PARTNER UPDATE
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Pros/Cons of Wrist Splints in the Workplace

Katie Klarer, OTR/L, CHT
Occupational Therapist, Certified Hand Therapist
WorkPartners Occupational Health Specialists

Splints, also known as braces and supports, are frequently used by workers suffering from a musculoskeletal injury (MSI). As these injuries are often caused by overuse of the wrist, the most common wrist splints are devices that immobilize the wrist. Medical professionals endorse this technique as being useful for preventing injury or as treatment for an existing injury. Off-the-shelf splints can vary in design, price and material. They may also be custom fabricated by a healthcare professional. Particularly when used in the workplace, they need to be chosen carefully and worn properly.

Musculoskeletal injury (MSI), also referred to as a repetitive strain injury (RSI) or cumulative trauma disorder (CTD), describes injuries of the bones, joints, ligaments, tendons, muscles or other soft tissues. These can occur as an 'overexertion injury', where the tissues are subjected to a single traumatic event that exceeds their strength &/or range of motion. An overexertion injury may result in a sprain, strain, or tear injury. Lifting, pulling, pushing and reaching are often the cause of this type of injury. Overuse injuries occur when tissues are used too often and for too long and result in small tissue damage that add up over time to the point where the body can no longer repair itself. Repetitive gripping, pinching, bending or twisting can lead to this injury. Often injuries are a combination of both these types of trauma.

It is important to recognize that self-prescribed wrist splints can exacerbate existing symptoms or produce new ones. Ill-fitting splints may pinch or rub causing a rash, blisters or even an open wound. The wrong joint or muscle may be isolated which can result in an unnecessary movement restriction, or contracture. Incorrect splint choice can also be a concern. There is often a preference for soft splints over hard ones even when in many cases the harder splints are more effective in resting the area. A tendency toward wearing splints only during acute periods of swelling, tingling or pain is also of concern. The splints are discontinued as soon as there is relief and this is often too early. The inflamed or torn structure quickly becomes painful and swollen again.

There are many advantages to splint use. Minimally, it can be a visual reminder to the worker to rest. It is also a visual reminder to the people surrounding the worker so that they can adjust their expectations of the worker. Reminding the staff to adapt and modify the workspace is an added advantage.

The proper use of splints is intended to reduce the risk of using a joint or limb in a way that might aggravate the injury. For instance, a worker may repetitively pinch a nerve every time they move the wrist. By limiting this motion, the nerve is no longer being compressed & symptoms will subside. During this time the inflamed structures around the nerve, muscle, or joint can rest and recover. During light to moderate grip forces, such as filing or writing, splinting can reduce muscle activity by assisting in stabilizing the joint. This reduced muscle activity also allows the inflamed tissues to recover.

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The adverse effects to wearing wrist splints in the workplace can occur during maximal grip forces. At maximal grip forces a wrist splint can become counterproductive and in fact, increases the workload and compressive forces of the wrist structures. This would apply to those workers who might squeeze a clamp or swing a hammer. Moreover, as the muscles compensate for the restricted motion inside the splint more stress is produced on joints and muscles outside the splint. Effectively the force of squeezing that clamp has transferred to the elbow or the shoulder.

The design of the splint may interfere with a worker's ability to handle or grip objects during work. This may lead to the worker gripping harder to hold onto an item, or twisting or torquing a little bit more in an effort to adjust to working within the restrictions of the wrist splint. All this may further exacerbate the worker's symptoms.

Long-term wrist splint use can lead to muscle weakness and these weakened muscles are more prone to injury when the splint is no longer being used. Long-term use can also reduce wrist range of motion. This restricted wrist motion produces long-term compensation in other parts of the body. All these factors promote further injury.

Recommendations for wrist splint use in the workplace should begin with having the splint fitted or created by a medical professional, such as an occupational therapist. This professional is familiar with the many different design options in the off-the-shelf market or that can be custom fabricated for the individual's specific needs. Modifications can be made to either type splint choice in order maximize splint effectiveness.

When choosing an optimal splint design a good understanding of the work or home activities that will be performed in the splint is required. Simulation of those tasks in the new splint is beneficial in checking for comfort or for any modifications that may be required. The medical professional will analyze the effectiveness of the splint during these specific tasks and advise on when and where the use of the splint will be most constructive.

Preventing injuries and avoiding the need for splinting is paramount. By evaluating and controlling workplace factors injuries can be avoided. Modify workstations, work processes, equipment and tools to prevent MSIs. Finally, educate worker and supervisors to recognize early signs and symptoms of MSIs. Chances of recovery are excellent if the injury is caught early.

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