

Stressful Postures Associated With Cumulative Trauma Disorders



Stressful postures constitute one of the primary occupational risk factors for the development of cumulative trauma disorders (CTDs) of the upper extremities. Postures are considered stressful when the body's position requires the use of force or causes stretching or compression of body tissues. Jobs should be analyzed to see whether they require prolonged or repeated exertions involving these shoulder, elbow, wrist, and hand positions.

Shoulder

Jobs that require the worker to habitually reach and work with the arms above shoulder level or with elbows away from the body can influence the development of shoulder problems. Shoulder ailments can also be caused by repeatedly reaching behind the body or throwing materials over the shoulder into a receptacle.

Elbow

Rotation of the forearm, especially with the wrist bent, is particularly stressful to the elbow. Inward rotation, which turns the palm down-

ward, is called pronation. Outward rotation, which turns the palm upward, is called supination.

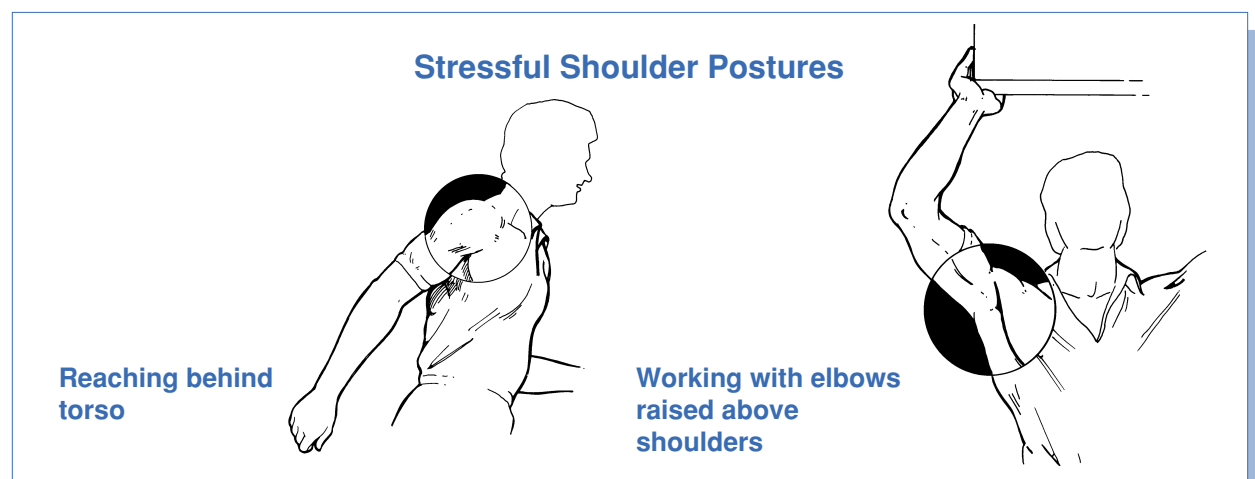
Wrist

Stressful wrist postures include extreme flexion or extension, and radial or ulnar deviation. These movements are particularly likely to cause CTDs when combined with forceful exertion such as a tight grip on a tool or other object.

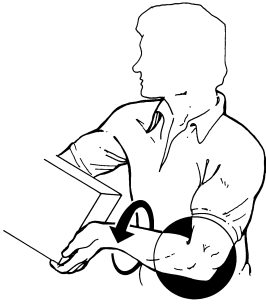
Hand

There are three principle grips: power, hook, and pinch (or precision) grip. Avoid repeated use of a pinch grip; it takes more strength and puts more tension on the tendons to hold an object between the fingers and thumb than it does using a power or hook grip.

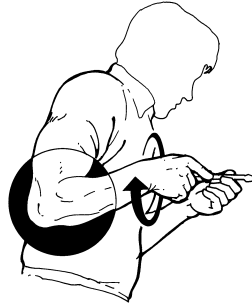
The power grip is preferred, though it may be harmful if combined with frequent motion and excessive force. The hook grip (such as holding a tray with your fingertips) is less stressful than the pinch grip but not as good as the power grip.



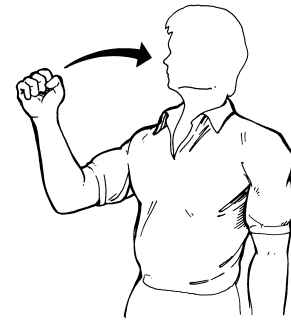
Stressful Elbow Postures



Outward forearm rotation (supination)

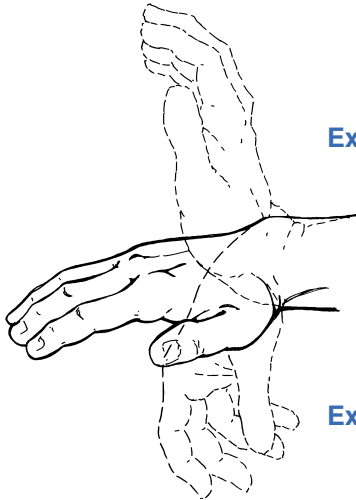


Inward forearm rotation (pronation)



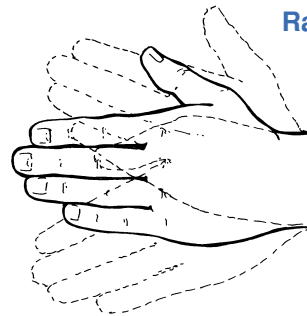
Extreme elbow flexion

Stressful Wrist Postures



Extreme extension

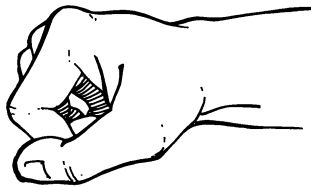
Extreme flexion



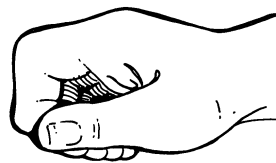
Radial deviation

Ulnar deviation

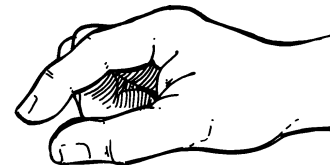
Stressful Hand Postures



Power grip



Hook grip



Pinch grip

The illustrations, instructions and principles contained in the material are general in scope and, to the best of our knowledge, current at the time of publication. No attempt has been made to interpret any referenced codes, standards or regulations. Please refer to the appropriate code-, standard-, or regulation-making authority for interpretation or clarification. Provided that you always reproduce our copyright notice and any other notice of rights, disclaimers, and limitations, and provided that no copy in whole or in part is transferred, sold, lent, or leased to any third party, you may make and distribute copies of this publication for your internal use.