

# The Importance of Gait Training

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It is the goal of most every lower-limb amputee to walk “normally” again. In the context of this article, “normal” is defined as a symmetrical gait pattern that falls within the “average” range in terms of posture, step length, rate of speed, limb positioning, etc. But being a lower-limb amputee presents many different challenges when it comes to ambulating safely and without exerting excessive energy. Generally, the higher the amputation level, the more we can expect to see gait deviations, or what some would call limps. This is because with each segment of the anatomy that is lost to amputation, more muscle, sensory receptors and leverage are also lost. As a result,

the person with a higher amputation level typically has a less stable and less energy-efficient gait pattern compared to a person with a lower amputation level.

Almost all lower-limb amputees will benefit from gait training at some point in their recovery to help normalize the gait pattern. It is widely accepted that recent amputees have the most to gain because using a prosthesis is such a new challenge. Aside from pre-amputation exercises done under the supervision of a physical therapist, the initial training is provided by the prosthetist as part of the care during the fitting of the prosthesis. This care includes aligning the prosthesis to ensure that the components or parts of the prosthesis are positioned in such

a way as to optimize the gait pattern. At the same time, initial gait instructions are also provided by the prosthetist so that the person wearing the prosthesis is able to stand and walk with enough stability to ensure safety. This process usually starts in the parallel bars, often using a gait belt just in case the new amputee loses his or her balance. At this stage, it is best to involve a physical therapist for regular gait training sessions. Once it is determined that stability is consistent, the parallel bars can be traded in for a





walker or crutches. Eventually, many prosthetic wearers will progress to a single cane or even no assistive device at all! It should be noted that using some type of assistive device is not a sign of disability; instead, its use indicates that the person can be more functional with the extra stability it provides.

Even amputees who have worn a prosthesis for years can benefit from gait training. This could be in the form of occasional visits to the therapist for a “tune-up” or it could be to learn a new skill such as walking step-over-step up stairs, walking on uneven terrain, or even running. It is important that the prosthetist and therapist remain in close communication when gait training is occurring since any changes to the prosthesis will affect the gait pattern, and vice versa. This becomes critical when considering the sophistication of today’s prosthetic components and their need to



be adjusted more carefully. Also, quicker gains can be made if the amputee has at least a basic understanding of how the prosthesis and its components work.

Gait training provided by an experienced physical therapist is available in a variety of settings. For the new amputee, training with the recently fitted prosthesis will probably occur in a rehab hospital or skilled nursing facility (SNF). Here, the basics will be covered, including such things as side-to-side weight shifting, marching in place, balancing on one leg, and side-stepping. These techniques are usually performed with the parallel bars, often with the use of a full-length mirror so that posture and foot position can be observed. Sometimes, the training will take place in the amputee’s home by a visiting physical therapist. Although there is no access to parallel bars and other equipment, some view the opportunity to learn in a familiar environment with real obstacles as a worthwhile tradeoff. Another option is to travel to an outpatient physical therapy clinic to receive gait training in a more progressive setting. Here, the focus is usually on more advanced tasks such as walking without an assistive device, climbing stairs, traversing inclines, and walking at varying speeds. Some amputees will eventually master uneven terrain, walk



while carrying bulky items, or even learn to run. An exercise program will also be prescribed to increase strength and range of motion. This will improve the chances of reaching the functional goals.

Many different techniques can be incorporated into the gait training sessions, but two seem to stand out. The first involves the teaching of “splinter skills,” where the gait pattern is broken down into a sequence of events that are practiced individually before putting them all together to build the gait pattern. The second technique is more of a “whole walking” approach so that the gait pattern is practiced all at once with little concentration on the individual events, instead relying on the body’s natural tendency to find the most stable and energy-efficient way to walk. The physical therapist and prosthetist may try either or both of these strategies to get the best outcome.

Communication and teamwork between prosthetists and physical therapists go a long way in helping amputees reach their goals with a prosthesis. A person’s ability to ambulate with a prosthesis partially depends on confidence, and that can be developed with practice. Unfortunately, insurance coverage sometimes tends to limit treatment options, but it is important that a person is willing to advocate for the best care – then make the most out of the opportunity by working hard and working smart.

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