

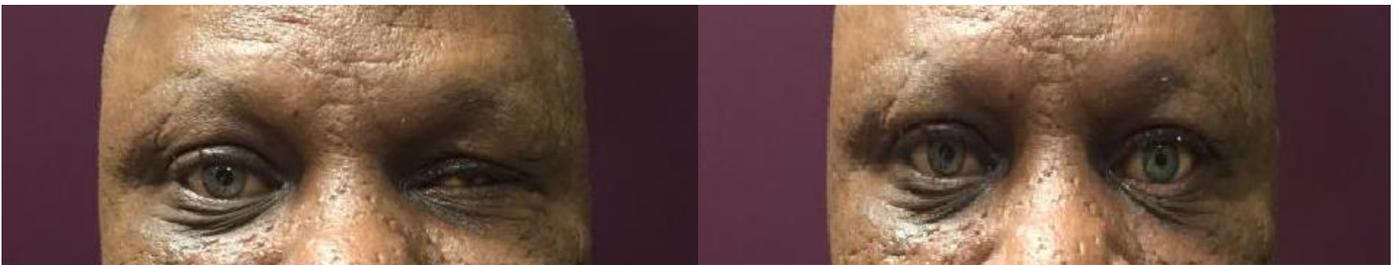
Prosthetic Eyes

Do you know someone with an artificial eye? You might be surprised. Prosthetic eyes are far more common than you would expect because they can now be created to match the person's other eye almost exactly. Many people think that an artificial eye is just a "round glass ball" that someone uses to improve their appearance after an eye is lost due to accident or disease. However, these devices have become artistic pieces of art as well as serve a medical and cosmetic purpose.

What is an artificial eye?

An artificial eye (technically known as an "ocular prosthetic") is any device placed within an individual's eye socket in order to restore an eye's natural appearance. They are individually shaped and painted in order to best approximate the individual's natural eye.

Originally, artificial eyes were made out of glass. These eyes were very fragile and would often break causing injury to the patient. In more recent years, these devices are made from a medical grade acrylic plastic. This new material reduces the risk of injury, improves the ability to be painted to match the patient's other eye, as well as increases the stability and longevity of the prosthetic.



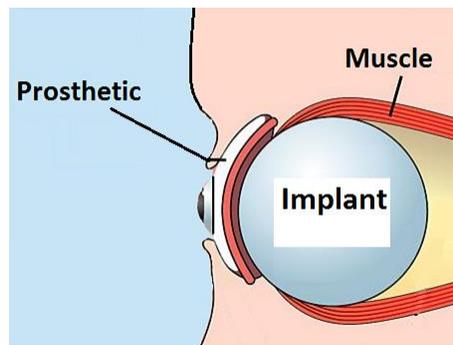
Before and after photos of patient fit with an ocular prosthetic. (Courtesy Brett Larson, OD, FAAO, FSLs)

Types of artificial eyes:

Artificial eyes are generally separated into three main categories:

1. Full Artificial Eyes
2. Shell Prosthetics
3. Prosthetic Contact Lenses

Full artificial eyes are prosthetic devices indicated for patients that have had an eye completely removed due to trauma or disease. They are typically custom painted to match the patient's existing eye as well as fill the empty space left when the eye was removed. Contrary to popular belief, these devices are not spherical in shape, but rather a ball-and-joint apparatus containing two parts, an *implant* and the *prosthesis* that connects to it.



1. The *implant* is placed in the eye socket during eye removal surgery and becomes a permanent part of the body. Modern implants are made using sea coral to create the chemical Hydroxyapatite. Hydroxyapatite has the same chemical structure and porous structure as human bony tissue, making it hypoallergenic. The eye muscles that once held and moved the eyeball wrap around the implant as if it were the eye itself. This allows the artificial eye to move in unison with the other eye.
2. The *prosthesis* is similar in shape to a thick contact lens and is painted to match the appearance of the patient's other eye. This will become the part visible to the public. The prosthesis attaches to the implant using a ball and joint connection through the use of a peg in the implant. The prosthesis will move with the implant since they are connected, allowing for a very realistic life-like appearance. This type of prosthesis also serves a medical purpose. If a prosthesis is not used after an eye is removed, the eyelid muscles will weaken causing the eyelids to permanently droop.



Example of the artistic detail possible with a full prosthetic (Courtesy Brett Larson, OD, FAAO, FSLs)

Shell prosthetics are indicated for patients with a deformed eye or scar from injury or disease, but when eye removal surgery is not indicated. These conditions include scarring, a shrunken eye after trauma, or an eye turn that can occur in a blind eye. These shells are custom formed and painted to match the patient's existing healthy eye. They act similar to a large contact lens that covers the entire surface of the eye.

In cases of a blind eye that has wandered to the side, artistry can be placed on the shell in order to create the appearance of a straight eye. Shells also serve the medical purpose of maintaining lid muscle strength as full artificial eyes do.



Example of a painted shell prosthetic (Courtesy Brett Larson, OD, FAAO, FSLs)

Prosthetic contact lenses are painted soft or hard contact lenses. As with shells, they are utilized to cover a scar or unsightly aspect of an individual's eye. They are thin and fit similar to an ordinary contact lens. Unlike shells, however, they cannot mask an eye turn or defects other than ones on the cornea or iris (the central and colored part of the eye)



Examples of prosthetic contact lenses

Care of an Artificial Eye

A full artificial eye prosthetic should be left in the eye socket as much as is possible. Ideally, the artificial eye should be removed only once per week, cleaned and replaced. The artificial eye can be cleaned using regular hand soaps followed by a thorough rinsing in order to remove all of the soap. Before reattaching the prosthetic back on the implant, it is lubricated using a drop specifically designed for artificial eyes. This lubrication allows the lid tissues to easily slide over the prosthetic without irritation. A full artificial eye should not be taken out when sleeping.

A shell prosthetic should be removed nightly and should not be slept in. It should be cleaned using a rigid contact lens solution and soaked overnight. Before placing the shell back into the socket, it should also be lubricated using a lubricant specific for artificial eyes or a gas permeable contact lens conditioning solution.

Prosthetic contact lenses should be cleaned as recommended by your doctor, usually with a soft contact lens cleaner.

Artificial Eye Replacement Schedule

Artificial eyes, shells, and lenses are made to last over an extended period of time. A full artificial eye and shell prosthetics should be replaced every 4 to 5 years. Prosthetic contact lenses may last 3 months to a year. If utilized longer than this time, the material may begin to degrade causing discomfort and ocular tissue complications.