



# ERGONOMIC AWARENESS for PRODUCTION ARBORISTS

*An ounce of prevention  
is worth a pound of cure*

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It was a brisk January day when the tree crew arrived at the Smith residence to take down two large oaks. The three-man crew was down to two because of a recent back strain suffered by one of the crewmembers while loading wood on the truck. He should have asked for help loading that large piece of wood, but it was late in the day and he just wanted to get the job done. Now, the two crewmembers had their work cut out for them, with Tom out on workers' compensation, and the large oak having suffered additional damage in the recent snowstorm. This day was going to be a tough one for the pair. Sound familiar?

If you are a tree care worker, manager or owner, you know all too well the strain an injury like this can cause a crew, office and the entire organization. For years these aches and pains suffered by workers have been passed off as being just part of the job, however, these seemingly minor pains and incidents can cost companies hundreds, thousands, even millions of dollars off the bottom line. With the current conditions of a recovering economy, business owners must minimize these costs to maintain financial stability and the long-term health of their organization.

Ergonomics is not something one would typically associate with a physically

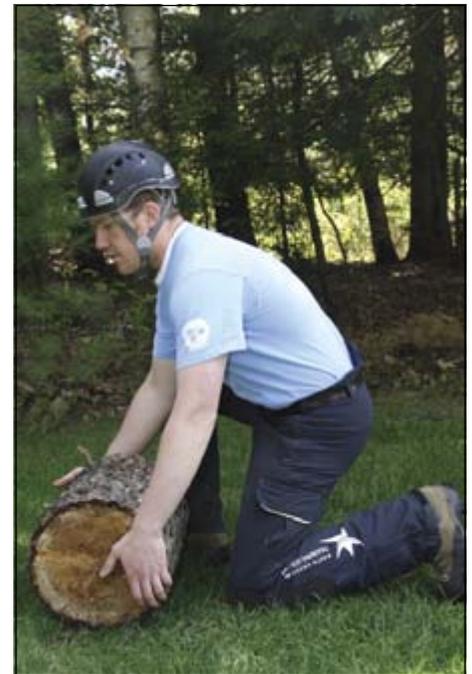


#### **Lifting Principles:**

1. *Test the load before lifting; ask for help if too heavy.*
2. *Maintain proper posture. Tighten your stomach muscles without holding your breath.*
3. *Lift by using your legs and buttocks to push straight up.*
4. *Distribute the work load symmetrically and keep close to your trunk.*
5. *Use your legs to do the work and pivot with your feet.*

demanding trade such as tree care. However, physically demanding trades typically incur a high severity of injury and illness due to exposure to ergonomic risk factors, such as repetition in movement, forceful exertion, awkward postures, contact stress, vibration and extreme temperatures. Exposure to these risk factors can result in a musculoskeletal disorder, which then results in lost time for employees and lost money for employers.

A musculoskeletal disorder (MSD) is an injury or disorder of the muscles, nerves, tendons, joints or cartilage caused, precipitated or exacerbated by sudden exertion or prolonged exposure to physical factors such as repetition, force, vibration or awkward posture (National Institute for



Occupational Safety and Health, 2007). Musculoskeletal disorders common to the tree care industry include low back pain (i.e. herniated disc, sciatica, sprain/strain), shoulder injury (i.e. impingement syndrome, rotator cuff strain or tear), elbow pain (medial and lateral epicondylitis) and carpal tunnel syndrome. The injury suf-

ferred by Tom was a strain to the low back. A strain is an overstretching or tearing of a tendon or muscle.

A work related musculoskeletal injury could be very costly to both the employee and the employer. Costs such as decreased production output, replacement costs, decreased employee morale, overtime for remaining employees, clerical time, legal expenses and loss of an experienced worker all can add up quickly. The take-down of the large oak at the Smith residence was bid at \$ 1,800 for 24 man-hours, however, with the two-man crew it took 32 man-hours, thus decreasing the overall profit.

Employers can limit the exposure to work-related musculoskeletal disorders by training workers, purchasing ergonomic equipment, maintaining the health of employees and adopting safer work practices. Ergonomic or musculoskeletal risk factors can be addressed in a variety of ways including administrative controls, engineering controls, personal protective equipment (PPE), and work practice controls.

Administrative controls address job assignment and rotation as a way to avoid repetitive tasks. Engineering controls are perhaps the most costly way to address these risk factors due to the high cost of ergonomic tool design. Work practice controls, which address employee education and training, have been shown to be the most cost effective at preventing injury both on and off the job. Had Tom been educated on ergonomic safety, he would have utilized proper lifting mechanics and decreased his risk of injury.

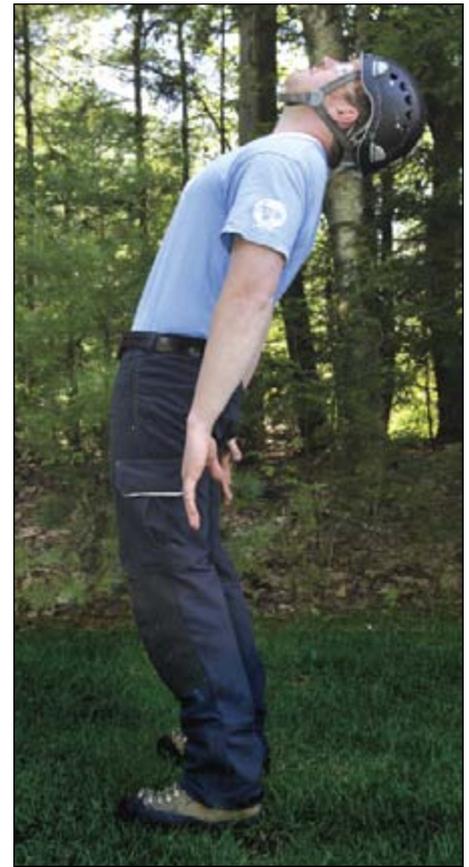
There are costs associated with developing an ergonomics program, which include the purchase of new equipment and the cost of employee training; however, doing your research can contain these costs. Wait for the need to upgrade or replace equipment and be sure to involve your employees to ensure they will utilize the new equipment, after all the definition of ergonomics is about fitting the tool to the worker. Employee training can be done by sending managers out for training or by bringing trainers in house. An in-house, two-day customized ergonomic training workshop for arborists can cost between \$2,000 and \$5,000. A single

employee or manager can attend an open enrollment course for \$350. Initial costs of ergonomic upgrades and training will be offset in the long run with improved production efficiency and decreased medical costs.

In the current state of the economy, many companies are trying to contain costs at all levels to maintain financial viability. However, when budgets are being cut there is no better time to spend on items such as employee health and wellness. Research has shown a \$1.50 to \$3 return on investment for every \$1 spent on employee health and wellness. If organizations could gain such returns on all such investments, maybe our economy would be in better shape.

Tom's employer could have made between \$1,000 and \$4,000, had he spent \$2,000 on an employee ergonomic training program. These returns come from increased productivity, increased worker efficiency, decreased operating costs and improved employee moral. Ergonomically designed equipment and work procedures have been proven to increase production efficiency, substantially reduce injury rates, reduce medical insurance costs, reduce workers' compensation costs, improve worker satisfaction, and improve quality and customer service.

With consumers spending less on tree care, take advantage of the downtime for training, equipment evaluation and beginning employee health and wellness programs such as exercise/stretching rou-



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tines. This will prevent the need for loss of productivity when work resumes.

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