



ERGONOMICS FOR ARBORISTS AND LANDSCAPERS - PART 3

Tools and Equipment for the Arborist/Landscaper

by Barbara Henderson

The first part of the ergonomic process involves educating yourself on what to look for and becoming aware of ergonomics and what it means to you as an employer or employee. The next step involves evaluation of the job tasks. With arborist and landscaping essential job functions (those tasks essential to completing the work), there are many varied activities, each requiring different pieces of equipment or tools. Because of this, when you work on your process, it will be necessary to break down the job functions into specific tools and tasks, then evaluate each particular task for potential risk factors.

What are the risk factors as they pertain to arborists and landscapers? First we must identify all the MSD risk factors. They are: force, repetition, awkward postures, static postures, quick motions, compression or contact stress, vibration, and cold temperatures. When you look at the risk factors you quickly realize that every arborist and landscaper is at risk! There is force in lifting/lowering, pushing/pulling, carrying, gripping; awkward positions and static postures, such as bent back, kneeling, squatting, working above your head, extended reaching; high repetition at the hand, back, and shoulder, such as when shoveling or pruning; vibration in the hand or whole body as is the case in chain saw use; compression when using hand tools; quick motions when using hand tools; and working in inclement weather. As you can see, the list is long. By not having the proper tools or equipment to fit the worker and the job task, using dull or poorly maintained tools, and not taking breaks from various job tasks, we are opening ourselves up to the likelihood of work-related MSDs.

So how do we prevent some of these MSDs from occurring? For workers at desks or workstations, such as assembly lines, it is usually an easier task. Keyboards are ergonomically designed, workstations can be raised or lowered, carts for moving heavy objects, etc. All of these things have been done to help reduce MSDs in office and factory workers.

But for those of us who work outdoors and on a variety of terrain, and our job tasks change often, more thought must be given to each task and the worker performing the task. Our jobs involve the use of hand tools, feeding chippers, using chain saws, climbing, working from bucket trucks, planting, pruning, fertilizing, and myriad other jobs. And each of these jobs has the

risk factors for MSDs associated with it which we must do our best to prevent.

In the first article of this series, we discussed the development of an ergonomics program. This gives us the means of evaluating our job tasks for potential risks. As we look at the various job tasks we can ask ourselves: Are the tools dull? Are the handles too short/long? Do the tools need to be gripped too tightly to make them work? Are the wrists and arms straight or bent? Is there a lot of repetition? Are the workers reaching overhead, lifting heavy items, sustaining awkward positions, or working in cold temperatures? If the answer to any of these questions is yes, then the worker is at risk.

You may want to videotape the job, and break the job down into smaller tasks. Write down the risks you observe. Is it just one person, or do all people doing this particular task seem to have problems? Does the problem lie in the way in which the person is doing the task, such as not keeping the work as close to the body as possible, or excessive reaching and twisting of the body as opposed to squaring the body off to the work and pivoting through the legs instead of keeping them planted? Does the problem lie in the actual tool or equipment being used, such as maintaining an awkward position of the wrist while pruning, or the person having too tight a grip on the tool because the hand is too big for the grip of the tool. Could a different tool be used? Talk about different options, and try out various ideas. Many times the answer lies in teaching the employee a different way to use their body in relation to the work. Other times, the answer lies in modifying the tools such as increasing the circumference on the hand grip, or securing a tool with an angle or pivoting head to help the worker keep the wrist straight. Give your employees the ergonomics understanding, and they will many times come up with the solution to identified risk factors.

Let's briefly discuss the risk factors associated with our work and how we might reduce them.

- ◆ **Heavy lifting:** associated with moving planting stock, feeding limbs/brush into chippers, retaining walls, etc. We can reduce this risk by cutting larger limbs into smaller pieces and providing equipment such as carts for moving the heavier blocks or planting stock.

- ◆ **Awkward postures:** associated with kneeling, squatting, reaching above shoulders & head, climbing, etc. We can reduce this risk by providing knee pads, changing positions frequently, using appropriate tools (such as pruning poles with longer handles, etc.)
- ◆ **High hand force:** associated with using pruning shears, shovels and rakes, pruning saws, etc. We can reduce this risk by providing well maintained equipment, handle size appropriate to the person's hand size, longer handles on equipment, and mechanical assist. Some tools, such as pruning saws, are available in a power version.
- ◆ **High repetition:** associated with hand tools, shovels & rakes. Take breaks more often, switch tasks with others, use motorized or pneumatic tools when possible.
- ◆ **Vibration:** associated with the use of chain saws, power pruning saws, chippers, etc. Switch tasks with other workers, purchase tools with anti-vibration handles, etc.
- ◆ **Cold temperatures:** associated with any outdoor work. Wear appropriate clothing and footwear to keep warm. Layer clothing. Stay dry. Limit exposure time.
- ◆ **Duration:** Rotate tasks with other workers to limit exposure time. Take frequent breaks.

A proper fit of the tool to the person using it is essential in aiding the arborist/landscaper in preventing injury. The entire spectrum of tool involvement, from keeping tools sharpened, to utilizing the tool for its proper use, to the fit of the tool in proportion to the hand, are all important pieces of the ergonomic pie. Some general guidelines for tool use include:

- ◆ When using hand tools, try to keep the wrist in a neutral position. Choose the proper tool for the job.
- ◆ If you feel you are gripping a tool too tightly, try modifying the handle by padding it for bigger hands, or using a smaller-handled tool for smaller hands.
- ◆ In some cases, using anti-vibratory gloves for work involving vibration will help reduce the effects.
- ◆ Try pruning shears with an angled, rotating head which allow you to keep your wrist straight while working.
- ◆ Use tools which have a spring assist to prevent having to apply too much force repeatedly.

- ◆ While operating machinery utilize arm rests, and fit them to your needs by adding pillows if necessary in order for your arms to rest comfortably.
- ◆ Keep tools appropriately sharpened to decrease the amount of force needed to operate.

Generally, the more adjustable the tool is, the better it will work for a number of people. If you are not sure if the tool will do what it claims to do, buy one, and simulate using it, adjusting it, and trying it for a number of different people with different hand and limb proportions. Many times there is a sizing chart available for actual handle sizes, which should be utilized. Talk with a knowledgeable salesperson or manufacturer representative about your needs.

In terms of equipment, padding can be added to the arm rests of seats for workers with smaller arms; different climbing saddles can be used for different size people that provide different levels of comfort; garden tractors and carts, or similar equipment, can be used to move heavy items, such as rolls of sod; chain saws with anti-vibration handles can be purchased.

The tree care and landscape industries are comprised of a wide range of expertise, from the top end of the pay scale down to the lowest paid laborer on the crew. But it is the duty of employers to provide a safe working environment for all workers, including the lowest paid. And unfortunately, these are sometimes the workers we let slip through the cracks.

A good ergonomics program that includes providing proper tools and equipment for all employees will benefit a company in the long run. WMSDs are expensive to treat. It is by far much more cost effective work at preventing or reducing WMSDs than to incur the insurance cost of treating them.

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