

# Evolving Ergonomics: The State of Injury Prevention, 2022-2025





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## INTRODUCTION

In the last two years, the landscape of workplace safety, ergonomics, and worker wellness has evolved dramatically. Unforeseeable circumstances—namely, the COVID-19 pandemic—created new risk factors and spurred rapid adjustments by employers of all types. The remote-work revolution has significantly impacted the workplace safety and wellness industry, forcing both employers and service providers to devise solutions that can be applied across on-site, at-home, and remote or lone workers. At the same time, new factors associated with the pandemic have affected other areas of safety and wellness, with workers now experiencing more fatigue, more stress, and greater workloads as employers adjust to unparalleled turnover. These shifts in the nature of work demand a new analysis of ergonomics, injury prevention, and worker wellness strategies, with the goal of developing holistic safety strategies that meet today's challenges with creative solutions.

The days of limiting workplace safety and wellness programming to stretch-and-flex and basic ergonomics are over—enterprises are investing in innovative new safety solutions at a rapid pace, understanding that safety in the new world of work requires a higher-level perspective on employee health and wellness factors, as well as a proactive culture that considers all facets of the worker's experience. Ergonomic analysis remains critical for preventing common soft-tissue injuries, mitigating chronic pain, and managing fatigue. At the same time, employers must now consider connections between ergonomics, safety, and mental health that have become more evident in the past two years.

In this white paper, we will discuss the current state of workplace injury prevention and ergonomics, reviewing prominent trends and projections to highlight major challenges and help employers anticipate obstacles. Likewise, we will cover strategies for identifying ergonomic risk factors and conducting effective worksite analysis toward lower injury rates, showcasing how organizations can evaluate and rank hazards for efficient interventions. Finally, we will examine the connections between ergonomics and mental health and wellness, outlining case studies from major employers and demonstrating how employers can integrate a holistic perspective that will result in successful ergonomics programs, no matter the worksite or industry.

# ERGONOMICS TODAY: DATA AND PROJECTIONS, 2022-2025

The available data regarding workplace injuries and ergonomics paints a picture of change. Prior to 2020, the share of work-related injuries across the American workforce was largely on the decline—workplace injury rates have decreased by 75% over the period since 1972 in the United States, a nearly five-decade stretch of continued improvement in safety standards and reduction in hazards<sup>1</sup>. But 2020 saw that trend flatten at 2.8 injuries per 100 workers<sup>2</sup>, and major shifts in work standards resulting from the COVID pandemic have compelled some experts to predict movement in the opposite direction. A major shift toward remote work—especially among office workers—along with increased stress levels, larger workloads, and changes in worksite environments for the entire workforce have significantly impacted injury numbers, and experts believe rates of work-related musculoskeletal disorders (MSDs) could increase by up to 16% in the 18 months beginning mid-2021<sup>3</sup>.

This prediction should concern employers across all industries, as it implies an increase in workers' compensation costs, which are already significant. According to the U.S. Occupational Safety and Health Administration, per-incidence total cost averages for common injuries, including both direct and indirect costs, are considerable:

- Sprain: \$64,000
- Inflammation: \$82,000
- Carpal tunnel syndrome: \$65,000<sup>4</sup>
- Back pain: up to \$80,000<sup>5</sup>

These figures add up to staggering costs to employers. Other factors often increase those costs even further—chronic pain alone costs employers across America some \$635 billion<sup>6</sup> per year. Fatigue, another highly prevalent challenge that contributes to absenteeism, presenteeism, and increased injury rates, costs employers with more than 1,000 workers an average of over \$1 million per year<sup>7</sup>.



A good ergonomics program is a win-win situation for both the employer and the employee. The employer implements our recommendations, and productivity improves; but so does worker happiness.

Denise Pontbriand, PTA, CEAS (DORN Senior Ergonomist)

Fortunately, ergonomic programs and other safety interventions have a proven track record of improving safety outcomes and reducing costs to employers. The numbers bear out in the research; organizations that targeted ergonomic risk factors with safety interventions experienced:

- 59% average reduction in MSDs
- 75% reduction in lost work days
- 68% reduction in workers' compensation costs
- 39% reduction in cost per injury claim
- 48% decrease in employee turnover

Accordingly, the data also indicates that companies that invest in ergonomic solutions are more successful from a business perspective, outperforming competitors without ergonomics programs by up to 325%<sup>8</sup>. Likewise, ergonomic and other injury prevention solutions targeting common risk factors carry significant return-on-investment, with employers saving between \$4 and \$6 for every \$1 invested<sup>9</sup>.

**The research is clear:** Tailored solutions addressing each workplace's specific risks and hazards can transform an organization's financial outlook, cutting costs and boosting productivity.



How someone feels can directly impact an individual's ability to be present and situationally aware of not only the task, but their surroundings. Employers must begin to use a more holistic approach to help improve a worker's emotional and physical wellbeing. When workers are happier and healthier, they tend to be more situationally aware and more efficient, which makes them more mindful of workplace hazards.

Keith Osborne, CEAS, CWS, MFT (Ergonomics Consultant)

# COMMON ERGONOMIC INJURIES AND RISKS

The category of ergonomic injuries contains a wide array of injury types, but the most common by far is musculoskeletal disorders (MSDs).

The U.S. Bureau of Labor Statistics defines musculoskeletal disorders as follows:

*"...cases where the nature of the injury or illness is pinched nerve; herniated disc; meniscus tear; sprains, strains, tears; hernia (traumatic and nontraumatic); pain, swelling, and numbness; carpal or tarsal tunnel syndrome; Raynaud's syndrome or phenomenon; musculoskeletal system and connective tissue diseases and disorders, when the event or exposure leading to the injury or illness is overexertion and bodily reaction, unspecified; overexertion involving outside sources; repetitive motion involving microtasks; other and multiple exertions or bodily reactions; and rubbed, abraded, or jarred by vibration<sup>10</sup>."*

On average, up to 400,000 musculoskeletal injuries occur in the private sector in the United States every year, making it the largest single category of workplace injury and illness. Likewise, MSDs are proportionately costly to employers, accounting for more than 30% of workers' compensation payments annually. That figure is equivalent to roughly \$20 billion per year in direct costs, which may be dwarfed by the indirect costs associated with lost productivity, absenteeism, and other factors. Factoring in the indirect costs, the total financial impact for MSDs can reach \$60 to \$80 billion annually. MSDs are common across industries, but are most heavily concentrated in:

- Health care and social assistance
- Retail trade
- Manufacturing
- Transportation and warehousing
- Construction<sup>12</sup>

Office workers using desktops and personal computers also experience MSDs at relatively high rates.

Within the category of musculoskeletal disorders, the most common and costly injury type is overexertion injuries, costs for which amounted to \$13.3 billion nationwide in 2021<sup>11</sup>. Lower back pain is the single most common type of MSD, and one of the costliest, with average total costs reaching up to \$80,000 per case.



An overexertion injury can occur when the human body is being asked to do something, and the amount of force required is greater than that human body is capable of producing at that particular moment.

Jim Mecham, MSIE, OTR/L, CPE (Owner/Partner & Chief Operations Officer, OccuPro)

Other common MSDs and ergonomic injury types include:

- Carpal tunnel syndrome
- Neck and shoulder injuries or pain
- Tendinitis
- Bodily reactions
- Contact injuries
- Slips, trips, and falls





# IDENTIFYING ERGONOMIC RISK FACTORS

Like most workplaces, the human body functions as a complete system—each part influences the rest of the whole, and disparate factors can affect the ability of the system to function as a unit. Risk factors for MSDs and ergonomic injuries typically depend on four primary variables: technique, level of exertion, task frequency, and task duration<sup>13</sup>.

## Technique

Posture, position and muscle memory determine how the body responds to workplace tasks. Force exerted when the body is improperly positioned can lead to strains, sprains, and other common injuries. Industries such as manufacturing, construction, aviation, and warehousing often demand that workers perform tasks in cramped or otherwise uncomfortable positions and postures due to space limitations. For example, an airline baggage handler may be asked to move heavy pieces of luggage while bent at the lower back or waist to fit inside an aircraft cargo compartment. Twisting the torso, kneeling, squatting, or holding objects with the wrists bent can all increase the risk of ergonomic injury.

## Level of Exertion

Excessive force commonly affects workers in many occupations, from health care and nursing to construction and warehousing. Lifting, pushing, or pulling heavy objects or equipment can put the worker at risk of suffering an MSD. These risks compound when exertion is required in difficult body positions such as holding a weight above the shoulders or moving a heavy object while crouched.

## Task Frequency

The more often a task must be completed, the higher the chance of increasing injury risk. Tasks with a cycle of less than 30 seconds are considered repetitive and come with risks of repetitive stress injuries such as Carpal tunnel syndrome.

## Task Duration

The risk of injury rises as the body applies force over a longer duration of time. Long periods spent controlling heavy equipment or lifting heavy weights place strain on tendons, ligaments, and muscles that can result in ergonomic injuries and MSDs.

The most effective solution for identifying these hazards and others in the workplace remains an [ergonomic worksite analysis conducted by a certified ergonomic professional](#).



The most important area to reinforce proper posture and body mechanics is in tasks or roles that require repetitive motions for hours throughout a shift.

Kate DeMoss, Ph.D., BCTMB, CIEE, CMS (DORN Companies Clinical Lead & Western Region Training/Ergonomic Specialist)



# HOW TO CONDUCT AN EFFECTIVE ERGONOMIC WORKSITE ANALYSIS

Ergonomics, broadly defined, is the science of fitting tools, workstations, and the work environment to the human beings tasked with a job. An ergonomic assessment or worksite analysis, therefore, should include a thorough review of how different types of employees in different environments integrate and interact with their surroundings and equipment. Risk factors to look for in an ergonomic evaluation include:

- Awkward postures
- Overhead work
- Carrying loads
- Twisting the body
- Wrist stress
- Contact stress
- Shoulder posture
- Vibration
- Repetition
- Extreme temperatures

The National Institute for Occupational Safety and Health has developed a series of checklists for running effective ergonomic assessments. However, utilizing a certified ergonomist is always recommended for best results. Other types of analysis include:

## Workstation layouts and equipment

Whether your analysis concerns a station on a manufacturing floor or a desktop worker's computer setup in the office, workspace layout is a critical factor for ergonomic injuries. Check tables, benches, and seating for proper height alignment for seated and standing workers; computer monitors should be at eye-level, and workstations should be oriented to fit the worker's stature and tasks. Eliminating some motions altogether may be impossible in some cases, but safe movement practices, such as bending at the hips instead of rounding the upper back, can help employees maintain neutral posture that minimizes injury risk.

## Biomechanics

Biomechanics incorporates concepts from physics, biology, engineering, and anatomy to describe how the body moves and interacts with its environment. Evaluating the forces at work between the worker's body and its surroundings can help identify hidden risk factors that may be taking a toll on joints and body parts.



Quantitative ergonomic evaluations provide an in-depth analysis using the screening tools that are appropriate to individual tasks, work cycles, individual departments, or entire organizations. They provide quantitative measurements that support the recommendations we make as ergonomists.

Denise Pontbriand, PTA, CEAS (DORN Senior Ergonomist)

## Selecting Control Methods to Fit the Level of Risk

In the field of ergonomics, "controls" are any set of actions or changes that seek to mitigate injury risk. Controls may include a wide range of interventions, from concrete alterations made to the work environment to subtle shifts in scheduling or rostering practices. Ergonomists break down control types into five categories, starting with the most effective and ending with the least.



Good ergonomics processes eliminate waste and increase efficiency.

Keith Osborne, CEAS, CWS, MFT

# HIERARCHY OF HAZARD CONTROLS

## Elimination

The most effective ergonomic control is the one that entirely removes the hazard or risk factor from the work environment. Elimination controls generally take longer to implement and may include higher up-front costs for employers, but will pay off in the long term with cost savings and improved productivity metrics. Elimination controls can include:

**Task elimination:** Review individual tasks that carry injury risk and evaluate if these tasks are necessary.

**Hazard elimination:** Remove elements of the work environment and task processes that carry injury risk.

## Substitution

If a task, process, or hazard cannot be completely eliminated from the worksite, the next-best choice for mitigating risk is replacing or substituting the risk factor for another option that comes with less risk.

**Equipment or tool substitution:** A problematic tool or piece of equipment may introduce risk if it's not the right fit for a task or for the work environment. Replacing equipment with tools that are ergonomically safer will reduce risks of ergonomic injuries like overexertion, sprains, and repetitive motion disorders. Ergonomically designed equipment also decreases accident risks.

**Task substitution:** Replacing a task with a less hazardous version that can be used to achieve the same or similar results.

## Engineering Controls

Engineering controls are where ergonomists begin to interface directly with the work environment. Instead of removing a risk factor or replacing it with something less hazardous, engineering controls seek to make physical changes that lessen the risk of injury.

**Workstation design:** Ergonomists can evaluate individual workstations everywhere from manufacturing centers to office floors. These controls may include adjusting chair, desk, or monitor height. Other changes, such as floor mats for standing workers, can relieve chronic pain and prevent injuries that accumulate over time, such as back pain. Better workstation design also helps stave off fatigue.

**Environmental controls:** Excessively high or low temperatures can increase injury risks, diminish productivity, and contribute to fatigue or distractions that can lead to accidents. Workers also require adequate lighting to accomplish many tasks safely. Proper air filtration can remove harmful chemicals and toxins from the air and help prevent illness.

## Administrative controls

Administrative controls aim to reduce the impact of existing risk factors by changing work patterns, processes, and policies.

**Scheduling:** Shift work is known to increase the risk of injuries to workers<sup>14</sup>. Insufficient levels of restful sleep, consistent nighttime work, and frequently changing work schedules can all contribute to fatigue, which hampers

workers' concentration and leads to accidents and injuries. Administrative controls can reduce the frequency of consecutive shifts and limit nighttime work so that workers can be adequately rested.

**Rostering:** Some employees experience more risk than others due to differences in physical ability. For example, an older employee is likely to face higher risk of injury during high-exertion tasks. Rostering changes can help managers assign the right employee to the right task, limiting injury risk at the individual-worker level.

**Training:** An essential element of any safety program, training is one of the most cost-effective administrative controls available to employers.



Breaks are a fundamental solution to fatigue. A break doesn't always mean a smoke break or sitting in the lunch room. A break sometimes means going to a different job category. We call this 'job enlargement.' How can employers give a worker other job duties throughout the day to give their body a break? Because once the body fatigues, there's a significant chance of them sustaining a musculoskeletal injury.

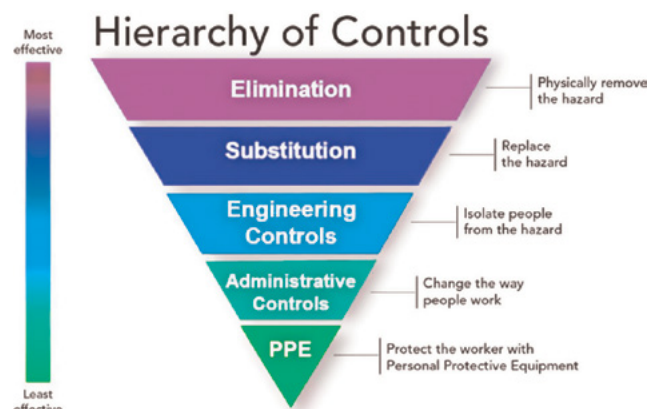
Jim Mecham, MSIE, OTR/L, CPE (Owner/Partner & Chief Operations Officer, OccuPro)

## Personal Protective Equipment (PPE)

Though personal protective equipment represents the least effective form of ergonomic control, it remains a critical one for many industries. Providing individual workers with up-to-date protective equipment can help address the most direct hazards to workers, mitigating common risks such as airborne pathogens or toxins, falling injuries, crushing or piercing injuries, and MSDs such as back, neck, and shoulder pain.

**Lift straps or back braces:** Especially important in warehousing and construction, PPE designed to assist with lifting can reinforce best practices and keep workers focused on the behaviors they learn through training.

**Protective gloves or elbow and knee pads:** Simple equipment like wearable padding can protect employees from moving objects as well as normal wear on joints when employees kneel to complete tasks.





# MENTAL HEALTH, WELLNESS, AND ERGONOMIC INJURIES

The connections between mental health, general wellness, and work have never been more important than in 2022. After two years of dealing with the upheaval that came with the COVID-19 pandemic, today's workers are under more pressure and are facing more stress than ever. Aside from the risk of life-threatening illness, workers faced isolation, layoffs, rapid changes to their work environments, and reduced employer support as organizations tightened budgets to manage the financial implications of the pandemic. These factors have added up to a wave of employee turnover across the nation, turnover that is expensive for employers and that exacerbates stress on workforces.

The data supports strong connections between mental health and workplace effects. Some 85% of workers in the United States report that work affects their mental health<sup>15</sup>, and almost 1 in 5 adults report some level of mental illness annually<sup>16</sup>. Common mental health issues like depression and anxiety often influence worker performance on the job; for instance, depression interferes with a worker's ability to complete physical tasks about 20% of the time and can reduce cognitive performance 35% of the time<sup>17</sup>. Depression and anxiety also increase the likelihood of a worker becoming fatigued, distracted, and disengaged at work. These issues may seem invisible, but the costs to employers are easy to see: each case of mental illness that results in lost work days costs about \$37,000 to the employer on average.



When you look at a **total worker approach**, you're not only trying to improve the environment or the workstation—you're also providing the human being with other strategies outside of just the work area.

Jim Mecham, MSIE, OTR/L, CPE (Owner/Partner & Chief Operations Officer, OccuPro)

So how can employers identify mental health issues and provide support for workers? By using existing communication systems, leveraging support networks, and emphasizing the availability of on-site, employer-funded solutions, organizations can help employees take charge of their mental health while keeping the associated costs low.

## Some common strategies include:

- Provide mental health self-assessment tools at low or no cost; can include smartphone apps to reinforce self-care behaviors and mental health awareness
- Ensure that company-sponsored health care insurance plans include mental and behavioral health coverage for medication and counseling
- Teach employees to recognize the signs of mental health issues
- Encourage a culture of general openness and communication around mental health issues and facilitate self-reporting
- Train department managers and safety leaders in mental health principles and recognizing common challenges in the workplace
- Provide ongoing reinforcement of concepts like mindfulness to help empower workers to manage their mental health

# CASE STUDIES: SUCCESSFUL ERGONOMIC INTERVENTIONS BY MAJOR EMPLOYERS

## Case Study #1: Skilled Nursing Facility in Centennial, Colorado

Health care workers, in particular nurses and nursing assistants, face some of the highest rates of ergonomic injury of workers across all industries. One elder care facility in Centennial, Colorado was struggling to identify the causes of high injury rates and mitigate the costs, and sought help from DORN's certified ergonomists.

The ergonomist's analysis of the site concluded that nearly 70 injuries had occurred in a four-year period, of which half were OSHA-recordable and 60% were MSD-related. Costs for these injuries for one year alone had grown to \$500,000.

In response, DORN providers created a custom-tailored set of ergonomic interventions targeted at the specific risks inherent to elder care and health care facilities. Solutions included:

- Custom training and education for best practices in lifting, pushing, pulling, and other motions
- Manual pain-relief therapies to mitigate chronic pain and reduce the risks of injury and fatigue
- Biomechanics training to help nursing assistants understand how their tasks can be accomplished safely
- Light duty revisions to ensure that employees returning from injury could resume work without aggravating an injury or suffering chronic pain

[The results were transformational.](#) The company reported cost savings of \$125,000 over six months alone, resulting in an ROI of 730%<sup>18</sup>.

## Case Study #2: National Bedding Manufacturer

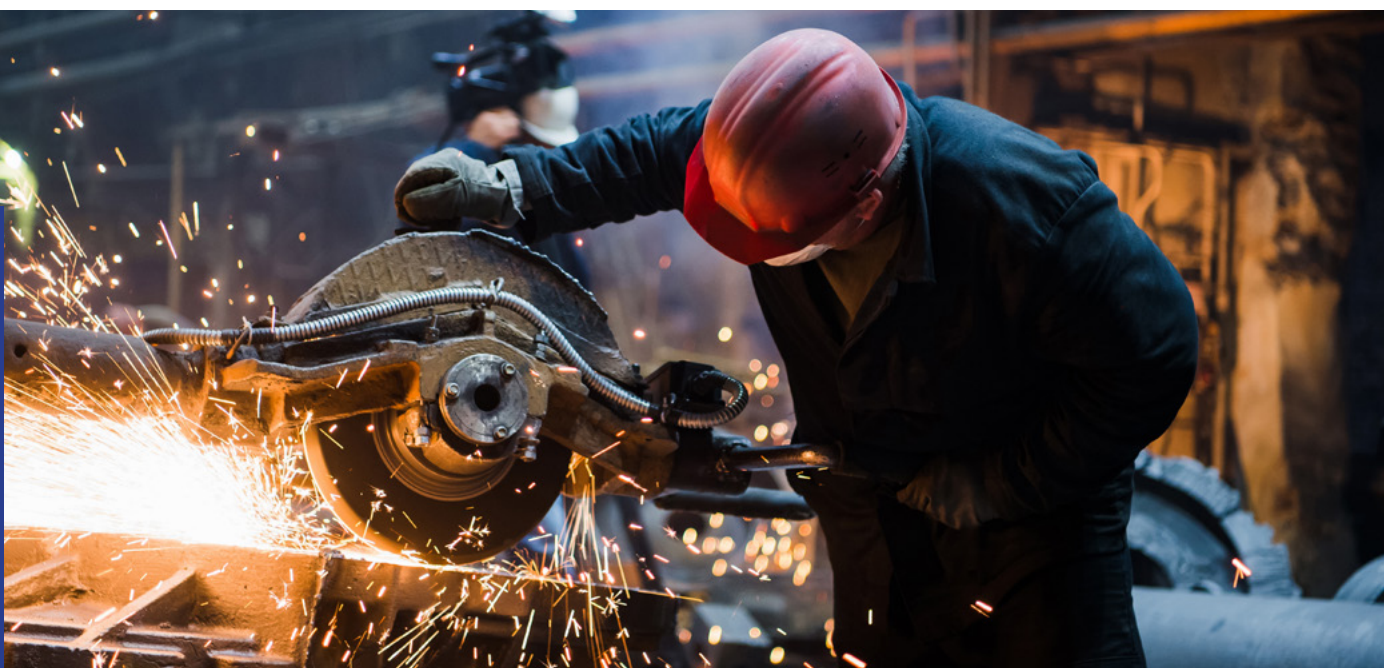
Manufacturing sites generally carry higher-than-average risks of ergonomic injury due to repetitive tasks, moving equipment, and many other factors. One company, which produces bedding materials such as mattresses, wished to address injury rates and costs at 15 manufacturing sites across the United States, especially after an analyst determined that the company faced an average per-incident cost per adjudicated claim of \$57,000.

DORN's ergonomists and treatment providers integrated with safety teams at all 15 sites, deploying interventions that targeted body mechanics and improved ergonomic standards. Solutions included:

- On-site manual pain-relief therapies to address acute pain and mitigate the risk of chronic pain or injury
- On-the-floor observation and analysis of body mechanics, postures, and task technique to identify risks and hazards
- Ergonomic assessments and live coaching to address risky behaviors and techniques in real time
- Pre-shift mobility and conditioning programs to improve flexibility and keep employees limber for their tasks
- Ongoing training courses teaching proper mechanics and best practices for lifting, moving objects, operating equipment, and other behaviors

Over three years, [the program](#):

- Saved \$3 million in direct cost savings to the employer
- Reduced workers' compensation claims as a percentage of the workforce from 6.8% to less than 1%
- Reduced absenteeism by 60%<sup>19</sup>





# COMPONENTS OF A SUCCESSFUL ERGONOMICS PROGRAM

In a world where work environments continue to evolve, the importance of mental health support grows, and employees need more support than ever, it's essential that any ergonomics program is structured from a holistic perspective that tackles injury prevention from every angle.

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A multi-faceted, whole-person ergonomics and wellness program will keep employers in front of issues and help mitigate risk for employees. This proactive process can keep an organization well ahead of injury issues and trends, allowing for the flexibility to adjust programming to meet new threats without sacrificing the base model of the process.

Keith Osborne, CEAS, CWS, MFT

## Component 1: Ergonomic Assessments and Quantitative Evaluations

An effective ergonomics program must be based on evidence and data collected from the workplace and employees the program will serve. Assessments include high-level review of worksites, departments, or facilities, analyzing tasks, processes, schedules, and the work environment to identify risks and hazards. This portion should highlight outdated equipment, hazardous task design, and incorrect techniques. This phase should also include observation and analysis at the workstation and individual worker level to identify injury risks, exertion levels and biomechanical factors.

## Component 2: Pain Relief

Pain can be debilitating for workers and employers alike. A successful ergonomics program must include measures and [therapies to help alleviate workers' pain](#) and address its root causes before it can lead to injuries or fatigue.

## Component 3: Training

Education remains a critical element of any workplace safety program, and it is especially essential for ergonomics. Many safe task techniques, movements, and behaviors require [practice and training](#) to instill in workers to the point that they become muscle memory. Training can take the form of traditional classroom sessions, printed materials and posters at the worksite, and digital reinforcement from software or smartphone apps. Traditional stretch-and-flex programs are no longer sufficient; today's workers need custom training on body mechanics, along with warmup routines and other training focused on mobility. These strategies help build a positive culture around best practices and proper mechanics, encouraging workers to identify

issues and treat them proactively. Look for solutions that can demonstrate high levels of retention of learned behaviors (in excess of 90%) 8 to 12 months after initial training. Training concepts must become instinctive parts of how employees live, work, and play.

## Component 4: Technology

The uses of [technology in ergonomics](#) and workplace safety have multiplied, and technology can now capture information on workers' exertion levels and fatigue signs in order to provide a complete, detailed picture of the risks associated with each task and process. Along with observational equipment like wrist-mounted fatigue monitors, sensors embedded in work uniforms, and AI-driven predictive technology, safety leaders can also incorporate technology that provides physical assistance for workers. Exoskeletons have become popular tools in manufacturing and warehousing, augmenting workers' strength and endurance to help them accomplish strenuous tasks safely.





# STEPS TO IMPLEMENT A SUCCESSFUL ERGONOMICS PROGRAM

Developing an effective ergonomics program depends on a strong culture of safety at the organizational level. While designing your ergonomics and injury prevention program, follow these steps to ensure that the end result is a program that acknowledges and addresses all forms of risk.

## Step 1: Include Organizational Management and Leadership

Any safety program requires full buy-in from the executive and management team. Without that level of commitment, injury prevention solutions and services are less likely to address the real, concrete needs of workers, and may fall short in reaching the entire workforce. Employers should emphasize participation and a culture of self-reporting without retaliation so that employees feel safe and supported when seeking safety or health services. Executive training may be necessary for organizations creating an ergonomics program for the first time.

## Step 2: Collect Data

Start by reviewing any existing data that your organization has already collected on the workforce and risk factors. A top-down review of what you know about your workforce's safety record will help you map out a program that addresses gaps and provides total coverage for all forms of risk. Following review of in-house data, ergonomic assessments and evaluations, both in-person and virtual, will augment your understanding of your organization's particular risks and illuminate the best controls for mitigating hazards and costs.

## Step 3: Listen to Employees

The employees who directly face the hazards of the workplace will be your best source of information and insight. Talk to workers and establish clear lines of communication so that employees feel their needs are being recognized and taken seriously. Incorporate employee feedback into your injury prevention roadmap.



It's important for employers to acknowledge that without regular training and support for ergonomic issues, it's not just employees' health and well-being that suffers—it's the entire company.

Kate DeMoss, Ph.D., BCTMB, CIEE, CMS (DORN Companies Clinical Lead & Western Region Training/Ergonomic Specialist)

## Step 4: Implement Interventions

Using the hierarchy of controls, determine the level of risk for every identified hazard and match it to the appropriate form of intervention. High-level risks that could impose significant costs and impair the organization's financial health should be addressed through elimination and substitution; tasks and processes that cannot be eliminated or replaced should be adjusted through engineering controls and administrative changes.

## Step 5: Test and Improve

Safety programming is an iterative process that requires constant maintenance and improvement in order to keep up with the evolving risks of today's workplaces. Your organization should have clear processes for collecting data related to every type of intervention. This will help create a clear picture of risks and hazards and make it clear how solutions are affecting worker safety and wellness. Management should be kept abreast of new developments so that problems can be addressed in a timely fashion before they become injuries and claims.

## Step 6: Partnership

Many organizations cannot afford to keep an ergonomist on staff full-time. If this is the case, partner with a firm that can demonstrate experience and success in all facets of the process. Creating an effective, proactive ergonomics and wellness program takes time, and sometimes outside help can make all the difference in solving for specific obstacles or dealing with organizational challenges.

## CONCLUSION

While external forces have caused the field of ergonomics and workplace injury prevention to evolve rapidly, a wide array of solutions is available to employers hoping to take charge of their safety risks and costs. Whether your organization employs on-site workers, remote employees, or a mix of both, ergonomics remain a critical ingredient for any safety program. New challenges have spurred employers to pursue holistic solutions to safety problems that can tackle risk from many perspectives, utilizing multifaceted strategies that encompass pain, fatigue, and mental health in addition to physical hazards in the workplace. With an integrated, total-worker approach to ergonomics, safety, and wellness, organizations can transform their workers into athletes who understand how their bodies perform tasks and how to keep themselves safe. For employers, this means a stronger workforce, higher productivity, lower turnover, and a healthier financial outlook for the future.



If you would like to schedule a free consultation or demo about ergonomic assessments and solutions, please feel free to contact us [info@DORNcompanies.com](mailto:info@DORNcompanies.com) or call (888) 870- 8828.



Innovation In Workplace Ergonomics and Injury Prevention

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DORN is a disruptive innovator and the country's leading wellness-based pain management and injury prevention company, committed to reducing costs of healthcare, workers' compensation and lost productivity. DORN focuses on treating and addressing employees' painful muscular conditions before they become costly claims through implementing a customized program of manual therapy, ergonomics, training, coaching and technology solutions.



## SOURCES

1. Jeff Brown, "Nearly 50 years of occupational safety and health data," Beyond the Numbers: Workplace Injuries, vol. 9, no. 9 (U.S. Bureau of Labor Statistics, July 2020), <https://www.bls.gov/opub/btn/volume-9/nearly-50-years-of-occupational-safety-and-health-data.htm>
2. U.S. Bureau of Labor Statistics. (2020, November 4). Employer-Reported Workplace Injuries and Illnesses – 2019 [Press release]. [https://www.bls.gov/news.release/archives/osh\\_11042020.pdf](https://www.bls.gov/news.release/archives/osh_11042020.pdf)
3. Denecke, Susan and Smagacz, Jeffrey. (2021, March 29). Addressing Ergonomic Problems Before Remote Work Becomes a Costly Risk. Brink News. <https://www.brinknews.com/address-ergonomic-problems-before-remote-work-becomes-a-costly-risk/>
4. Estimated Costs of Occupational Injuries and Illnesses and Estimated Impact on a Company's Profitability Worksheet. United States Department of Labor: Occupational Health and Safety Administration. Accessed March 15, 2022. <https://www.osha.gov/safetypays/estimator>
5. Webb, Gary. (2018, September 17). The Back Breaking Cost of Back Pain in the U.S. FMP Global. <https://fmpglobal.com/blog/the-back-breaking-cost-of-back-pain-in-the-us/>
6. American Pain Society. "Chronic pain costs U.S. up to \$635 billion, study shows." ScienceDaily. ScienceDaily, 11 September 2012. [www.sciencedaily.com/releases/2012/09/120911091100.htm](http://www.sciencedaily.com/releases/2012/09/120911091100.htm).
7. National Safety Council. What is Fatigue Costing Your Company? Accessed March 16, 2022. <https://www.nsc.org/work-safety/safety-topics/fatigue/cost>
8. Department of Labor and Industries [DLI] (2000). Cost-benefit analysis of the ergonomics standard. Olympia, WA.
9. AmTrust Financial. (2019). ROI of Safety: How to Create a Long-Term Profitable Workplace Safety Program. <https://amtrustfinancial.com/resource-center/trends-and-research/roi-of-safety>
10. U.S. Bureau of Labor Statistics. (2016, September). Occupational Safety and Health Definitions. <https://www.bls.gov/iif/oshdef.htm>
11. Statista. (2021, August 16). Direct costs of the top 10 most disabling U.S. workplace injuries in 2021. <https://www.statista.com/statistics/711311/direct-costs-of-top-disabling-workplace-injuries-in-the-us/>
12. U.S. Bureau of Labor Statistics. (2020, May 1). Number, incidence rate, and median days away from work of injuries and illnesses involving musculoskeletal disorders by selected industries, U.S., private sector, 2018. <https://www.bls.gov/iif/oshwc/case/msds-chart2-data.htm>
13. Occupational Safety & Health Administration. Ergonomics: Identify Problems. Accessed March 16, 2022. <https://www.osha.gov/ergonomics/identify-problems>
14. University of British Columbia School of Population and Public Health. Percent of workers compensated for an injury, by shift type, Canada, 1996–2006. Accessed March 15, 2022. <https://pwhs.ubc.ca/research/determinants-of-work-injury-and-illness/shift-work-and-injuries/>
15. Mental Health America. Mind the Workplace. (2021). <https://mhanational.org/sites/default/files/Mind%20the%20Workplace%20-%20MHA%20Workplace%20Health%20Survey%202021%202.12.21.pdf>
16. Centers for Disease Control and Prevention. Mental Health Disorders and Stress Affect Working-Age Americans. (2019, April 10). <https://www.cdc.gov/workplacehealthpromotion/tools-resources/workplace-health/mental-health/index.html>
17. Lerner D, Henke RM. What does research tell us about depression, job performance, and work productivity? J Occup Environ Med. 2008;50(4):401–410.
18. DORN Companies. DORN Case Study: Skilled Nursing Facility (SNF), Centennial, CO. (2019, March 28). <https://dorncompanies.com/case-studies-all/dorn-case-study-skilled-nursing-facility-snf-centennial-co/>
19. DORN Companies. National Bedding Manufacturer Case Study. (2018, June 27). <https://dorncompanies.com/case-studies-all/national-bedding-manufacturer-case-study/>