

PREVENTING MUSCULOSKELETAL INJURIES IN VINEYARD PRUNING

Pruning tasks have long been associated with musculoskeletal injuries (MSIs) in the wrist, hands, shoulders, and back. These injuries can be costly as well as permanent, and can significantly affect a worker's quality of life. MSIs usually start off as aches and pains, and progressively become more serious. However, the good news is that MSIs can be prevented by eliminating or reducing the MSI risk factors of the job.

RECOGNIZING MSI RISK FACTORS IN PRUNING

Below are some examples of the MSI risk factors associated with pruning tasks.

- Awkward postures of the wrist, shoulders, and back
- Forceful exertions in the hands and shoulders
- Repetitive motions
- Cold temperatures
- Contact stress



*Awkward wrist posture
(wrist bending backward)*



*Awkward wrist posture
(wrist bending forward)*



*Awkward back posture
(bending to the side)
and awkward neck posture
(looking down)*

REDUCING THE RISK OF MSIs

To help reduce the risk of MSI from pruning, consider the following solutions.

1. Use a trellis system, such as the VSP trellis system, which brings the vine between knee and shoulder height with the growth as close to the worker as possible. Wrist postures become more awkward when working with branches that are below knee

height, which causes the back to bend forward. In addition, when pruning vine growth above shoulder height, the worker's shoulder is put into an awkward position, increasing the potential for injury.



Angled blade keeps the wrist in a neutral posture more often than a straight blade



Straight blade brings the wrist into an awkward posture more often than an angled blade

2. Use the correct tool for the job. Use loppers or saws for thicker, harder wood. Aluminum handles on loppers help reduce the weight of the loppers. Also, try angled handles and blades, which help maintain neutral wrist posture better than straight tools.

3. Select the correct tool fit for your hand. For pruning shears:
 - a. Fingers should fit comfortably around the handles, without overlapping the fingers and thumb.
 - b. The handles should be smooth (no grooves for fingers) and end past your hand.
 - c. The edges of the handles should be smooth and possibly covered in an insulating material to reduce cold temperatures against the hand.
 - d. The spring tension should feel comfortable and handles should return to their initial position on their own.
 - e. Choose left- or right-handed tools appropriately (where available).
4. Consider using powered tools such as electric or pneumatic, which reduces the force required to cut. Even though the force is reduced, workers must still ensure that they are using neutral wrist postures. Wear a cut-resistant glove on the opposite hand and fit any battery packs snugly to the hips to minimize weight to the back.
5. Schedule preventative tool maintenance to keep blades sharp and optimize tool function.
6. Be careful not to use more strength than the task and tool require.
7. Select gloves that keep the hands warm while also improving grip and comfort.





*Neutral wrist posture
(wrist is straight)*



*Neutral wrist posture
(wrist is straight)*

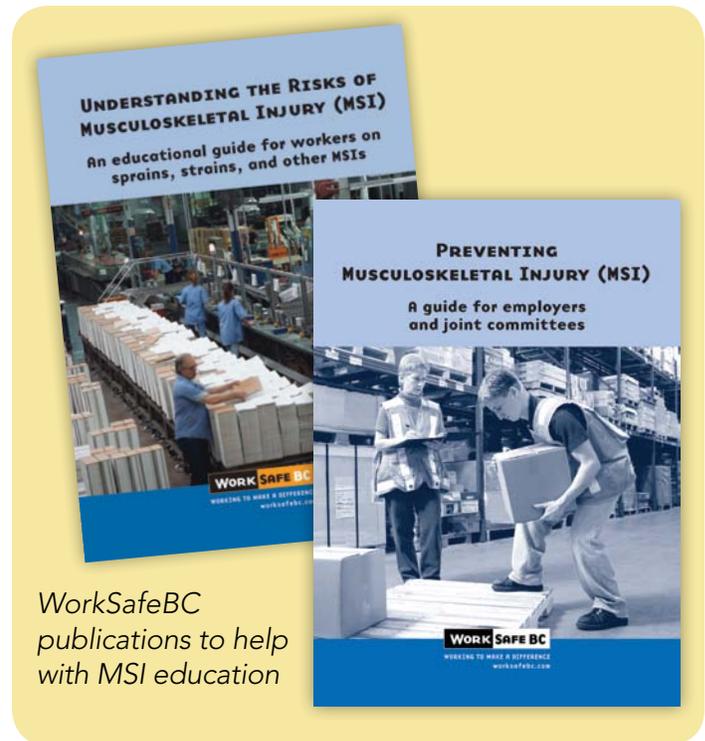


*Bending forward from the
hips and bending the knees
helps to maintain better
back posture*

8. Use neutral wrist (straight), shoulder (arms close to your body), and back (maintain S-curve in spine) postures as much as possible.
9. Make sure hips, shoulders, and feet all face the same direction to reduce risk of twisting.
10. Cut more tendrils before pulling off the cane to reduce the force of the pull.
11. Provide a change for the working muscles by alternating tasks (e.g., pulling the vine off the trellis and pruning) and alternating tools (e.g., electric and hand powered pruning shears and loppers).
12. Alternate between pruning hard wood and soft wood varieties.
13. Use both sides of the body. Try pruning with your non-dominant hand to reduce working duration for muscles.
14. Keep warm. Warm up the body at the beginning of the shift and after lunch to increase circulation and get the body ready for work. Warm-ups include large body movements such as marching on the spot, squats, dancing, etc. The movements should stay within a safe range of movement (i.e., do not touch the toes from a standing position). Dress in layers to keep your body warm and take off layers as you warm up. Take your breaks in a warm area.
15. Stand up straight occasionally or as you walk to the next vine to bring your body into neutral position. Also, take a micro break to perform the opposite body movements; for example, let go of your pruning shears and reach your arms up for 1-2 seconds. Refer to FARSHA's "Stretches and Postures at Work" booklet as a resource.



16. Employers: make sure that all workers have been educated on the MSI risk factors, risk control measures, and safe working postures and practices associated with their job. Workers should also know the early signs and symptoms of MSI and report to their supervisor if they are experiencing any symptoms. To help with this education, see the WorkSafeBC publications “Preventing MSI Injury: A Guide for Employers and Joint Committees” and “Understanding the Risks of MSI: An Educational Guide for Workers on Sprains, Strains and Other MSIs.”
17. Supervisors: Supervise workers to ensure that they understand and use the risk control measures, including the safe working postures and practices.



WorkSafeBC publications to help with MSI education

RESOURCES

For more information, check out the following resources:

- Website: WorkSafeBC — [WorkSafeBC.com](http://www.worksafebc.com) (click on “Safety by Topic”, then select “Ergonomics”)
- Website: Farm and Ranch Safety and Health Association (FARSHA) — www.farsha.bc.ca
- Booklet: “Stretches and Postures at Work” (FARSHA) — http://www.farsha.bc.ca/resources_publications.php?resource=203
- Website: BC Wine Grape Council — www.bcwgc.org

