

The proper steps to lifting and moving.

1. Always size up the load to be handled.
 - * Look at what you are about to lift and if necessary, move it from side to side, and forward or backward to gauge the object's weight.
 - * Can you handle it safely by yourself, or do you need help?
 - * Being honest with your personal capabilities can save many problems in the future.
2. Establish a firm footing to ensure the best possible balance and stable lifting base.
 - * Stand with your feet apart, at about the same width as your shoulders.
 - * Stand with one foot slightly in front of the other.
3. In preparing for the lift, remember to keep your back as straight and upright as possible.
 - * When lifting any object, keep your back perpendicular to the ground, not horizontal.
4. Always bend at your knees, not at your waist.
 - * Slowly lower yourself, using only your legs.
 - * Remember to keep your back as straight as possible all the way down.
5. As you begin to lift, tighten your stomach muscles and lift with your legs, not your back.
 - * Let your leg muscles do all the work. (Leg muscles are much stronger than back muscles).
6. Always keep your load as close as possible to your body.
 - * When turning, turn with your feet first, and let your body follow.
 - * Never turn by twisting your body.

In addition to the proper lifting and moving steps, the following "rules of thumb" apply to any organization in which the lifting and moving of materials is required:

- * Use of any back support does not mean you can (or should) lift more than your body could normally sustain without the back support.
- * Your belt is a superior tool to helping decrease the likelihood of back injury.

- * No back support can, by itself, prevent injury.
- * Back supports must be used in an overall back safety program within your organization or company.
- * Back programs should include exercise and training of proper lifting mechanics.

This report sponsored by NIOSH, "Physiological effects of back belt wearing during asymmetric lifting" was published in Applied Ergonomics 2001; 32:541-7, and based on a study conducted by Bobick, T.G., Belard, J.L. Hsiao, H.W. and Wassell, J.T.

This study was a follow-up to the aforementioned one entitled, "The effect of wearing a back belt on spine kinematics during asymmetric lifting of large and small boxes" and involved the use of three types of flexible back supports (back belts). While wearing each of the three, test subjects were monitored and tracked for heart rate, respiratory rate, systolic and diastolic blood pressure and oxygen consumption during varying lifting and torque tests.

This study concluded that the physiological effects on spinal kinematics were unchanged when the back supports were used. Thus, it appears that back supports provide restricted movement. As a result, material handlers will remember and follow proper steps to lifting and moving while wearing back supports.

Additionally, it was noted that workers who use back supports do not exert themselves more than those who do not wear them. Bobick, et al determined that there was no statistical difference in systolic and diastolic blood pressure between groups using back supports and those not using them.

In summary, the following facts speak for themselves:

- * NIOSH conducted two very scientific studies that were highly controlled and monitored, i.e. the kinematics of back supports vs. no back supports, and the physiological effects of wearing back supports vs. not wearing them.
- * Giorcelli, et al determined that experienced material handlers will properly follow lifting and moving steps while wearing back supports, thereby reducing back strain and preventing injury.
- * Bobick, et al determined that workers using back supports did not have statistically elevated systolic and diastolic blood pressure over those not using back supports.
- * Using sound scientific research, both studies affirmed the positive benefits of wearing back supports during material handling.
- * There is no significant carryover from back support usage to non-usage. To properly lift and handle materials, workers must wear back supports.
- * There is no validation to the claim that back support use causes adverse health effects such as increased blood pressure.

