

# AMPUTATION

## LEADING CAUSES OF AMPUTATION

Amputations result from both medical and surgical causes. Peripheral artery disease (PAD) alone, or in combination with diabetes, contributes to more than half of all amputations; trauma being the second leading cause. The more you understand about the diseases and conditions that could result in amputation, the better equipped you are to notice the warning signs and symptoms. Fortunately, patients can lower their amputation risk by taking preventative steps.

## WHAT ARE THE RISK FACTORS?

As you age, your risk for developing PAD increases. Several risk factors that may predispose you to develop peripheral artery disease include:

- Tobacco use
- Poorly controlled diabetes
- High blood pressure
- High cholesterol/High triglycerides
- Obesity
- Family history
- Physical inactivity
- History of heart attack or stroke
- Certain genetic conditions

Primary prevention focuses on patient education of disease management and lifestyle changes. These changes encourage a healthy diet, exercise, and smoking cessation which are all critical to ensuring adequate blood flow to the extremities. Setting realistic and practical goals to support healthy lifestyle changes is an essential step in reducing your risk of PAD, diabetes and developing complications. For those with early signs of disease, treatment of high blood sugar, high blood pressure, and high cholesterol also help prevent complications.

## WHAT ARE THE SYMPTOMS?

Initially, you may not experience any symptoms from peripheral artery disease. If you become *symptomatic*, you may experience intermittent claudication, rest pain and/or ulceration(s).

**Intermittent claudication** is characterized by muscle cramping, fatigue and discomfort that occurs after walking short distances. This pain can occur within your calves, thighs or buttocks. Pain from claudication resolves when you stop walking. This condition is usually treatable with early diagnosis. The risk of amputation is very **low** at this stage.

**Rest pain** occurs when your legs do not receive enough oxygen at rest. You may experience pain in your leg, foot, toes, or heel. Rest pain usually worsens when the legs are elevated and may be relieved by lowering the legs. The risk of amputation is **high** at this stage

**Ulcerations** are painful sores on your lower extremities like your legs and feet that may develop as your PAD progresses. They may eventually turn into gangrene (dead tissue caused by an infection or lack of blood flow). Open wounds or ulcers can be evidence of advanced PAD and needs immediate medical attention. This can lead to infection and/or possible amputation (limb loss) if left untreated; and the risk of amputation is **very high**

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A surgical amputation is the removal of a limb or part of a limb that is no longer viable and is a danger to your health. The level of amputation depends on the extent of vascular disease, infection, and/or tissue damage that exists.

Amputation is considered the last resort when the extremity cannot be saved or cannot be treated surgically in other ways. Your surgeon will attempt to save healthy nerves, blood vessels, muscle and skin and may decide to leave your incision site open after removing the dead tissue. This is done to make sure that all the tissue is clean and free of infection before stitching the area closed. Once your surgeon determines that the area is clean, the skin flaps are sewn or stapled closed in the operating room at a later time; or a special dressing called a “wound vacuum” is used. Depending on your individual situation, you may be required to stay in the hospital for 3 to 7 days after the surgery.

As with any surgery, having an amputation carries a risk of complications. Surgeons will aim to reconstruct the limb to the best of their ability; considering soft tissue viability, bone length, and other anatomical considerations. However underlying disease states (such as diabetes, high blood pressure, heart disease, kidney disease, and infection) will increase your risk for complications following surgery. The most common of which are:

- Edema
- Surgical site infections and wounds
- Bleeding
- Joint deformity or instability
- Muscle weakness and contractures (the permanent shortening of a muscle or joint)
- High level of amputation

*\*\*If the amputation site does not heal appropriately, you may need additional surgery.*

## POSTOPERATIVE CARE

After your surgery, it is important to continue working with your surgeon and other healthcare professionals as a team. Make sure that you are included in decisions about your care. Ask a family member or friend to be present and to be your advocate. An advocate assists with and looks out for your patient rights. While you are in the hospital after surgery, your vascular surgery team will ensure that every step is taken to help prevent infection.

## PAIN CONTROL

Pain relief is an important part of your care. Regardless of the indication for surgery, pain management after amputation is challenging, involving a combination of both nociceptive pain and neuropathic pain.

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**Nociceptive Pain:** Nociceptive pain also called “stump” pain is caused by bone and soft tissue injury, it can feel dull, aching, or throbbing, and usually resolves after a few weeks as the wound heals.

**Neuropathic Pain:** Neuropathic pain otherwise referred to as “phantom limb” pain is caused by direct trauma to the nerves that were cut during the amputation. This pain can be described as sharp, burning, tingling, shooting, or “electrical-like.” This can occur immediately after surgery in most cases but may sometimes be delayed by days or even weeks. These sensations have a variable duration lasting from weeks to years.

Effective treatment of pain will allow you to recover sooner. After your anesthesia wears off, tell your nurse as soon as you feel pain or discomfort. It is important to ask for pain medication as soon as the pain begins. To help better understand the degree of pain, you will be asked to rate your pain on a scale of 0 to 10, with 0 indicating that you have no pain and 10 indicating you are in extreme pain. If you experience pain while getting out of bed or walking, request pain medications before you perform these activities. It is important to have proper pain management so you can participate in therapy. Effective treatment of pain will encourage a fast recovery.

## SKIN CARE

After surgery, your doctor will apply an elastic compression wrap dressing to reduce the amount of swelling that may occur. It may take up to a few months for the swelling to subside. The portion of your limb remaining after an amputation is commonly referred to as your “residual limb.” Your residual limb should be elevated for the first 24 to 48 hours after surgery. The limb should not be elevated on pillows after 48 hours unless specified by your surgeon. An immobilizer (a device such as a cast, splint or strap) may be placed to keep the limb straight to prevent your knee and hip from shortening (contracting). Avoid long periods of time in any one position, especially in a wheelchair. This will decrease the chances of joint stiffness, swelling or pressure sores.

Your doctor will change your first dressing. Under the dressing will be sutures or staples that will be removed by your surgeon 3 to 6 weeks after you are discharged from the hospital. Home care instructions will be given to you prior to discharge on how to manage your surgical incision.

## PREVENTING INFECTIONS

Please ask family members and friends who are sick, have colds or feel ill, not to visit while you are in the hospital. The most important thing to do to prevent infections is **hand washing**. Please make sure that all doctors, nurses, and visitors wash their hands immediately after entering and before leaving your room.

## PREVENTING BLOOD CLOTS

If you are having surgery or will be hospitalized for a period of time, it is important to ensure proper prevention and treatment for blood clots. You will be given medications that will thin your blood to prevent clotting while you are immobilized after surgery. If you are not a candidate for blood thinners, we will take all precautionary measures to help prevent clots. It is important to

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get out of bed once your surgeon feels it is medically safe. Please ask the nursing staff for assistance when getting out of bed.

## PREVENTING PNEUMONIA

During hospitalization, you will be given a hand-held device called an incentive spirometer. This device will expand your lungs by helping you breathe more deeply and fully. This will assist in lowering your risk of getting a lung infection or pneumonia as you heal from surgery. A member of your healthcare team will instruct you on how to use the device. It is important that you use this device at least 10 times per hour while in the hospital and continue to use it after discharge until you have fully recovered.

## PHYSICAL THERAPY

A physical therapist will work with you on gentle stretching and exercises to build up muscle and strength when your surgeon feels it is medically safe to get out of bed. In addition, the physical therapist will teach you how to transfer from bed to wheelchair.

Therapy may be offered to you either as an inpatient or outpatient depending on your needs after discharge from the hospital. A social worker and our physical therapy department can help you decide what will be best for you. After your amputation you will feel worn out (fatigued) at times. It is recommended that you look at your daily routines to find ways to reduce the amount of effort it takes to perform certain tasks. Plan ahead, space your activities out throughout the day, sit in a chair with back support and avoid excessive bending, reaching, or stretching.

## WHAT TO DO AT HOME

### WOUND CARE

After you are discharged from the hospital, it is important to keep your surgical incision clean and dry. This will help your wounds heal faster and will help prevent infection.

It is suggested that you take a shower and wash your residual limb with a clean washcloth, water and soap every day. Pat dry gently with a clean towel. Avoid applying lotions, oils and shaving to the affected limb because it can irritate and cause an infection. Be very careful not to attempt to “stand” on the missing part of your leg (especially in the middle of the night or just waking up in the morning). It is very important to take good care of your remaining limb and protect it from injury. Look every day for signs of infection, circulatory issues such as numbness, cool to the touch and discoloration or pain.

### SIGNS AND SYMPTOMS OF INFECTION

You may experience pain and discomfort the first few days after surgery. The wound may be slightly red or swollen. A small amount of blood or clear fluid may drain from your wound. This is normal and should decrease each day.

#### **Call your surgeon if you experience the following:**

- Fever over 101° F, chest pain, shortness of breath, nausea, or vomiting

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- A sudden change in color, temperature, or sensation of any limb
- Increased pain over the incision site
- Increased cloudy and/or thick colored drainage from the wound
- The wound opens or becomes hot, red, or very tender
- Unusual weakness or faintness

## THE RESIDUAL LIMB SHRINKER AND PROSTHETIC FITTING

The location of your amputation, medical condition and age will determine whether you are a candidate for a prosthesis (an artificial device that replaces a missing body part). If your surgeon determines you are a candidate for a prosthesis, a specialized prosthetic technician will fit you for a residual limb shrinker, which is a knit stocking that helps your limb heal. This special knit stocking should be worn continuously and should only be removed 2 to 3 times a day for 15 minutes. The shrinker ensures that your residual limb is right for your prosthesis. Sizing adjustments may be required depending on the degree of swelling after the initial procedure.

The shrinker should be washed daily only by hand with mild soap and warm water. Avoid stretching, twisting, or wringing the shrinker; this will cause it to lose its shape. You can lay it flat to dry it out after washing it. Direct sunlight or heat will also cause harm and stretch it out.

After a certain period of using the shrinker (usually 2-4 weeks). The prosthetics specialist will work with you to create an individualized prosthesis. Thereafter, you will continue to work with physical therapy for walking (or gait) training with the prosthesis.

## PAIN MEDICATION AT HOME

When you leave the hospital, you may be given a prescription for pain medication to take at home. You should take this medication as prescribed. Pain medication may make you constipated, so it is important to drink at least 8 to 10 glasses of water daily. You may also need an over-the-counter stool softener.

## OUTPATIENT FOLLOW-UP APPOINTMENT

You will need to schedule an appointment to see your surgeon 1-2 weeks after your surgical procedure. Your follow-up appointment will be at one of our Stony Brook Vascular Center outpatient clinics.

## COMMUNITY SERVICES

While you are in the hospital, your care management team will help you arrange for the equipment you will need at home. There are several local places that specialize in prosthetic fitting. Speak with your surgeon about local vendors that can help you with this process.

Amputation will bring on different emotions over time. You and your family may experience a broad range of feelings from anger, fear, sadness, and anxiety to a feeling of powerlessness and resentment. These emotions are understandable. Please take the time to examine what you have been through. If you would like to receive more information or participate in a support group, here are some helpful resources:

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**National Amputation Foundation**

40 Church Street  
Malverne, NY 11565  
(516) 887-3600  
*[nationalamputation.org](http://nationalamputation.org)*

**Amputee Coalition of America**

9303 Center Street, Suite 100  
Manassas, VA 20110  
(888) 267-5669  
*[amputee-coalition.org](http://amputee-coalition.org)*

