

"LIFTING BELTS / BACK SUPPORTS / BACK BRACES"

OFFICIAL STATEMENT OF POSITION

The following is the position of the technical advisor for the BWC Division of Safety & Hygiene ergonomics program 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:

Back braces, supports or "lifting belts" are not endorsed by the Division of Safety and Hygiene as tools for the prevention of back injuries. 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 long-term prevention of low back disorders.

RATIONALE:

- (1) Back belts in no way eliminate a worker's exposure to the hazard. While there is lifting, there are compression and shear forces on the spine and stresses on the supporting muscle groups.
- (2) There is no direct scientific evidence to validate that spinal compression forces are reduced by increases in inter-abdominal pressure. At this point, there are only hypotheses.¹
- (3) There is growing evidence that with prolonged use of these devices, the lifting structures of the trunk may weaken. Subsequent lifting without the belt has resulted in increased injury rate which may imply physical dependency.^{2,3}
- (4) A reported increase in support perceived by the user may translate into a false sense of security, hence fostering the potential for additional risk taking.
- (5) Just because supports are provided does not mean they are being used properly if at all.²
- (6) The support received from the device may resist "improper bending" and limit motion of the trunk. Whether good or bad, this raises the question "how will the less capable thoracic spine without support react to casual reaches, twists and postures formerly taken on by the more sturdy lumbar spine as the pivotal point of trunk motion?"
- (7) Other significant concerns are the increased blood pressure associated with belt wearing and the implications of this for those who may have a compromised cardiovascular system.⁴
- (8) 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."⁵

NOTES:

The ergonomic approach strives to fit the task to the person, rather than force the person to adapt to the task. Ergonomics through engineering controls treats the cause of the problem, rather than the symptoms. By designing the task such that heavy lifting and bending is eliminated, a greater part of the working population can perform the job at less risk. Administrative controls, such as training and job rotation should not be viewed as primary methods of control. Medical devices, such as lifting belts, are not considered PPE by OSHA⁶ and are to be used only under special circumstances as prescribed by a health care professional.

REFERENCES:

- 1 McGill, M.S. "The Effect of an Abdominal Belt of Trunk Muscle Activity and Intra-Abdominal Pressure During Squat Lifts." Ergonomics, Feb 1990, pp. 147-160.
- 2 Reddell, C. "An Evaluation of a Weight-Lifting Belt and Back Injury Prevention Training Class for Fleet Service Clerks." Unpublished masters thesis, Texas A&M University Department of Industrial Engineering.
- 3 Do Back Supports Work? National Safety Council, 1988.
- 4 Hunter, et al. (1989). "The effects of a weight training belt on blood pressure during exercise." Journal of Applied Sport Science Research. (3(1) , 13-18.
- 5 OSHA Instruction CPL 2.78, Directorate of Technical Support. Appendix A-4.
- 6 OSHA Meatpacking Guidelines