

TerranearPMC Safety Share

Week of February 22, 2016– Back Belts; Do they help?

Back injuries in the USA are the #1 source of workplace-related injury in the USA, resulting in \$30 billion in direct costs; \$120 billion if indirect costs are included. Direct costs include medical bills, and actual costs to treat the injury. Indirect costs include other factors such as lost productivity and replacement costs for damaged equipment and materials.

As a result of back injuries, many organizations have incorporated the use of back belts within the S&H programs as a method to control/prevent injury during lifting. Back belts, also called "back supports" or "abdominal belts," are currently worn by workers in numerous industries, including grocery store clerks, airline baggage handlers, and warehouse workers. As their use has risen, the National Institute for Occupational Safety and Health (NIOSH) has been asked for advice on back belt selection. In response to these inquiries, NIOSH decided to address a more fundamental question. Rather than ask "Which belt will best protect workers?" NIOSH researchers began with the question--"Do back belts protect workers?"

To date, there have been only handful of published studies regarding the rate of injury among workers using the belts. According to NIOSH, these studies have not produced sufficient support for or against the use of back belts.

While there are more than 70 types of industrial back belts, the typical abdominal support used in workplaces today is a lightweight, elastic belt worn around the lower back, sometimes held in place with suspenders.

Back belts were initially used in medical settings. These belts, termed "orthoses," resemble the corsets worn by women in the nineteenth century and are typically used to provide additional back support during rehabilitation of injuries. Subsequently, athletes began using leather belts for weight-lifting.

NIOSH systematically reviewed published peer-reviewed scientific literature on back belts to determine if they actually reduce the risk of back injury. Because there were few studies on the association between workplace use of back belts and injuries, NIOSH also reviewed studies of the relationship between back belt use and forces exerted on the spine during manual lifting. In other words, much of the existing research is based on theories of what causes back injury, rather than on the actual rates of workplace injury with and without back belt use.

After a review of the scientific literature, NIOSH has concluded that, because of limitations of the studies that have analyzed workplace use of back belts, the results cannot be used to either support or refute the effectiveness of back belts in injury reduction. Although back belts are being bought and sold under the premise that they reduce the risk of back injury, there is insufficient scientific evidence that they actually deliver what is promised.

As a result of the lack of supporting evidence in favor of back belts, NIOSH does not recommend their use to prevent injuries among workers who have never been injured (Because NIOSH's



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primary focus is on the prevention of injury, NIOSH did not address the use of back belts as medical treatment during rehabilitation from injury). Therefore, the effectiveness of back belts used for therapeutic purposes (i.e. persons wearing belts due to a previous incident) was not addressed.

NIOSH is not alone in questioning the effectiveness of back belts. Other institutions issuing similar statements include the American Industrial Hygiene Association, the Bureau of Mines, the Army Office of the Surgeon General, the State of Washington Department of Labor and Industries, the Alberta Ministry of Occupational Health and Safety (Canada), the United Brotherhood of Carpenters, and the Construction Safety Association of Ontario.

NIOSH believes that if an organization's main emphasis for controlling occupational back injuries from lifting and/or material handling operations is the use of back belts, a considerable gap exists in their S&H program. Rather than relying solely on back belts, companies should begin to implement a comprehensive ergonomics program that strives to protect all workers. The most effective way to prevent back injuries is to redesign the work environment and work tasks to reduce the hazards of lifting. Training in identifying lifting hazards and using safe lifting techniques and methods should improve program effectiveness.

A first step in implementing an ergonomics program would be to evaluate jobs that require frequent lifting; twisted or bent postures; or pushing or pulling. Redesign these tasks so that:

- Loads are kept close to the body.
- Each load should be situated between shoulder and knuckle height.
- Twisted lifts are eliminated.
- Let gravity moves the load when possible.
- Slides, chutes, hoists, and hand trucks are used to move heavy loads.
- Load weights are reduced to the lowest feasible level.

NIOSH believes that the decision to use back belts should be a voluntary decision by both employers and employees and thus, should not be a mandatory job requirement. However, if back belts are worn during work activities, the following points need to be considered:

- There is a lack of scientific evidence that back belts work.
- Workers wearing back belts may attempt to lift more weight than they would have without a belt. A false sense of security may subject workers to greater risk of injury.
- Workers and employers should redesign the work environment and work tasks to reduce lifting hazards, rather than rely solely on back belts to prevent injury.
- The research needed to adequately assess back belt effectiveness will take several years to complete. In the interim, workers should not assume that back belts are protective.
- Employers relying on back belts to prevent injury should be aware of the lack of scientific evidence supporting their use.

The NIOSH technical report, "Workplace Use of Back Belts: Review and Recommendations" can be obtained at their website (Publication No. 94-122).

The sky is filled with stars, invisible by day

Henry Wadsworth Longfellow