

# Multifocal Soft Contact Lenses, Part 2

Instructor:

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Section:

**Contact Lens**

COPE Course ID:

**53932-CL**

Expiration Date:

**May 15, 2020**

Qualified Credits:

**1.00 credits – \$39.00**

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## COURSE DESCRIPTION:

An in-depth survey of the various multifocal soft contact lenses, and how to incorporate them into practice. This course also covers troubleshooting hints for challenging patients when being fit with multifocal SCLs.

## LEARNING OBJECTIVES:

- Discuss the various major multifocal contact lenses available on the market
- Discuss troubleshooting specific lenses according to the manufacturer fitting guide recommendations
- Highlight the benefit of each lens through specific patient examples
- Troubleshoot techniques for especially challenging patients where the fitting guide recommendations leave the patients unsatisfied
- Learn how the various materials, wetting agents, and optical designs of the different manufacturers multifocal contact lenses can be best tailored to patient needs, for a more efficient and successful multifocal fitting experience

Hello. Welcome to part two of Pacific University's Online Web CE on fitting multifocal soft contact lenses. My name is Michelle Darnell, and I am an optometrist at a private practice in Spokane, Washington. My practice specializes in daily and multifocal contacts, as well as dry eyes. I fit approximately 80% daily contacts, and 20% multifocals. I have no financial disclosures to make.

In the last hour, we discussed my general multifocal fitting process, the specifics of the Alcon and Bausch + Lomb multifocal offerings, and then we went through a couple of patient cases. For the next hour, I will go through the Cooper Vision and Vistakon multifocals, and some more patient cases.

## Cooper Vision

Lenses that fall under the umbrella of Cooper Vision include Clariti 1 day Multifocals, Proclear 1 day Multifocals, Biofinity Multifocal, Proclear Multifocal (and Proclear Multifocal XR), and Proclear Multifocal Toric. Each multifocal lens in this family has unique properties that make them ideal (or less ideal) for specific patients.

Cooper Vision has two different optical designs for their contacts. The daily lenses, Clariti 1 day Multifocals and Proclear 1 day Multifocals, are a center-near design, much like the lenses from Alcon and Bausch + Lomb. Their monthly lenses, Biofinity Multifocal, Proclear Multifocal, and Proclear Multifocal Toric, are center-near in the non-dominant (N lens) eye, and center-distance in the dominant (D lens) eye. These two different optical systems make the fitting of Cooper's daily multifocals very different from their monthly lenses, and we will cover both in-depth.

### Clariti 1 day Multifocals

Clariti 1 day Multifocals are made of somofilcon A. They have a 56% water content and a Dk/t of 86. They come in a Low add, recommended for patients in a spectacle add up to +2.25, and a High add, recommended for patients in a spectacle add of +2.50 or higher. As mentioned above, this lens is a center-near design. (Fig. 1) One thing that I especially like about this lens is that it blocks 98% of UVB and 78% of UVA, according to Cooper's studies. Of course, a UV-blocking lens is not a substitute for a good set of sunglasses, as contacts do not cover the full surface of the eye and surrounding tissues.

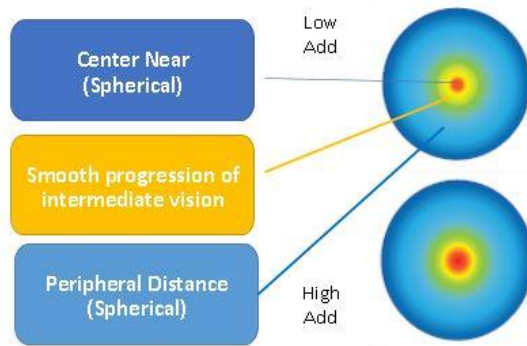


Figure 1: Clariti 1 day Multifocal optical diagram.  
Source: Cooper Vision marketing materials.

is a hyperope, scan across the top row until you get to the column with their spectacle add. Make the

To fit this lens, take your patient's spectacle correction, vertex it if necessary, and calculate the spherical equivalent if any astigmatism is present. For this lens, you do not need to know "the minimum add to 20/20", just the spectacle add, ocular dominance, and if they are a myope, hyperope or emmetrope.

Figure 2 below will help you with your initial diagnostic lens selection. In the figure, "BS" means Best Sphere, which is another term for the spherical equivalent of the spectacle prescription. If your patient

|                              | Ocular Dominance                 | Spectacle ADD<br>+0.75 to +1.75 | Spectacle ADD<br>+2.00 to +2.25  | Spectacle ADD<br>+2.50 and over   |
|------------------------------|----------------------------------|---------------------------------|----------------------------------|-----------------------------------|
| <b>Hyperopes</b>             | Dominant Eye<br>Non Dominant Eye | BS LOW<br>BS +0.25DS LOW        | BS +0.25DS LOW<br>BS +0.50DS LOW | BS +0.25DS LOW<br>BS +0.25DS HIGH |
| <b>Myopes<br/>Emmetropes</b> | Dominant Eye<br>Non Dominant Eye | BS LOW<br>BS LOW                | BS LOW<br>BS +0.50DS LOW         | BS +0.25DS LOW<br>BS +0.25DS HIGH |

BS = Best Sphere    LOW = Low ADD    HIGH = High ADD

Figure 2: Initial diagnostic lens selection recommendation for Clariti 1 day Multifocal. Source: Cooper Vision Clariti 1 day Multifocal Fitting Guide.

appropriate adjustments as recommended for their dominant and non-dominant eye. If your patient is an emmetrope or a myope, scan across the second row. I have this figure printed out and taped on the inside of the drawer that I store our set of diagnostic lenses in for easy reference. Looking at these recommendations, I hope you can see why we stock about twice as many Low add lenses as we do the High add ones.

As a quick example, we have a -2.00DS OU myope, who is right eye dominant with a spectacle add of +2.00. For her initial trial lenses, I would give her -2.00DS Low add for her right eye, and -1.50DS (-2.00 spectacle Rx + 0.50DS) Low add for her left eye.

Once we have our initial lenses selected and on our patient’s eyes, instruct the patient that these lenses are designed to work as a team, so they should evaluate the lenses with both eyes open, not covering first one eye then the other. Send them out into the optical, or your reception area or whatever real-world space you have available, for 10-20 minutes. As before, this gives the lenses time to settle, and the patient’s brain time to adjust to the unfamiliar optics. After that time, if comfort, fit and vision are acceptable, dispense the trial lenses and release the patient into their natural environment for one to two weeks to try out the lenses and make sure they work at their most needed distances. For me, acceptable vision is 20/25 OU distance and near.

If enhancements are needed to distance vision, try -0.25DS over the dominant eye. If near vision needs enhancing, try +0.25DS over the non-dominant eye.

### **Proclear 1 day Multifocal**

Proclear 1 day Multifocal lenses are made of Omafilcon A. They have a water content of 60%, and a Dk/t of 27. They also are a center-near aspheric design. From a fitting standpoint, in my opinion, the largest difference between this lens and the Clariti is that the Proclear 1 day Multifocal only has one add power. That may appeal to you for its simplicity, or it may be less appealing for the lack of options for near power.



The way that we boost near vision in the Proclear 1 day Multifocal is to add a “Near Boost” to the non-dominant eye. A “Near Boost” is exactly the same thing that I called “pushing plus” with the Alcon lenses. Thus, the terminology is different, but the concept is the same. See Figure 3 [Left] for how to translate the patient’s spectacle add into the Near Boost.

| Patient's ADD  | Near boost           |
|----------------|----------------------|
| up to +1.00    | No near boost needed |
| +1.25 to +1.75 | +0.75 D              |
| +2.00 to +2.50 | +0.75 D to +1.00 D   |

| Example refraction: -2.00 OU with +1.75 ADD |                  |
|---|------------------|
| ProcLEAR 1 day multifocal lens Rx           |                  |
| Dominant eye                                | Non-dominant eye |
| -2.00                                       | -1.25            |

Figure 3 [Left] Cooper Vision ProcLEAR 1 day Multifocal guide to determining Near Boost based off of the patient's spectacle add. [Right] An example patient's initial diagnostic lenses. Source: Cooper Vision ProcLEAR 1 day Multifocal fitting guide.

As always, vertex correct the spectacle prescription if needed, then determine the spherical equivalent. Using that, the patient's add power and their ocular dominance, select the appropriate initial diagnostic lenses. Remember to let the lenses settle for 10-20 minutes.

If the patient is happy with their vision at distance and near, dispense the lenses and have them give the lenses a trial run for one to two weeks. If the patient is not happy with their distance vision, do a quick over-refraction in 0.25D steps over their dominant eye while the patient has both eyes open. If the patient is not happy with their near vision, do the over-refraction in 0.25D steps over their non-dominant eye while the patient has both eyes open.



### Biofinity Multifocal

Now let's move on to Cooper Vision's monthly offerings. The Biofinity Multifocal is made of Comfilcon A, which has a 48% water content, a Dk/t of 142 and a modulus of 0.75. This lens features Cooper's Balanced Progressive™ technology, allowing for clear vision at far, intermediate and near distances. The Balanced Progressive™ design also allows for independent adjustment of either the distance or the near power without affecting the other power in an eye. Figure 4 shows the power curve of the Biofinity multifocal at various powers.

This lens also features a patented Aquaform® technology, making it naturally hydrophilic so it retains water inside the lens. When I have a dry eye patient who either is not interested in daily lenses or finds that the daily lenses dry out too much, this is the lens I reach for, because often they find that this lens does not dry out as much after a long day of wear.

As I said before, Cooper's monthly lenses are vastly different from an optics standpoint than their daily lenses are. The Biofinity (and the ProcLEAR series) Multifocal come in both a center-near (N lens) and a center-distance (D lens) design. When I was in school, I learned that the D lens went on the dominant eye, and the N lens went on the non-dominant eye, and I still teach my techs that. It is true, for higher add powers in the Biofinity lens. For lower add powers, up to an add power of +1.50, I use the D lens over both eyes.

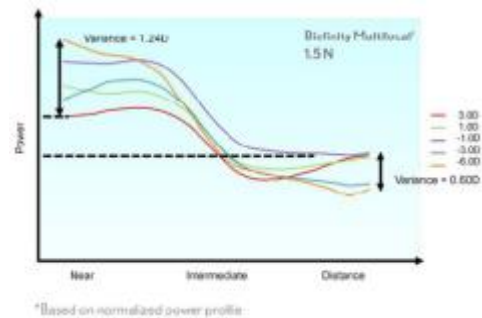


Figure 4: Biofinity multifocal power curve. Source: [www.mivision.com.au/uploads/figure-13.pdf](http://www.mivision.com.au/uploads/figure-13.pdf)

To select the initial trial lens, start with the vertex-corrected (if needed) spectacle prescription, and calculate the spherical equivalent. See Figure 5 for a guide as to which lens (D versus N) to begin with, based off of the patient's spectacle add.

| ADD   | Dominant eye | Non-Dominant eye |
|-------|--------------|------------------|
| +1.00 | D            | D                |
| +1.50 | D            | D                |
| +2.00 | D            | N                |
| +2.50 | D            | N                |

Figure 5: Cooper Vision's guide to selecting the D vs N lens based on the patient's spectacle add. Source: Cooper's Biofinity Multifocal Fitting Guide.

To maximize the effectiveness of this lens, Cooper Vision also suggests pushing the maximum amount of plus power for distance vision, which is in my opinion, the standard starting point for all multifocal contact lens fits. It is crucial for good near vision to not have your patient begin over-minused. They also suggest going with the lowest add power possible, for the same reasons we discussed in part one of this course – higher add powers can give more distance distortion which patients interpret as blur. Finally, do not forget to have your patient check their vision with their cell phone! Cooper recommends giving the lenses at

least 15 minutes to settle on the eyes.

If vision is unacceptable in the distance, perform a monocular over-refraction with loose lenses of +/- 0.25 and, if needed, +/- 0.50D over the eye that needs improvement. If reading vision is unacceptable, try +0.50 loose lenses over the eye that needs improvement.

Unlike the other multifocal companies and lenses we have discussed to date, Cooper recommends checking the patient's visual acuity at the follow-up both binocularly and monocularly. Figure 6 shows their guide to the patient's expected VA's. In any multifocal contact follow-up, I only check my patient's visual acuities binocularly unless there is a problem. Because multifocal lenses are designed to work together, in my opinion, covering one eye at a time only emphasizes the blur in each individual eye and can contribute to patient dissatisfaction, which is something that I am actively trying to avoid. However, if there is a problem with vision at one distance in this lens, you must check VA's monocularly. Do not assume that a problem with reading vision is a problem with the N lens – it may be that you need to adjust the add power on the D lens, instead. Similarly, do not assume that a problem with distance vision is a problem with the D lens – you may need to adjust the sphere power of the N lens to correct the problem. The only way you will know which lens is responsible for poor vision at a specific distance is to check the VA's of each eye separately. Another key point to remember here is if you are over-refracting to clear up the distance vision, you will want to use +/- 0.25D loose lenses. If you are over-refracting to clear up near vision, you will want to use +/- 0.50D loose lenses, as the add powers are only available in half-diopter steps.

Visual acuity expectations when using D and N lens combination

| Lens        | Distance        | Near            |
|-------------|-----------------|-----------------|
| Binocularly | 20/20           | 20/20           |
| D Lens      | 20/20           | 20/40 or better |
| N Lens      | 20/40 or better | 20/20           |

Figure 6: Monocular visual expectations. Source: Biofinity multifocal fitting guide.

### Proclear Multifocal and Proclear Multifocal XR

The Proclear Multifocal and Multifocal XR are both made of Omafilcon B. The Proclear Multifocal goes from +6.00DS to -8.00DS, while the XR extends the range from +20.00 to -20.00DS. The Proclear Multifocal boasts a water content of 62%, though the Dk is only 21. Like the Biofinity



multifocal described previously, this monthly lens also comes in D and N varieties. (Some of you may remember that the Proclear D lens with a +2.00 add has been studied and used as a myopia control lens.) The Proclear Multifocal lenses also feature the Balanced Progressive™ technology, giving them a very similar power curve to the one shown above for Biofinity.

Once again, we start with the most recent spectacle prescription, vertexed if needed, and calculate the spherical equivalent. Also arm yourself with the patient's ocular dominance. The fitting guide for the Proclear Multifocal does not specify using only D lenses at lower powers like we are instructed to do with the Biofinity multifocal. Rather, it says merely to assign the D lens to the dominant eye, and the N lens to the non-dominant eye. This makes for one less thing for us to remember when we are selecting the initial diagnostic lenses for a patient. If the patient's spectacle add power is between the add powers provided by the Proclear Multifocal (adds are available every 0.50D), I round down to the lower add power. Have the patient put the lenses on and then let them wander around your optical while the lenses settle for 15 minutes.

When you and the patient return to the exam room, Cooper recommends checking the VA's both binocularly and monocularly. The expected VA's are identical to those for the Biofinity Multifocal, shown above in Figure 6. Again, if there are no problems with vision at either far or near, I do not check monocular VA's for the reasons listed above in the Biofinity section. However, if there are problems at one distance, it is imperative that you do check VA's monocularly, as that is the only way to effectively isolate the problematic lens so you can efficiently fix the problem.

Let's go through the sample patient and initial diagnostic lens selection:

Spectacle Rx: OD -3.00 -0.75x180, OS -3.00-0.25x180. Add +1.75. OD Dominant.

These prescriptions do not need to be vertexed, so we can skip that step and move right onto figuring out the next step. For any prescriptions with -0.50 or -0.75 of astigmatism, Cooper recommends adjusting the diagnostic lens chosen by -0.25, rather than using the spherical equivalent. Thus, Cooper's lens choice for the right eye would be -2.75. This is different from my usual approach, which would be to select the most plus option, which in this case would be -2.50 looking at the spherical equivalent. For the purpose of this example, let's stick with Cooper's recommendation. Since the right eye is dominant, we know this will be our D lens. Our add power is +1.75, which falls between the offered adds of +1.50 and +2.00, so we will choose the smaller add power. Our initial diagnostic lens for the right eye will be -2.75 D lens +1.50 add.

For the left eye, since there is only 0.25 of astigmatism, Cooper recommends not making any changes to the sphere power when selecting the initial diagnostic lens. This does fit with my standard process of pushing the most plus at distance. The left eye is the non-dominant eye, so it will be an N lens, and the add power will also be +1.50. Our initial diagnostic lens for the left eye will be -3.00 N lens +1.50 add.

Hopefully you are still with me, and that makes sense. If not, feel free to pause the recording and spend a couple more minutes working through this example. If so, let's move on to the only multifocal toric lens on the market at the time this podcast was recorded.

## Proclear Multifocal Toric

I felt that the Proclear Multifocal Toric lens, being the only multifocal toric lens on the market, deserved its own section, even though it is technically part of the Proclear family. For those patients with -1.00 of astigmatism or more, who have failed in monovision yet still want the freedom from readers that multifocals can offer, this is an excellent, and the only, option.

The Proclear Multifocal Toric lens is made of Omaficon A, which has a 59% water content and a Dk of 21. This lens is a back surface toric lens with inverse prism ballasts at 3:00 and 9:00, which help provide stability. Conveniently, the lens markings are also at 3:00 and 9:00. Like the other Proclear lenses, the D lens strictly goes over the dominant eye, and the N lens strictly goes over the non-dominant eye.

To fit this lens, in addition to our standard spectacle Rx, add power, and ocular dominance, I also like to have the K readings handy. Proclear Multifocal Toric comes in two base curves: 8.4 and 8.8. For K's steeper than 43.50, I start with the 8.4 base curve lens. For those flatter than 43.50, I reach for the 8.8 base curve lens.

### BASE CURVE RECOMMENDATION

|         |                |
|---------|----------------|
| > 43.50 | 8.4 base curve |
| < 43.50 | 8.8 base curve |

Figure 7: Source: Cooper Vision Proclear Multifocal Toric Fitting Guide

My order of priorities when it comes to fitting this lens is to first get the distance vision clear, and then worry about the reading vision. One of the strengths of this lens, in my opinion, is that it is available in 5 degree axis steps for the full 180 degrees. Thus, we have the ability to get incredibly precise distance vision, compared to those toric lenses that only come in 10 or 20 degree steps around the two major axis. That said, it is doubly important in a multifocal to get the distance correct, so after the lens has settled for 15 minutes, take a few extra minutes to make sure that the lens is not rotating and that there is no distance over-refraction before you jump into determining the add power of this lens.

The same guidelines that apply to the other Proclear lenses apply to this one. Once distance is as clear as it can be and you have adjusted the toric portion of the prescription for any lens rotation, follow the guidelines for determining the proper add power. If the add power is in between the 0.50D steps provided by the add powers available, select the lower add power option. Let the lenses settle for 15 minutes, then bring the patient back in and check binocular VA's in normal room illumination. At the initial fit, VA's of 20/25 or 20/30 are acceptable, as the lens may rotate into better alignment as it settles further. If there are no problems, congratulations – the lens is ready to be dispensed for the one to two week trial.

After the one to two week trial, if there are problems either with near or distance vision, again, check monocular VA's to determine which lens is the problem and proceed as you would for a normal Proclear multifocal fitting. Visual acuity expectations are the same as they are for the Biofinity and other Proclear Multifocals, as shown above in Figure 7.

## Patient Example

Let's go through the patient that I fit in the Proclear Multifocal Toric lenses three weeks ago. D.B. is a 54YOWF. She works as an endoscopy tech at a local hospital. She also has a young child at home who likes to grab her glasses and try to rip them off her face.

This patient has previously worn monovision lenses, but feels that she loses clarity at her computer, and during procedures at work she is responsible for much of the charting, so she needs to see her screen clearly. At the time our patient made this contact lens fitting appointment, she was told by our staff that she needed to not wear her monovision contacts for at least 48 to 72 hours before the appointment, to allow her brain to “re-set” and be ready to adjust to new optics. This is very important to the initial success of this lens, and having a properly informed front desk staff to warn patients in advance really helps smooth the way for any multifocal fit.

D.B’s spectacle Rx and pertinent info is as follows:

OD: -1.25 -4.75 x091 +2.50 add, K’s: 44.50/49.50 x180

OS: -1.00 -1.50 x090 +2.50 add, K’s: 44.25/45.75 x180, OS dominant

So, first things first. The patient’s right eye is vertex-corrected to -1.25 -4.25 x091. Her K’s are steeper than 43.50, so I know we will be starting with the 8.4 base curve lens. The right eye is non-dominant, so we’ll grab the N version of this lens. The initial diagnostic lens I am going to try on this patient is: -1.25 -4.25 x090 N lens, +2.50 add, 8.4 base curve.

The left eye does not need to be vertex corrected. The K’s are also steeper than 43.50, so I’ll stick with the 8.4 base curve lens. D.B. is left-eye dominant, meaning we will need the D lens here. Our initial diagnostic lens for her left eye is: -1.00 -1.25 x090 D lens, +2.50 add, 8.4 base curve.

I let these lenses settle on the patient’s eyes for about 15 minutes as she wandered around our optical. VA’s were 20/25 OU in the distance, and 20/30 up close, so I dispensed these lenses and brought her back one week later.

The following week, the patient was very happy with the comfort of the lens, her distance and near vision, but is still struggling with her computer vision. Since there are no problems with distance or near vision, I did not do monocular VA’s. Instead, in normal room lighting, I sat the patient down in front of my computer and had her position herself about as far away from the screen as she usually is at work. I tried over-refracting with -0.50DS and -1.00DS lenses over her dominant eye (the left eye), and was able to get her computer vision clearer with -0.50DS. I did this over her dominant eye because, remember our general rule says that we want the lowest add power possible in front of the dominant eye to help reduce any distortions to distance vision.

I sent the patient home with the following trials for another week:

OD: -1.25 -4.25 x090 N lens, +2.50 add, 8.4 base curve.

OS: -1.00 -1.25 x090 D lens, +2.00 add, 8.4 base curve.

A week later, she came back absolutely ecstatic because she can now see the computer at work clearly. She appreciates better stereo vision when driving, and her toddler not always grabbing her glasses off of her face.

### **What would you do with this patient?**

A 43 year old woman comes into your office. She has happily worn toric soft contacts for years, but was told by a previous doctor that her only option to avoid reading glasses was monovision. The patient tried monovision recently for a few days, but really found the sensation uncomfortable and she felt very unsafe driving. The patient has finally decided that she needs something full-time for her near



vision, but really does not want to go the bifocal route. Your office fit her friend in multifocal contacts a few months ago. Though she does not expect you to be able to help her, due to her “stigmatism,” she is wondering if you can do something for her like you did for her friend. The patient has already had her routine eye exam at another office this year, so she is paying cash at your office today based solely on her friend’s recommendation.

After a routine exam, the patient’s info is as follows:

OD: +1.00 -1.00 x180, Add +1.50, K’s 42.00/43.00 x092 OD dominant

OS: +1.00 -1.75 x180, Add +1.50, K’s 42.00/43.50 x088 OS non-dominant

Since the K readings for both eyes are below 43.50, let’s use the 8.8 base curve lens in each eye. You pick the initial lenses as follows: OD +1.00 -0.75 x180 D lens, +1.50 add. OS +1.00 -1.75 x180 N lens, +1.50 add. You let the patient wander the optical for 15 minutes or so, then bring them back into your exam room. The patient reports that her distance vision really feels “off” to the point where she doesn’t think these lenses are going to work.

Table 1

The patient’s monocular VA’s are shown in Table 1. Remember that with the D lens, our ultimate goal is 20/20 vision at distance and 20/40 near, but at initial fit anything 20/30 or better is

|               | Right Eye       | Left Eye    |
|---------------|-----------------|-------------|
| Lens Type     | D lens          | N lens      |
| Distance VA’s | 20/40           | 20/30       |
| Near VA’s     | 20/30           | 20/20       |
| Lens Rotation | 5 degrees right | No rotation |

acceptable. With the N lens, our ultimate goal is 20/40 distance and 20/20 near, but with initial fit anything 20/30 or better is acceptable. Refer back to the VA guide in the Biofinity portion of this presentation (Fig. 6) for reference. According to those guidelines, clearly the distance power in the D lens is our problem.

You also notice in the slit lamp that the right lens is rotating 5 degrees to the right. Using LARS (Left add, Right subtract), you switch out your initial right lens for +1.00 -0.75 x175 +1.50 add. The patient’s monocular VA’s in the distance for OD only is now 20/30 with a plano over-refraction, which meets our goals for vision at the initial fit. Your patient is not overly ecstatic with her vision, but you tell her to give her eyes and brain a few days to adjust to the new lenses, and if things do not clear up within the next week, you tell her we will try a few more things. You mentally cross your fingers and send her on her way.

The next week, she is back in your chair. Her distance vision never cleared up to the point that she was comfortable with it, but she loves the reading vision. Her vision in her right eye in the distance is holding steady at 20/30. You check her over-refraction, which is plano, and the lens is not rotating and positioned exactly where it should be.

What would you do next?

The easiest thing, of course, is to tell this patient that you’re sorry, but it’s either this, monovision, or readers/bifocals. After all, you’ve already collected her contact lens fitting fee. But if you let this patient down, not only will you lose any potential referrals from her, but I guarantee you that the patient that referred her to you is also going to hear about it. Is there anything else that can be done for this highly motivated patient?

Personally, I can think of two things to try right off the bat. We know that she has comfortably worn toric lenses for years. I would try her in a regular toric lens in her dominant eye and leave the multifocal in her non-dominant eye. With the low amount of astigmatism in her right eye, we could also try a spherical multifocal there, just in case there's something about the toric multifocal optics that are throwing her off.

Were this my patient, I would start with the modality that I know she has been successful with before – a regular toric lens in her right (dominant) eye, saving the spherical multifocal as my last-ditch “Hail Mary” trick.

I actually did have this patient in my office. At the initial follow-up after that 1<sup>st</sup> trial run week, I put her in the following:

OD: Proclear monthly toric +1.00 -0.75 x180, 8.8 base curve

OS: Proclear toric multifocal +1.00 -1.75 x180 N lens, +1.50 add, 8.8 base curve

One week later, the patient was back in my chair, practically in tears over how happy she is with her vision. Table 2 shows the patient's monocular VA's, which I took only because I intended to use her as an example in this lecture. In a normal happy multifocal patient, I would only take her binocular VA's and leave it at that.

Table 2

|                      | Right Eye      | Left Eye |
|----------------------|----------------|----------|
| <b>Lens Type</b>     | Standard Toric | N lens   |
| <b>Distance VA's</b> | 20/15          | 20/30    |
| <b>Near VA's</b>     | 20/50          | 20/20    |

## Vistakon/Johnson & Johnson

Vistakon has two multifocal offerings on the market. Their daily lens is the 1-Day Acuvue Moist Multifocal, and their bi-monthly lens is Acuvue Oasys for Presbyopia. These two lenses have vastly differing optics, so we will go over both systems in depth. Vistakon multifocals are not recommended for patients with over 1.00D of astigmatism.

### 1-Day Acuvue Moist Multifocal

The 1-Day Acuvue Moist Multifocal is made of etafilcon A. It boasts a 58% water content and a modulus of 0.31 MPa. The lens is available in add powers from +6.00 to -9.00, in 0.25D steps, with three add powers – low, medium, and high, for greater flexibility in near vision. Our rule of higher add powers causing distortion in the distance holds true with these lenses, in my experience. You may find differently, of course.

The 1-Day Acuvue Moist Multifocal employs center-near optics, much like the Alcon and Bausch + Lomb multifocals described in Part 1 of this course. One thing that makes this lens stand out is Vistakon's Intuisight™ Technology, which uniquely optimizes the optical zone of each lens according to standard pupil sizes

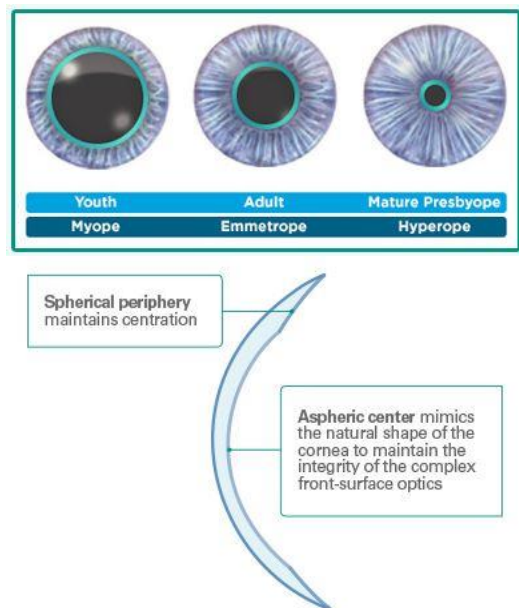


Figure 8 [Top] Intuisight™ Technology for pupil optimization. [Bottom] The shape of the back curve of the lens. Image source: AcuvueProfessional.com

graded by patient age and refractive power. Figure 8 [Top] shows the general concept Vistakon has employed to optimize the optics in their multifocals to each individual patient. They have 183 different designs spread among all possible combinations of sphere and add powers.

The other unique thing about this lens is its hybrid back surface, shown in Figure 8 [Bottom]. This hybrid back surface follows the natural shape of the cornea and allows for better centration to help keep the complex optics aligned squarely over the pupil.

The power profile is shown in Figure 9, with the center (add power) of the lens on the left, gradually going to the edge of the optic zone (distance power) on the right. In this figure, the green line is the -3.00DS lens with a Low add power. The blue dots indicate the -3.00DS lens in the Medium add power, and the red line indicates the same lens in a High add power. You will notice, especially in the medium and high add powers, the gradual change from the add power, allowing clarity at all distances. The power profile seems to hold pretty steady at the distance power, so we do not need to push plus at distance here.

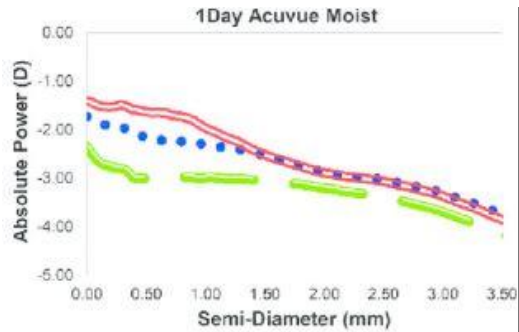


Figure 9: The power profile of a 1-Day Acuvue Moist Multifocal, in Low, Medium, and High add powers. Source: [https://www.researchgate.net/publication/308797176\\_Power\\_Profiles\\_of\\_Commercial\\_Multifocal\\_Soft\\_Contact\\_Lenses](https://www.researchgate.net/publication/308797176_Power_Profiles_of_Commercial_Multifocal_Soft_Contact_Lenses)

| For the best balance of distance and near vision |                  |                | For patients requiring an enhancement for distance vision or near vision |                      |
|--|------------------|----------------|--|----------------------|
| ADD  | EYE              | LENS SELECTION | ENHANCED DISTANCE VISION   | ENHANCED NEAR VISION |
| +0.75D to +1.25D                                 | Dominant Eye     | LOW            | 1-DAY ACUVUE® MOIST BRAND SPHERE   | LOW                  |
|  | Non-dominant Eye | LOW            |  | LOW +                |
| +1.50D to +1.75D                                 | Dominant Eye     | MID            | LOW  | MID                  |
|  | Non-dominant Eye | MID            | MID  | MID +                |
| +2.00D to +2.50D                                 | Dominant Eye     | MID            | MID  | MID                  |
|  | Non-dominant Eye | HIGH           | MID +  | HIGH +               |

Figure 10 [Left] Vistakon's guide to selecting the add power of your initial diagnostic lens based on the patient's spectacle add power. [Right] Enhancement guide for patients needing adjusting after the 10 minute settling period. Source: AcuvueProfessional.com

The final thing that makes this lens a good seller with my patients is that it blocks 97% of UVB and 82% of UVA rays.

To fit this lens, as always, start with a spectacle refraction that pushes the maximum amount of plus in the distance. Ensure that astigmatism is less than 1.00D, and if so, calculate the spherical equivalent and vertex if needed. Determine the dominant eye and the add power based on the patient's visual needs (phone, tablet, computer, etc.). To determine the diagnostic lens with the correct near power, please see Figure 10 [Left].

Vistakon recommends giving the patient at least 10 minutes' worth of "real world exposure (outside the exam room)" before evaluating the visual performance of these lenses. If, after those 10 minutes, the patient has a visual need that is not being met, please see Figure 10 [Right] for the appropriate enhancements. The "+" sign after the add power indicates that one should add +0.25 to the distance power in the non-dominant eye. If you think back to Part 1 of this course, you will see how this is exactly like the other center-near design lenses we have discussed previously.

### **Practice Patient**

Let's do a quick practice patient. A 46YOM wants to be fit in multifocal contacts. His prescription is as follows:

OD: -1.50-.025 x178, +1.75 add, dominant

OS: -1.50DS, +1.75 add, non-dominant

Per the fitting guidelines, let's start out with a -1.50DS Medium add lens in both eyes. After his 10 minutes of wandering around my optical letting the lenses settle, the patient reports that he is happy with his distance vision, but his vision when looking at his smart phone could be improved. When we put +0.25D lens over his non-dominant (left) eye, that brings the phone into sharper focus. Thus, the final lenses I would send this patient home with for a 1-2 week trial period would be:

OD: -1.50DS Medium add

OS: -1.25DS Medium add

What would you do if the patient liked his near vision, but instead found his distance vision to be lacking? In this case, remember our rule that higher add powers cause more distortion and blur for patients. In this case, I would back off a little on my near add over the patient's dominant eye to try to reduce that distance distortion and blur as much as possible. In difficult troubleshooting situations, I have even been known to put a patient who needed super-crisp vision in the distance in just a standard single vision lens in their dominant eye, keeping the multifocal only in their non-dominant eye. Just like we did for one of the patient examples earlier. For the purpose of this example, however, let's assume that the decrease of the near add power over his dominant eye fixed his distance vision problem. Thus, the lenses I would send him home with in this case would be:

OD: -1.50 DS Low add

OS: -1.50 DS Medium add

Hopefully both of these situations make sense and you can understand why I made the changes I did based on the patient's visual complaints with the initial diagnostic lenses. If not, please feel free to pause the recording and take a few minutes to review the examples.

## Acuvue Oasys for Presbyopia

Now, let's move on to our final multifocal soft contact lens that will be covered in this course – Acuvue Oasys for Presbyopia. This lens, like all of the Acuvue family, is a 2 week lens. This lens can be worn as a daily wear modality if thrown away every 2 weeks. It can also be slept in, as long as the patient throws the lens away every 7<sup>th</sup> day, and gives their eyes a break for 1 night each week before putting in the new lens the following morning. This lens is also available in High, Medium and Low add powers.

Acuvue Oasys for Presbyopia is made of senofilcon A. It has a 38% water content with a Dk/t of 147 and a modulus of 0.72. The optics of this lens are unique in the soft contact lens multifocal market. This lens is a center-distance multifocal, with 5 concentric aspheric zones on the front of the lens. (This lens reminds me of the original multifocal IOL implants with their concentric rings that we could see in our cataract patients.) Utilizing Vistakon's Stereo Precision Technology™, these rings work to provide balanced near, intermediate, and distance vision across many different lighting conditions. The power curve shown in Figure 11 shows the five distinct rings (valleys and hills) through the optic zone of the contact, based on the low (green), medium (blue) and high (red) add powers.

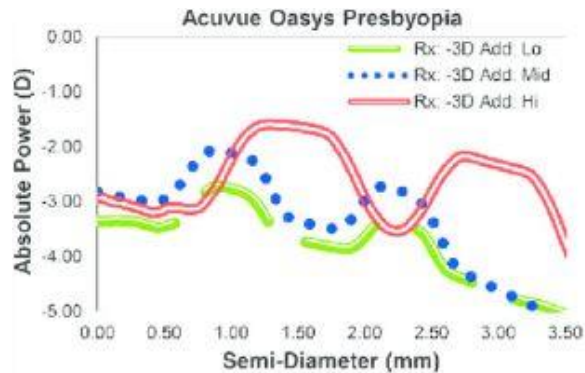


Figure 11 The power curves of the three add powers in the Acuvue Oasys for Presbyopia.

Source: [https://www.researchgate.net/publication/308797176\\_Power\\_Profiles\\_of\\_Commercial\\_Multifocal\\_Soft\\_Contact\\_Lenses](https://www.researchgate.net/publication/308797176_Power_Profiles_of_Commercial_Multifocal_Soft_Contact_Lenses)

Vistakon has developed Hydraclear® Plus Technology, which balances the increased oxygen transmissibility of a silicone hydrogel lens with a good wetting agent for better comfort. The Acuvue Oasys for Presbyopia also blocks 96.1% of UVA and 99.9% of UVB radiation from the sun, which to my knowledge, is one of the highest UV blocking soft contacts on the market. Again, a UV blocking contact lens does not protect the whole eye and adnexae from damage from the sun – only a good set of sunglasses will do that. However, the extra protection is always a good idea.

- Lens "LOW" = "low" near ADD lens (Max +1.25 ADD)
- Lens "MID" = "medium" near ADD lens (Max +1.75 ADD)
- Lens "HGH" = "high" near ADD lens (Max +2.50 ADD)

Figure 12: Guide to selecting the appropriate add power for Acuvue Oasys for Presbyopia multifocal lenses. Source: Acuvue Oasys for Presbyopia Fitting Guide.

For the distance power of each eye, select the lens power that is closest to the spherical equivalent of the vertexed spectacle lens prescription. The near power of your initial diagnostic lens will be selected based on the guide shown in Figure 12. Allow the lenses to settle in a real-world setting for at least 10 minutes.

For this lens, Vistakon recommends checking the VA's both binocularly and monocularly. However, I usually just check the vision binocularly unless I am in the middle of a very intense troubleshooting session and the standard recommended adjustments are not working.

To fit this lens, once again, start out with the spectacle Rx, vertexed if needed, and determine the spherical equivalent. You will not need K's, as this lens is only available in 1 base curve – 8.4. However, you will need the spectacle add power, and ocular dominance. For the

If the near vision needs to be improved, using loose lenses with both eyes open, I like to see how much plus power I can put over their non-dominant eye without decreasing the quality of the patient's distance vision too much. Often, pushing plus in the distance will fix any near vision problems. If after pushing the maximum plus on the non-dominant eye, the near vision still needs improvement, bump the add power over the non-dominant eye up to the next level, if possible.

For distance vision improvements, using loose lenses, see if you can push -0.25D minus over the dominant eye while the patient has both eyes open. If that does not work, decrease the near add power over the dominant eye.

For more in-depth troubleshooting, try adjusting the distance vision first, either monocularly or binocularly as you feel appropriate. Once distance vision has been maximized in these lenses, adjust the near add powers if necessary to enhance reading vision.

### **Patient example**

Our last patient of the day is M.B. M.B. is a 54YOWM, and a minister at a local parish. As you will see, he has a minimal distance glasses prescription, and he would very much like to not have to wear reading glasses when giving his Sunday sermons to see his notes. He also enjoys Sudoku and crossword puzzles. We had a long talk at the beginning of his appointment regarding his visual expectations, and the fact that if he is looking at small print up close, such as a small-print Bible, or maybe a smaller print crossword puzzle in the newspaper, he would likely still need low-powered readers over the top of his contacts. The patient understands, and says that he would be happy to reduce his dependence on readers. He reads and does these activities in a variety of lighting situations throughout his day, and thus his pupils will be different sizes during these regular tasks. This is the main reason that I decided to fit him in the Acuvue Oasys for Presbyopia – my understanding of multifocals tells me that this multifocal is the one that is least dependent on pupil size for the optics to work.

M.B.'s glasses prescription is as follows:

OD: +0.25DS +2.25 Add, dominant

OS: -0.25DS +2.25 Add, non-dominant

Following the fitting guide, I selected the following initial diagnostic lenses for the above patient:

OD: Oasys for Presbyopia, +0.25DS High Add

OS: Oasys for Presbyopia, -0.25DS High Add

I told the patient to look at small print, such as would be in his bible, and look at print in magazines around my waiting room that was approximately the size of the print for his sudoku's and his crossword puzzles. After giving him 10 minutes to get used to the optics and letting the lenses settle, I brought the patient back to the exam room. The distance vision was reported as "good" (20/25) with a little bit of glare that he thought he could get used to. Near vision was a little bit blurry, even on the bigger print that he had looked at.

Using loose lenses with both eyes open, an over-refraction of +0.25DS over his non-dominant left eye cleared up all but the smallest print, which we expected he would need readers for, anyway. His binocular near VA's after the slight adjustment to the left lens – changing it to Plano power High add – corrected to 20/25, which is my usual end-goal with multifocals.

I sent this patient out into the real world for his 1-2 week trial, and he is very happy with his new contact lenses.

### **Conclusion**

I hope that this course helped you understand the key differences between the multifocal options that are available in the market today, and that it gave you some ideas on how to incorporate multifocal contacts into your practice. Most of the tips and tricks that I have shared with you today I gleaned from the manufacturers' fitting guides on the various multifocals, with a few tips and tricks that I have developed in my practice. If you ever get stuck, refer back to the appropriate fitting guide for troubleshooting steps, and don't be afraid to try a standard distance-only contact in the patient's dominant eye and a multifocal in the non-dominant eye if a multifocal in both eyes is not working out. Typically multifocal lenses are designed to be used as a team, but sometimes patients need just that little boost to distance clarity that a non-multifocal in the dominant eye can provide.

Remember – your biggest key to success with multifocals is effectively setting patient expectations. This is the part of the contact lens portion of my exam that has the biggest return on investment. Tell your patients that they will have functional vision at the distances that are most important to them, but it will not be perfect, and do not guarantee they will be free of reading glasses 100% of the time. Warn them that it may take a few fitting appointments to get the contacts specifically tailored for their lifestyle, but with time and patience, most are successful. Of course, if you have any questions or comments, please feel free to email me.

I would like to thank my reps at each of the "Big 4" contact companies, Holly Vancampen at Alcon, Bill Lynch from Bausch + Lomb, Chase Roy at Cooper Vision, Thomas Hurst at Vistakon, and Kevin Lee at ABB, for their help in procuring marketing material, graphics, and for working to teach me the finer points of their particular multifocals. Thanks to Rachel Murphy, OD for her input. Without their help, this presentation would not have been possible.

Thank you for using Pacific University's Online Web CE program.

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