

#1-03 *Ergonomics – Hand & Wrist Strain*

Teachable Moments

Cumulative Trauma Disorders (CTDs) among office workers include carpal tunnel syndrome and various kinds of tendon inflammation. Besides repetition, other possible causes include:

- Holding one position. Muscles that hold a body part in position for long periods are more prone to fatigue than muscles that move a body part around.
- Non-neutral postures. In this context, the term "posture" is the position of an individual joint, not overall body posture. Any posture significantly different from "neutral" is considered to be at risk for musculoskeletal distress. "Neutral" is considered to be the position about halfway through the available range of motion for the joint.
- Localized pressure. Direct pressure on nerves or tendons can cause damage in the long run. The wrist is one location of concern. The elbow (the funny-bone or crazy-bone nerve) is another.
- Use of force. Even small exertions can cause stress if small muscles are involved. Sudden, fast motions involving a jerk or snap.
- Cold temperatures.
- Vibration from hand-held power tools or whole-body vibration caused by driving heavy equipment.

Keeping these causes in mind, some of the rules of thumb for preventing CTD's are:

- Break up repetitious work.
- Relax. Don't use your muscles to hold your hands or shoulders in a particular position. Keep your limbs and shoulders limp as possible, even during short pauses.
- Use moderate postures for individual joints. Stay away from positions near the extremes of your joints' range of motion — the most neutral joint position is about halfway.
- Minimize contact with hard or sharp surfaces. This is especially important at the wrists and elbows.
- Don't use too much force. Notice any exertions you have to make and see if they can be eliminated. "Exertions" don't have to involve breaking into a sweat. They can be subtle, such as pulling a hard-to-reach drawer or lifting a heavy file.
- Move with an even motion. Avoid snapping the wrist or jerking against outside forces.
- Keep your hands and fingers warm. Consider gloves or even fingerless gloves.
- Break up exposures to vibration.

One of the most important preventive measures is 'variety.' In other words, change posture and activities often. If possible, take breaks before getting tired. Extremely short breaks can be very helpful if frequent enough.

Total CTD prevention involves ergonomics (changing the environment), education (changing work styles or habits), medical management (optimizing treatments and return-to-work procedures), and management (monitoring statistics to find the most hazardous jobs and working proactively). CTD's usually cannot be adequately dealt with without all four approaches happening together.

Take Away: There are many causes for Cumulative Trauma Disorders. Experiment with some of the issues discussed above to try to find relief. Managers should work with an employee suffering from CTDs to find an appropriate solution.