What Is Basic Ergonomics?

Ergonomics is the science of designing the job, equipment, and work environment to fit the worker — not forcing the worker to fit the job. When applied correctly, ergonomics reduces physical strain, prevents injury, and improves productivity. When ignored, the result is a slow accumulation of stress on the body that leads to painful, costly, and often permanent musculoskeletal disorders (MSDs).

Office & Desk Workers

Workstation setup | Posture | Breaks & movement

The most common ergonomic injuries in office environments are carpal tunnel syndrome, neck and shoulder pain, and lower back pain — all of which are highly preventable with basic workstation adjustments.

Monitor Position

- The top of the monitor screen should be at or just below eye level
- Position the monitor approximately an arm's length away — roughly 20 to 26 inches from the face
- The screen should be directly in front of the worker, never requiring consistent neck rotation
- Reduce glare by positioning monitors perpendicular to windows rather than facing them

Chair & Sitting Posture

- Feet should rest flat on the floor or a footrest — never dangling
- Knees should be at approximately a 90-degree angle with the seat pan not pressing behind the knees
- The lower back should be supported by the chair's lumbar support or a lumbar cushion
- Shoulders should be relaxed — not hunched or raised — with elbows at approximately 90 degrees
- Employees should never sit at the edge of a chair without back support for extended periods

Keyboard & Mouse

- The keyboard and mouse should be at elbow height, keeping the wrists in a neutral, flat position
- Wrists should not rest on the desk while actively typing — only during brief pauses
- A wrist rest is for resting between typing, not for supporting wrists during active keystrokes
- The mouse should be positioned close to the keyboard to minimize reaching

Breaks & Movement

- Follow the 20-20-20 rule for eye strain: every 20 minutes, look at something 20 feet away for 20 seconds
- Take brief micro-breaks of 1-2 minutes every 30-45 minutes to stretch and change position
- Standing desks or sit-stand workstations are highly effective — alternating between sitting and standing is significantly better than either alone

Employer Tip — Office Environments

Conduct a brief workstation walkthrough at least once per quarter. The majority of office ergonomic injuries develop slowly over months. Catching an improper monitor height or poor chair adjustment early takes two minutes and can prevent a surgery.

Warehouse, Manufacturing & Production Workers

Lifting technique | Workstation design | Mechanical aids

Manual material handling tasks in warehouse and production environments are the leading cause of overexertion and musculoskeletal injuries nationally. Basic ergonomic awareness here focuses on body mechanics, task design, and equipment use.

Safe Lifting Technique

Employers often focus exclusively on teaching workers how to lift safely. While technique matters, it is equally important to design tasks so that safe lifting is physically possible. Proper lifting technique breaks down under time pressure, fatigue, or when loads are too heavy for one person to manage safely. Technique training and task design must work together.

- Plan the lift before beginning — know where the load is going and clear the path
- Position feet shoulder-width apart with one foot slightly forward for a stable base
- Bend at the knees and hips — not at the waist — keeping the back in a neutral position
- Keep the load as close to the body as possible throughout the lift — the farther the load, the greater the back stress
- Avoid twisting while lifting — pivot with the feet rather than rotating the spine
- Use team lifts for items over 50 pounds or any item that is awkward, oversized, or unbalanced
- Use available mechanical aids — dollies, hand trucks, pallet jacks, lift tables — whenever possible

⚠ Important Note for Employers

Mechanical aids are not optional conveniences — they are safety equipment. An employee who bypasses a hand truck to carry a box faster is not being efficient; they are accepting an injury risk. Make mechanical aids easy to access, well-maintained, and expected to be used.

Workstation & Task Design

- Store the heaviest and most frequently handled items between knee and shoulder height — the 'power zone' — to minimize extreme postures
- Position work surfaces at elbow height for standing tasks so workers are not bending over or reaching up
- Eliminate unnecessary carrying distances by staging materials closer to where they are used
- Rotate employees between physically demanding tasks to distribute workload across different muscle groups
- Review workflows periodically for tasks that require unnecessary manual handling that could be redesigned or automated

Ergonomic Best Practices

- Items stored in the power zone (knee to shoulder)
- Mechanical aids available and accessible
- Team lift policy posted and enforced
- Job rotation schedule in place
- Work surfaces at elbow height

Common Risk Situations

- Heavy items stored on the floor or overhead
- Mechanical aids broken, missing, or not used
- No weight limit or team lift policy
- Same workers on high-demand tasks all shift
- Workers bending over or reaching up repeatedly

Retail, Food Service & Customer-Facing Workers

Standing posture | Storage layout | Load handling

Workers in retail, food service, and customer-facing environments face a combination of repetitive motion, prolonged standing, and awkward postures that are frequently underestimated by employers. These injuries build slowly and are often attributed to aging or personal health rather than workplace conditions.

Prolonged Standing

- Anti-fatigue matting at every stationary work position — behind registers, prep stations, host stands, and service counters — dramatically reduces the physical toll of prolonged standing on hard flooring
- Encourage employees to shift weight, step side to side, and change position regularly rather than standing completely still
- Provide opportunities to sit briefly during slow periods — alternating between sitting and standing is significantly better than either alone
- Inspect matting regularly for wear, curling edges, or loss of cushioning — worn mats are a slip hazard and provide no ergonomic benefit

Workstation & Storage Layout

- Cashiers and scanners should have adjustable conveyor heights and scanning positions to accommodate workers of different heights
- Organize storage so that the most frequently accessed items are stored between knee and shoulder height — eliminate repeated deep bending to low shelves or overhead reaching
- Position frequently used tools and supplies within easy reach to minimize unnecessary stretching and twisting throughout a shift
- Review back-of-house prep station heights relative to the workers who use them — a prep surface that forces a tall worker to hunch or a short worker to reach overhead is an ergonomic hazard

Load Handling & Carrying

- Carrying heavy trays, bus tubs, or supply boxes should be done with loads held close to the body at waist height
- Use carts and trolleys for restocking tasks rather than hand-carrying multiple items at once
- Require team assists for oversized or overweight loads — a culture where asking for help is normal prevents solo overexertion
- Establish clear weight limits for individual carry tasks and post them in receiving, storage, and prep areas

Early Reporting Culture

- Employees should be actively encouraged to report early discomfort — a sore wrist, a tight lower back, a tingling hand — without fear of judgment or job consequences
- Supervisors should ask regularly how employees are physically feeling, especially after high-volume shifts or busy seasons
- Early intervention is dramatically more effective and less expensive than treating an established injury — catching symptoms early saves both the employee and the employer significant long-term cost

Employer Tip — Retail & Food Service

Holiday seasons, peak hours, and special events create temporary spikes in physical demand. This is when ergonomic injuries most often occur. Brief pre-shift reminders about proper lifting, carrying, and posture during high-demand periods are a simple, no-cost prevention tool.

Recognizing Early Warning Signs

What employers and workers should watch for — and report immediately

One of the most important things employers can teach workers is to recognize and report the early warning signs of a developing musculoskeletal disorder. Early intervention is dramatically more effective — and far less costly — than treating an established injury.

Early Warning Signs to Report

- Persistent soreness or aching that does not resolve with normal rest
- Tingling, numbness, or a burning sensation in hands, fingers, or forearms
- Stiffness or reduced range of motion in neck, shoulders, back, or wrists
- Swelling or tenderness around a joint
- Weakness or difficulty gripping objects that previously felt normal
- Pain that begins during work and continues after the shift ends

What Employers Should Do

- Take every early symptom report seriously — do not minimize or dismiss
- Conduct an immediate workstation or task review when symptoms are reported
- Connect the employee with occupational health resources promptly
- Implement temporary task modification while the issue is assessed
- Document the report and the response — early intervention records protect both the employer and employee
- Follow up regularly to confirm the employee's condition is improving

Key Takeaway for Employers

Employers must create a workplace culture where reporting symptoms early is expected and encouraged — not a sign of weakness or a risk to job security. The employee who reports wrist tingling today is far less costly than the employee on surgical leave six months from now. Early reporting is not a problem — it is the solution.

Quick Reference Summary

Ergonomics by work environment at a glance

Area / Topic	Key Action
Office — Monitor	Top of screen at or below eye level; arm's length distance; no neck rotation required
Office — Chair	Feet flat, knees at 90°, lumbar support in place, shoulders relaxed
Office — Keyboard/Mouse	At elbow height; neutral wrist position; mouse close to keyboard
Office — Breaks	20-20-20 rule for eyes; micro-breaks every 30-45 minutes; sit-stand options where possible
Warehouse — Lifting	Knees bent, back neutral, load close to body, no twisting; team lifts for 50+ lbs
Warehouse — Storage	Heaviest/most used items in the power zone (knee to shoulder height)
Warehouse — Equipment	Mechanical aids are safety equipment — dollies, hand trucks, and lift tables must be used
Warehouse — Rotation	Rotate employees between demanding tasks to distribute physical workload
Retail — Standing	Anti-fatigue matting at all stationary positions; encourage regular weight shifting
Retail — Storage	Frequent-access items stored between knee and shoulder height; eliminate deep bending
Retail — Carrying	Loads held close to the body; carts for restocking; team assists for heavy items
All Environments	Encourage early symptom reporting; respond immediately; document and follow up

Content developed for the Common Workplace Injury Prevention Employer Training Series. Resources: MNOSHA — dli.mn.gov | OSHA — osha.gov | NIOSH — cdc.gov/niosh