SORE POINTS:

HOW MUCH IS EMPLOYEE BACK PAIN COSTING YOUR COMPANY?
Working at a desk all day and doing strenuous manual labor have at least one thing in common: They both can lead to back pain. Nearly one in four employees report experiencing lower back pain (LBP) and over 84% of the population will experience at least one episode of low back pain in their lifetime. 1 2 This epidemic has taken a toll not just on the health and lives of workers, but on the companies and organizations for which they work.

Good health is a critical component of any successful workplace. Healthy workers are happier, more productive and have fewer medical costs than those with pain. Taking steps to reduce the prevalence of back pain can be extremely beneficial to companies looking to increase the overall wellbeing of their workforce.

This special report will look at the effects of back pain in the workplace, as well as some of the proactive steps employers can take to reduce LBP.

The medical costs of back pain - Given the extremely high incidence of back pain, it is little wonder that it is one of the greatest contributors to medical costs. The total direct costs of back pain related healthcare utilization are $96 million a year. It is also the leading cause of work related disability in the United States. 5 This represents a significant expense for both employees and their employers.

The productivity costs of back pain - As great as the medical costs of back pain are, the productivity costs are even greater. Absenteeism related to back pain costs employers $13,100 annually per 100 employees, while presenteeism costs an estimated $8,300 annually per 100 employees. 1
Can back pain rates be reduced? LBP is clearly very common. In fact, it is so common that many believe it is an unavoidable part of life. However, this could not be further from the truth. Back pain is often both treatable and preventable. This makes it an extremely effective target for organizational programs seeking to improve their overall wellness. Active exercise therapy is among the most effective treatments of LBP. Beyond the exercise of superficial muscles through classical strength training, though, the focal point should also include the activation of deep core muscles and the mobilization of the spine. In addition, strict adherence is critical to this method’s success, and patients often miss sessions. This can significantly reduce the effectiveness of exercise therapy.

The importance of gamification - One of the most effective ways to increase patient adherence to an exercise therapy regimen is through gamification. By presenting the therapy activities as something fun, rather than work, patients are significantly more likely to comply with the treatment plan prescribed by their healthcare provider. In fact, research shows that patients exercise on average two times longer when using game therapy. Such improved adherence increases recovery rates and reduces the overall costs of back pain.
BACK PAIN BY THE NUMBERS

- 84% Portion of US population affected by LBP
- $34,600 Total Annual costs of LBP to employers per 100 workers
- $13,100 Sick Days
- $5,300 Presenteeism
- $7,100 Short-Term Disability
- $4,200 Long-Term Disability
- $1,900 Worker Compensation

Back pain is...

#1 In causes of work related disability in the US

#2 In causes of absenteeism

#5 In causes of all physician visits

Those suffering from LBP are absent an average of 4 Days more than those without LBP.

How Gamification Can Help

- Physical exercises can help reduce or eliminate back pain
- Adherence is critical to the effectiveness of home exercises
- Gamification can help increase adherence to home exercises

But are often considered boring or monotonous
But up to 70% of LBP patients are adversely affected by missing exercises
Which could positively affect LBP treatment and benefit over 43 million people nationwide
Back pain has a significant effect on productivity and healthcare costs in the workplace. The total cost to employers for back pain amounts to $34,600 per 100 employees annually.\(^1\) This includes both direct medical and disability claims, as well as indirect effects on the overall productivity of the organization. Taking steps to increase the health of your workforce and reduce back pain can be extremely beneficial to your company. Healthy employees tend to be more productive, more likely to report greater job satisfaction, and less costly in terms of health care expenses.

The medical costs of back pain
Healthcare costs in the United States are among the highest in the world, and are only rising. This has wide ranging effects. Many employers have chosen to reduce the rate at which they increase salaries in order to offset these rising costs. Between 2004 and 2014, employee compensation, health insurance costs rose by 51%. This has led to both employees and employers putting more money towards healthcare costs.\(^3\) And yet there is little evidence that this increase in spending has increased overall health. The United States still ranks behind many developed countries in terms of health outcomes, access to services, and quality of care.\(^4\) Clearly, organizations must remain proactive in the fight to improve the health of their workers.

Back pain is a significant contributor to the rising costs of healthcare. The total direct costs of back pain related healthcare utilization are $96 million a year. And because LBP often exists with other symptoms, such as depression and chronic fatigue it means back pain sufferers are among the most expensive patients. Healthcare costs for people with back pain are on average 60% higher than for those without back pain.\(^5\)
Employer costs are further increased by back pain’s contribution to disability and worker compensation claims. LBP is the leading cause of work related disability in the US. This has led to considerable direct costs from the condition. Per 100 employees, back pain costs employers $7,100 in short term disability, $4,200 in long term disability, and $1,900 in worker compensation. 

**The productivity costs of back pain**

Although the medical costs of back pain are significant, costs to lost productivity are even greater. Of the estimated $100 billion that LBP costs the United States annually, two thirds is due to lost wages and lost productivity. This amounts to a considerable drag on companies and to the US economy as a whole. But what is driving this immense cost?

**Absenteeism** - When employees do not attend work because of illness, there can be significant costs in lost wages and lost productivity. Workers with back pain are absent an average of 4 days more each year than those without back pain. This amounts to a total costs in lost productivity of $13,100 per 100 workers annually.

**Presenteeism** - Negative effects on productivity are not just limited to employees being absent from work. Presenteeism, or the act of attending work while sick, can be nearly as costly to business as absenteeism. When employees are distracted by discomfort, they are much less likely to be focused on the work at hand. Workers may also have to spend time treating their pain while at work, which can further reduce productivity. The costs of presenteeism related to back pain add up to $8,300 per 100 workers annually.

Employees that suffer from back pain are also much more likely to suffer from depression and chronic fatigue, both of which also significantly reduce productivity. Depression alone is estimated to cost US workplaces $23 billion each year in absenteeism.
Secondary costs of poor health

Poor health, whether caused by back pain or other illness, can have a range of other negative effects. It could lead to reduced satisfaction with the employer, increasing turnover rate, reducing creativity and new ideas in the workplace, and reducing the effectiveness of customer service. There is a statistically significant correlation between health and job satisfaction. Although the correlation is particularly strong with mental health problems such as depression (which LBP is also associated with), job satisfaction also shows a strong correlation with physical health problems. Although these effects are much more difficult to calculate in terms of financial impact on the company, they almost certainly have major implications for overall performance and turnover rate.

THE RISING EPIDEMIC OF LBP

Back pain incidence has grown considerably in recent history. This is particularly true in cases of chronic back pain, which increased from a rate of 3.9% of those surveyed in 1992, to 10.2% in 2006. The severity of the cases may also be rising, as the proportion of those that experienced LBP seeking medical help also rose, from 73.1% in 1992, to 84.0% in 2006.

Low back pain affects everyone, from children to the elderly. However, its peak in prevalence is between the ages of 35 and 45. Rates in children are lower, but have also been rising.
What is causing the LBP epidemic?

Researchers speculate as to the cause for the increased rates of LBP. Although it was initially thought to be related to the overall ageing of the population, this is not likely true, as LBP rates have increased across all age groups. It may, however, be due to increases in obesity rates in the United States, as LBP is known to be correlated with obesity. LBP is also correlated with depression, which has seen similar increases in prevalence over the past two decades. 7

There is also some evidence that the rising rates of LBP may be in part caused by lifestyle changes. People now spend most of their waking hours sitting, whether they’re working at a desk or watching TV. 8 Long periods of staying in the same position can be a major contributor to both acute and chronic back pain. 9 Sitting for extended periods of time may also have other negative effects on long term health, such as increased risk of obesity, diabetes, heart disease, and early death. 8

REDUCING LBP IN THE WORKFORCE

What is LBP?

Low back pain, or LBP, is usually defined as pain, muscle tension, or stiffness below the lower edge of the chest (costal margin) and the buttocks. The pain can be classified into two general types, specific and non-specific. Specific LBP is defined as having a particular and identifiable root cause, such as arthritis, inflammation, or osteoporosis. Non-specific LBP does not have a known anatomical cause as an origin.
What causes back pain?

Back pain can be caused by a variety of factors including strain, injury, congenital conditions or more serious medical issues, such as ruptured discs. This can result in conditions that are either chronic, defined as pain lasting three months or longer, or acute. Acute causes of back pain may be from specific incidents, such as falling or lifting a heavy object. This can cause ligament and muscle strains that can lead to debilitating, but usually short term pain. The most commonly reported causes of LBP include:

- Prolonged sitting (at desk, driving, etc.)
- Operating a machine that vibrates
- Injuries relating to lifting heavy loads
- Falling
- Stress & anxiety

As is evident from this list, back pain can be related to a wide range of activities and occupations, from office worker to construction worker. This may be part of the reason why it has become such a common problem and represents such a large portion of work related disability claims.

Preventing back pain

There are a wide range of activities that may help reduce and prevent back pain. Proper lifestyle choices and care when sitting, exercising, and performing dangerous tasks can often stop it from happening before it starts. Some techniques that could help reduce the risk of developing back pain include:

- **Exercising** – Staying active reduces obesity (a major contributor to back pain), strengthens muscles (making injury from lifting less likely to occur), and reduces inflammation (easing pain). It is one of the most effective ways to prevent back pain as well as increase overall health.
- **Eating well** – Obesity is one of the major contributors to rising rates of back pain. Eating moderate, well balanced meals can help maintain a healthy weight and reduce back pain and other health problems.
• **Quitting Smoking** - Studies show that smokers are more likely to develop chronic back pain than those who do not smoke. 12 Educating employees about the risks of smoking can help reduce back pain and improve overall health.

• **Proper lifting** - Lifting heavy loads can lead to overly strained back muscles. Use proper lifting techniques such as using leg strength, rather than back strength.

• **Workplace safety** – Workplace accidents such as strains, falls, and car accidents can lead to injuries that result in back pain. Make safety a priority at your company to reduce the risk of potentially dangerous incidents.

• **Walking and standing** – Sitting for prolonged periods causes back pain. 9 If employees work at desks, encourage them to take regular five minute breaks and walk around the office or stand up while on the phone instead of staying in their chairs all day.

**Methods of treatment**

Most back pain does not require surgery. It can often be treated with medications and physical therapy. An effective program for treatment of pain includes:

• **Lifestyle changes** – Weight loss, a more active lifestyle, and increased safety awareness can all help reduce back pain and prevent injury from occurring. Educating employees about back pain and risk factors is among the most important steps in reducing rates of LBP.

• **Passive therapy** – Modalities such as ice packs, heat packs, and ultrasound are often able to reduce pain associated with back injuries temporarily.

• **Active exercise therapy** – A range of exercises and physical therapy techniques may be effective at reducing and even eliminating back pain. Strengthening exercises for back muscles and core muscles can help reduce pain and prevent injury from occurring. 13 Beyond the exercise of superficial muscles through classical strength training, though, the focal point should also include the activation of deep core muscles and the mobilization of the spine. Low impact aerobic conditioning can help with long term pain reduction.

• **Home based exercises** - Home based exercises have been shown to act as a complement to physical therapy, helping to increase their effectiveness. 13
Adherence is key

Physical therapy techniques and home-based exercises rely on strict adherence to be effective. Adherence to home exercises shows a moderate, positive correlation with the reduction in average pain and a tendency for greater reductions in disability. However, traditional exercises are often considered monotonous, which has been found to lead to preemptive discontinuation, particularly when done at home. This has significantly reduced the effectiveness of treatment programs, as many recurrent cases of low back pain could have been avoided if patients had adhered to their home programs.

Improve adherence and outcomes with gamification

Up to 70% of all patients do not consistently adhere to their home-based exercise program. This may be having a major effect on the programs’ outcomes. One way to increase adherence is through gamification. This makes exercising more stimulating and less monotonous, increasing the likelihood that patients will actually do it. Research shows that back pain sufferers will exercise 2 times longer using game therapy than using normal techniques. Given the importance of adherence in physical therapy, this could translate to significantly improved outcomes for patients.
Hocoma is the global market leader for the development, manufacturing and marketing of robotic and sensor-based devices for functional movement therapy. Our company improves people’s quality of lives with unique combinations of movement and advanced medical technology. Hocoma’s newest product, Valedo, offers a personal medical device for the low back that combines physical sensors with sophisticated, yet intuitive software to help non-specific low back pain sufferers achieve sustained back health. Valedo transforms biomechanical exercises developed by physical therapy professionals into fun, interactive games presenting direct feedback for tablets and smartphones.

Research shows that back pain sufferers home exercise for treatment on average 2 times longer using game therapy, like Valedo. Based on research found in studies it has understood that the use of game therapy, like Valedo:

- Increases adherence to exercise treatment
- Can positively affect treatment effectiveness
- Can positively increase average pain reduction, as well as costs

By training just a few minutes a day, Valedo’s game-like exercises activate deep core muscles and mobilize the spine, which can help improve movement awareness, restore motion to vertebral joints and redevelop muscles in the back. Valedo offers 17 unique movements incorporated into 45 therapeutic and medically beneficial back exercises that challenge users to move their trunk or hips/pelvis in fine, controlled and isolated ways that may help reduce non-specific LBP.
Valedo’s recent launch has been met with acclaim and media attention, already winning a CES innovation award, an Edison Award, a Best Mobile App award, and several other awards in the wearable and medical industries. Both Hocoma and Valedo have been independently rated amongst the world elite in technology innovation: Among the 8 Insane Tech Innovations at CES 2015 as well as among Soreon Research’s top 30 for wearable technology with companies like Apple, Google, Samsung, Phillips and Intel.

If you’d like to learn more about how Valedo can help you improve your employees’ lower back health, contact one of our representatives or visit us online today:

Curt Finckler  
Manager Consumer Business  
curt.finckler@hocoma.com  
Office: 877-944-2200  
Cell: 781-267-2570  
www.valedotherapy.com

Hocoma Inc.  
77 Accord Park Dr.  
Suite D-1  
Norwell, MA 02061
References:


[14] Burke et al., 2009


