

DIVISION OF SAFETY & HYGIENE
ERGONOMICS PROGRAM
OFFICIAL STATEMENT OF POSITION

"SPLINTS & WRIST BRACES for CTS "

The following is the position of the technical advisor for the BWC Division of Safety & Hygiene as it relates to our philosophy. Philosophies adopted by the BWC in the area of injury/illness prevention through ergonomics are intended to reflect state-of-the-art knowledge while preserving the integrity of the science. Our position relies heavily upon:

- (1) reporting of sound research by proven international researchers,
 - (2) the collective experience of recognized professionals in ergonomics application,
 - (3) long-term effects of an application gaging value and return on investment,
- and the ability of these criteria to prevent occupational injury & illness.

POSITION:

Wrist splints or braces used to keep the wrist straight during work are not endorsed by the Division of Safety and Hygiene as tools for the prevention of Carpal Tunnel Syndrome (CTS). Although they may be useful in some instances of rehabilitation or as prescribed by a physician, these devices are not considered a legitimate ergonomic means in the prevention of CTS or other musculo-skeletal disorders of the hand and wrist.

RATIONALE:

- (1) Although the principle of keeping the wrist straight is achieved, the need to maintain a certain work orientation or operate a particular tool still exists. As the worker is forced to accommodate, more potential risk factors may surface such as:
 - a) the hand working against the brace increases tunnel pressure,¹
 - b) transfer of the motion & posture further up the arm to the elbow or shoulder joints.
- (2) Although controlling patterns of wrist motion is possible, risk factors of grip strength and finger manipulation can still traumatize the soft tissues of the hand and wrist. Studies show that wrist splints actually aggravated CTS rather than facilitate recovery.¹
- (3) Wraps used to give the wrist support during work may inhibit blood flow into the hand as well as contribute to the internal pressure within the carpal tunnel. The reported benefits of support may subsequently result in further trauma to the hand.
- (4) The promotion of these devices may lead an employer to overlook sound ergonomic principles. "The ergonomic approach to workplace design must be recognized as the most effective and is the first choice for controlling sources of workplace stress."²

NOTES:

Proper ergonomic prevention such as workpiece orientation or alternate tool designs are two proactive means of straightening the wrist (i.e. fitting the task to the man). Often times the right engineering controls and proper tool selection results in increased quality and productivity. Splints are intended to immobilize the wrist so that it is free from trauma and has a chance to heal; the same principle as a cast. It is important to realize that a bent wrist may be a symptom of a poorly designed task, the true cause.

REFERENCES:

- 1 Investigation of Occupational Wrist Injuries in Woman. Terminal Progress Report, USDHHS CDC NIOSH Grant number 2R01 OH 00679. May 28, 1991.
- 2 OSHA Instruction CPL 2.78, Directorate of Technical Support. Appendix A-4.