

Workplace Health and Safety Bulletin



That Hurts! Contact Stress at Work

Contact stress happens when force is concentrated on a small area of the body, pinching or crushing tissue and causing discomfort and often pain. You experience contact stress, for example, when the edge of a work surface digs into your forearm or wrist, when ridges and hard edges on tool handles dig into your hand, and when you use your hand, foot or knee as a hammer. The sides of fingers, palms, wrists and forearms, elbows and knees are most susceptible to contact stress because in those areas the nerves, tendons and blood vessels are close to the skin and underlying bones.

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When you rest some or most of your body weight on a small portion of your forearms, elbows, knees or thighs, the resulting highly concentrated forces may be enough to restrict the movement of tendons and cause inflammation, restrict the flow of nutrient and oxygen-carrying blood in the blood vessels, or bruise the muscles.

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Avoiding injury

The sharp edges of tables and workstations can often be covered with soft padding, and some workstations come equipped with leading edges that are already rounded or have padded inserts.

For most people, tools that have grooves for the fingers don't work well because the grooves are either too big or too widely spaced. The resulting pressure ridges across the hand can damage nerves or create hot spots of pain. Grooves along the length of the handle, which are intended to prevent slipping, can also cut into the hand and create pressure ridges, especially if the tool is in continuous use. If a grooved handle is the only choice available, ensure that the grooves are many, narrow and shallow.

Tools that have grooves for the fingers don't work well.

Workers should avoid using the base of the palm of the hand or the knee as a hammer. For example, carpetlayers often use the knee repeatedly to install carpets, and in doing so are at high risk of injury.

Other suggestions


- Redesign workstations or work processes to eliminate contact stress.
- Avoid resting against sharp edges, or try to have them rounded.
- If a part of the body must rest against a sharp edge, pad the edge or pad yourself to better distribute forces.
- Spread contact forces over a greater surface area to minimize tissue injury. For example, increase the size and length of tool handles.
- Wrap handles with tape or soft, grippy materials.
- Cover hard armrests with foam.
- Consider using wrist and mouse rests at computer workstations.


Redesign workstations or work processes to eliminate contact stress.


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Workplace Health and Safety

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