

# DoD Ergonomics Working Group NEWS



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## Back Belts: No “Support” from The Surgeon General or DoD

Manufacturers often claim that back belts reduce injury risk by increasing pressure inside the abdomen, which stabilizes the back by stiffening the torso. However, recent studies reveal that the increased intra-abdominal pressure is associated with abdominal muscle contraction that, in turn, increases compressive force on the lower spine.<sup>1,2</sup> Furthermore, it appears that back belt usage diminishes the amount of work produced by the back extensor muscles.

**Back belt use is known to decrease spinal muscle activity.**<sup>3</sup> This decrease in muscle activity can lead to spinal muscle weakness if back belts are worn for prolonged periods. Therefore, the main risk associated with wearing a back belt is that during the period of wearing it, the supportive spinal muscles—the deep abdominal and back muscles that normally support your spine—will become weaker. These muscles are less active while your spine is being artificially supported by the belt, which in turn promotes atrophy of the back muscles.

**Another known hazard of back belt use is increased cardiovascular risk.**<sup>4</sup> The mechanical compression of the back belt on the abdomen forces blood out of the trunk and into the rest of the body:

- People with high blood pressure are at risk directly due to increases in their already elevated blood pressure levels.
- People with low blood pressure are at risk indirectly because the body adjusts to the increased blood pressure that occurs while the belt is worn (cinched). After the belt is removed, blood pressure drops too low, and may cause the worker to become light headed or even faint.

**Other considerations regarding back belts are back injury rates and back injury severity.**

- Back injury rates are highest among users who wear a back belt then discontinue its use—in many cases, the back has developed a dependence on the back belt and muscles atrophy.
- People who suffer a back injury while wearing a back belt have the most severe injuries; their injury severity is greater than people who never wore a back belt and suffer a back injury and even more severe than people who suffer a back injury after discontinued back belt use.
- “Superman Syndrome,” the mistaken belief that wearing a back belt makes you stronger, is a concern. Some injuries occur because people often mistakenly perceive that they can lift more weight when using a back belt. But research indicates that people do not have the ability to lift more weight after receiving a back belt.<sup>5,6,7</sup>

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**If back belts are distributed to people without a back injury, it should be done with care.** The user should know what a back belt can and cannot do and the user should only wear the belt when performing a manual material handling activity. If back belts are prescribed as part of a physician's treatment plan, the worker's workstation should be evaluated to ensure the physical demands of the job do not exacerbate the back injury.

### Conclusion

**Multiple research organizations agree that there is not enough evidence to suggest that back belts reduce injury rates or prevent back pain for people who lift or move materials.** Today, back belt manufacturers claim that back belts act as a "reminder" and should be used in conjunction with a comprehensive lift plan to reduce back injury rates. The truth is back belts are not needed as part of a comprehensive lift plan.

Medical professionals and ergonomists agree that you should wear a supportive belt only for the first few days or weeks after a severe back injury while the area is healing. If you have never had a back injury, it is best to avoid a back belt entirely. It is more important to focus on properly designing workstations; using proper form and posture when bending, lifting and sitting; and performing conditioning exercises regularly to keep your trunk muscles strong.

**Blanket use of back belts is not endorsed by The Surgeon General or the Department of Defense.<sup>8,9</sup>**



See also the Ergonomics Working Group's  
August 2002 newsletter

**[NIOSH Back Belt Studies Support DoD Policy Position](#)**

### References

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