

Gait Training

The importance of good gait training can not be overstated. Some new amputees believe that learning to walk with their prosthesis will be easy and there will be no need to see a physical therapist for strengthening and gait training. While no one should challenge a person's positive attitude towards their abilities, some new amputees should understand that it may not be as easy as they think. In reality, most new amputees require months of practice with their prosthesis. Oftentimes, repetitive gait training and precise refinements are necessary before a person's gait is smooth, stable and most importantly safe. Also, it typically takes 3-9 months for a patient to regain the strength and flexibility in their leg. You, your therapist and your prosthetist will work as a team to make your rehabilitation as quick and successful as possible.



Techniques to Walking

There are a few very important and simple techniques you should know before you can safely and naturally walk with a prosthesis. It is very important that you take the time to learn these basic fundamentals so that you develop good gait habits.

- Beginning a step: each time you stand to walk you want to always begin by taking a step with your prosthesis first.
- Descending stairs: lead with your prosthesis. In other words place your prosthesis on the step below first, followed by your sound leg.
- Ascending stairs: is different, you lead with your sound (good) leg.

Proper Weight Transfer

Another technique that is very important for you to learn is the proper transfer of your body-weight on to the prosthesis. When you put your full body weight on the prosthesis you'll need to confidently shift your body towards your prosthesis; this is called weight transfer. I emphasize confidence because for some new amputees it is difficult for them to shift their full weight onto a prosthesis; they don't feel secure with their prosthesis just yet. Proper transfer of your body weight is important for good walking. The comfort of the prosthesis should never prevent you from putting full weight onto the prosthesis. If you have pain or discomfort that prevents you from fully using your prosthesis you should contact your prosthetist immediately.

Proper Foot Placement

Another fundamental technique is proper foot placement. There are two considerations when initiating foot placement:

1. Width of your foot placement (how far apart your feet are) – The ideal distance (measured heel to heel) is 2-4 inches. As you begin to walk, consider these two conditions:
 - Placing your prosthetic foot wider than 2-4 inches will make your gait more stable, which is sometimes good, but it will increase the energy required to walk.

- On the other hand, narrow foot placement, less than 2-4 inches, will make your gait less stable but will decrease the energy required to walk.
2. Length of your step (how far you place your front out in front of you) – This is called step length. Ideal step length is a distance equal to your other side. Basically you want your step lengths to be equal. If you think about it, it wouldn't look very natural if you took a long step with one leg and a short step with your other leg.
- Starting out we recommend taking "heel to toe" steps. Place the heel of your prosthetic foot no farther than the toe of your good leg; do the same with your next step. As your confidence builds you will automatically begin to increase your step length. Step length also increases as your walking speed increases. The faster you walk the greater your step length.

Troubleshooting

Advancements in technology have brought a lot of exciting materials to the prosthetic industry. Materials such as acrylic resins, carbon fiber, titanium, silicone and urethane have made prostheses stronger, lighter and more comfortable. Even though callous formation is no longer a common occurrence, fitting problems still occur. While some of your socket fitting problems will require a visit by your Prosthetist, you should first try to fix problems yourself. Table 1: Troubleshooting Tips lists common socket-fitting problems along with some possible solutions. If these suggestions don't help your problem, call your Prosthetist.

Table 1: Troubleshooting Tips	
Problem	Solution(s)
Pressure on the bottom, front-end of your bone? (Anterior distal end of your limb)	<ul style="list-style-type: none"> • Try Adding a one or two ply sock. • Did you recently change shoes • Try one with a lower heel
Pressure on the bottom of your knee cap?	<ul style="list-style-type: none"> • Try Adding a one or two ply sock. • Did you recently change shoes • Try one with a higher heel
Feel like you're walking down a hill?	<ul style="list-style-type: none"> • Did you recently change shoes? • Try one with a lower heel.
Pain on the bottom-back of your calf?	<ul style="list-style-type: none"> • Try adding a one or two ply of sock.
Feel like you're walking up a hill?	<ul style="list-style-type: none"> • Did you recently change shoes? • Try one with a higher heel.
Pressure on the sides of the knee?	<ul style="list-style-type: none"> • Try removing one or two ply of sock. You may need to have a pad added to the inside of the socket.

Remember, the most common remedy to most socket-fitting problems is adding or removing socks. Prosthetic socks plays an important role in keeping your residual limb comfortably seated within the prosthesis. If your prosthesis is uncomfortable, four out of five times it is because you are not wearing the proper amount of prosthetic socks. Vary your sock ply until the prosthesis feels better. If this does not fix the problem, contact your Prosthetist.

Cautions

- It is very important that you avoid quick fix remedies to your socket-fitting problems. Trimming your liner or putting tissue in the bottom of your socket is not recommended. These home remedies may cause harm to your residual limb.
- Do not cut, grind or structurally modify your prosthesis in any way. Direct modification to the socket will void warranties unless they are done by a qualified Prosthetist.
- Never attempt to make alignment changes to your prosthesis by adjusting the allen screws on the ends of the pylon. If done improperly, it can result in not only an unstable walking alignment but possible component failure as well.
- If you experience any socket fitting problems that cannot be fixed by the suggestions listed above please contact your prosthetist immediately. Sometimes, simply discussing a problem with your prosthetist can result in a quick resolution.