

**Lab Process, Second Visit:** After the session at the painting table, there will be a break for the patient of from one and a half to two hours, during which time the shell is processed in the lab. A clear acrylic coat is added to seal in the art work. The curved dome of the cornea is made. By the end of the break, the patient is presented with a complete scleral cover shell customized for comfort and enjoyment.

#### CARE OF THE CUSTOM COVER SHELL

To help prevent bacterial infection, we instruct the patient to always wash her or his hands before handling the shell. We suggest that most patients remove their shell prosthesis at night to give the eye a rest and a chance to breathe. Our ocularist will show you how to remove the shell with a suction cup or DMV holder, and how to clean and store the shell. The shell can be washed with warm water and a mild liquid soap, then rinsed to remove the soap residue. We provide the container in which to store the shell. The container is filled with either fresh tap water, hard contact lens solution, distilled water, or a saline solution. Whatever the storage solution, it is changed daily. Our ocularist will instruct you to wash your hands and rinse off the shell before insertion. The shell will be more comfortable if inserted wet and we may recommend a wetting solution similar to that used with hard contact lenses.

We ask that you report any discomfort or problem immediately, to either the ocularist or to the referring ophthalmologist. We caution our patients NOT TO WEAR THEIR SHELLS IF THEY BEGIN TO HURT, AND NOT TO USE ALCOHOL TO CLEAN THEM.

Finally, we instruct our patients to return to our office once a year to re-evaluate the fit and appearance of the shell, and to have it cleaned and polished.

#### FOLLOW-UP PROCEDURE

We may ask the patient to return in about one month for a checkup if this is the patient's first scleral shell. The patient's ophthalmologist may also like to see the patient to check the finished prosthesis.

The annual checkup visit is part of the follow-up procedure.

#### Scleral Cover Shells

by *LeGrand Associates*  
are available at the **home office** in Philadelphia. LeGrand Associates, Ocularists, have offices in New York, New Jersey, Pennsylvania, and Virginia. For additional information, write or call the home office in Philadelphia.

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[www.legrandeyes.net](http://www.legrandeyes.net).



# The Scleral Cover Shell



by  
*LeGrand Associates*  
*Ocularists*

*makers of fine prosthetics since 1953*

### About the Photo:

Melanie was blinded in her left eye at the age of four. At 17, she was fitted with a scleral cover shell. This is a thin ocular prosthesis or artificial eye. The cover shell is painted to match her other eye, moves well, and has a very natural appearance. LeGrand Associates employs ocularists who are highly skilled men and women artisans, trained to take an accurate impression of the eye and duplicate with paints an authentic replica of the human iris. Melanie's self-confidence and enjoyment of life have vastly improved since she began wearing her custom scleral cover shell.

### History of the Scleral Cover Shell

The cover shell, worn to disguise a blind and disfigured eye, has been in existence for many years. The cover shell was developed simultaneously with the glass eye. Early examples have been traced to sixteenth century Venice and France. Until fairly recently, cover shells were designed to "vault" over the blind eye so that only the periphery and front surface touched the wearer. The back surface was made as a deep concave to avoid contact with the disfigured eye. Not only did these early cover shells not provide the comfort and movement of the modern shell, but they were made of breakable glass.

### The Modern Scleral Cover Shell

The modern impression-fitted scleral cover shell is made of plastic. It originated in the 1940's when contact lens pioneers developed the technique of taking an impression of the eye. From the impression, flush-fitting scleral contact lenses covering most of the eye and providing visual correction, were created. While these early lenses do not compare to today's easy to wear, corneal contact lenses (including hard, soft, and gas permeable lenses), some people wore the early contact lenses successfully. This impression technique was applied to blind eyes in an effort to provide a superior cover shell eye. During the 1950's, Joseph LeGrand, Sr., was among various ocularists developing methods

of incorporating the appropriate color and artwork. Since blind eyes are generally less sensitive than seeing eyes, accurately fitted cover shells are tolerated easily. Today, ophthalmologists recommend this type of fitting for most of their patients who present a blind and disfigured eye, particularly in those cases where some shrinking or *phtisis* of the eyeball has taken place.

Today's scleral cover shells are made of methyl methacrylate plastic, the same material used in hard contact lenses. The shell may be worn all day. Its natural appearance and excellent movement can even fool the "experts."

### EVALUATION

You will need to see your ophthalmologist to determine whether you are a candidate for a scleral cover shell. In general, a scleral cover shell is indicated for a blind unsightly eye or an eviscerated eye. The doctor may ask you to consult an ocularist during the decision-making process. However, it is the ophthalmologist who prescribes the cover shell. If you would like to know more about the procedure, our ocularists will be happy to see you for a no-charge consultation. The ocularist will answer your questions and provide illustrations of the process with *before* and *after* photographs of other patients.



### Steps in Creating a LeGrand Scleral Cover Shell

**THE TRIAL SHELL, First Visit:** The purpose of the first visit is to fit the patient with a clear plastic cover shell called a "trial shell." This visit lasts approximately three hours. We instruct the patient on how to insert and remove the shell. We set up a

schedule to accustom the patient to the wearing of the shell.

**TAKING IMPRESSION, The First Visit:** Our ocularist may be instructed by the referring ophthalmologist to first put a drop of a mild anesthetic in the eye. (This practice varies from region to region.) An *impression tray* is selected and placed under the eye lids. An accurate impression of the eye is taken using a soft alginate material. The impression process takes about two minutes and generally causes little or no discomfort.

**LAB PROCESS, The First Visit:** The ocularist then begins the steps to convert the impression into a clear trial shell. For the patient, there is a break time of about one and a half hours while the ocularist is doing this work. Upon completion, the ocularist fits the trial shell and makes any necessary adjustments. The ocularist will give instructions on wearing the shell, inserting the shell, removing it, and caring for it. The ocularist will explain how to gradually increase wearing time until the shell can be worn comfortably all day.

**ART WORK, The Second Visit:** The patient's second visit will be scheduled between two to four weeks later. This interval provides adequate time to help the patient establish a schedule for wearing the trial shell. It is important that the patient and the ocularist both agree about the fit before going on to complete the shell. The second visit will take about five hours during which the trial shell will be converted to an attractive permanent prosthesis matching the color of the companion eye.

**Painting:** After determining the pupil and iris position through a trial and error process, the ocularist sits at the painting table with the patient and matches the color to that of the companion eye. Using fine brushes and acrylic paints, the ocularist painstakingly recreates the natural appearance of the eye.