

Colored Contact Lens Update

Learn the latest options, technologies and applications for colored contact lenses.

Colored contact lenses are one of the fastest growing sectors of the contact lens industry. Cosmetic, prosthetic, therapeutic and novelty lenses contribute to making this an exciting and beneficial area for both patients and practitioners. Approximately 25 million current vision corrected patients are interested in colored lenses (HPR Consumer Survey). A 2000 Gallup study revealed that approximately 13 million non-vision corrected people are interested in colored lenses.

United States consumers have reportedly spent \$180 million on cosmetic lenses to date. Technology is driving the industry (6 percent annual increase), providing new options that include disposable lenses, eye color changes (cosmetic), vision benefits (prosthetic) or just for fun (novelty). Knowledge of current colored contact lens options is essential to position your practice among the leaders in a competitive market.

New Patients, New Options

Patient selection has changed dramatically in the last few years. Females dominate the market with the "baby boomlets" (teens and young adults) expected to drive increased sales by

2003. Patients who don't require vision correction and previous cosmetic lens dropouts also account for a large market share due to new comfortable and easy-to-maintain disposable lenses. Be sure to educate colored lens patients on proper disinfection after each wear and the risks of sharing lenses.

In the '80s, soft lenses were visibly tinted for handling purposes. Colors followed with blue, aqua, brown and green to highlight, subtly change or totally change eye color. Plano patients new to contact lenses were often frustrated with comfort, handling, ripping and cleaning issues. Prescription color lens patients had issues with limited parameters, including iris covering, powers and base curves.

Many companies have recently provided new options for patients. Many soft lens manufacturing techniques provide various colors, designs and details. Options include disposable, dot matrix, pad printing, hand-



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painted and hand-painted laminated technologies.

Knowing various options, including when and how to use cosmetic vs. therapeutic, daily wear vs. extended wear, disposable vs. conventional lenses and custom vs. standard coloring are all important considerations if you want to position your practice as a leader in this field.

Cosmetic Benefits

Colored lenses can help patients feel good about themselves and can provide another alternative besides hair color or makeup for self expression. Enhancer cosmetic tints and opaque cosmetic soft lenses comprise the major choices for this category. Gas permeable scleral and corneal cosmetic lenses are typically used for phthisis (shrunken globe) and corneal complications.

Enhancer Cosmetic Tints

Enhancer lenses overlap a patient's iris color and are used primarily for lighter eyes. Enhancers typically provide lighter iris color and subtle natural coloring, although there is potential for dramatic changes even when applied to light brown iris coloring.



Figure 1. Example of a custom hand-painted opaque contact lens.

Lighter iris colors often benefit from blue, aqua and green enhancers for natural changes. Brown, amber, yellow, violet and pink are optional colors that can create significant changes when used on lighter brown, hazel, darker green, gray and slate blue iris base coloring (see color chart on P. 40).

Standard tints do not impair vision; optional clear centers are available from some of the custom tinting manufacturers.

New companies entering this enhancer category include Vistakon with its launch of Acuvue 2 Colours in November 2001. Acuvue Colours Enhancers offer blue, green and aqua tints for blue or green eyes.

Biomedics Colors lenses, which utilize the design of the Biomedics 55 disposable contact lens and incorporate iris replication technology, launched in the spring. Available colors include blue, green, gray and hazel, and parameters include 14.2mm diameter, 8.6mm base curve and powers ranging from plano to -6.00D in 0.25D steps.

CooperVision will launch its Expressions Accents on a Frequency 55 Aspheric lens, available in methafilcon A material in blue, aqua, green and violet, this fall. Lens parameters include 8.7mm base curve, 14.4mm diameter and powers ranging from +4.00D to -6.00D in 0.25D steps.

Other major enhancer options include CIBA Vision's Durasoft 2 Colors, Bausch & Lomb's Optima 38, U4 and B3 Natural Tint, Alden's Classic Tint and CooperVision's Vantage Accents. Alden Optical Laboratories, in addition to Alden Classic and HP Tinted enhancer spheres, offers Alden Classic Torics featuring various intensities and color options with up to -10.00D cylinder.

Patients can benefit from more color selections and improved comfort from disposable enhancer lenses entering the market.

Lens maintenance (cleaning or ripping) was an early issue, but disposable options have minimized these concerns. Disposable lenses also offer patients reduced cost, immediate delivery, reproducible lenses and natural coloring for full or part time use.

Fitting Recommendations: I recommend that the lenses align centrally to the cornea, providing maximum cosmesis. Achieve this with tighter fitting base curves, not compromising the cornea.

Colored Lens Applications:

Cosmetic applications

- Natural changes for self-expression
- Prosthetic use for disfigured eyes

Therapeutic applications

- Prosthetic lenses – aniridia (opaque lens re-creating an iris)
- Occluder black opaque (eliminating diplopia)
- X-Chrom lenses – color deficiency
- Chromagen lenses – color aid for learning disorders (dyslexia)
- Custom tints – albinism (dark tints eliminating photophobia)
- Custom tints – sports use (golf, tennis) maximum contrast, eliminate glare

Special effects applications

- Novelty lenses – movies, television, video, Halloween, fun

Custom Tinting

Various companies offer custom tinting, including Custom Color Contacts, Adventures in Color, Crystal Reflections and Specialty Tints. The Softchrome Tinting system is an excellent in-office procedure. Iris diameter, tint intensity (percentage), pupil opening and color are all customizable.

Sports tints feature various colors for sunglass effects (yellow for cloudy days, green or brown for sunny days) and can help patients who play tennis, baseball, golf and other outdoor sports.

Opaque Cosmetic Colors

Opaque color can be added to soft, gas permeable or hard contact lenses to cosmetically change and, in some cases, to therapeutically change eye coloring (prosthetic).

Soft contact lenses typically provide maximum comfort when cosmetically changing a darker eye color to a lighter eye color. Disposable opaque lenses have recently provided increased opportunity in this category.

Hard and gas permeable lenses are occasionally used for special prosthetic applications. Phtisical eyes need to be built up with a thin scleral shell. A scleral shell from an impression made by an ophthalmologist or optometrist will replace enucleated eyes.

CIBA Vision's Durasoft and Illusions lenses,

TABLE 1 Color Lens Company List

Alden Optical.....	800-253-3669
Bausch &Lomb	800-828-9030
CIBA Vision Corp.....	800-488-6859
CooperVision	800-341-2020
Vistakon.....	800-874-5278
Custom Color Contacts	800-598-2020
Ocular Sciences,Inc.	800-628-5367
Innovations in Sight.....	877-533-1509
Metro Optics	800-223-1858
Marietta Contact Lens Service	770-792-0208
Prosthetic Soft Lens Corp.	800-574-2581

TINTING ONLY SERVICES:

Adventures in Colors	800-537-2845
Crystal Reflections.....	800-807-8722
Specialty Tint.....	800-748-5500

COLOR DEFICIENCY:

World Optics	800-421-4657
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IN-OFFICE TINTING

Softchrome	925-743-1285
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Figure 2. A new hand-painted laminated lens design can cosmetically realign a nonsighted, strabismic eye without surgery.

CooperVision's Expressions, Natural Touch, CooperVision Prosthetic Lenses and recently Vistakon's Acuvue 2 Colours, are opaque lens options from major disposable lens manufacturers. Consider comfort, vision and natural coloring when choosing among various companies.

Acuvue 2 Colours Opaques contact lenses provide natural color to cover dark irises in honey, blue, green and gray. They're available in an 8.3mm base curve and feature a novel color wrapped in comfort technology in which color is layered inside the lens and cushioned by an ultra-thin comfort layer, so the color never touches the eye.

CIBA's FreshLook cosmetic lenses offer the widest parameter range in the market (+6.00D to -8.00D) and is the only brand that offers toric opaque prescriptions in cosmetic lenses. Amethyst, available only through FreshLook, is the newest color on the market, with better than expected sales projections. CooperVision's Expressions lenses provide a total of seven colors available with the recent addition of blue topaz and brown.

Opaque lens colors that patients often request include blue, green, aqua, brown, grey and violet. Optional custom coloring (iris flecks, laminated designs), iris diameters, powers and pupil openings are all available from custom opaque manufacturers.

Patients with keratometry readings that are excessively flat, steep and/or highly astigmatic may not be

optimal candidates for opaque lenses due to difficulty in aligning the lens central to the pupil. Patients with large iris diameters (>11.5mm) cannot use standard disposable or conventional daily wear without the exposure of base iris coloring.

Custom Color Contacts (hand-painted laminated lenses) and Prosthetic Soft Lens, Marietta Contact Lens Service and Crystal Reflections (hand-painted lenses) are custom manufacturers. Figure 1 shows a custom hand-painted opaque contact lens. Consider natural coloring, quality, comfort, availability, price and warranties when selecting manufacturers in this category.

Fitting Recommendations: Fit steeper as opposed to flatter, which results in moderate or excessive movement, but without compromising the cornea. This ensures that the central pupil opening will be aligned to maximize vision. Patients with pupils larger than 6mm in dim illumination often experience peripheral vision concerns, especially with opaque colored lenses. Choose cleaning systems carefully based on the manufacturer to prevent fading and discoloring.

New Cosmetic Opaque Strabismic Lenses

Custom Color Contacts recently launched a new hand-painted laminated lens design that is very successful in realigning a non-sighted strabismic eye (exo or eso posture) without the need for surgery (Figure 2).

Larger scleral lenses that are often truncated to stabilize have iris imprints hand-painted off center (exo or eso) to precisely match alignment. The opaque white edge of the large scleral lens conceals the underlying off-centered iris.

Matching iris color, pupils size, iris diameter and a patient's scleral coloring is critical to providing an excellent finished prosthetic lens. Trial fitting sets and accurate photos are often the best options to carefully note the degree of misalignment.

TABLE 2 Enhancer Custom Coloring Choices

BASE COLOR	ADD COLOR	RESULTING COLOR
light brown (hazel)	yellow	golden brown
light brown (hazel)	orange	bronze
brown	pink	lavender
hazel	green	deeper green

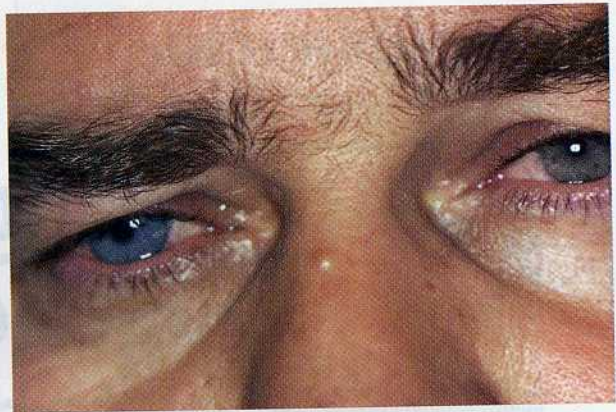
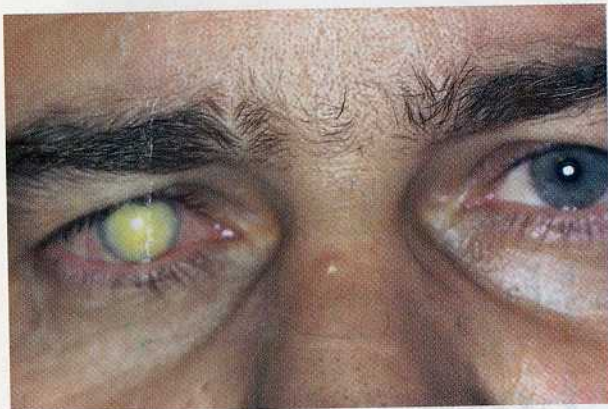


Figure 3. A hand-painted laminated soft prosthetic lens conceals the dense leukocoria scarring, resulting from trauma, in this patient's non-sighted eye.

Other opaque lens applications:

- Prosthetic/Cosmetic – Leukocoria (Figure 3), dense scarring, conceals disfigurements
- Cosmetic – Dramatic eye color changes for darker iris patients (Figure 4)
- Therapeutic – reduces photophobia for aniridia patients and eliminates diplopia using opaque black pupils
- Novelty

Special Eye Effects

Novelty lenses have expanded over the years, with WildEyes (CIBA Vision) and Crazy Lenses (CooperVision) leading the market. Patients commonly purchase these lenses for Halloween and novelty events.

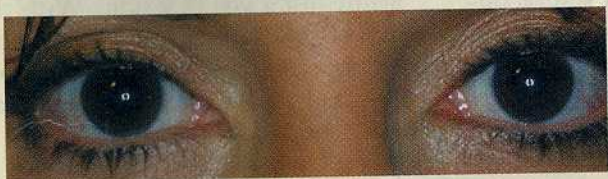


Figure 4. Opaque cosmetic lenses allow a dark-eyed patient to completely change her eye color.

Last year CooperVision launched NFL logo contact lenses, now available in powers of plano to -4.00D in 0.50D steps. The company plans to expand to all 32 teams for the upcoming 2002 season, and will have about two-thirds of them available by the season kickoff.

Crazy Lenses, in addition to new stars and stripes designs, debuted bloodshot (red veins running from the pupil outward) for Halloween.

CIBA also expanded its WildEyes line in time for Halloween, adding zebra, blackout and a new category of bright, solid colored lenses called X-Colors.

Colored lenses often are found in movies, on television and in video productions. Some of the effects that can be created with contact lenses include eyes that are bloody, scarred, diseased and drug-glazed, dilated pupils, horror eyes, misdirected eyes, color changes and supernatural eye effects. Some examples of actors using custom designed lenses for various roles include:

- Tom Cruise – *Days of Thunder* – subconjunctival hemorrhage
- Tom Hanks – *Philadelphia* – diseased eyes
- Jack Nicholson – *Wolf* – wolf eyes
- Robert De Niro – *Frankenstein* – horror eyes
- Alec Baldwin – *The Shadow* – mirrored eyes
- Leonardo De Caprio – *Basketball Diaries* – dilated pupils

Conclusion

Overall knowledge of available colored contact lens products will help you position yourself as a colored lens specialist. Spending a little time discussing new color and disposable lens options can create more enthusiastic patients who purchase more contact lenses. These happy patients might just refer your next patient. **CLS**