

## Lower Limb Prosthetics

**Condition:** A prosthesis is an artificial substitute for a missing body part that is used to restore the function of that body part or for cosmetic purposes. Prosthetic lower limbs are those that are used in the thighs, knees, legs, ankles and feet (including the toes).

**Background:** The worldwide incidence of lower extremity amputation is high, and the amount of lower limb amputations that occur each year varies by country. In 2005, 1.6 million persons in the US were living with the loss of a limb, by 2050, the rate is expected to double to 3.6 million. Many of them use one or more lower limb prostheses.

**Risk Factors:** Absence of a lower limb due to vascular conditions (resulting in poor blood flow to the legs), diabetes, wounds/infections, trauma, cancer, and being born without lower limbs.

**History and Symptoms:** When determining the best lower limb prosthesis, a physical medicine and rehabilitation (PM&R) physician considers the patient's personal situation, such as their employment, level of independence, potential for walking, and whether or not they hope to take part in sports.

**Physical Exam:** Before prescribing a lower limb prosthesis, physicians (usually PM&R physicians) assess many factors, such as how well the existing limb(s) function; the condition of the residual limb(s), the stability of the joints, as well as the patient's weight and mental capacity. PM&R physicians are uniquely suited to evaluate the function of residual limbs, stability of joints, deformities, and evaluate the overall function of the lower limb prostheses.

**Diagnostic Process:** After the residual limb heals and conforms to a healthy shape that is best for the prosthesis, the prescription for the prosthesis is written and the prosthesis is fitted and used. There have been many advances in the types of prostheses that are available to patients with a lower extremity amputation. There are prostheses that can not only be customized in looks and design but also have functional features such as electronically powered knee and ankle joints. On the cutting-edge front there are a few bionic prostheses being developed where the user can control these lower limbs with the power of their mind.

**Rehab Management:** It takes patients with amputations time to adjust to lower limb prosthetic use. Typically, 6 to 12 months are spent with a rehabilitation team, relearning how to walk, balance, and use the prosthesis in their daily activities. Some of this time is spent as an inpatient in acute rehabilitation and some spent as an outpatient. If the prosthesis is uncomfortable, PM&R physicians and their teams can often adjust them. These teams often include prosthetists, physical therapists, occupational therapists, nurses, and social workers. The patient and their family members also become valuable parts of this team with the common goal to make the patient with the absence of a lower limb functional again and get back to doing what they love.

**Other Resources for Patients and Families:** Strong support from family and caregivers is important for patients with the absence of a lower limb. Groups such as the Amputee Coalition's [Peer Support](#)

[Program](#), can help. For patients with amputations there are also great resources from the [National limb loss center](#) and their [State Resource Map](#).

## Frequently Asked Questions

### **What is PM&R?**

Physical medicine and rehabilitation (PM&R), also known as physiatry, is a primary medical specialty that aims to enhance and restore functional ability and improve quality of life to those with injuries, physical impairments or disabilities affecting the brain, spinal cord, nerves, bones, joints, ligaments, muscles and tendons. PM&R physicians, known as physiatrists, evaluate and treat the whole body, maximize patients' independence in their daily life and are experts in designing comprehensive, patient-centered treatment plans to empower patients to achieve their goals. By taking the whole body into account, they can accurately pin-point problems, decrease pain, assist in recovery from devastating injuries and maximize overall outcomes and performance with non-surgical and peri-surgical options. To learn more, visit [www.aapmr.org/aboutpmr](http://www.aapmr.org/aboutpmr).

### **What makes PM&R physicians unique?**

PM&R physicians' training focuses not just on treating medical conditions, but on enhancing the patient's performance and quality of life in the context of those medical conditions. They focus not only on one part of the body, but instead on the development of a comprehensive program for putting the pieces of a person's life back together – medically, socially, emotionally and vocationally – after injury or disease. PM&R physicians make and manage medical diagnoses, design a treatment plan and prescribe the therapies that physical therapists or other allied therapists perform or that are carried out by the patients themselves. By providing an appropriate treatment plan, PM&R physicians help patients stay as active as possible at any age. Their broad medical expertise allows them to treat disabling conditions throughout a person's lifetime.

### **Why see a PM&R physician?**

A PM&R physician will thoroughly assess your condition, needs, and expectations and rule out any serious medical illnesses to develop a treatment plan. By understanding your condition and goals, you and your PM&R physician can develop a treatment plan suited to your unique needs.

### **How do I find a PM&R physician near me?**

Visit [www.aapmr.org/findapmrphysician](http://www.aapmr.org/findapmrphysician) or contact your primary care physician for a referral.