



The 8 Best Prevention Strategies for Workplace Strains and Sprains

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Despite safety efforts to prevent them, workplace strains and sprains remain among the top work-related injuries in frequency and cost.

Why do these injuries persist?

They persist because the most common prevention tactics most employers use are the least effective.

Why do these injuries occur?

According to the Society of Human Resource Professionals, musculoskeletal disorders (MSDs) occur due to: (1)

Excessive Force

Many jobs require work tasks that, in turn, require high force loads on workers' bodies. The forces increase fatigue which leads to musculoskeletal disorders (MSDs) or strains and sprains matching the individual's physical abilities to the demands of the job from the point of hiring throughout the worker's life cycle.

Awkward Posture

Awkward postures place excessive force on joints and overload the muscles and tendons around the affected joints. These awkward positions increase the risk of MSDs, especially when they are sustained for periods of time without adequate recovery time.

Other environmental factors: slip, trip, and fall hazards increase the risk of a sudden, acute soft tissue injury.

What are the most commonly used approaches to prevention?

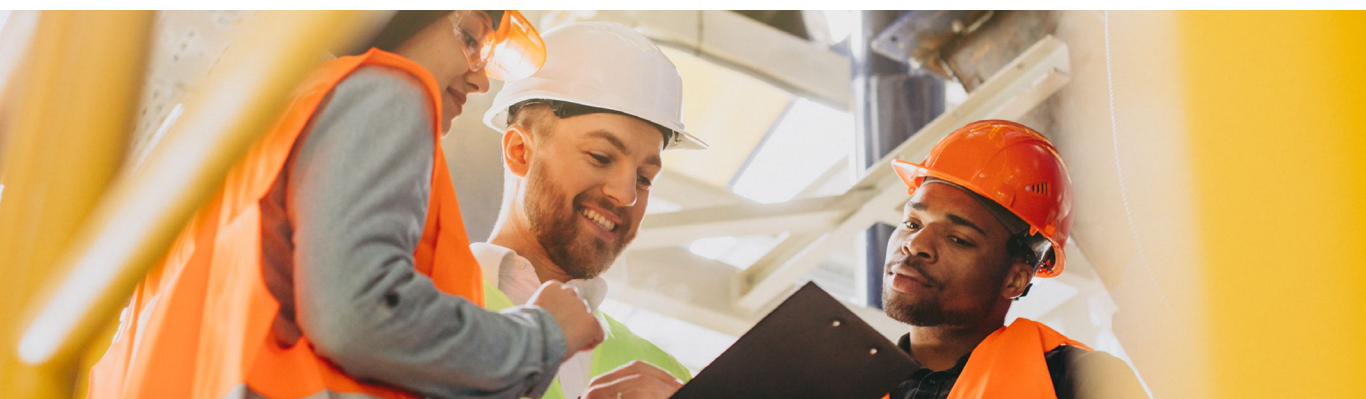
Unfortunately, the easiest approaches to MSD prevention are often the least effective. (2)

Research shows that employers often default to teaching employees how to lift using video or classroom settings that are not really related to the actual job tasks. Another relatively easy program to implement is a prework stretching program. While not a bad approach, research shows that the effect of those programs on injury prevention is controversial at best and may be very limited. (3)

Both programs have minimal effect on injuries because they require employee participation. In the case of proper lifting, many employees lack the strength or flexibility to perform the lifts correctly.

If not training and stretching, then what?

Research shows that many injuries—especially among new hires—occur because there is a mismatch between the worker's physical abilities and the physical requirements of the job. Truly effective MSD prevention works by matching the individual's physical abilities to the demands of the job from the point of hiring throughout the worker's life cycle.



An 8-Step “Hire-to-Retire” MSD Prevention Approach



Effective prevention of workplace MSDs/strains and sprains cannot be a “one-and-done” strategy.

It must start from the time of hire and persist until the worker retires – preferably without sustaining any workplace injuries.

✓ **Step 1: Pre-Hire Physical Abilities Testing (PAT)**

Pre-Hire PAT allows employers to hire only those candidates who have the physical ability to perform their physical job tasks. A conditional offer of employment is made, contingent upon passing the pre-hire PAT. Testing can be done at the worksite or nearby clinic.

Job applicants must take a test that demonstrates their ability to lift, carry, push, pull, balance, and perform other work-related manual materials handling, positioning, and mobility tasks. Each test must be customized to the job to be legally defensible under the Americans with Disabilities Act (ADA) and the Equal Employment Opportunity Commission (EEOC). If the applicant does not pass the test, the job offer can be legally rescinded.

In our experience, Pre-Hire PAT is extremely effective in preventing injuries and lowering costs. In a review of 13 case studies, involving over 70,000 job applicants in various industries, work-related MSD injury expenses were decreased on average 78% with an 11:1 return on investment!

✓ **Step 2: Job Analysis**

Because all pre-hire PAT must be job-specific, job analysis to determine the physical demands of your jobs may actually be considered Step 1 in the total injury prevention process. In addition to supporting your pre-hire testing program, job analysis forms the basis for all your MSD prevention programs.



Job analysis involves an analyst coming onsite to interview incumbents, observe and videotape (if allowed), and measure weights, forces, distances, and repetitions. Once all the measurements are made, the resulting job analysis report provides significant detail regarding the physical requirements of your jobs.

✓ Step 3: Work Acclimation and Ergonomic Training

Even if job candidates pass their Pre-Hire PAT and are hired, if the jobs require heavy lifting, highly repetitive movements, and/or awkward positions, it is optimal to gradually acclimate them to the work, highly emphasizing ergonomic work practices throughout the training and acclimation process.

New hire work acclimation is especially important if the shift duration exceeds 8 hours. Acclimation allows the newly hired employee to learn the most ergonomically sound methods of performing the job while building muscle strength and flexibility.

✓ Step 4: Regular Ergonomic Assessment and Countermeasures

Employers with physically demanding jobs greatly benefit from regular ergonomic workplace assessments. They strive to introduce countermeasures for tasks that exceed safe limits or have high ergonomic hazard scores.

Once the hazards are identified and quantified, problem-solving to reduce them can begin. Solutions can range from training in best ergonomic work practices to implementing ergonomically designed tools and lift assists to reengineering workspaces. Naturally, workplace reengineering is more expensive but also the most effective and sometimes yields the best return on investment since these changes are not reliant upon workforce compliance for implementation.

Newly developed computer vision AI technology makes ergonomic assessments far more objective and efficient. The technology can also be used for training and before-and-after comparisons to determine the effectiveness of solutions.

✔ **Step 5: Ongoing Ergonomic Training and Reinforcement**

Ergonomic training is most effective when it is job-specific and reinforced regularly in the field at the worksite. Most companies simply don't have the bandwidth to provide daily feedback from their safety professionals to each front-line employee.

Here's where technology again saves the day. Wearable ergonomic sensors provide real time haptic (think a small vibration) feedback, letting the worker know when they have exceeded safe guidelines with regard to back position. Daily reports provide information for supervisors and/or safety professionals regarding the number of hazardous postures assumed by the worker.

Over time the number of hazardous positions should decline due to the learning effect of the sensors. Depending on sensor feedback, specific video training is offered to the employee to address certain deviations from optimal.

The technology can identify workers who are not improving and need further instruction or guidance. It will also alert the supervisor/safety professional if there are departments or areas that need to be further address with ergonomic countermeasures.

✔ **Step 6: Intervention for Early Signs of Musculoskeletal Discomfort.**

If jobs are physically demanding, daily wear and tear will create fatigue and discomfort over time despite all of your efforts to prevent it. That's where Early Intervention Programs (EIP) come in.

Employees are taught to self-identify when they begin to feel discomfort and before it becomes severe pain and results in a lost/restricted time injury. OSHA allows 3 interventions that fall under their definition of first aid and do not turn the complaint into a recordable:

- **Massage**
- **Heat and cold**
- **Non-rigid supports**

These programs can be delivered onsite or at a near-by clinic, typically by an athletic trainer or physical therapy assistant.





In addition, the clinician can re-train the employee in ergonomic best practices, using computer vision AI and wearable sensor technologies. This training helps to ensure that the workers are minimizing the ergonomic stresses on their bodies to minimize the chance that the discomfort will recur.

✔ **Step 7: Return-to-Work (RTW) Testing After Work Absence**

Despite all efforts, some lost time/restricted duty musculoskeletal strains and sprains are bound to occur. And when they do, the ultimate question becomes: "Can they return to a former job?" This question is often answered based on some very subjective information (the physician asking the patient if they feel ready to return) or based on medical tests or imaging that has nothing to do with function.

In these cases, a more objective method of determining whether they are ready to return to work is a RTW or Fitness for Duty (FFD) physical abilities test. Just because a worker has recovered medically doesn't mean they have regained their physical functional abilities. An RTW/FFD test can help the physician make a decision based on objective data rather than subjective reports of readiness or medical/diagnostic studies that are not relevant to a work function.

✔ **Step 8: Work Conditioning/Alternate Placement for Those Who Fail the RTW Test**

If injured workers fail their RTW Physical Abilities Test, there are several possible options:

- Work Conditioning to improve physical functional abilities – including exercises to improve strengthening, flexibility, balance, and endurance
- Modifications to their current job such that their physical abilities are now a match
- Transfer to a job whose physical requirements match the worker's abilities
- Medical retirement if none of the above options are available

Often a brief 2-3 week course of work conditioning is enough to adequately improve the worker's ability to match the job requirements.

Some companies use RTW testing for any absence that exceeds 30 days, regardless of the cause. Work absence from a physically demanding job leads to deconditioning, and employees can be injured after returning from a prolonged absence if they experience significant declines in strength or endurance.



What program do we implement first?



You may think that your organization needs all of these programs but that it's not realistic to implement them all at once. Well, you would be right. Each program takes some time, attention, and resources to implement properly.

The best way to select your first step depends on which workers are experiencing most of your injuries, the nature of your employee turnover, what seems realistic/feasible for your organization.

Consider the following scenarios:

- 1. Most of your injuries occur in new hires and/or you have high turnover**
- 2. Most of your injuries occur in tenured workers and/or your organization hires very few new workers**
- 3. Your injuries occur in new hires and tenured employees and turnover is moderate to high.**
- 4. Your injuries occur in new hires and tenured employees and turnover is low.**
- 5. You have any of the above scenarios but your organization is not ready to implement injury prevention programs**

In scenarios 1 and 3, you would likely be better served by implementing pre-hire PAT. In 2 and 4, you would likely want to focus on ergonomic assessment and training or early intervention. In scenario 5, you may want to at least conduct job analysis to fully understand the job requirements. This information can be shared with treating physicians and will at least help you make better return-to-work decisions.

While these are broad generalizations, these simple guidelines can point you in the right direction.

Key Takeaways

If your organization is plagued by persistent MSDs/strains and sprains, you may be spending valuable prevention dollars on the wrong programs. Consider those we've presented here as very effective alternatives:

1. Job Analysis
2. Pre-Hire Physical Abilities Testing (PAT)
3. Work Acclimation and Ergonomic Training
4. Regular Ergonomic Assessment and Countermeasures
5. Ergonomic Training
6. OSHA-Compliant Early Intervention
7. Return-to-Work/Fitness for Duty Testing
8. Work Conditioning

Description of Services

Transforming Workplace Injury Prevention for a Healthier Tomorrow

At ErgoScience Inc., we're committed to making workplaces safer, healthier, and more productive by providing state-of-the-art injury prevention assessments, training, and consulting services.

Empowering organizations with data-driven, tailored injury prevention solutions.

Our expert team of professionals collaborates with organizations to design customized solutions that prevent musculoskeletal disorders. With over three decades of experience and a dedication to innovation, we're proud to have made a significant impact in reducing workplace injuries and enhancing workplace performance across diverse industries.

We're proud to have helped numerous organizations enhance their workplace safety, health, and productivity.





Job Analysis

Job Analysis is the foundation for all your MSD prevention programs. Don't be tempted to omit this critical first step. A house with a shaky foundation won't withstand the tests of time.



Physical Abilities Testing

Pre-Hire Physical Abilities Testing (PAT) reveals the physical abilities of your job applicants. On average, it decreases injuries and costs by 73%!



New Hire Ramp-In

Want to use pre-hire Physical Abilities Testing but can't afford to eliminate additional candidates? Have your cake and eat it too. Test, but hire everyone and let the testing identify high-risk new hires. Then provide some remedial training and/or conditioning.



Ergonomic Analysis & Training

There's a way to do things, and there's a "best ergonomic practices" way to do things. Using computerVision AI, identify hazards and make sure your workforce knows how to work safely. Reinforce your training with wearable sensors.



Workplace Early Intervention Programs

By treating early symptoms with an OSHA-Compliant MSD first aid program, you can prevent small issues from becoming OSHA recordables.



Return to Work Services

Once an employee has experienced an injury, they are twice as likely to re-injure themselves. And with today's workforce shortage, you can't afford to lose a single employee. Fitness for Duty Testing and brief work conditioning (if needed) can ensure that 90% of those returning to work will not experience and repeat injury.

Let's Talk! Contact us to schedule a consultation.





**HELPING
THE WORLD
WORK**

Get In Touch

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