning demand on your low back.

Keep it close

Shorter lever arm

Reach away

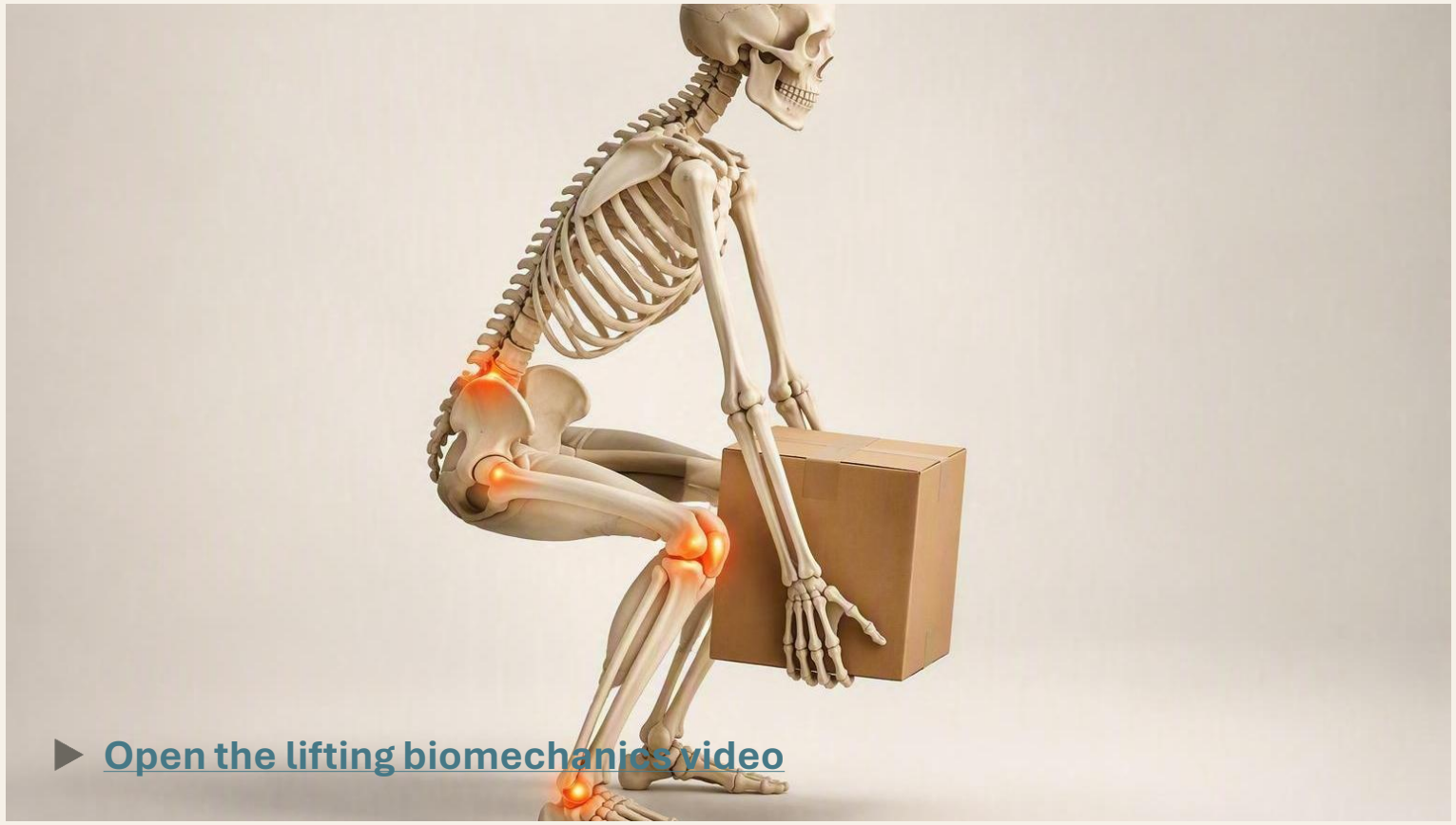
Longer lever arm

Use your feet to reposition instead of reaching or twisting.

Sources: Cornell Biomechanics of Safe Lifting; CDC/NIOSH RNLE

VIDEO OBSERVATION

Watch how lifting technique changes the demand on the body



WATCH FOR

Distance Where is the load relative to the trunk?

Hinge What stays stable as the hips move?

Strategy Why might technique change with the task?

Suggested excerpt: 1–2 minutes

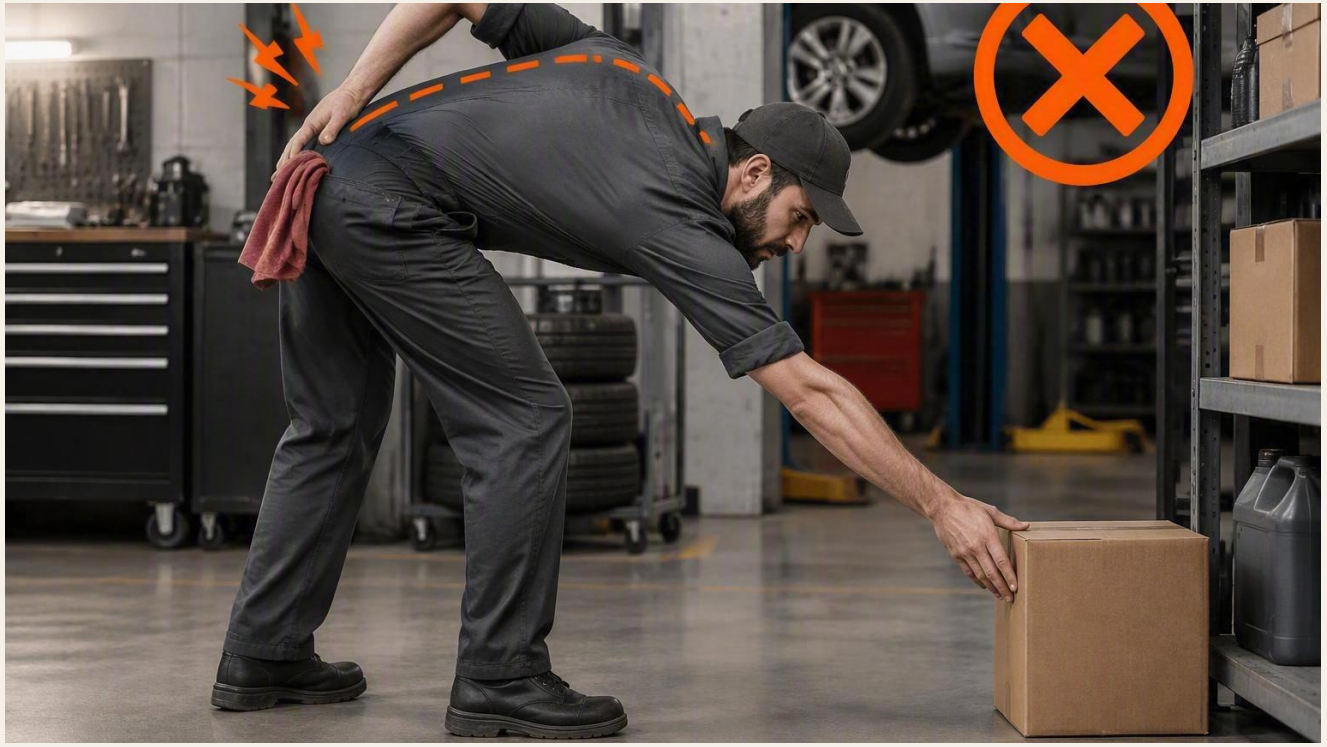
Video: Health Sciences University, “Professor McGill – Heavy vs Light Lifting Techniques”

VIDEO OBSERVATION

Spot the strain in poor body mechanics

Call out what you see before the correction appears.

- Load away from the body
- Twist instead of stepping
- Unclear path or destination
- Jerky start or poor handhold



▶ Open the body mechanics video

Video: Huntsville Hospital, “Body Mechanics”

MOVING AROUND

Clear pathways prevent awkward saves and sudden twists



SEE

The load does not block your view.

CLEAR

Remove cords, spills, clutter, and closed doors.

SPACE

Corners and doorways fit the load and equipment.

SET

The destination is ready before you move.

Sources: CDC/NIOSH Manual Material Handling; UNC EHS

CARTS AND LOADS

Push when possible; pull only when the task demands it





PUSH

Use body weight • keep elbows near the body • see the route ahead

PULL

Use when visibility, steering, or the equipment design makes it safer

For either: start smoothly, keep wrists neutral, and avoid sudden force.

Sources: CCOHS Pushing and Pulling; UNC EHS

TEAM LIFTING

A team lift succeeds only with one plan and one leader



BEFORE

Match the team • test the load • clear the route • agree on handholds

ONE LEADER

“Ready — lift — walk — stop — down.”

Move in step. If anyone loses grip, balance, or visibility: stop together.

Source: CCOHS MMH – Team Handling

WORKSPACE FIT

Fit the workspace so neutral posture is the default

SCREEN Top at or slightly below eye level; readable without leaning.

HANDS Keyboard and mouse close; wrists straight.

SUPPORT Back supported; feet on floor or a footrest.

MOVE Change position, stand, and walk periodically.



The best posture is the next posture.

Source: OSHA Computer Workstations – Good Working Positions

TOOLS AND TASKS

Fit tools and tasks to reduce force, reach, repetition, and vibration



FORCE

Sharpen, power, support, or reduce resistance.

REACH

Bring work between knee and shoulder height.

REPETITION

Rotate tasks and build recovery into the pace.

VIBRATION

Maintain tools; limit exposure; choose lower-vibration options.

Sources: OSHA Control Hazards; CDC/NIOSH About Ergonomics

RECOGNIZE THE PATTERN

Musculoskeletal disorders build from repeated exposure



COMMON CONDITIONS

Strains & sprains
Tendinitis
Carpal tunnel syndrome
Low-back disorders

EARLY SIGNALS

Aching or burning
Numbness or tingling
Weak grip
Swelling or stiffness

Risk rises when force, repetition, awkward posture, vibration, or duration stack together.

Sources: OSHA Ergonomics; CDC/NIOSH About Ergonomics

COMMON MSDs

Common MSDs affect tendons, nerves, muscles, and joints

HAND, WRIST & ELBOW

Carpal tunnel syndrome — median nerve compression

De Quervain's tenosynovitis — thumb-side wrist tendons

Trigger finger — finger tendon irritation

Lateral / medial epicondylitis — elbow tendon irritation

SHOULDER, BACK & LOWER BODY

Rotator cuff tendinopathy — shoulder tendons

Shoulder bursitis — inflamed shoulder bursa

Neck and low-back strains / sprains — muscles and ligaments

Lumbar disc disorders — spinal discs

Symptoms can overlap. Report concerns early and seek evaluation through your workplace process.

Sources: OSHA Ergonomics; CDC/NIOSH About Ergonomics

ACT EARLY

Early action turns discomfort into a preventable signal

DO NOT “WORK THROUGH” A TREND

Report recurring discomfort, numbness, tingling, weakness, swelling, or loss of motion.



1. **REPORT**
   Use your workplace process.
2. **ADJUST**
   Change the task or setup.
3. **RECOVER**
   Follow qualified care guidance.
4. **FOLLOW UP**
   Confirm the change works.

One change this week: _____

Sources: OSHA Ergonomics Training; CDC/NIOSH Ergonomics Programs

KNOWLEDGE CHECK 1

A box is on a low pallet. What should happen first?



The box feels manageable, but a hand truck is beside it.

A Lift it quickly before the aisle gets busy.

B Check the load, route, destination, and available aid.

C Keep the feet planted and twist toward the destination.

Press SPACE to reveal the answer

Choose first; the answer appears on the next space-bar advance.

ANSWER 1

The safest choice changes the exposure—not just the posture



CORRECT ANSWER

B — Check the full task before applying force.

A quick assessment catches unstable contents, poor handholds, route hazards, and opportunities to use equipment.

KNOWLEDGE CHECK 2

A loaded cart must move down a clear aisle. What is the default?



The cart rolls freely and the handles allow a neutral wrist.

A Push with a stable stance and a clear view.

B Pull it behind the body to make it feel lighter.

C Use a fast jerk to overcome starting resistance.

Press SPACE to reveal the answer

Choose first; the answer appears on the next space-bar advance.

ANSWER 2

The safest choice changes the exposure—not just the posture



CORRECT ANSWER

A — Push smoothly when the task and equipment allow.

Pushing often supports better visibility and lets the body contribute force. Slope, steering, space, and equipment design can change the choice.

KNOWLEDGE CHECK 3

Tingling returns during computer work. What is the best response?



The workstation is poorly adjusted and symptoms have appeared more than once.

A Ignore it until the shift ends.

B Stretch once and return to the same setup.

C Report it and adjust the task or workstation promptly.

Press SPACE to reveal the answer

Choose first; the answer appears on the next space-bar advance.

ANSWER 3

The safest choice changes the exposure—not just the posture



CORRECT ANSWER

C — Report early and change the exposure.

Recurring tingling is a signal to use the workplace reporting process and correct the setup or task before the pattern worsens.

Fit the work. Plan the move. Speak up early.

Answer reveal: paired with the preceding knowledge-check slide.