Low back injuries are common and costly for many companies. These injuries have many causes including sprains and strains from overexertion, falls, material handling, and automobile accidents. This Alert focuses on one of the primary causes of low back pain injuries: manual material handling tasks. Everest’s Loss Control Alert, “Management Tools to Prevent Material Handling Low Back Injuries”, available from our web site, www.everestnational.com provides helpful management tools and checklists to initiate your injury prevention efforts.

Due to the many causes of low back pain, experts agree that most of us will experience some form of this injury during our lifetime. Low back injuries can have both occupational and non-occupational causes and contributing factors. A few non-occupational factors may include obesity, diet, posture, age, gender, genetics, temperament, and general fitness. Occupationally related back pain can also have numerous causes. Of those resulting from material handling tasks, studies have indicated three major contributing factors; excessive force or weight, poor posture, and task repetition.

**Excessive force:**

Due to significant injury contributing variables such as distance an object is carried from the body, the height of a lift, distance traveled, while carrying an object, the condition of the walking surface, the grip on the load and frequency of the lifts there is no “safe” weight that can be repeatedly lifted or carried without risk of injury. The National Institute for Occupational Safety & Health (NIOSH) has developed a lifting equation to allow safety professionals to design manual lifting and carrying tasks to minimize the risk of injury. According to this formula, under ideal conditions, which are rarely met for any lifting or carrying task, workers are extremely susceptible to injury when handling loads in excess of 50 pounds. When the injury contributing variables cited above are included into the NIOSH lifting equation, the amount of weight that can be repeatedly lifted and carried without risk of injury is greatly reduced.

**Posture:**

Extremes in body posture when lifting or carrying materials significantly contribute to the amount of force that the body needs to move the weight. The greater the degree of flexion or the more “bent over” a worker is when an object is lifted or carried, the greater the amount of the force on the lower back. As the force or flexion increases, the risk of injury increases. Lifting and carrying tasks requiring workers to twist their backs, such as moving materials to a different level or location or change direction when carrying are particularly stressful to the lower back.

**Repetition:**

Rarely do back injuries result from a single lifting or carrying task. They usually result from multiple lifting and carrying tasks over the years. Unfortunately, our bodies, including our back muscles, tendons, bones and disks, degenerate with age. Due to this natural degeneration what may be an acceptable weight for a healthy 25 year old worker, may pose a high risk of injury to older workers. In addition, fast paced lifting or carrying tasks such as loading or unloading trucks can also cause muscle fatigue. Tired muscles, if not rested, will begin to breakdown and are more susceptible to injury.
Preventing back pain injuries:

As there is no simple cause of low back pain, there is no easy solution to prevent material handling related back injuries. With multiple occupational and non-occupational factors contributing to low back pain, preventing it seems like an impossible task. However, with the high cost of these injuries and overall aging workforce, there is a strong likelihood that they will increase in frequency and severity in the future. The only true solution is to minimize the occupational risk for material handling related back injuries.

Historically, training workers to adopt proper body mechanics (e.g. lift with your legs, keep your back straight) to prevent back pain was the most common injury prevention method used by employers. If used as the sole remedy, it was largely ineffective. The injury prevention value of using back belts was also determined to be ineffective if used as a sole remedy in preventing low back pain. As such, Everest Loss Control recommends that use of a back belt should not be a mandatory job requirement or used as the only control to prevent back injuries. If your workforce continues to wear back belts, you should consider the following:

1. There is a lack of scientific evidence that back belts prevent injuries.
2. Workers wearing back belts may attempt to lift more weight than they would without a belt. A false sense of security may subject workers to greater risk of injury.
3. Mobility limitations imposed by back belts may reduce the elasticity of back muscles and tendons, contributing to low back pain.

Effective Prevention Strategy:

The most effective and successful results in preventing low back pain come from an ergonomic approach involving hazard identification, task analysis, and a combination of specific engineering and administrative controls. Successful employers usually involve management and workers as a team to identify high-risk tasks and develop feasible solutions to minimize the risk of injury. In many cases these solutions helped to increase production.

Everest Loss Control recommends the following approach:

**Hazard Identification:**

Identify and analyze each lifting and carrying task. The purpose is to identify key risk factors and develop specific injury prevention solutions. The first step is to prioritize lifting and carrying tasks that present the greatest potential for injury. Identifying high-risk tasks can be fairly easy. Look at past claims, accident investigation reports or other accident records to identify these tasks. Obtain worker feedback as to those lifting and carrying tasks that they perceive as being stressful. Observe your employees. Look for those tasks involving awkward postures, forceful exertions, heavy materials (35 lbs or greater should be a first priority) or repetition. Look for tasks where workers or their supervisors have implemented preventative actions such as frequent breaks, two-person lifting, or the use of mechanical aides such as dollies or ramps.

**Task Analysis:**

Once the material handling tasks have been identified, the next step is to examine the risk factors of force, posture and repetition that exist within each task. The purpose is to identify those risk factors that present the greatest potential for injury. Once identified, specific effective measures can be developed to minimize these risk factors. Task analysis is best performed through a team approach involving workers and management. Refer to Everest’s Loss Control Alert, *Management Tools to Prevent Material Handling Low Back Injuries*, located on our website for checklists and other tools that can be helpful to identify high-risk factors for material handling tasks that require corrective action.
**Task Modifications:**

Deciding on the most effective methods to improve high-risk material handling tasks requires a team approach. Workers and management, acting as a team, should recommend job modifications to reduce the high risk factors identified in your task analysis. Recommendations should be carefully considered to avoid other hazards that may be created if adopted.

Recommended changes should be implemented on a trial basis and re-evaluated before making final go-ahead decisions. Feedback from workers should be obtained relative to the ease of the modified tasks and any additional changes needed. When management and workers are satisfied with the modifications, they should be adopted company-wide. Any injuries and worker feedback should be reviewed to determine effectiveness and the need for additional changes. Modified tasks should be periodically observed to assure work is performed as designed.

**Worker Training:**

In addition to task modifications, workers and their supervisors need to be trained on the hazards of their manual handling tasks and the work practices and equipment to prevent injuries. In addition, workers should receive training on proper body mechanics including lifting and carrying techniques to minimize the risk of injury.

Training should be provided for all new workers and those performing new jobs or material handling tasks. Training should also be provided to all workers and their supervisors when jobs are changed or modified. All workers should be periodically reminded of proper material handling work practices through regular toolbox meetings or other worker training activities.

**Claims Management:**

In the event a low back injury does occur, the best action to take is to contain the costs of the claim and initiate action to prevent similar incidents. For more information refer to Everest’s Loss Control Alert on Claim Cost Containment Strategies and Return To Work Programs located at [http://www.everestnational.com](http://www.everestnational.com).

Remember, Everest Loss Control offers services to help you in your loss prevention efforts. If you would like more information about these services, visit our web site at [www.everestnational.com](http://www.everestnational.com).

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**CONTACT US**

**Westgate Corporate Center**
477 Martinsville Road
P.O. Box 830

**Loss Control Department**
Phone: 908-604-3000
Fax: 908-604-3526
E-mail: losscontrol@everestre.com

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Strategies In Preventing Low Back Pain Injuries from Material Handling

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