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PREVENTIVE MEASURES TO REDUCE MUSCULOSKELETAL DISORDERS AMONG COMPUTER USERS

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INTRODUCTION

The term musculoskeletal disorders encircle inflammatory and degenerative conditions, which affect the tendons, muscles, joints, ligaments, blood vessels and peripheral nerves with pain or discomfort and ache. It is the most common work-related problem in the present era. Musculoskeletal injuries increase with longer hours of works performed with computer. The computer screen may cause musculoskeletal injuries as it is kept too high or low in relation to the computer user.

REASONS OF MUSCULOSKELETAL DISORDERS AND THEIR PREVENTIVE MEASURES:

1. Desk and Surface area of the Computer Workplace

Due to a lack of space on the work area, users may install components and gadgets in inconvenient locations. This positioning may cause difficult postures while reaching for a pointer/mouse or looking at a display on the side.

Solution	
	• When compared to a straight desk run, using a corner may provide more space and depth to accommodate large displays or several things.
	• Devices that are often used (keyboard, phone and mouse) should be kept within the repeated access zone (usual work safe zone).

2. Placement of monitor for normal users:

A head, neck, shoulders, and back posture will be affected by a display panel that is too high or low. The muscles that support the head become fatigued after a long period of time in these unnatural positions.

Solution	
	• The monitor's top should be at or just below eye level. • The computer monitor's center should be 15 to 20 degrees below horizontal eye level in most cases.
	• There should be enough space under the desk for thighs and feet to be supported. • When viewing a computer monitor, place it directly in front of you with your head, neck, and torso facing forward.
	• If you typically work from printed materials, tilt the monitor to the side and maintain the printed materials in front of you. Keep printed papers and monitors as close to each other as practicable. • Having a monitor support surface system that allows you to adjust viewing distances, tilt, and rotation angles is a smart idea.

- Adjust the monitor's height so that you can maintain proper neck positions. It's possible that you'll need to adjust the monitor screen to face you.
- Raise the chair height till you can see the display without leaning back in your chair. It's possible that you'll need to lift the keyboard and utilize a foot rest.
- Use a pair of single-vision lenses with a computer-specific focal length. This eliminates the need to glance through the lens's bottom half.

3. Parts of chair and Problem:

A well-designed and well-adjusted chair is an important component of a safe and effective computer workstation. A decent chair gives the back, legs, buttocks, and arms the support they need while eliminating awkward postures, contact stress, and forceful exertions.

Parts of chair and Problem	Solution
Backrest: Poor back support leads to back pain and fatigue.	• If the chair does not have adequate lumbar support, a wrapped towel or a removable back support cushion can be used to give temporary support and retain the spine's natural curve. • A lumbar support that adjusts in height can be used to properly suit the lower back. The backrest's outward curve should fit into the small of the back. Shorter users can sit with their backs on the backrest without the front edge of the seat pan contacting their knees to a system that lets it to slide forward and backward. Taller users will be able to sit with their backs against the backrest and still have complete support for their buttocks and thighs.
Seat: Using a chair with a seat that is too high or too low may force you to work with your feet unsupported or to move forward in the chair to the point where your back is unsupported, making it more difficult to maintain the S-shape of the spine, resulting in fatigue, restricted circulation, swelling, numbness, and pain in the legs and lower back. **Armrest:** - Armrests that are not adjustable may expose you to awkward postures or fail to provide adequate support.	• If the seat can't be lowered, the keyboard or display will be too high. The use of a footrest provides stable foot support. • A chair with adjustable large sized pan provides support in a variety of seated postures. • Seat pan should be Padded and have a rounded, "waterfall" edge. • The armrests either should be properly adjusted to provide support to the forearm and allow your upper arm to remain close to the torso. • Armrests should be large enough to support fore arm but small so they do not interfere with chair positioning. • Armrests should be made of a soft material and have rounded edges.

4. Keyboard and its related problems

To reach all of the keys on a standard keyboard, you may have to bend your wrists laterally. The wrist may bend upward due to a keyboard tilt induced by stretching the legs on the back of the keyboard or by a steep design angle. Stressful postures may also be exacerbated by smaller keyboards, such as those seen on laptops. Contact stress to the tendon sheath can be caused by these unusual wrist positions.

Solution	
	• Reduce awkward wrist angles by lowering or raising the keyboard or chair to achieve a neutral wrist posture. • Elevate the back or front of keyboards to achieve a neutral wrist posture. For example, if you sit lower in relation to the keyboard, slightly elevating the back of the keyboard may help to maintain a neutral wrist.

5. Lighting and its problems:

Bright lights shining on the display screen "wash out" images, making it difficult to clearly see your work. Straining to view objects on the screen can

lead to eye fatigue.

Solution
• Place rows of lights parallel to your line of sight. • Use blinds or drapes on windows to reduce glare. • Remove the middle bulbs of 4-bulb fluorescent light fixtures to reduce the brightness of the light to levels more compatible with computer tasks if diffusers or alternative light sources are not available. • Provide supplemental task/desk lighting to adequately • illuminate writing and reading tasks while limiting brightness around monitors.

CONCLUSION

Most of the computer users are unaware about the computer related health consequences, while working with computer. Continuous sitting in one posture leads to stiffness and numbness in the body and sitting in a bad postures results in musculoskeletal disorders. Computer related health problems are gradually increasing day by day, as they perform their work in front of the computer more than 7 hours per day. Sitting postures is the static body postures for the users. Continuous sitting before the computer for a prolonged period of time may results in muscles stiffness in the neck and results in neck pain, shoulder pain, low backache and upper backache. Appearance of musculoskeletal problems is associated with the insufficient break and shortage of time to break from the computer.

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