

PROSTHETIC LIMBS

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Nowadays artificial limbs become true decision for more and more people with disabilities and help to bring them to normal life. Modern prosthetic limbs have sufficient functionality to allow their wearers feel comfortable and even engage in their favorite hobby.

A prosthesis is an artificially made substitute for a missing limb. The reason for missing is irrelevant: it could be an accident, congenital defect, illness or anything else. There are two general types of prosthetic limbs. The first is cosmesis – the prosthesis with mostly cosmetic function that has low functionality and is designed to look like a genuine limb. Others have a wide range of possibilities and can sometimes completely replace the native part of the body. On the other hand, the expansion of functionality does not often allow realizing a suitable appearance of the prosthesis.

Also, prostheses are divided into 4 types, depending on the field of application: below the knee, above the knee, below the elbow, above the elbow.

The main components of the artificial limb are the prosthesis body, the socket, the attachment mechanism and the control system.

The primary objective of the prosthesis body is to provide a small weight with sufficient strength of the structure. It was achieved by choosing the right materials, such as carbon, plastic and even styrofoam.

The socket is part of the prosthesis that serves to fix it to the patient's residual limb. Because of the natural process of changing the shape of the stump, the socket needs to be changed periodically. Nowadays it is easier and cheaper due to 3D printing technology.

Suspension system or attachment mechanism serves to ensure the fixation and comfort of wearing. Often in the prostheses of the lower extremities, the role of the fixation system is completely assumed by the socket.

Functional prostheses provide for a control system. It consists of a set of cables that mimic the work of the muscle. Myoelectric prostheses also contain a microprocessor. It catches and processes the impulses, that it sends to the muscles, and converts them into an electrical signal for the bionic limb.

We see people with prostheses very rarely in our daily lives. For most, such things are strange. The word "cyborg" frightens young children, and the unusual limb aggravates the interest of their parents. Now we can change the views of people simply by telling how the artificial limb is arranged. Hopefully it will help the owners of artificial limbs feel equal in the society.

REFERENCES

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