



The Psychological and Secondary Effects of Pain

An Integrated Risk Management and Wellness Model for Holistic Pain Management

Topics Covered:

- The specific secondary or psychological manifestations of chronic pain and their significant impact on the workforce
- DORN's scientifically validated approach to pain management
- Integrating Pain Management into Total Worker Health

Abstract:

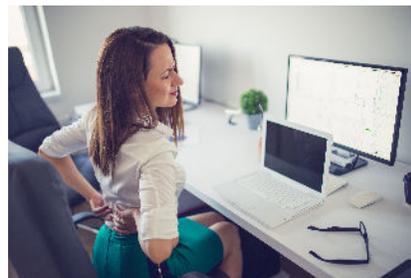
The primary effects of physical pain that are not properly treated - lower productivity, and costly workers' comp and health care costs - are well known. The psychological, or "secondary," effects of chronic pain are less well-known and are at once wide ranging and intimately connected. Often, one effect leads to another - one pain can trigger another, which can cause anxiety and even depression. Approximately 4 in 10 Americans say pain interferes with their mood, activity level, sleep, ability to do work, or their enjoyment of life. According to a paper from the [American College of Pain Medicine](#), "the quality of pain care delivery in the United States continues to fall remarkably short of the current potential for optimal care." DORN's pain management programs (which include onsite pain management, education and monitoring) provide direction on achieving a system of care in which all people receive appropriate, high quality and evidence-based care for pain, alleviating the primary and secondary effects of pain. DORN's programs are delivered via a Total Worker Health framework, which simultaneously reduces workers' compensation and healthcare claims, while increasing productivity.



"Of the millions of people who suffer from chronic pain, too many find that it affects many or all aspects of their lives," said Linda Porter, Ph.D, Director, NIH's Office of Pain Policy. "We need to ensure that people with pain get appropriate care and that means defining how we can best manage pain care in this country."

I. Introduction

While a dash of stoicism and restraint has its advantages, there is actually very little benefit to the millions of people at workplaces everywhere who suffer in silence. Work is a big challenge for people with chronic musculoskeletal pain. Some keep working through their discomfort, even at the expense of their health, which only gets worse the more the pain goes unattended, or even when belatedly (and expensively) “treated” through traditional healthcare channels, to the detriment of the suffering employee and his/her employer.



There is a growing recognition that pain in the workplace exacts tremendous costs in lost productivity, higher absenteeism, healthcare costs and worker’s compensation claims. According to the American Chronic Pain Association, pain is the number one cause of adult disability in the US; it costs the workforce \$20 billion annually in direct costs alone due to benefits costs, and 13% of the workforce’s job performances are affected by various types of chronic pain.

(https://theacpa.org/uploads/chronicle_march2011_ONLINE_030211.pdf)

Consider these facts:

- An estimated 25.3 million adults (11.2 percent) experience chronic pain—meaning they had pain every day for the preceding 3 months. (2012 National Health Interview Survey)
- Chronic pain contributes substantially to morbidity, mortality, disability, demands on the health care system, and significant economic burdens for the nation. The prevalence of chronic pain is growing and likely to continue to do so. (Relieving Pain in America: A Blueprint for Transforming Prevention, Care, Education, and Research, 2011).
- “Both the number of people and the amount spent (on chronic pain) is greater than heart disease, cancer and diabetes combined,” said Bob Twillman, PhD, FAPM, executive director of the American Academy of Pain Management (The Cost of Chronic Pain, *Medical News*, 2016)

While the musculoskeletal “pain points” are well known (back pain, carpal tunnel, etc.), and the direct costs well documented, there’s been a great deal less emphasis on — or awareness of — the secondary or mental health effects of pain. Even what someone might consider mild discomfort or irritation can cause anxiety, depression, unclear thinking and/or memory loss, and can affect everything from sleep to diet to exercise. As a result, it can — and usually will — impinge on workplace performance, where symptoms manifest themselves in diminished employee morale, focus and performance.

Approximately 4 in 10 Americans say pain interferes with their mood, activities, sleep, ability to do work or enjoyment of life. (Poll: Americans Searching for Pain Relief.

<http://abcnews.go.com/images/Politics/979a1T>

There is also a “compounding effect” in that the more pain persists, the more of an impact it can have. It can become a vicious cycle, as discomfort in one area can cause problems in another; initial distress can lead to chronic anxiety and even depression. Employees who are suffering and unable to work not only miss out on the income, but also the sense of meaning, purposefulness and belongingness that one can gain from a job. Even for those still able to work but experiencing lost productivity, their sense of self will be negatively affected.

This white paper will explore the specific secondary or psychological manifestations of chronic pain and their significant impact on the workforce. It will then describe DORN’s scientifically validated approach to pain management as it relates to mitigating and/or eliminating physical pain, thus addressing these secondary effects. Finally, we will discuss Total Worker Health, a holistic framework for total pain management and employee well-being.

II. The Psychological Effects of Pain

The interplay between the mind and body is particularly important in the area of chronic pain; indeed, this problem is deeply intertwined with mental health. Anyone living with chronic pain knows that it amounts to much more than an unpleasant bodily sensation. Though it differs from person to person, people who suffer from it may also suffer from depression, poor sleep, loss of interest, lack of activity, fuzzy thinking, faulty memory and general malaise.

(<http://www.spine-health.com/blog/psychology-chronic-pain-blog-series-1>)

Psychological stress can negatively affect pain modulation. Stress causes muscles to tighten and adversely affects the body’s nervous system. The mind can heighten discomfort or, as in the case of “chronic pain anxiety,” create the impression of irritation and move it around your body. Chronic pain anxiety can persistently affect one area of the body only, can shift and affect another area or areas, and can migrate all over and affect many areas of the body over and over again. It may precede, accompany, or follow an escalation of other anxiety sensations and symptoms, or occur by itself; moreover, it can occur before, during and after an episode of nervousness, anxiety, fear, stress, or occur unexpectedly and for no apparent reason. (<http://www.anxietycentre.com/anxiety-symptoms/chronic-pain.shtml>)

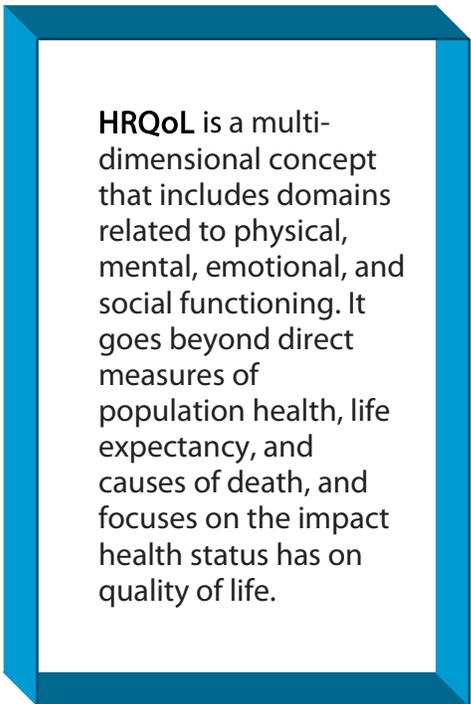
Specific Effects

“Chronic pain has a distinct pathology, causing changes throughout the nervous system that often worsen over time. It has significant psychological and cognitive correlates and can constitute a serious, separate disease entity.” (Pain Australia, 2015)

The psychological — or “secondary” — effects of chronic pain are at once wide ranging and intimately connected. Often, one effect leads to another; one pain can trigger another, which can cause anxiety and even depression. Ultimately, the emotional after-effects set in motion a domino effect that is difficult to arrest once it begins. As the primary and secondary effects interact, it creates a kind of feedback loop, where minor pains are amplified by the accompanying stress, and vice versa. As a result, one’s life suffers in every area, both at work and at home. Here are some of the key secondary effects:

- **Cognitive Effects:** chronic pain can affect basic cognitive function, causing everything from faulty or fuzzy memory to inability to focus. This has a direct negative impact on knowledge formation and learning. (<https://www.scientificamerican.com/article/how-chronic-pain-affects-memory-mood/>)
- **Impact on Sleep:** even mild pain or discomfort can cause irregular sleep. An estimated 35-40% of Americans have sleeping problems, many of whom show up to the workplace tired, distracted, irritable and careless. Lack of quality sleep not only undercuts performance, but can be a safety risk in certain environments. (<http://www.spine-health.com/blog/psychology-chronic-pain-blog-series-1>)
- **Impact on Exercise:** chronic pain dissuades people from regular exercise. Exercise releases endorphins into the body and keeps people both happy and healthy, so avoidance of exercise inevitably leads to a downturn in overall satisfaction. (http://www.cochrane.org/CD011279/SYMPT_physical-activity-and-exercise-chronic-pain-adults-overview-cochrane-reviews)
- **Impact on Diet:** one's diet is likely to deteriorate when faced with chronic pain and its inevitable byproduct, anxiety, even depression – which can have an unhealthy influence on eating patterns. People will tend to eat more, and more frequently, while reaching for less healthy food and snacks. (<https://www.practicalpainmanagement.com/treatments/complementary/diet-patients-chronic-pain>)
- **Impact on Morale and Work Satisfaction:** as previously stated, some people keep working at all costs—even at the expense of their health, which only gets worse the more it goes unattended. But they silently soldier on, as their pain inexorably influences their performance and their morale. In a recent study, male workers reporting job dissatisfaction had a higher prevalence of chronic pain than those reporting job satisfaction. Among workers with chronic pain, those reporting poor social support and job dissatisfaction had a greater frequency of low HRQoL -- health-related quality of life. (<http://bmjopen.bmj.com/content/6/4/e010356>)

Additionally, chronic pain is associated with stigma (particularly a social stigma) related to the perception that the individual isn't strong enough to cope with the pain. This leads to impatience and a belief that the individual should be doing better than what they are (McAllister, 2015). Stigma can also keep the sufferer from seeking out treatment, as they fear that they will be perceived as not coping well enough with the pain and will be labeled a failure – which can have a



HRQoL is a multi-dimensional concept that includes domains related to physical, mental, emotional, and social functioning. It goes beyond direct measures of population health, life expectancy, and causes of death, and focuses on the impact health status has on quality of life.

significant impact on morale, work satisfaction and even life satisfaction.

- ***Impact on Quality of Life:*** chronic pain can cause deterioration in the quality of life of the person primarily affected, as well as family and social connections who often find themselves shouldering activities, such as care duties, supervision, or and day-to-day support for everything from transportation to shopping – even helping in decision-making. As a result of these new obligations, relatives and friends may suffer from an array of psychological effects themselves: feelings of sadness of being overburdened, frustrated and impotent. As these demands take their toll, the quality of support will inevitably diminish the quality of life for the primary pain sufferer – yet another way that pain can have negative compounding effects.
(<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4935027/> , 2016)

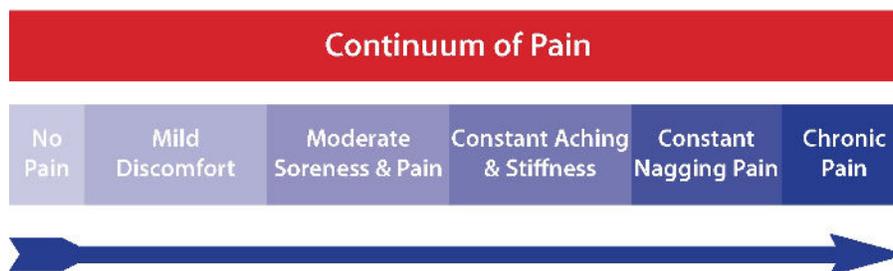
These “secondary” effects exacerbate the primary effects of musculoskeletal discomfort, which itself accounts for 29% of all US workplace injuries and one third of all workers’ compensation claims. MSD’s directly cost companies \$20 billion per year, with the indirect costs up to five times that number. When the pain is too debilitating, employees miss work entirely. According to the CDC Foundation, Absenteeism is estimated to cost US employers around \$150 billion per year.

“Chronic pain is a significant public health problem, affecting millions of Americans and incurring significant economic costs to our society,” said Karen B. DeSalvo, M.D., M.P.H., M.Sc., HHS acting assistant secretary for health. “This report identifies the key steps we can take to improve how we prevent, assess and treat pain in this country.”

https://iprcc.nih.gov/National_Pain_Strategy/NPS_Main.htm

III. A Programmatic Approach to Pain Management

The Office of the Assistant Secretary for Health at the U.S. Department of Health and Human Services released a National Pain Strategy in 2016 outlining the federal government’s first coordinated plan for reducing the chronic musculoskeletal pain that affects millions of Americans. Developed by experts from around the nation, the plan provides direction on achieving a system of care in which all people receive appropriate, high quality and evidence-based care for pain.



The four “pillars” of the strategy are as follows:

- **Developing methods and metrics to monitor and improve the prevention and management of pain.** Pain exists on a continuum that ranges in degrees of intensity. People will generally start off with no noticeable pain or discomfort at all, but eventually, they will start to notice some mild discomfort from sitting at their desk, standing on the floor for too long, or during any number of everyday repetitive tasks. It gradually progresses from moderate to constant to a severe, chronic pain that desperately needs attention. While it is difficult to quantify pain, businesses can quantify it in terms of costs with respect to absenteeism, presenteeism and reduced productivity along with the impact if an employee is injured on workers’ comp and health care costs. An “evidence-based” approach begins with a workforce assessment, enabling organizations to get a firm handle on the prevalence and associated costs of musculoskeletal pain, and indicate the effectiveness of the solutions in place.
- **Supporting the development of a system of employee-centered integrated pain management practices based on a model of care that enables providers and recipients to access the full spectrum of pain treatment options.** Evidence-based pain management is founded on a proactive and holistic approach that’s pegged to outcomes (absenteeism, presenteeism, morale, work satisfaction, etc.). It is based on preventing, managing and eliminating musculoskeletal discomfort, and a continuous analysis of outcome data to see what’s working and what’s not. Understanding the biopsychosocial dynamic makes pain sufferers mindful of the variety of side effects addressed in the preceding section. An employee-centric solution should involve onsite pain relief therapy before the issue becomes chronic – and before the pain starts creating or heightening the secondary effects. It should include educational reinforcements and ongoing monitoring of ergonomic solutions for stretching and techniques for proper body mechanics when sitting, standing, pushing, pulling and lifting. Early interventions can pre-empt the need for doctor’s visits or more involved physical therapy, reducing medical and workers’ compensation claims.
- **Taking steps to reduce barriers to pain care and improve the quality of care for vulnerable, stigmatized and underserved populations.** The two biggest barriers to improving care are access to care and the stigma that attaches to those seeking it (which is largely what keeps people working through pain vs. seeking attention). Providing onsite treatment enables employees to more readily seek out and receive treatment and counseling; this can be augmented by making resources available online and by providing

each employee with a self-treatment and pain management plan. A self-directed program to prevent future occurrences via systematic stretching, focused exercise, proper standing and sitting, regular lifting, and so on will reinforce behavior changes to help avoid future occurrences. Organizations can help reduce the perceived stigma by promoting the importance of awareness and early intervention, pre- and post-treatment – and making employees know the costs the company is incurring when chronic discomfort or pain compromises performance. Ninety-nine percent of people who engage in an onsite treatment and education program state how important it is to have the programs onsite. Once you move to an offsite program participation levels dropped dramatically as everyday life demands take priority for most.

- **Increasing organizational awareness of pain, increasing knowledge of treatment options and risks, and helping to develop a better informed workforce with regard to pain management.** The first step in raising workforce awareness around this issue is to raise awareness among senior management. Several recent studies indicate that support from supervisors and co-workers had a positive effect on workers with chronic pain based on self-reported HRQoL (health-related quality of life). (<http://bmjopen.bmj.com/content/6/4/e010356>). Senior management must understand the business case for a proactive, systematic approach to pain management; an awareness plan reflecting their input and support will have a positive effect on promoting awareness and utilization of resources, while reducing the perceived stigma of those seeking them.

Chronic or acute pain has always been a moving target in how to optimally address it. According to a paper from the [American College of Pain Medicine](#), “the quality of pain care delivery in the United States continues to fall remarkably short of the current potential for optimal care. Pain medicine remains fragmented, and the absence of a unified organizational model of pain medicine hinders the effective provision of an integrated, cost-effective care, causing unnecessary and avoidable human suffering and societal expense.”

The opioid and prescription drug epidemic can be largely attributed to this fragmented, even ad hoc approach to pain management. Since 1999, the amount of prescription opioids sold in the U.S. nearly quadrupled, yet there has not been an overall change in the amount of pain that Americans report. Deaths from drugs like oxycodone, hydrocodone, and methadone—have more than quadrupled over this period. (<https://www.cdc.gov/drugoverdose/epidemic/index.html>).

The problem has manifested itself in the workplace, as more employees use prescription medication outside of intended use to improve to alleviate pain and improve performance. The resulting misuse or abuse has implications for employee health, absenteeism, productivity and safety. Raising awareness of the potentially deleterious effects of opioid and prescribe drug abuse combined with a pain management program that includes a company-wide education campaign can have a demonstrable impact on opioid use.

DORN’s onsite pain management, education and monitoring programs encompass early intervention and prevention of injuries combining manual therapy with training and reinforcement support to create sustainable healthy habits. The focus of self care with an organizational support structure empowers individuals to take ownership of their own health care while positively impacting the organization’s costs in a positive manner. The programs are

supported by the use of technology to reinforce training and teaching, providing employees with the tools, direction and knowledge to lead more pain-free, fulfilling and productive lives. The following are typical results achieved from the utilization of a PainFree program.

Results of DORN's 2016 Survey on the Efficacy of Worksite Pain Management (based upon surveys of approximately 3,000 employees worked on annually):

- An average of 55% reduction in pain levels
- 42% are reducing or eliminating medication
- 41% have reduced the number or frequency of medical visits while 62% indicated that without the program they would have seen a health care professional
- An 80% improvement in exercise frequency
- 99% of those worked with report a big improvement in morale including reduced stress
- These programs not only have impacted employees in multiple ways, they also have supported organizations with a third party validated ROI in excess of 500% annually
- The program for 2016 resulted in savings for organizations of over \$3 million

IV. Total Worker Health

DORN's pain management solutions are easily incorporated into both risk management and wellness programs via the Total Worker Health (TWH) model, which the Center for Disease Control defines as "policies, programs and practices that integrate protection from work-related safety and health hazards with promotion of injury and illness prevention efforts to advance worker well-being." Employers are increasingly understanding the connectivity among wellness, safety and absence management programs – typically viewed by key executives from a Risk Management perspective. The TWH model interconnects them and provides companies with a powerful tool for simultaneously minimizing claims and improving productivity.

The Total Worker Health model calls for a holistic understanding of and approach to the factors that contribute to employee wellbeing. Scientific evidence supports what many safety and health professionals, as well as workers themselves, have long suspected—that risk factors in the workplace can contribute to health problems previously considered unrelated to work. By joining together occupational health and safety initiatives with workplace wellness programs, organizations can – per the TWH model – improve employee health and morale, reduce medical plan costs, increase productivity and reduce the frequency and severity of workers' compensation claims.

Risk management and employee wellness are fundamentally different in orientation and approach. Risk management focuses on occupational health and safety; wellness focuses instead on common conditions and risk factors, such as heart disease, smoking and obesity,

with the goal of reducing absenteeism and presenteeism, while increasing morale and overall productivity. However, these parallel tracks are two sides of the same coin: both are about containing costs, removing the impediments to employee performance and productivity, ensuring the safety and well-being of every employee and protecting the financial health and reputation of the company.



Pain management sits at the intersection of risk management and wellness, which are the two pillars of the TWH model. Indeed, pain management programs have historically been positioned and offered as a risk management strategy; they also comfortably fit within the traditional wellness framework.

Conclusion

Pain is something everyone understands as it's something we've all experienced, from minor sprains to persistent aches to more serious chronic conditions. We also all know from first-hand experience the degree to which any pain level affects our sleep, diet, ability to perform and outlook on life. As stated at the outset, 4 in 10 Americans say pain interferes with their mood, activities, sleep, ability to do work or enjoyment of life. Ignoring early stage pain and discomfort will only increase the likelihood of exacerbating it, and with it, cause a number of secondary effects, which can be as debilitating as the pain itself resulting in lack of performance to ideal levels and a higher risk of costly injuries.

An evidence-based pain management program is founded on a proactive approach to preventing, managing and eliminating musculoskeletal discomfort and pain. This in turn pre-empts or lessens the secondary effects. DORN's comprehensive programs involve early reporting and early onsite interventions to provide one-on-one pain relief therapy before the issue becomes chronic – eliminating the need for doctor's visits or more involved remedies and surgeries. Targeted education and self-directed programs give pain sufferers the knowledge and tools to prevent future occurrences via programs tailored to their "pain points." Such programs include systematic stretching, focused exercise, proper standing and sitting, regular lifting, etc., to help avoid future occurrences.

Properly designed and executed, a pain mitigation and early intervention program will not only reduce Workers Comp claims but will also have a longer term effect of reducing Healthcare costs. It has also shown to reduce pain medication usage (underscored by DORN's study) - making it a powerful tool in tackling the opioid and prescription drug abuse epidemic that has affected workplaces around the country.

DORN's holistic pain management programs, delivered via a Total Worker Health framework, provide employees and employers alike with a systematic – and proven -- solution for simultaneously alleviating the primary and secondary effects of pain. If, as someone once said, all happiness is relief from pain, DORN's programs are sure to make your workplace more joyful – which is to say more engaged and productive-- for employees and employers alike.

About DORN

DORN was founded in 1998 to help employers save money on workers' compensation claims and reduce OSHA recordables. DORN provides highly skilled Specialists to work on site and treat employees with musculoskeletal issues, and in the mid 2000s, we expanded our business model to include an early intervention/prevention approach.

Due to the success of the therapy and a shift of focus to early prevention and intervention, the DORN programs have organically expanded into proactive wellness benefits. Today, aligned with a Total Worker Health philosophy, we treat employees suffering from pain and discomfort before they develop an injury while educating them on proper techniques to avoid pain and discomfort altogether. Delivering quality care, technology solutions, education, monitoring and impactful outcomes for employees translates to measurable bottom line results for employers. Over the course of the last 17 years, DORN has treated over 30,000 employees saving organizations in excess of \$50 million in workers' comp and healthcare costs through a third party validated ROI in excess of 500% annually. Our mission is to create, implement and manage healthcare solutions that empower individuals and organizations to improve and sustain optimal health, well-being and quality of life. For more on DORN, visit <http://dorncompanies.com/>