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Tailored for Success: Understanding and prescribing freeform-produced lenses in your practice

Freeform is to lenses what hand tailoring is to clothing. Meeting the day's call of personalization, many ECPs are integrating freeform progressive lenses into their practices. Although the technology was introduced in the U.S. in 1996, and has been utilized overseas for several years, it is now taking hold in progressive practices around the nation. Patients are happy with the improved visual acuity of these personalized progressives, and practitioners are offering their patients the best lens technology available today.

The freeform lens' greatest benefit is that because each lens is custom-made to precise measurements and base curves, it requires virtually no adaptation process. So patients can put them on and wear them easily, immediately without the past "swim and sway" complaints of traditional PALs. This provides peace-of-mind that practitioners have not always expected or experienced when dispensing PALs.

Freeform progressives are fabricated differently than any other type of lens design and in many cases require additional precise measurements for the best results. The lenses currently cost more than traditionally produced PALs, but the visual benefits are immediately apparent.

With long-term loyalty built in, freeform may well be the way all lenses are produced and dispensed in the future.

This trend reflects the old 80/20 rule. Twenty percent of ECPs are leaders and 80 percent follow key trends later.

Here's how you can be in the top 20 percent when it comes to cutting-edge freeform technology knowledge, and how you can successfully dispense freeform lenses in your practice.

The Basics

Freeform—also known as direct-to-surface or direct lens technology—can create a unique, one-of-a-kind progressive lens using state-of-the-art surfacing technology. Freeform lenses are made with specialized equipment combined with exclusive points file software, a sophisticated software program specifically calculated precisely to each Rx, which guides the production of the lenses.

Machinery includes a computerized lathe with a diamond cutting tool. Specialized software is key to producing the best design for the parameters given. The turning process provides high accuracy lens surfacing, then the lens goes direct to polishing, known as cut-and-polish.

Freeform lenses have at least one clear advantage over traditionally produced lenses: They are not limited by set base curves. Computer design combined with freeform machinery eliminates the need for stock lenses with set base curves. Freeform lenses are custom-designed lenses for each patient's Rx, frame, and wearing preferences. Proponents of freeform lenses say that they offer several advantages to patients, including virtually eliminating unwanted astigmatism and therefore virtually doing away with PAL non-adapts.

Because freeform lenses are custom made, labs and manufacturers that produce freeform lenses do not have to carry inventory; lenses are made on an as-needed basis. There are no backorders, as each freeform lens is made-to-order. Currently, several U.S. wholesale labs and lens manufacturers have the capability to produce freeform lenses, and the category is expanding as more labs invest in freeform machinery and manufacturers continue to launch new designs.

Most of the technology leading to the creation of freeform lenses was heavily researched prior to the release of the lenses. Clinical studies tracking typical visual tasks and patterns by several manufacturers for years prior to U.S. release, backed up by the success of freeform lenses in Europe and other countries, validate the performance of freeform lenses.

Freeform Benefits

1. They provide maximized visual acuity at all distances.
2. The intermediate and near zones are wider.
3. There is minimal visual "swim and sway."
4. Levels of unwanted astigmatism are lowered.
5. Aspheric/atoric designs flatten and thin the lenses and broaden the field of view at all distances.
6. Placing the progressive portion of the lens on the backside also increases the field of view at all distances.
7. Since freeform PAL designers recommend fitting heights in the mid-teen range, these lenses will fit in many of today's smaller frame sizes.
8. Lens designers have more leeway to create fine-tuned visual enhancements.
9. Freeform lenses accommodate unusual or atypical Rx's (i.e., high-cylinder power, high-minus power), making wearing PALs easier.
10. Because the lenses are personalized, there are literally millions of unique Rx combinations that are possible.

Freeform Equipment

Currently, there are four companies that manufacture and supply freeform-capable equipment for the optical marketplace in the United States.

The technology that comprises computer-controlled freeform machinery includes generators that feature ceramic glass molds. Liquid monomer is added to the mold and the lenses are cast. The end result is the creation of single-vision semi-finished lens blanks.

Key to the process are points files—the software instructions given to the computerized system. These data files guide the freeform generators in surfacing lenses. A points file is transferred to the generator, which calculates, then cuts and polishes the lenses using precise Rx, specialty measurement, and frame shape data.

To be optically successful, freeform lenses require surfaces to have multiple curves. Freeform production can make lenses accurate to 0.50D. This is achieved, in part, due to the precise diamond tool used in freeform production.

The high-speed tool has a single point, similar to a contact lens lathe. When combined with detailed software, the tool can cut the complex multi-curve surfaces which are essential to the success of any freeform lens.

Once a freeform lens is made, the points file—which is only used once—is discarded. Laboratories purchase multiple points files from manufacturers in batches, while manufacturers use their own points files.

Freeform Design

Freeform design is as unique as each company's proprietary information and process. Some freeform lenses are designed with the progressive on the backside of the lens, while with others the progressive portion is applied to both front and backside. In all cases, freeform lenses feature unique, specialized base curves fabricated specifically for each patient and each individual lens.

The lab and manufacturer no longer have to crowbar a non-typical Rx with unusual measurements into a standard off-the-shelf lens with a stock base curve. That means patients no longer have to make non-standard visual adjustments to that base curve, since with freeform lenses, the base curve is created just for them.

There are several distinct freeform lens designs available today. They include:

- 1.** Conventional front surface with specialized backside surfacing.
- 2.** Front side spherical with progressive back surface ("internal" technology).
- 3.** Progressive front surface with aspheric/atoric back surface.
- 4.** Add power on both the front and back lens surface ("dual-add" technology).

According to the companies that produce them, each freeform design has its own advantages. Proponents of the backside PAL indicate that bringing the progressive portion of the lens closer to the eye helps widen the visual field at all distances and eliminate distortion.

Add power balanced between the front and back surfaces is said to reduce unwanted astigmatism. All of the manufacturers involved say that their freeform PAL designs virtually eliminate non-adapt and patients having to "get used to" the lenses, since the lenses not only incorporate the Rx, but personalize wearing parameters.

These personalized enhancements are based on patient preferences, including how they hold their head, use their eyes, and perform everyday tasks.

Various manufacturers use systems such as "Position of Wear," "Vision Print System," "Design by Prescription," and "Eye Point Technology" to designate their particular protocol in lens personalization. Some freeform fitting procedures require specialized tools and training that are supplied by the manufacturer.

Freeform designs always require the usual measurements taken for PALs (see sidebar "Measure Up" on page 4). Some also require measurements such as eye movement ratio and stability coefficient (measured with a specialized diagnostic device specific to one manufacturer), back vertex distance, and pantoscopic angle for the best results with their lenses.

One manufacturer requires two additional measurements when the distance prescription is a plus power. Most freeform PAL designs require only basic PAL measurements.

Currently, freeform lenses are available in generous power parameters, from the +6.00D, +8.00D to the -10.00D, -12.00D sphere range with cylinder powers out to -4.00D. Add powers vary, starting from as low as +0.50D to +1.00D and going as high as +3.00D to +3.50D. Prism can be accommodated from 3.00D to 6.00D.

Freeform lenses can be further customized for the maximum premium lens available by including ultra-violet protection, scratch-resistant coating, and AR. Many freeform lenses automatically come with these three options from the lab or manufacturer as part of the whole lens package.

Positioning Freeform

Freeform's higher average dollar sale requires positioning this technology as the best lens on the market today. ECPs can affirm that freeform lenses offer the best visual acuity and most comfortable viewing at all distances. This can be validated through clinical study data and other materials provided by manufacturers, including electronic and print media.

Since freeform lenses are individually measured, designed, and fabricated, patients adapt easily to using freeform lens technology. Lenses are custom-made specifically for them, not unlike a hand-tailored suit. This is a key selling point for first-time presbyopes who are getting their first pair of progressive addition lenses and want the smoothest visual translation possible.

Easy adaptability is also a big benefit to offer PAL wearers who are dissatisfied—even mildly—with their current lenses, or otherwise looking to change from their present lens technology into something better.

Emphasize that because these premium, high-tech lenses require specialized measurements, and are made precisely using the best technology, so they may take a week to two weeks (depending on the product). To help your patients accept this timeframe, consider the following:

Be honest. By being straightforward with the timeframe, and making the transaction appealing by focusing on the custom-made, unique qualities of the lenses to satisfy patients' needs, you will create a "best customer for the best lens" philosophy for the office and patient.

Try a little TLC. Patients, as a rule, respond well to extra care and attention. You can set your practice apart from the hustle and bustle of the managed care swinging door and one-hour rush by appealing to patients interested in high quality and the best vision.

Start in the chair. Rather than springing the freeform concept on the patient in the dispensary, introduce the product while they are still in the chair. Dispensers report the best patient acceptance rate and understanding when doctors recommend freeform lenses to their patients at chair side, then cement the recommendation by briefly filling in the dispenser while the patient is present.

Slow down. Take time to explain the features and benefits of freeform lenses, take enhanced measurements, and take the time again while dispensing to point out each fine point of the day-to-day visual advantages and wearing comfort available through the use of freeform lenses.

Stay positive. Be sure to use positive words and phrases when talking about freeform lenses, such as: Smooth, durable, easy care and cleaning, top-notch visual acuity and clarity, like no other lens in the marketplace, unique, individual, personal, ultra-lightweight, totally customized, accommodates individual visual tasks, sophisticated, designed for your unique wearing habits, specialized, multi-design, balanced vision, maximum usage of distant, intermediate, and near zones, and more than 95 percent satisfaction with wearers.

Allow your patients to feel like they deserve the best comfort and visual acuity, and they will get the best lenses and visual care from your office.

Measure Up

Using freeform lenses doesn't mean you have free reign to be casual about PAL measurements. The key to PAL success is taking the best measurements. Regardless of which freeform PAL (or any PAL) you fit, these measurements are crucial.

And remember: It never hurts to take the time to double-check all measurements.

1. Make sure you are at the same level, eye-to-eye with the patient.
2. Take monocular PDs using a pupilometer.
3. Pre-adjust the frame for positive face form, with approximately 8 to 12 degrees of pantoscopic tilt. Adjust nose pads on metal or rimless frames so they sit flush on the sides of the nose in order to minimize vertex distance.
4. Measure fitting height, using a PD ruler to measure from the lowest point of each eyewire to the centers of the patient's pupils. Dot with a sharp felt-tip marker.
5. Verify the cutout by using the manufacturer's cutout chart. If lenses will not cut out, find another frame.
6. Use the specific manufacturer's fitting guide for tips on how best to fit any progressive lens, especially in the freeform category.
7. Get freeform-focused fitting and dispensing training from company representatives prior to selling your first pair of freeform-produced lenses.
8. During the dispensing process, verify the lens fit by initially leaving the progressive markings on the lens. The fitting cross should be directly in the middle of the patient's pupil. Readjust the frame if you find it necessary.
9. Some manufacturer's freeform lenses require additional design-specific measurements. These companies supply special tools and materials, and train ECPs in their use. Check with the company or laboratory to confirm what tools and training you need to best dispense their freeform products.
10. Double check measurements yourself, or enlist a colleague to do a final once-over before the patient departs and prior to sending the order in for processing.