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## THE 5 KEY WAYS TO END UP WITH A MUSCULOSKELETAL DISORDER (MSD)

By [Jose Castro](#), December 2, 2013

**Takeaway:** Injuries like back pain, neck pain and carpal tunnel syndrome account for more than 30 percent of workplace injuries in the United States, but there are only five key factors that cause them.

Source: [Flickr/drweisgerber](#)

**Ergonomics.** You've probably heard the term, but many people aren't familiar with what it means. It's defined as "a branch of ecology dealing with human factors in the design and operations of machines and the physical environment".

Translation: It's a scientific discipline that studies how to design a work environment that will not inflict injuries and cause other stresses to workers. In practice, it means that the designs and operations of the machines should be adjusted to the needs of the workers, and not the other way around. When a worker sustains an injury in operating a particular machine, the problem is often ergonomics. Here we'll take a look at the five key ergonomic factors that tend to lead to musculoskeletal disorders (MSDs) such as back pain, joint pain, tendinitis and [carpal tunnel syndrome](#). According to the Bureau of Labor Statistics, these types of injuries accounted for 33 percent of all worker injury in 2011.

### **Exerting Excessive Force**

This risk factor is said to be taking place when a worker is lifting a heavy object, pushing or pulling heavy loads, manually pouring heavy materials, or maintaining control of equipment or tools. Specific examples are laborers placing heavy loads over their heads or shoulders to transport them, workers pushing heavy containers or lifting heavy objects, and even using power tools such as a jackhammer or heavy drill. All of these types of work - along with many others - may require excessive force to carry out.

There is a dictum in ergonomics that says that workers should never carry, push, pull, pour or handle an object whose weight is more than their own. If the body weight of a worker is 145 pounds, he or she should never carry or push an object weighing more than 145 pounds. The [Occupational Safety and Health Administration](#) (OSHA) in the United States also recommend that loads of more than 75 pounds be carried by more than one person.

Machines can lighten the load. Or, a trolley or pushcarts could be used to move heavy loads. Even power tool operators can switch to more ergonomic tools, or simply spend less time using the tools they have. All of these modifications can help take the strain off workers, and reduce the risk of workplace injury.

### **Performing Repetitive Tasks**

When a worker has been performing the same motion over and over in the same manner, particularly when there is no rest or break periods, they may be at risk for an MSD. This is common among workers in manufacturing. However, MSDs can also occur as a result of too much use of a computer mouse.

The best way to prevent the adverse effect of this risk factor is to break up the repetitious work and introduce some variety. Change posture and activities more often. If possible, workers should be allowed to take regular breaks. Even short breaks can be very helpful if done frequently enough. Plus, a "break" doesn't even have to be a rest break; it can simply mean doing something else for some time.

### **Working In and Awkward or the Same Position**

This risk factor has adverse effects on workers when positions are assumed that place significant stress on the body, such as prolonged or repetitive reaching above shoulder height, kneeling, squatting, leaning over a counter, using a knife with wrists bent, and twisting the torso while lifting. The majority of these unhealthy working positions are observable among, for example, merchandisers in the supermarkets, who are tasked to replace and arrange goods on the cabinet racks and to reach for items placed way above their heights. It can also be a problem among office workers who sit for long hours with poor posture.

The potential health effects of un-ergonomic working positions can be mitigated by ensuring more posture-friendly positions. This can mean using a ladder to reach high-up items, using a stool where a worker could sit - instead of squatting or kneeling- to complete tasks down low, and removing obstructions in the working area to prevent workers from twisting their torsos while lifting. Proper office furniture and workstations are also important.

### **Localized Pressure**

Pressing the body, or part of the body against hard or sharp edges, or using the hand as a hammer, can lead to pain and injury.

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The adverse effects of this working practice can be mitigated by examining any instances when workers must hold or otherwise make contact with machinery or even the building and its furniture. Workers should also be instructed to avoid using their hands or bodies to hammer things or apply pressure.

### **Cold Temperatures**

Cold storage employs workers who spend most of their time in an enclosed structure. They work inside to arrange goods being preserved, such as vegetables, fruits and meat. [A few separate studies](#) have found that workers in a low temperature environment will eventually complain of pain in the lower back and knees. The occurrences of these complaints get higher as the temperature gets lower and as the time of exposure gets longer.

The adverse effects of a cold working environment can be mitigated by providing workers with rubberized boots, thick jackets and gowns, and thick caps. They should be required to wear them while working. Working temperature should also be adjusted to be no colder than required, to ensure workers aren't put at additional risk. In addition, rotational shifting of the workers should be adopted and implemented so as to limit the number of hours of exposure per day to low temperature.

Of course, the final major risk for MSDs is combined exposure to one or more of these risks. The key for workers and safety managers is to minimize - and, where possible - eliminate - as many risk factors as possible.