

Body Mechanics/Ergonomics

Commonwealth Health Corporation

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Body Mechanics



This computer-based learning (CBL) module details important aspects of musculoskeletal disorders, body mechanics and ergonomics in the workplace.

It examines:

- what causes musculoskeletal injuries
- pain in the workplace
- six principles of body mechanics
- tips for applying good body mechanics
- back care specifics for patient transfers and clerical staff.



What is Ergonomics?

Ergonomics is the science of fitting jobs to the people who work in them.

The process of ergonomic evaluation focuses on making the work task, work station and work environment fit the individual worker rather than the other way around.



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Goal of Ergonomics

The goal of an ergonomics program is to reduce the number of work-related musculoskeletal disorders (MSD's) which workers are prone to develop when a major part of their job involves:

- reaching
- bending over
- lifting heavy objects
- using continuous force
- working with vibrant equipment
- doing repetitive motions



What are MSD's?

Musculoskeletal Disorders (MSD's) are injuries and illnesses that affect muscles, nerves, tendons, ligaments, joints or spinal discs.

Most pain felt in the workplace is not caused by traumatic injury but by a series of small, sometimes barely perceptible, injuries over time.



Workplace MSD's

Workplace MSD's are caused by exposure to the following risk factors:

- repetition
- forceful exertions
- awkward positions
- stress vibration
- months or years of poor body mechanics
- stressful living
- poor work habits
- a general lack of physical fitness



What are Signs of MSD?

Workers suffering from MSD may experience less strength for gripping, less range of motion, loss of muscle function, and inability to do everyday tasks.

Common symptoms include:

- pain in wrists or forearms
- shoulders
- knees
- painful joints

- pain tingling or numbness in hands or feet
- fingers or toes turning white
- shooting or stabbing pains in arms or legs
- back or neck pain
- swelling or inflammation
- stiffness or burning sensation



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Principles of Body Mechanics

Most injuries in the workplace can be avoided by using good body mechanics, maintaining physical fitness and reducing stress.

The six principles of body mechanics include:

- posture
- how you hold objects
- facing objects
- symmetry
- using a wide base of support
- using proper muscles/joints



Posture

An important principle of good body mechanics when sitting, standing and lifting is maintaining good posture. To practice good posture:

- Keep your chin level and slightly tucked
- Keep your chest up but not out.
- Keep your stomach muscles tight
- Keep your head, shoulders and hips in the same line
- Rotate your pelvis slightly backward to maintain the lower back curve
- Do not lock your knees



How You Hold Objects

- Keep Objects Close to Your Body
- Keep your elbows close to your sides.
- Hold the object close to your stomach.



Facing Objects

Face the Object

- Properly align your hips and shoulders to face the object.
- This minimizes the risk of injury from twisting or turning abruptly.

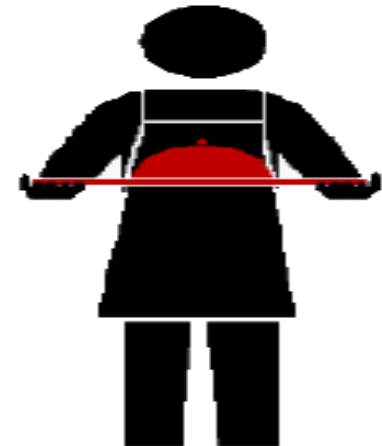


Symmetry

Symmetry means using muscles on both sides of the body equally.

Use symmetry as a principle of good body mechanics:

- Use both sides of your body equally
- Use both hands whenever possible
- Put both feet on the ground and balance your weight when sitting



Wide Base of Support

Establishing a wide base of support offers greater stability and prevents unnecessary falls. Always use a wide base of support when standing, sitting or lifting.

Standing

- ❑ Keep legs at least shoulder-width apart.
- ❑ They can be either side to side or one in front of the other.

Sitting

- ❑ Keep weight evenly distributed in the chair.



Lifting and Back Support

Using the appropriate muscles for lifting and back support prevents overstrain injuries on the back.

- Always use leg and arm, not back muscles for lifting
- Use stomach and back (upper and lower) muscles to support good posture.



Tips for Sitting



Sit close to your work.

- Sit in a chair that:
 - ✓ is low enough that both feet are on the floor
 - ✓ supports your back in a slightly arched position
 - ✓ allows you to work with your elbows bent at 90 degrees and with shoulders relaxed
 - ✓ May sit forward on edge of chair- promotes natural trunk curves
- Keep both feet flat on the floor
- Do Not slump - sit or lean forward or downward to reach for or look at your work.
- Do Not sit for more than 15-30 minutes without getting up or changing position.

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Tips for Standing

- ❑ Elevate or incline the work surface to bring your work closer to you
- ❑ Put one foot up, shift your weight, or squat down occasionally
- ❑ Keep your work at a comfortable height
- ❑ Stand on an anti-fatigue mat if available
- ❑ Do Not stand in one place too long
- ❑ Do Not stand with poor posture
- ❑ Do Not stand bent forward at your waist or neck



Tips for Pushing



- ❑ Always push instead of pull when possible
- ❑ Use a mechanical aid when possible
- ❑ Maintain good posture
- ❑ Side-step or pivot rather than twisting to turn
- ❑ Remain close to the item being pushed
- ❑ Use your legs to lower your body and line up the center of gravity for you and the object, to decrease strain on back
- ❑ Do Not hold your breath when pushing, pulling or twisting

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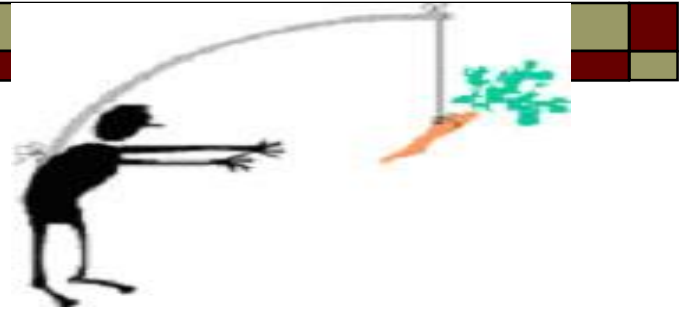
Tips for Carrying Objects



- ❑ Carry the load in front of you at waist level
- ❑ Pivot with your feet
- ❑ Take multiple trips
- ❑ Use two hands to carry the object
- ❑ Keep objects near your body
- ❑ Ask for assistance with heavy items;
- ❑ Use assistive devices, i.e., push carts, dollies, etc.
- ❑ Do Not carry with one hand
- ❑ Do Not twist
- ❑ Do Not carry with a bent-over, stooped posture



Tips for Reaching



- When reaching for an object:
 - reach with two hands
 - face the object
 - stand on a stable step-stool to reach high items
 - use long-handled tools when available
- Do Not overreach
- Do Not reach with one hand
- Do Not twist
- Do Not stand on an unsafe surface





Tips for Lifting

- ❑ Practice good body mechanics
- ❑ Do a "verbal walk through": How am I going to lift; Is load secure? Where am I moving object to? Do I need help?
- ❑ Test the load before lifting
- ❑ Bend at your hips and knees, not at your waist; use your leg muscles to lift the load.
- ❑ Request help with heavy items
- ❑ Do Not lift in a bent-over, stooped position
- ❑ Do Not lift with outstretched arms
- ❑ Use wide base of support- stand with feet apart



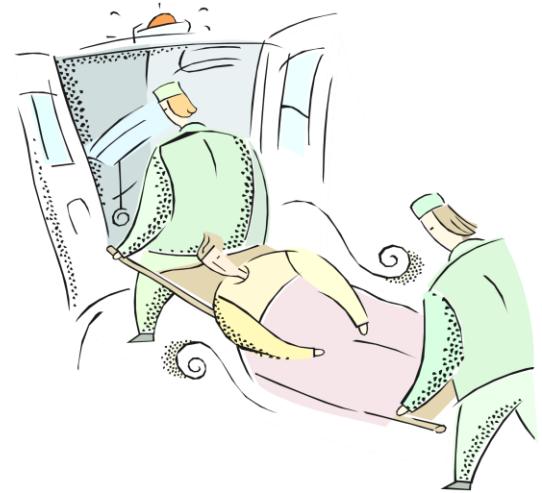
Specifics of Back Safety

- Healthcare workers often are so busy caring for patients they forget to take care of themselves.
- This can be a costly mistake!
- Those working in healthcare often put as much strain on their backs as construction workers.
- Learning how to lift, transfer and move heavy items properly will reduce your risk for injury.



Bed to Stretcher Transfer

- I. Get assistance
- II. Place a Zslider™, TAPP system or roller device beneath the draw sheet to facilitate sliding of the patient
- III. Adjust the bed to the level of the stretcher
- IV. Lock the bed and stretcher in place next to each other
- V. Transfer the patient in two stages, first onto the edge and then to the middle
- VI. Maintain the three natural curves in your back while bending at the hips and knees



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Wheelchair to Bed Transfer

- I. Apply Transfer/Gait Belt of appropriate size
- II. Lock wheelchair and adjust bed height
- III. Support patient's weak knees between your legs
- IV. Help patient shift forward on edge of surface, feet flat on floor with knees at 90 degrees and have patient push with hands from surface sitting on.
- V. Move patient to standing position from wheelchair with rocking motion; keep your knees slightly bent and back balanced
- VI. Pivot and lower patient on the bed by bending your knees
- VII. If patient must hold on to you, have him/her hold your waist or elbows, NOT neck
- VIII. Stay close to the patient and bend your knees enough so you are at the patient's level

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When a Patient Falls

- I. **Do not** try to prevent the fall
- II. Guide the patient easily and safely to the floor with gait belt; continue to bend your knees, not your back
- III. Stay close to the patient
- IV. Mentally practice this maneuver before an accident happens
- V. Get help to lift the patient from the floor. Use a lift if needed.



Clerical Staff



Clerical staff must often sit for long periods to reduce back strain:

- ❑ Use a chair with good lower back support (or roll a towel and insert behind your back for more support)
- ❑ Keep your arms and shoulders relaxed, elbows to fingers in a straight line when typing
- ❑ Keep your feet flat on the floor, with weight evenly distributed on both hips
- ❑ To prevent back fatigue, shift positions often
- ❑ Arrange your work area to reduce the amount of reaching and twisting you must do.
- ❑ Instead of twisting, turn your body, keeping your hips and feet pointed in the same direction.
- ❑ When using a computer monitor, adjust it so the top of the screen is at eye level, to keep your spine in alignment.



Reporting MSD's

Musculoskeletal Disorders (MSD) can cause pain and suffering over time. It is important that you report MSD signs and symptoms right away to avoid long-lasting problems.

- If MSD signs and symptoms are not reported early, permanent disability may result.
- Contact your supervisor to report MSD signs or symptoms, and hazards.
- If an on-the-job injury occurs, notify your supervisor immediately, go to Employee Health for care if needed, and complete an incident report as soon as possible.

Remember: Prevention is the key to avoiding MSD. Once you have injured your back you are 5 times more likely to injure it gain.





Mobilizing The Obese (Bariatric) Patient Safely



Transfer and Mobilization of the Obese Patient

- ❑ Increased weight of patients contributes to increased risk of injury to the patient and staff.
- ❑ Equipment used for the obese patient must provide an adequate weight capacity.
- ❑ Equipment that appears “large” may not be adequate for the obese patient.
- ❑ Information to safely mobilize the obese patient is contained in the following slides.



Can you “handle” the Obese Patient?

- All employees should utilize equipment in the work areas that meets the obese patient’s needs.
- Is the equipment you are utilizing appropriate in both size and capacity for the obese patient?
- Identify situations which may pose a challenge for the obese patient and make adjustments as needed.
- Also, remember that many obese patients are sensitive about their weight and restrictions imposed by their weight. Be aware of this and take steps to avoid embarrassment for the patient.



Equipment Labeling

- Equipment that may assist with the care of the obese patient will be labeled with its total weight capacity.
- Example of equipment labeling :

TWC 350#

- This means the total weight capacity of the equipment will accommodate a patient that weighs 350 lbs. maximum.



Examples of Equipment Weight Capacity :

- ❑ Gowns/pajama pants - available for all size patients
- ❑ Blood pressure cuffs -available for all size patients
- ❑ Stand-on scale (Scaletronix 5002) - 880 lbs.
- ❑ Wheelchairs (20 inch) - 350 lbs.
- ❑ Wheelchairs (26 inch) – 450 lbs.
- ❑ Stretchers in ED – 600 lbs.
- ❑ Standard walker - 300lbs.
- ❑ Heavy duty walker - 400 lbs.
- ❑ Standard crutches - 300lbs.
- ❑ Heavy duty crutches - 400 lbs.
- ❑ Standard gait belt - 300 lbs.
- ❑ Gait belts - 72 inch length- Bariatric rated



Lifting Equipment

Lifting Equipment :

- Units 4D and 3D have one overhead lift with a maximum capacity of 1000 lb.
- Units 4D and 3D each have two overhead lifts with a maximum capacity of 500 lb.
- Viking Lift (Portable)-650 lbs.
- Liko sit to stand lift (Portable)-350-440 lbs.



Z-Sliders™

- A friction-reducing, patient transfer and repositioning sheet designed to prevent disabling back injuries to healthcare workers.
- Decreases physical strain to back, shoulders, neck and arms when repositioning patients of any size
- Single-Patient use



Comfort GilderSheet

1.) Unfold and position the glide sheet next to patient, aligning the top of the sheet with the patient's shoulders. The 2 elastic retention straps should be towards the head of the bed.

2.) Place the Ultrasorbs® Comfort Glide Drypad over the glide sheet and fold the edges of both "long-ways" to tuck under the patient.

3.) Roll patient onto his/her side following patient handling policies.

4.) Tuck the glide sheet under patient's side.

5.) On the opposite side of the bed, roll patient away from you and unfold the glide sheet and pad.

6.) Using the glide sheet handles, gently slide the patient as needed to center them on the bed.

7.) *Optional* Use retention straps to anchor glide sheet to bed

Useful Tips to Remember

- Use in combination with Comfort Glide Drypad for optimal moisture management
- Detach retention straps prior to patient repositioning



Step 1



Step 2



Steps 3-4



Step 5



Step 6



Step 7



Diagnostic Equipment

For the patient undergoing diagnostic procedures:

- ❑ CT table- weight limit is 450 lbs.
- ❑ MRI table- weight limit is 500 lbs.
- ❑ Nuclear PET scanner- weight limit is 450 lbs.
- ❑ Special procedures table- weight limit is 400 lbs.
- ❑ Radiology GE Advantx-weight limit is 600lbs.
- ❑ Endoscopy Fluroscopy –weight limit is 450 lbs.
- ❑ Cath lab tables-weight limit is 700 lbs.



Equipment in Other Departments:

- MCBG Operating Room- Some surgery tables can accommodate up to 1000 lbs.
- Emergency Management - Bariatric ambulance can accommodate patients weighing up to 1000 lbs. This ambulance is equipped with other special equipment for the bariatric patient.



If Equipment is Unavailable:

- Contact the House Supervisor or the bariatric coordinator for assistance.
- Appropriate equipment not available in the facility will be rented from United Hospital Services.
- The Bariatric Information folder is **5Bari5** in the S drive. This folder contains information on bariatric equipment.





**For Additional Support on Care of the
Bariatric Patient Contact:**

The Bariatric Center Coordinator

Bariatric Center

270-796-6564



In Summary...

- Understand MSD, and its causes and symptoms.
- Use appropriate techniques to prevent injuries.
 - Apply the six principles of body mechanics.
 - Follow the tips for using good body mechanics when sitting or standing, and carrying, reaching for, or lifting objects.
 - Protect your back when doing patient transfers.
- Remember that prevention of injury is the key to avoiding MSD.
- Notify your supervisor as soon as MSD signs and symptoms appear, or if an injury occurs. Complete an incident report following injury ASAP.

For additional information about body mechanics and ergonomics, contact Employee Health @ x1263.

- Once you have completed the CBL, please click the “**Take Test**” button to complete the requirements of this CBL.

