



Re-thinking *Back Injuries:*

Improving Lifting Decisions
& Reducing Back Pain
in Your Workforce



Back Safety



Most of us know firsthand what back pain is. It's a flare-up when we twist or bend the wrong way, the sharp twinge we feel if we lift a heavy object incorrectly, a dull ache that lets us know we need to give our backs a break.

It's often a long-term injury that occurred because warning signs and best practices were ignored. And once hurt there's a constant danger of re-injury.

For employers, back pain is frequently the cause of employees requiring time off work. Injuries to the lower back are a real strain on productivity, workers' compensation premiums and a frustratingly tenacious contributor to the company's overall injury rate.

So how do you protect against back injuries? It requires a lot more than a back belt and 15 minutes of instruction on safe lifting techniques.

You may know all about the causes of back pain but do your employees? Feel free to use this guide to support your back injury prevention efforts—especially the human factors issues at the end.



Frequency & Cost of Back Injuries

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However you experience it, almost every adult has felt some form of back pain. In the United States, lower back pain is the second-biggest reason that people see their doctor, following colds and flu.¹

And according to the Bureau of Labor Statistics, the back is the most frequently cited body part for days away from work, making up 20% of the total amount of missed time on the job.²

Back pain is one of the most predominant injuries across all industries and everyone is at risk. Not only are back injuries prevalent but they're expensive too. The average cost of a claim for a lower back injury is over \$38,000.³



¹ "Back pain - low", Health Guide, New York Times
^{2, 3} National Safety Council's "Injury Facts® 2015 Edition"

Indirect Cost of Back Injuries

Back injuries can be a major burden to employers, even when workers get hurt off the job. That's because when back pain forces employees to take time off there is a noticeable decline in quality, productivity and morale—and the costs can add up.

According to the Society for Human Resources Management, unplanned absences lead to¹:

- replacement workers who are 30% less productive than the person they're replacing
- increased workload
- higher stress levels
- disruptions to other employees' work

With that in mind, what's the real cost of back injuries? The Liberty Mutual Research Institute for Safety estimates the total price tag for American low back pain at \$50 billion annually.²



Because the indirect costs of back injuries can add up, consider back injury prevention initiatives that apply both at work and at home.

¹ The Society for Human Resource Management's report "Total Financial Impact of Employee Absences Across the United States, China, Australia, Europe, India and Mexico"

² Liberty Mutual Research Institute for Safety's "2014 Annual Report of Scientific Activity"



What Causes Back Pain? How You Work



One of the reasons back pain is so common is the sheer number of factors that can lead to an injury. Extended lifting, standing, sitting, bending, twisting and exposure to vibration can all cause or contribute to getting hurt.

Manual handling can play a big role, but work that is highly repetitive or that requires employees to have their arms at or above their head regularly can also lead to back injuries over time.

Many of these are unavoidable features of workplaces and are often impossible to engineer out completely. But there is one factor that you can control: recovery time.

Providing workers with back stretch breaks—and giving them sufficient time to recuperate—can have a profound effect. As a general rule, workers should take a stretch break for a minimum of 10 minutes at least once every two hours, although the exact tasks they're performing will determine the ideal break schedule.



How you rest your back plays an important role in overall back health. Sitting down and doing nothing while resting could do more harm than good. It's best to take an active stretch break that keeps muscles loose and counteracts the repetitive strain of work.

What Causes Back Pain? Manual Handling



A significant portion of back pain occurrences aren't caused by a single incident but rather accumulate over time. A paper published in the *Journal for Occupational Rehabilitation* notes that cumulative load is one of the most serious identified factors for back pain.¹

Excessive strain on muscles is caused by:

- bad posture
- poor lifting techniques
- lifting too much weight
- jarring movements

On its own, a single incident won't necessarily cause an injury. But if repetitive movements strain back muscles faster than they can heal then the pain can be severe—and the damage can be permanent.

And, of course, it's possible for long-term strain buildup to reach a breaking point when someone tries to lift a heavy load, leading to a muscle tear or worse.

It's not just how much you lift at once, but how much you carry throughout the day. And as we're about to see, poor posture can make even light objects have a heavy impact on the back.

¹ Coenen et al. (2013). "Cumulative low back load at work as a risk factor of low back pain: a prospective cohort study," *Journal for Occupational Rehabilitation*.



Why Lifting Technique Matters

You don't need to look any further than your local playground to see how small loads can have such a large impact on the back.

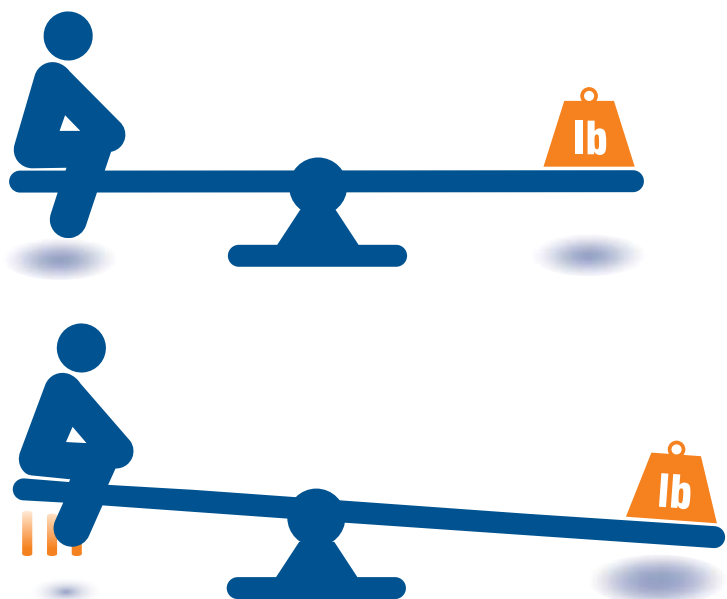
Seesaws are a lot like the human body. They have a stable centre and limbs that extend to carry sizeable loads. But seesaws have something that people don't: perfect form 100% of the time.

The first image on the left shows a normal seesaw, with a child on one side and a weight to counterbalance on the other side.

The second image shows what happens if we increase the distance between the weight and the center of the seesaw. The child shoots up because the same weight suddenly exerts a lot more force.

The same thing happens when people use improper lifting techniques. Any time someone holds an object away from their body they need to use a lot more muscle power to keep it up. Lifting above their head or bending or twisting to pick up an object also requires extra exertion.

Unlike a seesaw, the muscles in the human body can get tired quite quickly and when this happens the risk of a strained back increases.



Proper Lifting Techniques

There are no new developments in safe lifting practices and proper body positioning because the essential technology hasn't changed, and in this case we're dealing with a very old piece of equipment—the human body.

Knowing the proper technique isn't enough.

Even if we know the proper way to position our bodies and lift when we work, it's easy to make an error in judgment or forget to use proper posture when we're in a rush, are frustrated or tired, or get complacent.



Complacency Alert!

Many of us have been told so frequently to lift with our knees that we can easily become complacent.

Everyone is at risk of injury due to bad body positioning and lifting technique caused by complacency and bad habits.



How Much Should Someone LIFT?



The National Institute of Occupational Safety and Health has developed a formula to determine the recommended weight limit that a worker can safely lift repeatedly over an eight-hour day. It takes into account factors like the horizontal distance of hands from the midpoint between the ankles, the vertical travel distance between the origin and the destination of the lift, and the average frequency rate of lifting on a per-minute basis over a workday.

That's a lot of information to consider and it's simply not practical to ask workers to compute their recommended weight limits. Especially when the formula looks like this¹:

$$\text{RWL} = \text{LC} \times \text{HM} \times \text{VM} \times \text{DM} \times \text{AM} \times \text{FM} \times \text{CM}$$

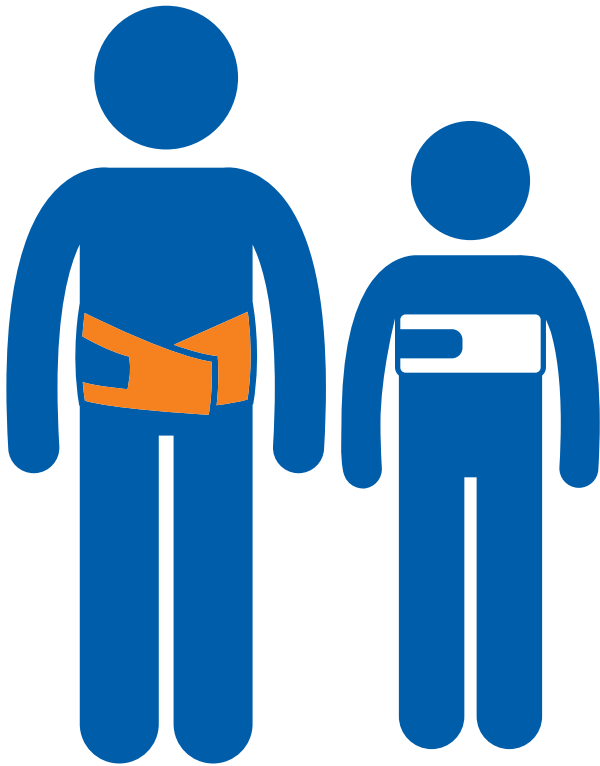
Management should take on the responsibility of determining lifting thresholds, and employees should learn to practice safe lifting and identify what unsafe lifting loads look and feel like.



The stronger and more flexible your employees are, the less likely they'll experience back pain. But strength isn't enough to be injury-free—especially because physical ability can make people think they can lift more than is safe.

¹ "Understanding the NIOSH lifting equation", Safety+Health, June 2015

Back Belts



The Journal of the American Medical Association published a study that observed over 13,000 material-handling employees at 160 retail stores for two years. The study determined that there was no significant link between using back belts and fewer back injury claims or less reported back pain.¹

Even worse, back belts could mislead workers into thinking they can attempt to lift heavy objects because they have an added level of protection.

Back belts don't provide any added protection—but they do add to a worker's level of complacency.

¹ Wassell et al. (2000). "A Prospective Study of Back Belts for Prevention of Back Pain and Injury", Journal of the American Medical Association.



Lifting Aids

Lifting aids come in all shapes and sizes, from dollies and trucks to mobile tables, bins and other carrying devices. These aids are meant to make employees more effective, efficient and safe when moving heavy objects. It's always better to use a lifting aid than carry a load by hand. But workers can still strain their back if they have to propel a dolly or truck themselves, or load or unload a larger lifting aid.



The limits of lifting aids

Lifting aids are meant to help reduce employees' cumulative lifting loads. However, it's impossible to eliminate lifting loads entirely.

People can hurt their back bending over to tie their shoe or lifting their lunch pail at an awkward angle. That's why it's important to protect workers against the biggest threats to proper lifting technique.

The Biggest Threats to Proper Techniques

Lifting aids and engineering solutions can help workers minimize the amount of weight they have to carry but the biggest cause of back injuries isn't carrying too much—it's using poor technique.

Almost everyone knows they should bend at the knees and avoid carrying too much. And many safety programs include rigorous training on the tenets of safe lifting.

The 4 States that Affect Back Injuries

These 4 States

- Rushing
- Frustration
- Fatigue
- Complacency

can cause or contribute to

- lifting too much or too quickly
- not paying attention to proper posture
- a skewed perception of risk
- not thinking about proper lifting techniques
- not taking time to think about how to handle the load or testing its weight before lifting
- emotions overriding safe lifting decisions
- unexpected tripping while carrying a load

But good intentions go out the window when workers are rushing, frustrated, tired or complacent. In these states people are much more likely to forget lifting instructions and fall back into bad habits like lifting with their back, improperly handling awkward loads, and trying to carry too much too quickly.

The problem isn't workers knowing proper technique—it's actually using it when it counts.

Once employees receive lessons on safe lifting, the next-best step to protect their backs is education on the four big human factors.



Employee Buy-in for Back Safety



Before employees buy into a back safety program they need a good reason to care. One of the major home renovation box stores conducted a study of what would motivate their nearly 400,000 employees to pay more attention to back safety. Unsurprisingly, it was found that employees care little for the corporate health and safety agenda.

What they care about is their own agenda—taking the kids camping on the weekend, coaching a little league team after work or doing renos around the house. For all these activities, employees need a healthy back. And they know it.

Instead of talking about the company's injury goals, employees should be reminded about what they have at stake:

- use off-the-job examples in training
- create training collateral that features people away from the workplace
- focus on transferrable skills that employees can use 24/7 to prevent injuries
- get employees to tell you what a long-term back injury would mean to them
- encourage people to teach their families about back safety, proper lifting techniques and forming strong habits

Habits

How do you keep employees' backs safe both on and off the job?

You start with habits—which make up 40% of our daily behavior.¹

Back safety is all about getting in the habit of performing certain movements and avoiding others. And learning good habits is all about repetition.

There's a belief that it takes as little as 21 days to adopt a new habit, but the truth is that for most people it can require at least two months of working at a new pattern of behavior before it becomes a reliable habit.²

Here are ways to help build better back safety habits:

- 1) Set a good example in the classroom and get them to practice in front of you.
- 2) Provide positive reinforcement to workers while on the job.
- 3) Use toolbox talks and other regular meetings to share back-related stories and offer reminders on proper technique.
- 4) Ask employees to regularly evaluate their lifting practices. If they're struggling, offer advice and motivation.

Don't be shy about reminding employees what's in it for them—a healthy, active life outside of work.

¹ ScienceDaily. (2014). "How we form habits, change existing ones" from Society for Personality and Social Psychology.

² Lally et al. (2009). "How are habits formed: Modelling habit formation in the real world", European Journal of Social Psychology

40%
HABITS



SafeStart Skills

If 40% of our day-to-day behavior is habitual, the other 60% of the time we have to rely on our personal skills and awareness.

When it comes to safe lifting, the only thing standing between your employees and a strained back is their ability to recognize what they can lift safely and the awareness required to follow the proper technique. When they're in one of the four states, like rushing to get a job done, they may not take the time to consider the safest way to move a load.

That's why SafeStart is dedicated to giving workers the ability to notice these states and adjust their risk perception and actions in real time.

60%
PERSONAL
SKILLS &
AWARENESS &

Do Something About Back Injuries

If you've read this far then you obviously take back injuries seriously.

Take the next step by attending a SafeStart webinar at safestart.com/webinar.

These free webinars will provide further information about how human factors affect every aspect of your safety program—including back injuries.

You can also download our PPE compliance guide, slips, trips and falls guide, and other great safety resources at safestart.com/guides.

Learn More

The best way to learn about SafeStart is at one of our workshops but you will also find other options on our website, including:

- Introduction Webinar
- PPE Compliance Guide and Slips, Trips and Falls Guide
- Beyond Compliance Video
- Overview Brochure

Visit us online at safestart.com
or call us toll-free at **1-800-267-7482**



About SafeStart

SafeStart is the most successful safety training process in the world for developing personal, 24/7 safety skills that address human factors in safety—proven to reduce injuries 50% on average by more than 3,000 clients in 60+ countries.

Webinars



Our webinars are an easy way to get introduced to SafeStart. We host free 45-minute sessions every month as a way for you and your colleagues to learn about SafeStart principles and discover how SafeStart can transform your company's safety performance.

Learn more at:
safestart.com/webinar