Gas permeable (GP) contact lenses, also referred to as rigid gas permeable (RGP) contact lenses, are firm lenses that offer patients many vision advantages. While at first glance GP lenses may look like the old “hard” lenses from years ago, they are different in that they are made from a combination of silicone and/or fluorine materials that allow oxygen through the plastic making them a very healthy lens option.

Vision
One of the greatest advantages of GP lenses is the excellent optics they provide for patients with every type of vision need. Because the lens material is firm, it provides a spherical refracting surface for light to enter into the eye. That’s why these lenses correct myopia, hyperopia, and astigmatism so well. Additionally, for patients who have an irregular corneal surface from conditions such as keratoconus, corneal surgery or trauma, GP lenses may provide the only clear vision option.

GP lenses are also an excellent choice for presbyopic patients and lenses are available in both multifocal and bifocal designs. GP multifocal lenses are most often aspheric designs that have many different prescription zones to help deliver close up, arm’s length and distance vision. For most aspheric lens designs, the power progressively changes from distance in the center to intermediate and near power in the periphery of the lens. These lenses create a multiple range of vision similar to progressive spectacle lenses. This type of lens delivers vision simultaneously, like a soft aspheric contact lens.

There are also GP bifocal contact lenses that use two separate areas for vision. The top area provides clear distance vision and the lower lens area provides clear near vision. These lens designs are similar to traditional bifocal eyeglass lenses. As the patient looks down to read, the lens shifts up so the patient’s line of sight accesses the lower reading area. Bifocal lens designs provide vision by alternating between near and distance segments and for that reason, they are often referred to as alternating, segmented or translating designs.
Trifocal gas permeable contact lenses are also available and have three separate segments; one for near, one for distance and one for intermediate vision.

Orthokeratology, also known as corneal reshaping or corneal refractive therapy, is a non-surgical way to eliminate or reduce the need for eyeglasses or contact lenses during the day. These specially designed GP contact lenses gently reshape the surface of the eye while the patient sleeps. After the GP lenses are removed in the morning, clear vision can last during waking hours even without the use of contact lenses or eyeglasses. And, unlike refractive surgery, this procedure is completely reversible. This non-surgical procedure is approved for low to moderate myopic prescriptions.

Comfort
GP lenses often get a negative reputation because patients are more aware of them when they are first applied to the eye. Patients may assume they feel the lenses because of the firmness of the material, when in fact it’s because GP lenses are simply much smaller than soft lenses. Because of their size, the GP lenses bump into the edge of the lid with each blink. Most new GP lens wearers require an adaptation period of a few days to a few weeks before they become comfortable with the lenses. However, each day the comfort will improve and after a short while, not only will the patient be comfortable, they will reap the benefits of the excellent vision for which GP lenses are known.

Care and Handling
GP lenses not only provide excellent vision, they are also easy to apply, remove, care for and handle. Share these simple steps with your patients to ensure GP lens wearing success.

Before You Begin
Always have patients begin by washing their hands with a mild soap and drying them with a lint-free towel before touching the lenses. To avoid mixing up the right and left lens, advise the patients to begin by always handling the right lens first. Place the lens on the tip of the right index finger, bowl side up and inspect it to make certain there are no chips, cracks or debris on the surface.

Applying GP Lenses
To apply the right GP lens, instruct the patient to reach over and hold the upper lid with the left hand and the lower lid with the middle finger of the right hand. Looking straight ahead, keep both eyes open and gently place the GP lens directly on the cornea and over the pupil. Release the lids and the lens is in place! To apply the left lens, just reverse the hands.
Removing GP Lenses

“Pull and Blink” GP Lens Removal Method
The most commonly taught method of GP lens removal is perhaps the pull and blink method. To perform this removal technique it is first important that the GP lens is centered on the cornea. If it isn’t, follow the steps below to recenter the lens first. To remove the right lens, instruct the patient to place the right index and middle finger in the outer corner of the right eyelid. While looking straight ahead, gently but firmly pull straight back making the edges of the eyelids tight against the eye. Have the patient blink hard and the lens will pop out. The lens can be caught in the palm of the hand or it can drop straight down onto a smooth, flat surface covered with a towel. For removal of the left lens, the patient would simply reverse the position of the hands.

Alternative Removal Method
For patients who have difficulty using the pull and blink method, there is an alternative approach. This alternative removal technique may also be helpful for patients wearing today’s newer, larger diameter GP designs.

To remove the GP lens, have the patient place the middle finger tight against the upper lid. Then, place the middle and forefinger of the other hand tight against the bottom lid. Looking straight ahead, gently push the fingers against the eye and move the fingers outward toward the ear. The lids will tuck underneath the edges of the lens and lift it off of the eye. This method can also be performed by moving the fingers toward each other instead of pulling them to the side.

Recentering GP Lenses
Occasionally, the GP lens may become displaced on the eye and not sit directly on the cornea. To recenter the lens it first must be located. If it can’t be seen in a mirror, the lens may be located by feeling the outline through the closed eyelid. Once the lens is located, look in the opposite direction. For instance, if the lens is by the ear, look at the nose. If it is under the upper lid, look down. Place the fingertips over the soft edge of the eyelid and gently push behind on the outer edge of the lens to guide it back into the correct position.

Caring for GP Lenses
GP contact lenses are durable and unlike soft lenses can last over a year before they need to be replaced. But, just like soft lenses, GP lenses need to be cleaned and disinfected and stored when not being worn. While GP lenses can be stored dry, they do need to soak in a wetting or conditioning solution before being applied to the eye. This is necessary to convert the dry plastic into a water-loving surface so the tear film spreads more easily and evenly over the lens. This also enhances lens comfort by acting as a cushion, and improves vision by providing a clear refracting surface. A wetting solution also tends to help maintain the cleanliness of the lens by preventing smudges from fingers.
Cleaning a GP lens should be done immediately after lens removal since that is when it is easiest to get rid of the debris and bacteria from the surface of the lens. The cleaning step can be done with a separate surfactant cleaner or a multi-purpose, all-in-one solution. When cleaning lenses, apply a few drops of the cleaning solution to the lens surface and rub gently as recommended by the solution manufacturer.

After the lenses have been cleaned they need to be disinfected. Depending on the brand of solution this is either done with a disinfecting or soaking solution. Multi-purpose or one-bottle solutions are formulated to perform the multiple tasks of cleaning, wetting and disinfecting.

GP lenses should only be rinsed with an approved GP or saline solution. It is important to advise patients never to use tap water to rinse their lenses.

**Important Reminders**

Let’s review some tips that should be reinforced with all patients to promote healthy GP lens wear.

- Only use solutions recommended by the eye care practitioner
- Always wash hands prior to handling GP lenses
- Close the sink drain before handling GP lenses
- Use hair spray before applying GP lenses
- Apply make-up after the GP lenses are applied
- Remove GP lenses before removing make-up
- Replace eye make-up on a regular basis
- Keep solution bottles closed when not in use
- Don’t touch the tips of the solution bottles with fingers, other objects or surfaces
- Replace the disinfecting solution in the case every day, even if the GP lenses aren’t being used
- Discard solutions if they have passed the expiration date
- Do not wear the GP lenses overnight unless recommended by the eye care practitioner
- Rinse the lens case with hot water daily and let it air dry
- Replace the lens case monthly
- Immediately stop wearing the GP lenses and call the eye care practitioner if pain, severe redness, sudden blurred vision, excessive light sensitivity or tearing are experienced
- Have a back-up pair of eyeglasses and contact lenses available
- Return for follow-up visits as recommended

For more information on GP lenses visit the GP Lens Institute (GPLI) at [www.gpli.info](http://www.gpli.info). The GPLI, the educational arm of the Contact Lens Manufacturers’ Association (CLMA), provides generic fitting and patient resources at no charge. Order the new, complimentary *GP Care and Handling* brochures and instructional DVD to help train patients for a lifetime of GP lens wearing success.
“GP Contact Lenses: What the Paraoptometric Assistant Needs to Know”

To receive one hour of continuing education credit, you must be an AOA Associate member and answer seven of the ten questions successfully. This exam is comprised of multiple choice questions designed to quiz your level of understanding regarding the material covered in the continuing education article above.

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Select the option that best answers the question.

1. ________________is a non-surgical way to eliminate or reduce the need for eyeglasses or contact lenses during the day.
   a. Ophthalmology
   b. Orthokeratology
   c. Lasik
   d. Progressive Bifocals

2. The greatest advantage of GP lenses is
   a. They are available in multifocal and bifocal designs
   b. They gently reshape the surface of the eye
   c. The excellent optics they provide
   d. They are easy to apply
3. GP multifocal lenses  
   a. Have many different RX zones  
   b. Change from distance in the center to intermediate and near power in periphery  
   c. Are most often aspheric designs  
   d. All of the above  

4. GP lenses used for orthokeratology  
   a. Are very expensive  
   b. Reshape the surface of the eye while the patient sleeps  
   c. Require an adaption period  
   d. Can last over 1 year before needing to be replaced  

5. The very first step a patient should take before inserting the lens is  
   a. Inspect the lens  
   b. Hold upper lid with the left hand  
   c. Wash their hands  
   d. Wet the lens with plenty of solution  

6. Cleaning GP lenses should be done  
   a. Before inserting them  
   b. Immediately after removal  
   c. Whenever necessary  
   d. After disinfection  

7. Bifocal GP lens designs  
   a. Reshape the eye while the patient sleeps  
   b. Create a multiple range of vision similar to progressive eyeglass lenses  
   c. Are similar to traditional bifocal eyeglass lenses  
   d. Are for patients who have an irregular corneal surface  

8. To recenter a gas perm lens, the patient should  
   a. Locate the lens in the eye  
   b. After locating the lens look in the opposite direction  
   c. Push behind on the outer edge of the lens to guide it  
   d. All of the above  

9. Healthy gas perm wear should include  
   a. Rinsing lenses in tap water  
   b. Inserting lenses before applying makeup  
   c. Using whatever solution is on sale  
   d. None of the above
10. Solution tips for healthy GP wear should include
   a. Using whatever solution is on sale
   b. To save time, leave solution bottles open when not in use
   c. Lenses should only be rinsed with an approved GP or saline solution.
   d. Replace disinfection solution in the case every day only when lenses are in use

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