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Editorial

Artificial Organs: An Overview

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EDITORIAL

An artificial organ is human made organ device or tissue that is implanted into a human collaborating with living tissue, to replicate or augment a particular function or functions in order for the patient to return to a normal life as soon as possible. For example- Artificial organs may also be used to replace bones and joints, such as those used in hip replacements.

Purpose

Artificial organ design and installation, which is initially a very time-consuming and costly operation, may require several years of ongoing maintenance services that a natural organ does not require.

- Providing life support in the absence of a transplant (e.g. Artificial heart);
- Significantly enhancing the patient's ability to self-care (e.g. Artificial limb);
- Improving the patient's ability to connect socially (e.g. Cochlear implant); or
- Improving a patient's quality of life by cosmetic restoration after cancer surgery or an accident.

Extensive studies with animals almost always precede the use by humans of some artificial organ.

Examples of artificial organs

Artificial limbs: Artificial arms and legs, or prosthetics, are meant to return amputees to a certain degree of normal function. Mechanical devices that enable amputees to walk or use two hands have probably been around since ancient times, with the simple peg leg being the most well-known.

The development of artificial limbs has accelerated since then. New plastics and other materials, such as carbon fibre, have made it possible to make artificial limbs stronger and lighter, reducing the amount of extra energy required to operate the limbs. Additional materials have made it possible to look much more natural for artificial limbs. [nine] Prostheses can be classified approximately as upper- and lower-extremity and can take many shapes and sizes. New developments in artificial limbs provide additional stages of human body incorporation.

Bladder: Neural prostheses are a set of devices that can replace a motor, sensory or cognitive mode that may have been affected by an accident or illness. Electrical impulses are sent to the brain through neurostimulators, including deep brain stimulators, to treat neurological and movement disorders, including Parkinson's disease, epilepsy, treatment-resistant depression, and other conditions such as urinary incontinence.

Corpora cavernosa: Both corpora cavernosa can be irreversibly surgically replaced with manually inflatable penile implants to treat erectile dysfunction. This is a radical surgical surgery designed exclusively for men with utter impotence who have rejected all other approaches to treatment.

Ear: A cochlear implant can be surgically implanted in cases where a person is deeply deaf or extremely hard of hearing in both ears. To provide a sense of sound through a microphone and some electronics that reside outside the skin, usually behind the ear, cochlear implants bypass much of the peripheral auditory system.

A signal is transmitted by the external components to an array of electrodes located in the cochlea, which in turn stimulates the cochlear nerve. In the case of an outer ear trauma, a craniofacial prosthesis may be necessary.

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