The Causes and Prevention of Pushing & Pulling Strains

Firefighters and emergency responders perform heroic tasks saving lives and protecting property in their communities. As part of these duties, they are subjected to various risk exposures that can cause workplace injuries. Among the injuries common to firefighters and emergency responders are musculoskeletal strains and sprains, due to exertion from pushing and pulling tasks. The risk of sustaining this type of injury is high whether at an active emergency scene, at the firehouse, at the gym, or conducting a training exercise. Pushing and pulling tasks can apply excess strain on muscle fibers, causing muscle fiber tears, stretched or torn ligaments and tendons, and swollen and bruised body parts.

The following are examples of pushing and pulling tasks firefighters and emergency responders may be subjected to:

- Pushing equipment on the ground
- Pulling charged hoses off trucks
- Pulling equipment from firetrucks
- Pushing to open valves or hydrants using the upper body
- Pushing doors, ceilings, and other obstructions during structure, vehicle, or other firefighting or rescue events
- Moving and staging ladders
- Workout and training exercises
- Wearing heavy protective gear, adding additional weight and risk of injury

While musculoskeletal injuries are a common risk exposure for firefighters and emergency responders, most are preventable. Prevention methods can be proactive and reactive to protect from overexertion injuries and their severity. Focus on strengthening and protecting key muscles used during common tasks.

The following are proactive measures to prevent overexertion injuries due to pushing and pulling:

- Maintain healthy habits (exercise, nutrition, sleep) to protect the body.
- Stretch regularly, especially before training and workouts to warm up and improve flexibility.
- Strengthen the body's core, arm, leg, neck, and other muscles used for pushing.
- Conduct training and workouts with body movements expected during active events (i.e. safe lifting, knee bends, straight-back lifts, etc.).
- Assess the object you are about to move before beginning. Evaluate the shape, material, size, and weight.
- Avoid pushing and pulling in awkward positions, and don't push from a twisted position. Remember to push and pull with your legs, not from the waist.
- Get close to the object being pushed, this reduces strain on the body and decreases the risk of overexertion.
- Use two hands when pushing or pulling an object.
- Use your legs and core when pushing and brace yourself with a wide stance. When traveling, take long steps to use the power of your legs.
- Push or pull slowly with steady pressure and control.
- Use available transport equipment such as hand trucks, carts, pallet jacks, etc.

Understanding the potential for injury and planning for firefighter pushing and pulling incidents can greatly reduce the risk and impact.