

Chainsaw Safety, Skill & Productivity

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Welcome to the first in a three-part series about arborist safety. In the second and third parts of the series, we will take a look at tree-felling and cutting methods as well as storm response techniques for utility workers. This first article, however, will give readers a broad overview of chainsaw safety, including powerful statistics, reasons why chainsaw operators struggle to follow safe work practices, and the essential education and training for workers who engage in chainsaw-related activities.

Chainsaw Injury Statistics

There is a wealth of impactful information available about chainsaw accidents in the U.S. In 2012, according to OSHA, 243 workers died

while engaging in tree-trimming and clearing activities. The four leading causes of trimming and clearing fatalities are struck-by incidents in which workers are hit by falling trees, limbs or motorized equipment; caught-in incidents, which often involve workers becoming caught in wood chippers; falls from elevations such as trees, lifts or ladders; and electrocution due to contact with overhead power lines.

Following are a number of other relevant statistics:

- According to the U.S. Consumer Product Safety Commission, there were more than 28,500 chainsaw injuries in 1999. More than 36 percent were injuries to the legs and knees.
- Approximately 40 percent of all chainsaw accidents occur to the legs and well over 35 percent occur to the left hand and wrist.
- The average chainsaw injury requires 110 stitches, and in 1989 the average medical cost was \$5,600, according to the Davis-Garvin Insurance Agency, an insurance underwriter specializing in loggers insurance. In the year 2000, corresponding costs were estimated to be more than \$12,000.
- Chaps or chainsaw pants as well as keeping both hands on the saw would reduce chainsaw injuries by 75 percent or more.
- Medical costs for chainsaw injuries amount to at least \$350 million per year.
- Based on the assumption that four weeks of recovery are required, workers' compensation costs can be estimated to be at least \$125 million annually.
- Loss of production and loss of quality of life for the injured cannot be adequately quantified, but may represent the single largest cost of chainsaw injuries.

Overlooked and Underappreciated

Based on the inherent danger of working with chainsaws, and based on the preceding statistics, it's vital that employees exposed to chainsaw operations be given the proper education and skills training so that they know how to work skillfully, keeping themselves and their co-workers safe. Employees must also be knowledgeable about applicable industry regulations and able to comply with approved work methods. It is critical that management at all levels of any organization support safety and skills education and training.

Unfortunately, training and skills development are often overlooked and underappreciated. Why? It's partly because most workers can manage to start a chainsaw and cut something without incident. Today we have both electric- and battery-powered chainsaws that are easy to start. While it's great that such advanced technology exists, this technology makes it simpler for workers to operate chainsaws without appropriate education or training about the tool or cutting trees.

In addition to today's better chainsaws, there also exists better PPE, cutting techniques and training methods than in the past. Even with all of these improvements, however, data shows that more injuries and fatalities are occurring now during tree-related work activities than ever before. Clearly we can and must do more to protect our workers and to help them protect themselves. So how and where can we be proactive and how do we get started?



Two Primary Factors

To begin, it's important to understand how people make decisions and what kind of pressure operators may be under when using chainsaws.

There are two primary factors at work here. The first is that all of us come to our thinking and use of chainsaws with different educational backgrounds, different training and experiences with cutting tools, and a variety of stories, myths and mysteries that we've collected in the past and heard about from other people. When there is confusion, and when up-to-date knowledge, skill or experience is lacking, there will also be a lack of critical thinking, decision-making and operational behaviors, and the potential for injury will increase.

As an example, for at least several decades – and in particular since the introduction of the top-handle chainsaw – it has become common practice to hold tree limbs, branches and other parts of trees with one hand while operating the chainsaw with the other hand. It is true that the top-handle chainsaw does position both hands over the center of mass, making it possible to cut with one hand on the saw. However, while this behavior may seem acceptable, in reality it can and does cause workers to get hurt or killed.

The true reason chainsaw manufacturers have positioned both handles of the top-handle chainsaw over the center of mass is so users can position both of their hands over that center, providing more ergonomic handling when the operator must hold and work with the saw away from the body. This and the shorter profile are helpful for working in restricted spaces like trees and from aerial lifts.

The second of the two primary factors is that time and again, workers are put in a position to figure out a way of getting the job done on time, regardless of proper safety and skills training. How many times have you heard someone say, “I’ve done it before and it worked out fine” or “I’m not sure what went wrong”?

As a result of these factors – potential lack of accurate education and time constraints – chainsaw operators sometimes end up engaging in unsafe work practices and bad habits. Whenever and wherever cutting tools are used, one thing always holds true: If knowledge, skill and experience are lacking, critical thinking, decision-making and operational behaviors hang in a very risky balance. Paying the price and learning hard lessons about cutting tools can be more than just a real bummer. Cultural norms, lack of education and training, and old mindsets about acceptable risks are taking a heavy toll on the lives of far too many tree workers and their families.

Workers must be trained and routinely reminded that safe work methods, skill, and productivity are the keys to consistently achieving professional success in today’s utility and utility line clearance industries. Progressively and systematically keeping up-to-date with the best tools and cutting techniques – and properly and productively integrating them – are worthy objectives. Whatever the size of your company, the amount of your safety and training budget, and the needs of your employees, it’s worth the time and effort spent to determine how best to tackle these objectives, whether it’s in-house or through the use of a third party.



OSHA Requirements and Pre-Cutting Considerations

In the next installment of this series, we will take a close look at tree-felling and cutting methods. Before then, however, it’s important that everyone is on the same page with regard to what kind of training and PPE OSHA requires of chainsaw operators, and what operators need to keep in mind prior to starting a saw. Keep the following in mind, remember to cut safely and remind others to do the same.

Training

OSHA’s fact sheet about working safely with chainsaws ([osha.gov/OshDoc/data_Hurricane_Facts/chainsaws.pdf](https://www.osha.gov/OshDoc/data_Hurricane_Facts/chainsaws.pdf)) states that employers involved in tree trimming and removal must ensure that their employees are able to safely perform their assigned tasks. Training requirements include:

- Specific work procedures, practices and requirements of the work site, including the recognition, prevention, and control of general safety and health hazards.
- Education about applicable OSHA standards, including information about blood-borne pathogens, first aid and CPR, and minimum approach distances to live power lines.
- How to safely perform assigned work tasks, including the specific hazards associated with each task and the measures and work practices that will be used to control those hazards.
- How to safely use, operate, and maintain tools, machines and vehicles that the employee will be required to utilize in completing the assigned requirements.

PPE: Personal Protective Equipment

Working with chainsaws presents hazards, and PPE can help prevent or lessen the severity of injuries. As with all PPE, it must be inspected prior to each use to ensure it is in acceptable condition. When hazards make it necessary, OSHA mandates that the following PPE must be worn:

- Head protection
- Hearing protection
- Eye/face protection
- Leg protection
- Foot protection
- Hand protection

Before Starting a Chainsaw

Prior to beginning the task of cutting, a chainsaw operator must do the following:

- Check controls, chain tension, and all bolts and handles to ensure they are functioning properly and adjusted according to the manufacturer's instructions.
- Make sure the chain is sharp and the lubrication reservoir is full.
- Fuel a gasoline-powered saw at least 10 feet from any sources of ignition, and ensure that the fuel is a proper mix of gas and oil based on the manufacturer's specifications.
- Check the fuel container to ensure it is metal or plastic, does not exceed a 5-gallon capacity and is approved by a nationally recognized testing laboratory.
- Be sure that gasoline-, electric- and battery-powered chainsaws are equipped with a protective device that minimizes chainsaw kickback.

About the Author: *With more than 30 years of experience in the tree care industry, Ken Palmer is President of ArborMaster Training, Inc and is a well-known instructor, speaker, author, and developer of modern tools and techniques. A member of the ANSI Z133 Accredited Standards Committee and the Utility Arborist Association Safety Committee, and three-time International Tree Climbing Championship champion, Palmer has educated and trained thousands of tree workers throughout North America, Western Europe, Australia, New Zealand and Japan. If you'd like to learn more about ArborMaster Training, visit our website at www.ArborMaster.com*

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