THE UNIVERSITY OF ARIZONA
Arizona Center on Aging

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January 2023

ELDER CARE

A Resource for Interprofessional Providers

Canes

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Another edition of *Elder Care* discusses the use of walkers as an ambulation aid. This edition will discuss canes, which are used by one in ten older adults.

Canes are primarily used to improve balance and stability. Although standard canes can support up to 25% of patients weight, individuals whose ambulation requires major weight-bearing support generally need to use a walker or hemi-walker.

There is general recognition by caregivers and patients alike of the need for individuals to keep moving safely as they age. As a result, use of mobility devices has increased, and many older adults use more than one type of device. Canes are the top choice. Women are more likely than men to use a mobility device, and device use is also generally higher among African-Americans and Hispanics.

Canes are also used by individuals with low vision. Probing canes (Figure 1), also known as "white canes" or "long canes" are typically ultra-light made of fiberglass, with a red tip and provide sensory feedback. They are helpful to locate obstacles in the path of travel, not to provide support.

Figure 1. Probing Cane

Using a mobility device does not necessarily mean fewer falls, but among people who fall at home, most do not have an assistive device with them when they fall. Non-users who fall sustain more severe injuries.

The three main types of canes are standard canes, offset canes, and multiple-legged canes. Each has variations, plus advantages and disadvantages.

Standard Canes

Standard canes, also called single-point or single-axis canes (Figure 2), are usually made of wood or aluminum and are the most widely used type of cane. Their main purpose is to improve balance by widening a person's base of support. Standard canes are not appropriate for individuals needing assistance with bearing (i.e., who need to lean heavily on the cane because they can't bear weight on their legs).

Figure 2. Standard Cane

Aluminum canes typically have an adjustable length, so perfect fitting before purchase is not always critical. Aluminum canes are also available as a "folding" cane that can be collapsed for compact storage when traveling (Figure 3).

Figure 3. Folding Cane

In contrast to aluminum canes, wooden canes have a fixed length, and thus require proper fitting prior to use.

Offset Canes

Offset canes (Figure 4) are similar to standard canes except the shape positions the patient's weight over the axis of the cane. This allows the cane to be used for occasional weight bearing. Offset canes are often recommended for patients who have arthritis in the hip or knee and occasionally need to decrease the weight borne on a painful lower extremity.

Figure 4. Offset Cane

Multiple-Legged Canes

Multiple-legged canes typically have three or four short legs attached to a base at the lower end of the cane's shaft. Depending on the number of legs, they are referred to as quadripod or "quad" canes, or tripod or "tri" canes (Figure 5).

Because they have multiple legs, these canes provide more support than standard or offset canes and are capable of bearing more of a patient's weight. Additionally, quad canes have a narrow-base or a wide-base, providing increased support. They can be used to unload weight by patients who have an antalgic gait due to osteoarthritis, or to improve balance by patients with hemiplegia or other neurological conditions.

TIPS FOR RECOMMENDING CANES

- Recommend standard canes when there is need for assistance with balance, but not weight bearing.
- Recommend an offset cane for patients who require occasional limited weight bearing support.
- Recommend a multiple-legged cane for patients who require more substantial weight bearing support.
- Proper fit: when arm dangling at side cane should reach wrist crease; when holding cane handle, elbow flexed ~20°
- If used for weight bearing purposes, cane should be used on the opposite side of the injured lower extremity; if used for balancing purposes, patients usually will use the cane on their dominant side
- Be sure the patient receives proper instructions on how to use the cane.

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Figure 5. Multiple–Legged Cane

In addition to weight bearing, another advantage of a quad cane is that it stands upright by itself when not in use. This frees patients' hands to do other things until they need to resume walking, and the cane can be retrieved without needing to bend down. There is also a modified quad cane known as a "sit-to-stand cane" which combines the stability of a multi-legged base with a bent handle that can be gripped at two levels (Figure 6). This allows patients to put weight on the cane via the lower part of the handle when rising from a sitting position.

Despite these advantages, quad and tri canes are sometimes challenging to use. The principal challenge arises from the fact that, for proper use, all the legs should strike the ground simultaneously, particularly if the device is to be used for weight bearing, making the gait slow.

Figure 6. Sit-To-Stand Cane

The solution to this challenge in some cases is to change from a wide based quad cane to a narrow based quad cane or even a tri cane. The faster an individual walks, the fewer legs are needed and the closer together the legs can be, though the trade-off is some loss of stability during weight bearing phase.

Fitting and Using a Cane

Two key considerations in fitting a cane are elbow flexion and cane length. The elbow should be flexed at about 20 degrees when cane's tip is positioned on the floor, about 6 inches from the lateral edge of the toes. A proper cane length is the distance from the floor to the crease of the wrist when the patient's arm is dangling loosely at the patient's side. This rule applies to any type of cane. Additionally, quad canes need to be adjusted for right-hand or left-hand use, by turning the axis 180 degrees.

Handles and Grips

Figure 7. Padded Horizontal Palm Grip

A variety of handle styles and grips are available, and patients with certain hand and wrist problems may find some more comfortable than others. For example, carpal tunnel syndrome has been reported with the umbrella-style handle often used on standard canes, while foam-padded horizontal palm grips (Figure 7) are less likely to cause this problem. Patients who need wrist support or who have a need to decrease stress on the wrist may benefit from an ergonomic handle (Figure 8). These handles are also available for right-hand or left-hand use.

Figure 8. Ergonomic Handle

When walking with a cane, it is generally held by the arm on the same side as the patient's stronger leg. Advance the cane simultaneously with the opposite (affected) leg. If the patient's gait is affected bilaterally, then the cane is usually held in the dominant or unaffected upper extremity.

Canes should be fitted with non-skid rubber tips. These tips should be checked frequently and replaced when worn out. For walking, the unaffected lower limb should assume the first full weight-bearing step on level surfaces and going up a step. The affected limb should descend a step first, balanced in line with the cane.

Final Comment

Many patients who use a cane obtain it on their own without professional guidance about the appropriate type, sizing/fitting, and how to use it. Patients will benefit when clinicians emphasize the importance of cane use for injury prevention and offer patient education and appropriate referrals to promote personal relevance, proper fitting, and gait sequence training. Maintenance of canes is also important. In particular, clinicians should check the tips and height-adjustment screws, as patients should not be putting their weight on an unsteady cane.

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Supported by: Donald W. Reynolds Foundation, Arizona Geriatrics Workforce Enhancement Program and the University of Arizona Center on Aging

This project was supported by the Health Resources and Services Administration (HRSA) of the U.S. Department of Health and Human Services (HHS) under grant number U1QHP28721, Arizona Geriatrics Workforce Enhancement Program. This information or content and conclusions are those of the author and should not be construed as the official position or policy of, nor should any endorsements be inferred by HRSA, HHS or the U.S. Government.