

What Are the Different Types of Prosthetics?

Prosthetics

By

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There are different types of prosthesis designed to function — and sometimes look like natural arms, legs, hands, and feet. Today's Prosthesis options are lightweight, more comfortable, and technologically advanced, offering a wide range of motion.

To realize how empowering these devices are, one needs only think of Paralympian athletes and their incredible feats. So, what is the most common type of prosthetic? Mainly arms and legs. In this blog, [our team at PrimeCare](#) explain the diverse styles and their capabilities.

What Is a Prosthesis?



The National Library of Medicine describes a prosthesis as “a device designed to replace a missing body part or to make a part of the bodywork better. Missing limbs and joints are commonly replaced by prosthetic devices.”

There are many types of prosthetic devices to help people regain mobility. They fall into four main categories; transradial, transthumeral, transtibial, and transfemoral. Each serves a different function depending on what body part is missing.

Prosthesis vs. Prosthetic

While they sound similar, these two terms are not the same. [Prosthetics](#) refers to the field of research and expertise in designing and building artificial limbs. It can also be used as an adjective, for example, prosthetic limbs.

On the other hand, a prosthesis refers to an artificial device built to replace a missing body part. The plural of a prosthesis is prostheses. These devices are worn by people who have lost limbs or those born with congenital limb differences.

Lastly, a prosthetist is a specialist whose profession entails developing prostheses and helping patients who need artificial devices.

How Do Prosthetics Work?

Today's prosthetic types offer amputees a wide variety of choices when it comes to function and purpose. Upper extremity amputees may choose to use a passive prosthetic, which has a little function apart from providing a natural appearance. Then there are three differently powered types of prosthesis.

- **Body powered:** This is where the body controls the prosthetic. For instance, a cable may move from one shoulder to the prosthetic hand, so the prosthetic activates as you move your shoulder.
- **Motor powered:** These prosthetics have buttons to control movement. A prosthetic hand, for example, may have a specific button to articulate wrists and fingers for gripping objects.
- **Myoelectric Powered:** This new technology allows for the powering of prosthetic limbs by electrical signals sent via electrodes placed on the skin.

Artificial limbs attach to the amputee's residual limb (stump) by belts, cuffs, or suction. Either the residual limb fits directly into a socket on the prosthetic, or a liner is used that's fixed to the socket by vacuum or a pin lock.

Your Prosthetic Partner

Elevate your life with our personalized prosthetic solutions.

Benefits of Prosthetics

For many people, the current prosthesis options improve quality of life by providing mobility needed to manage daily activities. Lower extremity prosthetics allow people to walk, run, and play sports. With increased movement, people gain greater independence and confidence and live fuller lives without feeling socially anxious or burdened by physical challenges.

Selection Factor for Prosthetics

The selection of prosthetic types for patients depends on:

- Life aspirations
- The amputated body part
- The location of the body part
- The extent of the surgery
- The condition of the residual body part

A prosthetist can create an artificial arm or leg for almost any purpose, from recreational activities to household chores, which is why it's important to discuss your activities and goals with them.

Types of Prosthetics and Prosthesis

Different types of prosthetic components available today are lighter, stronger, and easier to control than previous versions. Fitting a prosthetic correctly is crucial as it affects mobility and comfort. A prosthetist should always discuss the type of prosthetic you need and the best attachment method.

Arm Amputation and Prosthetics

Upper extremity prostheses differ in function and control mechanisms. An amputee may either have an active or passive arm, depending on their needs. Similarly, they also have the choice to use their own body power to control the arm or external power sources.

Transradial

This type of prosthesis is an artificial arm that attaches below the elbow. A passive prosthesis serves an artificial purpose, while active ones possess movement ability. A body-powered prosthesis connects to the body by a series of cables that move when the body does. Advanced prosthesis (myoelectric) uses electrodes to send a signal to the artificial limb, causing it to move in the same way as a real hand.

Transhumeral



Transhumeral prosthesis provides the functionality of the majority of the arm by replacing an arm missing above the elbow. Like transradial prostheses, they are available in passive, body-powered, external-powered, and hybrid options. Many patients opt for the hybrid type because it provides motion and grip. The most common attachment system for transhumeral prostheses is a suction or roll-on linear system.

Silicone Arms, Hands & Fingers

Silicone arms, hands, and fingers have a highly natural appearance because their color can be matched to any skin tone. The soft material is molded to be thin at the edges for a natural transition to the skin.

Most silicone prosthetics are suspended by means of a suction created between the prosthesis and residual finger stump. As the prosthesis is pushed onto the residual stump, the air is expelled between the silicon and the skin, which provides a secure and reliable suspension.

When it comes to finger prosthetics, it is possible to have a metal implant (osseointegrated implant) that extends from the end of the amputated finger and matches the length of the original finger. This improves function and cosmetic appearance because it is internally supported by a skeletal attachment.

Leg Amputation and Prosthetics

The type of prosthetic legs recommended to lower extremity patients depends on whether they need above or below the knee devices. Each type requires a unique approach to regaining optimum function after amputation.

Transtibial

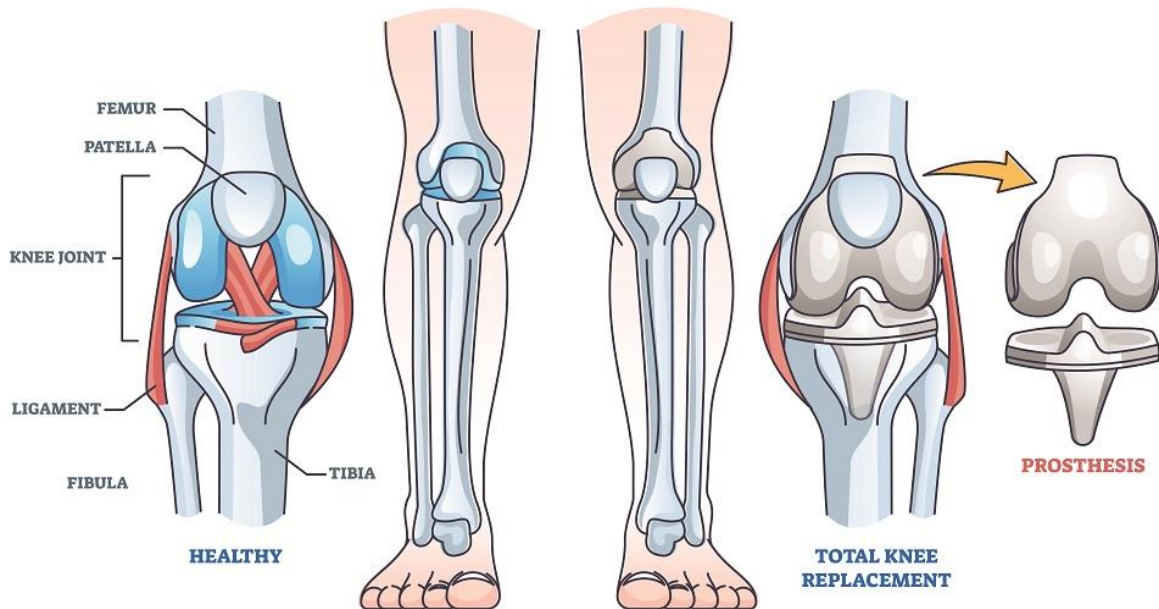
This leg prosthetic type replaces the limb below the knee, which allows patients to retain the use of their knee. The prosthetic socket is the main connection between the residual limb and the prosthesis, which distributes the weight of the residual limb. Patients require rehabilitation to achieve optimal mobility because the “feet” on transtibial prostheses don’t usually move.

Transfemoral

The need to include a knee joint mechanism for upper leg prosthesis makes transfemoral prostheses more complex because they are critical to an amputee’s quality of life. These prostheses play a determining role in a person’s ability to sit, stand, balance, and move around. This type of prosthesis allows for seemingly normal movement after a lengthy rehabilitation process.

Types of Prosthetic Legs

TOTAL KNEE REPLACEMENT



Each amputee requires a different type of prosthetic limb designed to accommodate their physical and lifestyle needs.

- **Exoskeleton prosthesis:** Also called conventional or crustacean type prosthesis, these are traditionally constructed from wood or plastic. Their walls provide structural strength and cosmetic shape; however, they are less customizable than endoskeleton prostheses.
- **Endoskeleton:** A prosthesis with a tubular structure that connects the primary components, i.e., the socket, suspension system, foot, and knee unit.
- **Knee options:** Prosthetic knees can be mechanical or computerized. Mechanical knees are subdivided into single-axis and multi-axis/polycentric knees. Single-axis knees bend forward and backward, whereas polycentric ones can rotate on multiple axes. Regardless of type, all knees come with stability locking systems, which are either manual or weight-activated.

Other Prosthesis Types

Like hand and arm prostheses, there are also different prosthetic foot types to accommodate everyday and sporting needs. Silicon feet are cosmetic, whereas sports feet and mechanical feet adapt in realistic ways to the range of motion of the human foot.

A dynamic prosthetic foot type such as microprocessor foot uses hydraulics to adjust to surfaces and situations in real-time, allowing a nearly natural gait pattern. There are also different types of ankle prostheses that come with foot components. Some have active ankle joints to produce a natural, flexible feel during activities.

Also, part of prosthetics is hip prosthetics, used in hip replacement surgery. Most types of hip prostheses are made with metals, ceramics, and others with plastic. Hip replacement surgery may encompass a total or partial hip replacement, depending on the degree of damage. Other common prosthetic implants include eyes and noses.

Conclusion

Modern advancements in prostheses have dramatically improved the range of motion and comfort. Many of our patients wonder what the best type of prosthetic for a very active lifestyle is; however, there isn't a one-size-fits-all solution.

At [PrimeCare](#), we have a comprehensive range of custom prosthetics including below-knee prosthetic types, as well as different types of prosthetic feet. Since 2009, we've helped residents in Las Cruces and beyond with all their prosthetic and orthotic needs. [Contact us](#) to find out how we can restore your lifestyle and independence.