

PRESENTER'S GUIDE

"LABORATORY ERGONOMICS"

Part of the Laboratory Safety Series

OUTLINE OF MAJOR PROGRAM POINTS

OUTLINE OF MAJOR PROGRAM POINTS

The following outline summarizes the major points of information presented in the program. The outline can be used to review the program before conducting a classroom session, as well as in preparing to lead a class discussion about the program.

- **Every week laboratory employees perform hundreds of different tasks:**
 - At different workstations.
 - Using different instruments/materials.
 - Employing different movements.
- **Each task makes a distinct set of demands on the body.**
 - Some tasks can lead to unhealthy strain/stress.
- **Ergonomics helps us look at these demands, examining:**
 - Our job.
 - Our work areas.
 - The instruments and tools that we use.
- **Ergonomics shows us how we can work most effectively and safely based on our own physical makeup, such as our:**
 - Height.
 - Leg size.
 - Arm size.
- **People's physical size and shape are important considerations when designing work areas and equipment.**
 - To work efficiently and safely, we must minimize stress on the body.
 - But often it is hard to design workstations and equipment that are perfect for everyone.
 - Frequently equipment is designed to fit "most" people.
- **Your work area needs to be customized for you.**
 - How you do it is up to you and your supervisor.
 - It will determine how hard your muscles and joints work.

- **Instruments and materials should be arranged to minimize unhealthy movements.**
 - "Overstretching" is common.
- **Specific things to avoid include:**
 - Long sessions of repetitive motion.
 - Irregular/extreme positions.
 - Overly heavy loads.
- **Positive work techniques can help with these problems.**
 - Stretching exercises can relieve muscle tension.
 - Keeping in "neutral" positions eliminates stressful or uncomfortable movements.
- **The "neutral" position for the wrist is a straight, "shake hands", position.**
 - This involves the least amount of stress.
 - It should be used whenever possible.
 - Other wrist positions can be harmful, especially when they are used over long periods of time.
- **The arms and shoulders also have a neutral position.**
 - Keep the upper arms to the sides of the body.
 - Have the forearms out at a 90° angle.
- **There are more opportunities to use neutral positions than you would think.**
 - Arranging workstation height correctly is the key.
 - You may need to raise or lower a chair.
 - If you are standing, you may need a small stool or platform.
 - Sometimes the work surface needs to be lowered.
- **Careful positioning of tools and materials is also important.**
 - Keep them in front of your body (this encourages neutral movements).
 - Never put supplies at extreme reaches.

- **Repeating the same movement many times can also cause problems.**
 - Vary work patterns when possible.
 - Take periodic "mini-breaks" to loosen tight muscles.
- **Don't use excessive force when performing a task.**
 - Applying a lot of pressure can lead to an injury.
 - Injuries can be especially harmful if you are not in a neutral position.
- **Much lab work is performed with gloves.**
 - So having the right fit is essential.
- **Some gloves can be too large or too thick. This:**
 - Forces you to grip objects too tightly.
 - Can lead to painful swelling of the tendons.
- **Gloves can also be too tight/stiff at the wrist. This:**
 - Can press on nerves, blood vessels and the "carpal tunnel".
 - Often leads to serious injuries.
- **The back and neck are especially vulnerable areas.**
 - Both should be considered when you are working in the lab.
 - Stress to either can lead to painful problems.
- **The back can be weakened in a number of ways:**
 - By improper lifting.
 - Through a fall.
 - By bad posture.
- **You should work to keep your back and neck in a neutral, straight position.**
 - Don't do any unnecessary bending or twisting.
 - If you start to strain, adjust your work space.
 - Getting materials closer to the body also helps.

- **Sitting is one of the most stressful positions for the back. The best positioning is to:**
 - Keep the lower back (lumbar region) comfortably supported by your chair.
 - Position your feet flat on the floor.
 - Keep your knees slightly higher than your hips.

- **You may need to make positioning adjustments from time to time, to reduce stress.**
 - For good lumbar support adjust your chair or use a pillow behind your back.
 - If your feet dangle, place them on a book or platform.

- **Lab stools often lack lumbar support, so you should:**
 - Shift your hips forward.
 - Use rails as footrests.
 - Take frequent "stretches" to loosen tight muscles.

- **Standing can be just as tiring to the back as to the feet and legs. For best ergonomics:**
 - Organize tools/materials so everything is in reach.
 - Avoid bending/stooping.
 - Periodically shift your weight from one foot to the other.
 - Use a footrest to keep one foot higher than the other.
 - Wear comfortable shoes with cushioned insoles.
 - Stand on cushioned, anti-fatigue mats (if they are available).

- **Proper lifting techniques are essential to the good health of your back and neck.**
 - Before lifting, examine the object for excess weight and balance.
 - Get close to the object.
 - Keep your back straight.
 - Bend slowly at the knees, not at the waist.
 - Get a good grip on the sides of the object.
 - Lift slowly with your legs (keep your back straight).
 - Balance the load on your chest.

- **There are also proper procedures for walking with an object.**
 - Keep the object close to your body.
 - Turn with your feet, don't twist your body.
- **To set an object down, reverse the process.**
 - Keep your back straight.
 - Bend with your knees.
 - Set the object down carefully.
- **If an object is too heavy or awkward to handle alone, don't risk injury... get help.**
 - Lift the object together with someone else.
 - Counting out loud can help coordinate your efforts.
 - If the load is still too heavy for you and a helper, get a cart, dolly or other equipment.
- **Exercise can also be helpful in avoiding ergonomic injuries.**
 - The body needs to stay conditioned to perform effectively.
 - Start the day off with warm-up stretching.
 - Do limbering exercises during breaks.
 - This will keep you comfortable throughout the day.

*** * * SUMMARY * * ***

- **Remember, you can eliminate aches and pains by paying attention to your body mechanics and work environment.**
- **Rearrange the materials you work with.**
- **Raise or lower work surfaces.**
- **Practice good lifting habits.**
- **Get plenty of exercise.**
- **Practicing good ergonomics provides insurance against injury!**