

## ALL BACK BELTS ARE NOT CREATED EQUAL

Synopsis: Only 4% of back injuries are the result of “single-incident injury” accident, i.e. lifting, while 96% result from poor “spinal body mechanics”. The traditional back belt industry aims only at *lifting* risk, which is to say that 96% of injuries (and their causes) are *not* addressed by traditional back belts. A Harvard Medical School study showed that a “curved and firm surface” pressed against the spine improves postural mechanics. Thus, to minimize or eliminate the #1 back risk problem, any wearable back device should incorporate a curved-and-firm lumbar pad, described below, to create a “dynamic back support”, correcting spinal posture at the behavioral (subconscious) level. Elastic girdles and traditional back belts cannot be effective in addressing this larger problem.

### Background:

It has long been assumed that “lifting” is the main cause of back injuries, and the entire back belt industry was created to address this risk. The early back belt companies even instructed the wearer to “Tighten when lifting, release when not”, and provided a pair of suspenders to accommodate the periods during the day when lifting was not an issue. However, the underlying assumption behind these products has been shown to be faulty.

Studies (Donajkowski, 1993, Muir, 1994, among others) show that **only 4%** of back injuries are the result of a “single-incident injury” accident where lifting might be the sole cause. The rest of the injuries all had a certain level of “Cumulative Trauma Disease” (CTD) that added to the risk, weakening the spine until it reached a “ready-to-go” stage. The conclusion should be obvious: if 96% of back injuries involve some level of damage done with or without lifting, any device that instructs the wearer to disable it when not lifting – therefore offering no mechanical improvement at all – *cannot provide help for the majority of the time when the back is being damaged!*

### The Cause of Back Injuries:

It’s time to consider a more comprehensive cause for back injuries, and their prevention. The best way to understand the basic cause of most back injuries is this: “It’s not **WHAT** you lift, but **HOW** you lift, and **HOW YOU DO EVERYTHING ELSE.**” Every incidence of bending, reaching and twisting, whether or not “lifting” is involved, will contribute to the risk of back injury. Most faulty spinal mechanics are the result of long-held habits that typically happen at the subconscious level. The brain gets involved only when it senses a risk, and flexing the spine a little past a safe range of motion does not create a conscious risk; so we do it the same way, again and again. Therefore any back belt that does not materially improve poor spinal body mechanics at the subconscious level cannot lower this risk. Despite the claims that the elastic supports “remind” you to lift properly, their failure in every scientific evaluation (e.g. WalMart in 2003) would dispute that assertion; similarly there is no scientific evidence that elastic supports have positive effect.

### Lowering Back Injury Risk:

So how can you change this risk of back damage when it is at the subconscious level? The only way is to use a device that also operates at that same subconscious level. A study performed at Harvard Medical School found that a “curved, firm surface” when pressed against the spine created “proprioceptive feedback” (same as “subconscious”), where the tissues around the spine work to keep the spine in a safe range of motion. This proprioceptive feedback can only be found in the Back-A-Line Dynamic Back Support, which holds a broad patent on “curved and firm” in a wearable back support and is therefore the only wearable device that can create proprioceptive feedback and minimize or eliminate this #1 back risk problem.

Additionally, two peer-reviewed studies from University of Miami (OH) found that subjects maintained proper spinal mechanics in a “reaching” task (no lifting) and they again credited the results to the proprioceptive feedback provided by the Back-A-Line Dynamic Support. The American Osteopathic Academy, in granting Back-A-Line the only “Seal of Acceptance” in AOA’s history, weighed in on the beneficial effect of Back-A-Line’s proprioceptive feedback. The AOASM also praised Back-A-Line for its solution to the atrophy risk of abdominal and spinal muscles that occurs with most other back belts [the “girdle” effect].

### Real World Results:

Over the last several years, Back-A-Line has tested the efficacy of its product in a number of diverse venues. The independent real-world experience of 31 corporations, several public entities, and the US Army has shown *dramatic REAL reductions in back pain and injury* that are clearly the result of using the Back-A-Line Dynamic Back Support. The experience DATA involving 1,500 participants across many job functions shows that:

- ◆ 75% of tested employees reported real improvement across all levels of *pain*
- ◆ New *injuries* and reportable *injuries* dropped 50-65%
- ◆ Employees beginning in the “Danger Zones” dropped by 76%, meaning that 90% of participants ended up in the “Safe Zone” for back pain and back injury risk
- ◆ The more strenuous the body movement, the stronger the results

### Conclusions:

It’s time to put “lifting” in its place as a proximate cause, but rarely the primary cause of back injury, and begin to consider all the many factors that puts the back at risk of pain and injury. The data and the research are clear that the problem is more than about just “lifting”, but about body mechanics in a variety of work situations. The real-world evidence *proves* the science and the opportunity available to truly reduce this most serious of workplace risks. The Back-A-Line Dynamic Back Support, with its patented ergonomic design demonstrated by scientific research, and proven in every industrial evaluation, is an important, effective tool to reduce back pain and injury, and associated costs, in industrial environments.