The Decision-Making Process for Multifocal Contact Lens Prescribing

Thomas G. Quinn, OD, MS

Disclosure Statement:
* Alcon
* Allergan
* AMO
* Bausch & Lomb
* CooperVision
* GPLI
* J&J Vistakon
* Paragon Vision Science

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The Multifocal Decision-Making Process

- Who do we fit?
  - Current contact lens wearers
  - Those who would enjoy the benefits

Benefits of Multifocal CL’s

- Cosmetic
- Functionality
- Freedom

MULTIFOCAL vs MONOVISION:

- MV vs Acuvue Bifocal (Situ et al, 2003)
  - 68% preference for multifocal

- MV vs Soflens MF (Richdale et al, 2006)
  - 76% preference for multifocal

- MV vs Essential GP (Johnson, 2000)
  - 75% preference for multifocal

“That’s not been my experience”
**MULTIFOCAL vs MONOVISION:**

- MV vs Acuvue Bifocal (Situ et al, 2003)
  - 68% preference for multifocal
  - Issues with near vision in low light
- MV vs Soflens MF (Richdale et al, 2006)
  - 76% preference for multifocal
  - Issues with near vision in low light
- MV vs Essential GP (Johnson, 2000)
  - 75% preference for multifocal

**Restaurant Tools**

- Magnifiers
- Light
- Apps

**Vision Performance: A Comparison**

- 8 adapted subjects in each group:
  - GP multifocal (Essential GP)
  - Soft bifocal (Acuvue Bifocal)
  - GP monovision
  - Progressive spectacle lenses
- Performance areas tested:
  - Binocular low and high contrast VA
  - Binocular contrast sensitivity
  - Glare sensitivity
  - Near binocular visual performance


**Vision Performance: A Comparison**

- High and low contrast acuity


**Vision Performance: A Comparison**

- Multifocal vs. Monovision

- 20 subjects
- Cross-over study (15 day wearing time)
- Biofinity MF vs Biofinity MV

Multifocal vs Monovision

- **Results:**
  - Stereopsis better with MF
  - Acuity at distance and near comparable
  - Both within 2 letters of best spectacle VA
  - Adaptation over 15 days?
  - MF acuity at D and N *improved*
  - MV acuity remained the same or worsened


Patient Factors

- **Pupil Size**
  - Near vision better with small pupil
  - Center near aspheric lens design
  - (Air Optix Aqua MF)

- **Ocular Spherical Aberration (SA)**
  - Higher positive SA: Near vision worse
  - SA had no impact on distance vision


What’s the best way to assess MF performance?

  - Assessed both objective and subjective results/ratings
    - **Objective testing (exam room)**
      - Monovision “best performer” for high- and low-contrast near vision tests
    - **Subjective ratings (“real world”)**
      - Multifocal contact lenses “highest performer” in areas such as: Night driving, television, computer


Presbyopia is not a surprise!

Setting the Stage for Success

- **Know the science**
  - Multifocals out-perform monovision: 7/10x

- **Know the strengths and weaknesses**
  - Freedom and functionality
  - Eg. Challenges at near in low light

- **Prepare the pre-presbyopes**

The Multifocal Decision-Making Process

- **Who do we fit?**
- **When do we fit?**
Setting the Stage for Success

- Know the science
  - Multifocals outperform monovision: 7/10x
- Know the strengths and weaknesses
  - Challenges at near in low light
- Prepare the pre-presbyopes
- Fit them early

Managing the Early Presbyope

- What we have done
  - Push plus
  - Early easy for late pain
- The New Approach
  - Fit multifocals
  - An investment in the future!

Setting the Stage for Success

- Know the science
  - Multifocals outperform monovision: 7/10x
- Know the strengths and weaknesses
  - Challenges at near in low light
- Prepare the pre-presbyopes
- Fit them early
- Define success for your patient...

The New Rules of the Vision Game

- Multiple tools
  - Magnification
  - Light
  - Apps
- Goal: “Meet most of your needs most of the time”

Setting the Stage for Success

- Know the science
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- Know the strengths and weaknesses
  - Challenges at near in low light
- Prepare the pre-presbyopes
- Fit them early
- Define success for your patient...
  ...and yourself!
Setting Expectations

The Expectations Game

The Sandwich Approach

The Multifocal Decision-Making Process

• Who do we fit?
• When do we fit?
• What do we fit?

The Key Questions

• Current wearers
  – Are they happy?
  – If not happy, why not?

Current Wearers

• Change lens type at some risk
  • Current SCL wearers won’t like the feel of a GP
  • Current GP wearers won’t like the vision of a SCL
  – Risk drops if:
    • Patient unhappy with current form of correction
    • We emphasize the benefits of the change
    • We prepare them for the change

Happy SV GP Wearer

• Lens centers on cornea
  – Front surface asphere MF
• Slightly superior (lid attached)
  – Back and front surface!
• High rider
  – Low eccentricity posterior asphere MF
High Index Materials

- **Paragon HDS HI 1.54**
  - Paragon Vision Science
- **Optimum HR**
  - Contamac
  - Highest refractive index available
  - Refractive Index: 1.54
  - Dk= 22

What determines the degree light will bend as it passes from one medium to another?

\[ \frac{n_1}{r} - \frac{n_2}{r} \]

Happy SV GP Wearer

- Lens centers on cornea
  - Front surface asphere MF
- Slightly superior (lid attached)
  - Back and front surface
- High rider
  - Low eccentricity posterior asphere MF
- Extremely high rider
  - Modify fit
  - Monovision/ Over-readers

The Evils of a Low Riding Lens

- Peripheral dessication
- Conjunctival injection
- Discomfort
- Optical misalignment
  - A greater issue with multifocals!

Happy SV GP Wearer

- Lens centers on cornea
  - Front surface asphere MF
- Slightly superior (lid attached)
  - Back and front surface
- High rider
  - Low eccentricity posterior asphere MF
- Extremely high rider
  - Modify fit/ Monovision/ Over-readers
- Low rider
  - Modify fit/ Translating/ Over-readers
  - If high plus: high eccentricity posterior asphere
Translating GP Multifocals

Selecting Seg Height

Goal: Just below lower pupil margin
Where to start?
1mm below geometric center of lens

10.0 mm / 2 = 5.0 mm
-1.0 mm
4.0 mm

Selecting Seg Height

0.50D flatter
Another option: increase prism 0.50D

How’s this look?

What changes would you employ in this case?
What changes would you employ in this case?

Flatten BC 0.50D (WTR)
Increase Prism 0.50D
Truncation
Offset prism by 15°

What changes would you employ in this case?

Flatten BC 0.50D
Increase Prism 0.50D
(thin upper edge?)

Happy Spherical SV Soft Wearer

- Spherical Soft MF

Acuvue Bifocal
Can Multifocal CL’s Help with Myopic Progression?

- Center distance multifocal contact lenses may induce similar effect of corneal reshaping lenses, slowing growth of the eye.

Power becomes more positive towards lens center, plus a distinct central zone of greater plus (+) power.

Low ADD

High ADD

The Lens Design

- Stereo Precision Technology
  - Unique synergistic combination of the positive design aspects of the aspheric and zone designs
  - Balance at all Distances
    - Non-dependant on illumination
    - Minimized ghosting, glares & halos

Aspheric Zones

Asphere
PureVision 2 for Presbyopia
Compared to PureVision Multifocal

- **Similarities:**
  - Center-near aspheric design
  - Two distinct adds
  - balafilcon A material

- **Differences:**
  - Optimized distance vision
  - Broader intermediate zone
  - Improved optical consistency
  - Fitting guide

Fitting Recommendation Guide
To Refine Near Vision

If patient is wearing two Low Add lenses:

<table>
<thead>
<tr>
<th>INITIAL LENS</th>
<th>DOMINANT EYE</th>
<th>NON DOMINANT EYE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low Add</td>
<td>Low Add</td>
<td>Low Add</td>
</tr>
<tr>
<td>REFINEMENT 1</td>
<td></td>
<td>PureVision®2 for Presbyopia High add</td>
</tr>
</tbody>
</table>

If patient is wearing two High Add lenses:

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Refinement 2:
- If vision is still unsatisfactory, make small changes by adding +0.25D at a time to the non-dominant eye (wearing Low Add lenses) and continue evaluating vision binocularly in normal room illumination. Adjust contact lens power when vision is satisfactory.
**Unilens C-VUE HydraVUE MF**
- Introduced Feb 2013
- SiHy material
- Monthly replacement
- +6.00 to -10.00
- Center near design
- High and Low add

**Air Optix Aqua Multifocal (CIBAVision)**
- lotrafilcon B
- Center near aspheric design
- Monthly replacement

**CIBA VISION® Fitting Guide**

<table>
<thead>
<tr>
<th>SPECTACLE ADD</th>
<th>BOTH EYES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Up to ±1.25</td>
<td>LO</td>
</tr>
<tr>
<td>±1.50 to ±2.00</td>
<td>MED</td>
</tr>
<tr>
<td>±2.50 to ±3.00</td>
<td>HI</td>
</tr>
</tbody>
</table>

**Fitting Steps – Enhanced Near Vision**

**Near Vision Enhancement**

1. Determine the eye with greatest PLUS ACCEPTANCE (see Step A and Step B below) by placing ±1.50 bi-focals.
2. Have the patient insert the lens in the bi-focals for at least 20 minutes. Determine if near vision is improved and distance vision is still acceptable.
3. If near vision is still unsatisfactory, subject ADD as shown below.
4. Step A: Near vision is still unsatisfactory, subject ADD as shown below.

**Biofinity Multifocal**

- **Steps**
  - Distance vision
  - Near vision
  - Micro step

**Air Optix® AQUA MULTIFOCAL 3 ADD System**

- LO ADD ≤ +1.25
- MED ADD +1.50 to +2.00
- HI ADD +2.00 to +2.50

CIBA VISION and AIR OPTIX are trademarks of Novartis AG.
### Biofinity Multifocal

<table>
<thead>
<tr>
<th>ADD</th>
<th>Dominant eye</th>
<th>Non-Dominant eye</th>
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</thead>
<tbody>
<tr>
<td>+1.00</td>
<td>D</td>
<td>D</td>
</tr>
<tr>
<td>+1.50</td>
<td>D</td>
<td>D</td>
</tr>
<tr>
<td>+2.00</td>
<td>D</td>
<td>N</td>
</tr>
<tr>
<td>+2.50</td>
<td>D</td>
<td>N</td>
</tr>
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### Visual Acuity Expectations:

<table>
<thead>
<tr>
<th></th>
<th>Distance</th>
<th>Near</th>
</tr>
</thead>
<tbody>
<tr>
<td>D lens</td>
<td>20/20</td>
<td>20/40 or better</td>
</tr>
<tr>
<td>N lens</td>
<td>20/40 or better</td>
<td>20/20</td>
</tr>
<tr>
<td>Binocularly</td>
<td>20/20</td>
<td>20/20</td>
</tr>
</tbody>
</table>

### Multifocal Daily Disposables

- **Focus Dailies Progressive**
  - (Alcon)

- **Proclear 1 Day Multifocal**
  - (CooperVision)

### Focus Dailies Progressive

- **Focus Material**
  - (nelfilcon A)
- **Center Near Design**
- **+5.00 to -6.00**
- **Do not need to specify add**

- **Initial Power Determination**
  - Spherical Equivalent Vertexed Dist Rx + 1/2 of Add Power
  - e.g. S.E.Rx = -2.00 with +1.50 add
  - CL Power = -2.00 + 0.75 = -1.25 D
Proclear 1-Day Multifocal

- Proclear Material (omafilcon A)
- Center Near Design
- +6.00 to -10.00
- Do not need to specify add

Presbyopes & Daily Disposables

- Many presbyopes are interested in occasional wear
- Actually LESS expense with DD¹
- Reduced case contamination concerns


Case Care

- Poorest level of compliance involves contact cases
- Poor storage case hygiene can put patients almost at as much risk for MK as EW.
- Most asked question on ContactLensSafety.org: “how should I clean my contact lens case?”

CL Case Care

- Immediately after lens removal:
  - Discard old solution
  - Rub case with clean fingers (5 sec)
  - Rinse with disinfecting solution
  - Wipe dry with clean cloth
- Storage:
  - with lids off*, upside down
  - In clean area
- Avoid tap water

* Silver impregnated cases: store with lids on
ERROR: stackunderflow
OFFENDING COMMAND: ~

STACK: