Principles of Body Mechanics

BODY MECHANICS is efficient and careful use of your body. Body mechanics includes good posture, balance, and use of your strongest and largest muscles for work. Fatigue, muscle strain, and injury can result from improper use and positioning of your body during activity or rest.

Objective:

Explain how you can instinctively use body mechanics to protect yourself from injury.

Key Terms:

base of support
body mechanics
center of gravity
crouch
efficiency

Body Mechanics

Body mechanics is the coordination of body alignment, balance, and movement. Your head, trunk, arms, and legs are aligned. Good alignment, or posture, allows your body to move and function with efficiency and strength. Sitting, standing, and lying down all require good posture to avoid muscle strain.

Correct use of body mechanics prevents unnecessary fatigue and strain, saves energy, and increases **efficiency** (the ability to accomplish a job with the least difficulty). Good body mechanics prevents injury to you and others.

RULES OF GOOD BODY MECHANICS

1. **Maintain a wide base of support—** **Base of support** is an adequate distance between the feet, 8 to 10 inches, to properly balance the weight on both feet, with one foot slightly forward and with toes pointing in the direction of movement. Flex your knees to absorb jolts. Turn with your feet.
2. **Maintain a stable center of gravity—** Keep your **center of gravity** (usually the center of your body) low when you lift, move, or carry an object. Keep your back straight, and bend at your hips or knees.
3. **Maintain the line of gravity—**Keep your back straight, and keep the weight of the load close to your body and centered over your hips.
4. **Maintain proper body alignment—** Tuck your buttocks in, pull your abdomen in and up, keep your back straight, and keep your head up.

FIGURE 1. This woman is practicing good body mechanics. She has the object grasped in both hands, with her feet spread 8 to 10 inches apart and with one foot forward for balance. Her back is straight, and the object is held close to her body and not higher than chest level.

UTILIZING GOOD BODY MECHANICS

1. To avoid back injury, bend from your hips and knees. Keep your back straight. Do not bend from your waist. Bending from your waist strains small back muscles. Your back muscles are weak and easily injured.
2. Use stronger and heavier muscles to lift, push, pull, and carry. Your shoulders, upper arms, hips, and thighs have your strongest and largest muscles.
3. Stand directly in front of and close to the object. Being close puts less strain on your back, legs, and arms.
4. Do not twist your body when lifting. Move your feet to turn your whole body when changing the direction of your movement instead of twisting your body.
5. Use your weight to help you push or pull an object. When possible, push, pull, or slide an object rather than lift it.

6. Bend your knees and **crouch** (stoop, using the large muscles of the legs to help maintain balance).
7. Lean away from the object, and pull it up by straightening your legs.
8. To carry an object, grasp it firmly close to its center of gravity, putting your hands around it.
9. Bend your hips and knees to lift a heavy object. Straighten your back as the object reaches thigh level. Your leg and thigh muscles work to raise the object off the floor to waist level.
10. Use both hands and arms to lift, move, or carry objects. Don't carry objects higher than chest level.
11. Keep your back straight, walk backward, and let your legs do all the work of carrying.
12. Always use a stool or ladder to reach objects higher than your chest.

FIGURE 2. A stool is useful when preparing to reach an object higher than your chest.

Summary:

Body mechanics refers to the way we move our bodies. Good body mechanics is the coordination of alignment, balance, and movement. It is the utilization of correct muscles to perform a task safely and efficiently, without undue strain on muscles and joints. Correct use of muscles makes lifting, pushing, pulling, and carrying easier. Good body mechanics prevents unnecessary fatigue and strain, saves energy, and increases efficiency. Correct use of body mechanics prevents injury to yourself and others and should be practiced in all your activities.

Checking Your Knowledge:

1. What is necessary for you to avoid muscle strain when you sit, stand, or lie down?
2. Maintaining your base of support, how do you position your feet to lift, carry, push, or pull an object?
3. Why do you *not* bend from the waist when you lift, carry, push, or pull an object?
4. What are the strongest and largest muscles in your body?
5. When do you crouch in utilizing good body mechanics?
6. What is the best way to reach objects higher than your chest?

Expanding Your Knowledge:

One job in which good body mechanics must be constantly practiced is nursing. Can you think of other jobs in which good body mechanics is important? A visit to a hospital will show you good body mechanics being practiced as nurses care for patients and move medical equipment. Observe how good body mechanics serves nursing staff and patients.

Web Links:

Body Mechanics and Your Spine

http://www.spineuniverse.com/displayarticle.php/article2684.html
http://www.spineuniverse.com/displayarticle.php/article2685.html

Using Good Body Mechanics

http://www.drugs.com/cg/using-good-body-mechanics.html

What Is Good Body Mechanics?

http://www.greenhosp.org/pe_pdf/pt_bodymech.pdf

Body Mechanics

http://www.painpointpillowsource.com/page/1008391