



Figure 2. Ergonomically designed hand tool.

Tool handles are available with varying designs relative to diameter, attachment angles, coatings (anti-slip), contouring (finger grips), coverings (rubber cushioning), etc., that fit individuals better. Test tools before buying.

- Use wrist supports to keep wrist immobilized or in the neutral position.
- Don't push with the thumb, or if it is necessary, then keep it in its neutral position (the position it's in when hand is at rest) (Figure 3a, 3b, 3c). Wrap thumbs around handles to avoid positioning them lengthwise along handles.



Figure 3a. Flexed wrist position.



Figure 3b. Neutral wrist position



Figure 3c. Extended wrist position.

- Stop at the first sign of pain. See a physician if the pain is persistent.
- Decrease the rate of any repetitious task,

and take frequent rests from gripping tasks such as pruning.

- Grasp, don't pinch tools, pots, etc. (Figure 4).
- Use a drip irrigation system to alleviate the need to drag hoses and sprinklers around the yard, reducing the strain on joints.
- Request exercises from your doctor to build up shoulder, mid-back and other muscles that may weaken when activities concentrate on other muscles. Also do conditioning exercises that strengthen the hand and arm muscles.



Figure 4. Don't pinch pots.

Using these techniques, many of the activities of gardening that can cause or aggravate carpal tunnel syndrome can be avoided.

Prepared by Mary Predny from an article written by Bonnie Appleton for NMP magazine.

Project Director: Diane Relf

Reviewers: Dawn Alleman, Bonnie Appleton, Traci Gilland, Alan McDaniel

For more information on selection, planting, cultural practices, and environmental quality, contact your local Virginia Cooperative Extension Office. If you want to learn more about horticulture through training and volunteer work, ask your Extension agent about becoming an Extension Master Gardener. For bi-monthly gardening information, subscribe to *The Virginia Gardener Newsletter* by sending your name and address and a check for \$5.00 made out to "Treasurer, Va. Tech" to *The Virginia Gardener*, Department of Horticulture, Virginia Tech, Blacksburg, VA 124061-0349. Horticultural information is also now available on the Internet by connecting with Virginia Cooperative Extension at <http://www.ext.vt.edu>.

2001

Publication 426-060

Virginia Cooperative Extension programs and employment are open to all, regardless of race, color, religion, sex, age, veteran status, national origin, disability, or political affiliation. An equal opportunity/affirmative action employer. Issued in furtherance of Cooperative Extension work, Virginia Polytechnic Institute and State University, Virginia State University, and the U.S. Department of Agriculture cooperating. J. David Barrett, Director, Virginia Cooperative Extension, Virginia Tech, Blacksburg; Lorenza W. Lyons, Administrator, 1890 Extension Program, Virginia State, Petersburg.

Virginia  
Gardener

## Gardening and Your Health:



## Carpal Tunnel Syndrome

Virginia Cooperative Extension

Virginia  
Tech

VIRGINIA POLYTECHNIC INSTITUTE  
AND STATE UNIVERSITY



VIRGINIA STATE UNIVERSITY

**G**ardening with carpal tunnel syndrome (CTS) can be very difficult, especially when a long day of shoveling, raking, or weed pulling leaves you with a painful or “tingling” hand or wrist. These aches and pains are often caused in part by improper techniques or tools used in gardening.

Repetitive motion injuries such as CTS result from performing a task or motion repeatedly without giving the body time to rest, recuperate and repair from the activity. These injuries may also be increased by awkward positions or postures, vibration, and using hands to pound or push on things.

With carpal tunnel syndrome, repetitive wrist and/or finger movements out of the neutral position (the slightly upward bent position where the least amount of strain is put on the wrist) can lead to injury. The injury occurs in the carpal tunnel (the area composed of small bones and an encircling ligament at the base of the hand) (Figure 1). Flexor tendons (the tendons that generate finger movement) and/or the

Carpal Tunnel Syndrome

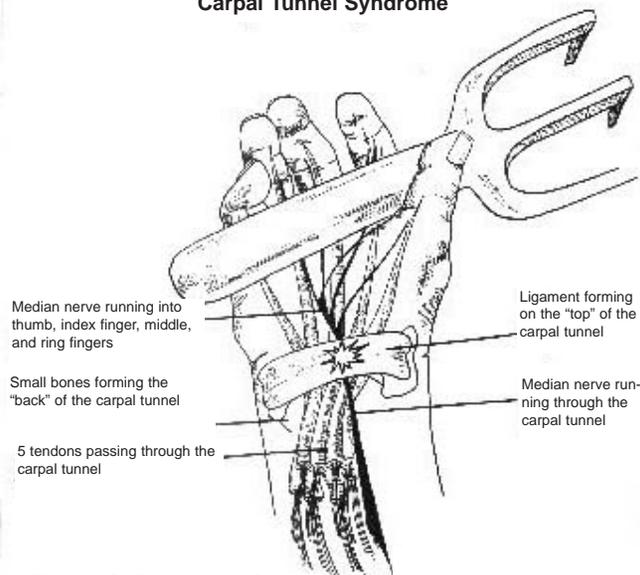


Figure 1. Diagram of wrist.

synovium (the lining of the carpal tunnel) become swollen and inflamed. These inflamed tendons then press against other body parts in the carpal tunnel, quite frequently against the median nerve.

The median nerve passes through the carpal tunnel, conducting impulses from the brain down the arm to the thumb, forefinger, middle finger and half of the ring finger. When pressed, numbness and tingling may occur. Blood flow through the carpal tunnel may also be reduced, often resulting in cold fingers.

## Symptoms of CTS

- *numb hands and fingers*
- *wrist and finger pain*
- *“pins & needles” sensation in fingers*
- *reduced grasping strength*
- *cold fingers*

## Gardening Activities associated with CTS

- *weed pulling*
- *planting*
- *hoeing*
- *raking*
- *transplanting*
- *pruning*

## Factors contributing to CTS while gardening

The factors that contribute to this condition include:

- *repeated wrist motions*
- *long periods of hand movements*
- *using poorly designed tools*
- *pounding or pushing with your hands*

Women are also more prone to develop CTS than are men. In addition, CTS can be further aggravated or negatively influenced by the following conditions:

- *age*
- *cool temperatures*
- *pregnancy*
- *rheumatoid arthritis*
- *diabetes*
- *vitamin B-6 deficiency*

## Preventing Pain from CTS while Gardening

It is possible to enjoy gardening without pain or risk of developing CTS by using the following simple techniques:

- *Vary activities, and motions or tasks within those activities frequently.*
- *Take frequent rests from repetitive motions.*
- *Use the correct posture for all tasks.*
- *Use ergonomically designed tools that conform to your hand. Do not force your hand to adapt to poorly fitting tools (Figure 2).*