

Learning Objectives

- To review the parameters of a GP lens
- To review GP fitting procedures
- To analyze fluorescein patterns
- To provide troubleshooting and fitting pearls

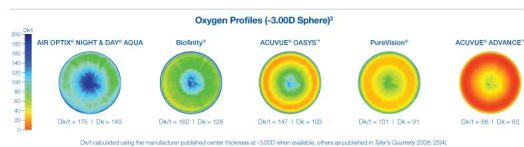
Why Fit GP Lenses?

Vision

- Excellent optical quality
- Customizable power

Corneal Health

- Oxygen
 - Limited SiHy material
 - Thicker lens profile for higher powers



Safety Profile

Risk Factors for Microbial Keratitis with Contemporary Contact Lenses

A Case-Control Study

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The Incidence of Contact Lens-Related Microbial Keratitis in Australia

Fiona Stapleton, PhD,^{1,2,3} Lisa Kury, PhD,^{2,3} Kate Edwards, RAppSc (Optom),^{2,3} Thomas Nadarajah, PhD,^{1,2,3} John K. Dart, DM,^{4,5} Garry Brun, FRANZCO,^{1,6} Brian A. Holden, DSc,^{1,2,3,6}

Practice Builder

- Patient retention/loyalty

Who will benefit from GP lenses?

GP Lens Candidates

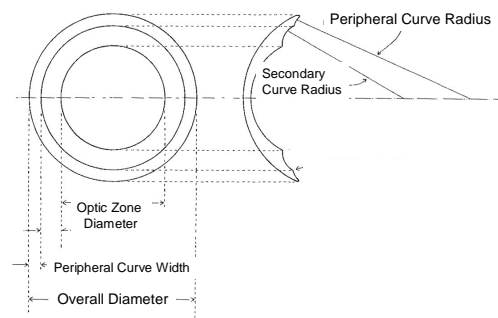
- Patients who have critical visual demands
- Unsatisfactory vision/health through SCLs

Unique Indications

- Aphakia
- Degenerative Myopia
- High Astigmatism
- Presbyopia
- Irregular cornea
- Corneal reshaping

GP Basics

Anatomy of a GP Lens



Mandell, RB. Contact Lens Practice, 3rd edition, 1981 Charles C Thomas Publisher

GP Lens Parameters

- Starting points
 - OAD – 8.8 to 10.0 mm
 - OZ – 7.0 to 8.0 mm
 - Secondary curve radius – 0.7 to 2.0 mm flatter than BC
 - Peripheral curve radius – 1.0 to 4.0 mm flatter than BC

GP Lens Power

- Tear lens (empirical fit)
 - $SR_v = CLP + TL$
- SAM-FAP (diagnostic fit)
 - (+) tear lens ADD minus (SAM)
 - (-) tear lens ADD plus (FAP)

GP Fitting

Empirical CL Fitting

- Ordering a CL based on **keratometry** and **subjective refraction** alone

Empirical CL Fitting

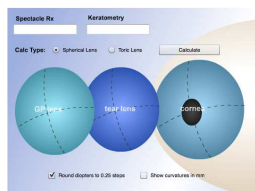
- Keratometry
 - Manual vs Auto
- Subjective Refraction

Empirical CL Fitting

- Other factors that may be considered
 - Palpebral fissure aperture?
 - Pupil diameter?
 - Visible iris diameter?

Empirical CL Fitting

- Spherical Lens Calculator
 - www.gpli.info/professionals/calculator.htm



- CLMA Lab Consultants

Empirical CL Fitting

- Advantage
 - Time
 - Positive initial experience
- Disadvantage
 - Unable to assess dynamic process (lid interaction, RGP movement, RGP position, etc...)
 - Potential reorders

Diagnostic CL Fitting

- Ordering a diagnostic CL based on a **GP sphere lens, over refraction** and **NaFl pattern analysis**

Diagnostic CL Fitting

- Advantage
 - Able to determine potential VA
 - Able to assess GP-cornea fitting relationship
- Disadvantage
 - Time
 - Need to have a fitting set

Diagnostic CL Fitting

- Put on a lens!
 - Initial BC selection
 - Average K - 0.75
 - Flat K
 - 1/3 difference in K
- Proparacaine use

Diagnostic CL Fitting

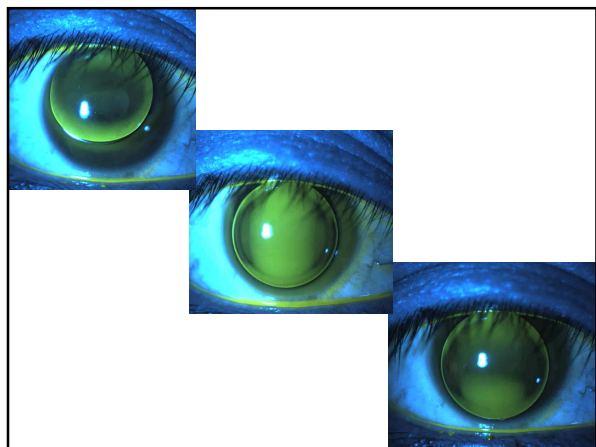
- Invest in a CL fitting set
 - Ease of initial fit assessment
 - Better patient comfort
- Our fitting philosophy
 - BC = avg K - 0.75

Diagnostic CL Fitting

- Read NaFl patterns to determine final base curves
- Use the contact lens power combined with the OR to determine final lens powers
- No need to calculate tear lens

FIT: What do I need to assess?

- Apical relationship
- Type of cornea
 - Sphere
 - Toric
- Centration
- Peripheral clearance



Case #1

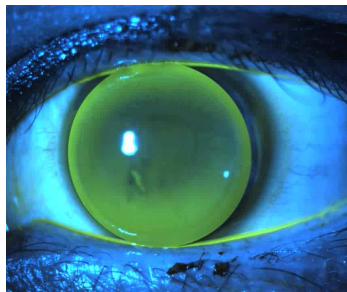
- 25 year old Asian female
- Interested in being fit in GP lenses again

Km
44.50 @ 180 x 44.25 @ 090
SRx
-2.75 -0.50 x 135 20/15

DxCL
43.00/-4.00/9.4 OAD /7.8 OZ
OR
+2.00 DS 20/15

Order
43.75/-2.75 / 9.4 / 7.8 / 8.41 / 12.00(0.2)
BC PWR OAD OZ SCr TCr TCw

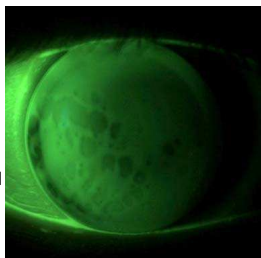
No need to worry about tear lens!



When things do not go as planned...

Troubleshooting: Intermittent blurred vision

- Lens adaptation
- Poor wettability
 - Plasma treatment
 - Mechanical rubbing
 - Overnight soaking
 - Change to lower DK material

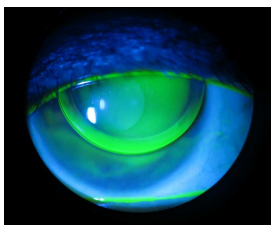


Troubleshooting: Constant blurred vision

- Uncorrected sphere
 - Flexure (increase thickness)
 - Over keratometry
 - Lenticular (soft toric lenses)
- Lens warpage
 - Lensometer

Troubleshooting: Glare

- Uncorrected astigmatism
- Decentered optic zone
 - Increase optic zone
 - Recenter lens
 - Flashlight test



Troubleshooting: Poor initial comfort

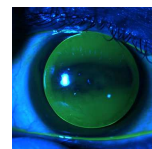
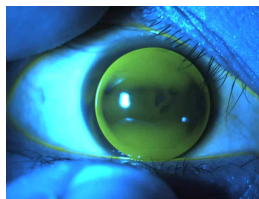
- Bad edge
 - In-house modification
 - High minus prescription
 - Lenticulate
 - CN bevel
 - High plus prescription
 - Round edge

Troubleshooting: Poor initial comfort

- Lens adaptation
- Trapped foreign body
- Bad edge

Unacceptable comfort

- Corneal toricity
 - Toric GP

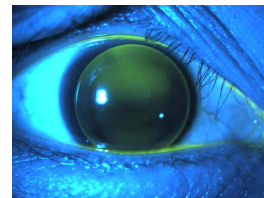


Troubleshooting: Inferior decentration

- Lenticulate
- Lid attachment
- Edge profile
- Specific gravity?

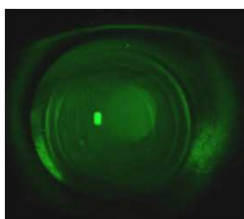
Case #2

- Patient presents with a sphere GP lens that was dispensed 2 weeks ago
- SRv: -12.25-1.00x178 (20/25)
- She complains of glare when looking at street lights



Troubleshooting: 3-9 staining

- "Swab the deck"
- Artificial tears
- Reduce edge thickness
- Adjust peripheral clearance



Tips

- Wratten filter
 - Enhance fluorescein patterns, particularly for patient with light iris

Tips

- Lens materials
 - Low to mid DK
 - Durability
 - In-house modification
 - High to hyper DK
 - Compromised corneal physiology
 - High powers
 - Overnight wear

Tips

- UV inhibitor
- Tints
 - Light irises

Tips

- Make meaningful parameter changes
 - Examples
 - BC : 0.50D
 - OAD/OZ: 0.4 mm
 - Peripheral curve radius : 0.3 mm

Tips

- Diagnostic fitting set
 - Tints
 - Organized by BC
 - Know your secondary curve radii