Speaker Financial Disclosure Statement

Charlie Saccarelli is an owner and the president of Chadwick Optical.
He potentially makes money when you buy stuff from Chadwick Optical.
All relevant relationships have been mitigated.

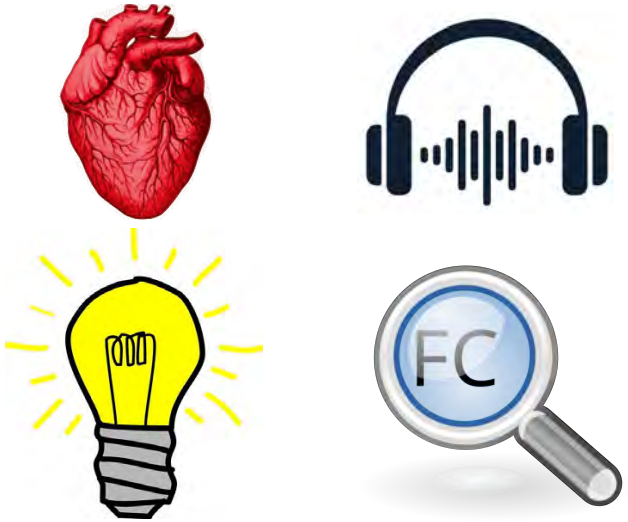
Charlie’s Car

2009 Nissan Versa

ONE MORE THING

- You can take pictures of the slides if you want, but I'd rather you just pretend to pay attention to what I'm saying. It makes me feel so good.

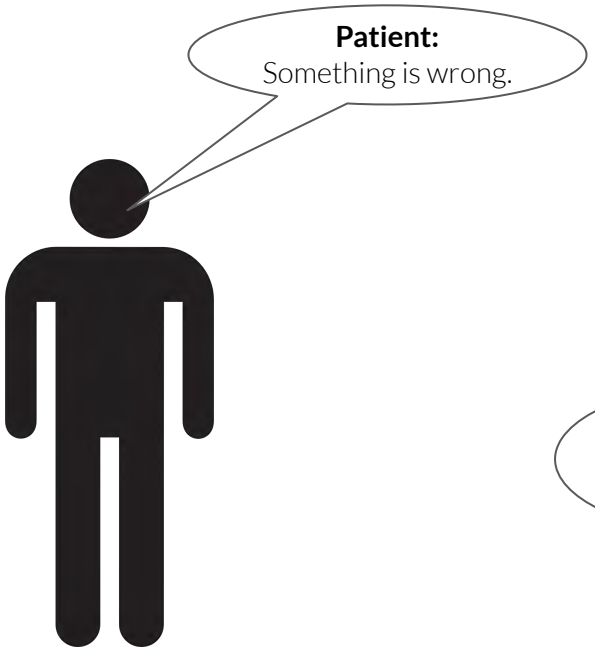
- Email me at cbs@chadwickoptical.com, and I'm happy to share the entire presentation with you. Or text/What's App/whatever me at 267-374-5601



The Main Tools of Low Vision

Charlie Saccarelli, ABOM

MY PERSONAL CAMPAIGN AGAINST GASLIGHTING



This will probably be you someday.

PURVEYORS OF THE STANDARD OF CARE

The tests we ran look fine, so YOU must be fine.

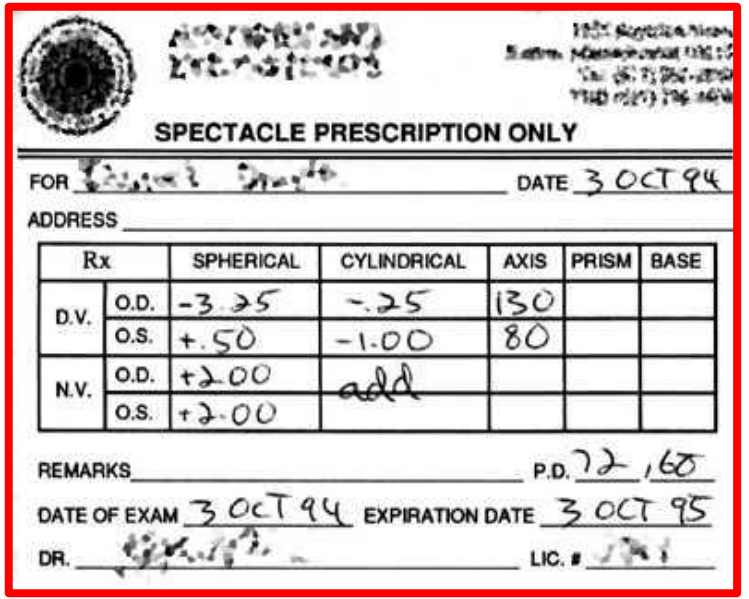
Great news! Your problem has a name! I did my job!

Your refraction is correct, so everything MUST be fine. You can see 20/20. What more do you want?

Your glasses meet ANSI standards, so everything MUST be fine.

Let's Exceed the Standard of Care

- **Vision** goes far beyond the refraction/diagnosis
- **"Understanding is love's other name"** - Thich Nhat Hanh
- Just keep trying to understand.
  - What is it like to have this condition?
  - What is it like to see through their eyes?
- Know the people in your area who specialize in that stuff so if you can't help them, you can introduce them to someone who can.



SPECTACLE PRESCRIPTION ONLY

FOR [redacted] DATE 3 OCT 94

ADDRESS

Rx		SPHERICAL	CYLINDRICAL	AXIS	PRISM	BASE
D.V.	O.D.	-3.25	-.25	130		
	O.S.	+.50	-1.00	80		
N.V.	O.D.	+2.00	add			
	O.S.	+2.00				

REMARKS P.D. 72, 60

DATE OF EXAM 3 OCT 94 EXPIRATION DATE 3 OCT 95

DR. [redacted] LIC. # [redacted]

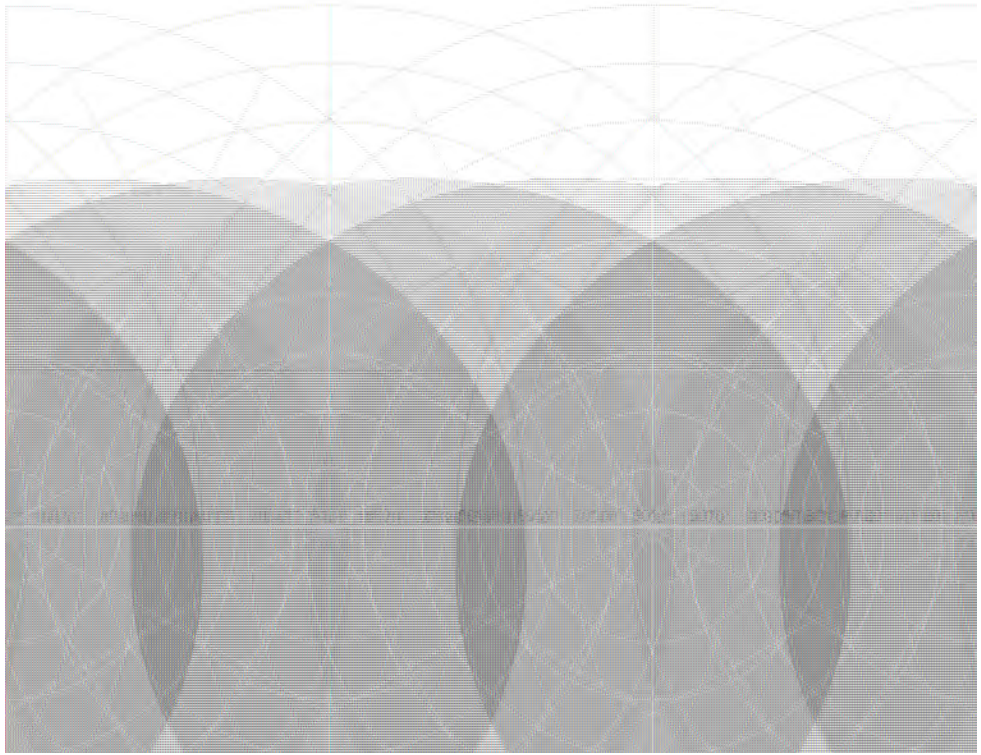
“As to methods, there may be a million and then some, but principles are few. The man who grasps principles can successfully select his own methods. The man who tries methods, ignoring principles, is sure to have trouble.”

AGENDA

- Sight
  - What’s low vision like?
- Heart
  - Stages of grief
  - The low vision mindset
  - The path from diagnosis to treatment
- Tools
  - Start simple
  - Lighting
  - Glare Control
  - Magnification
  - Technology

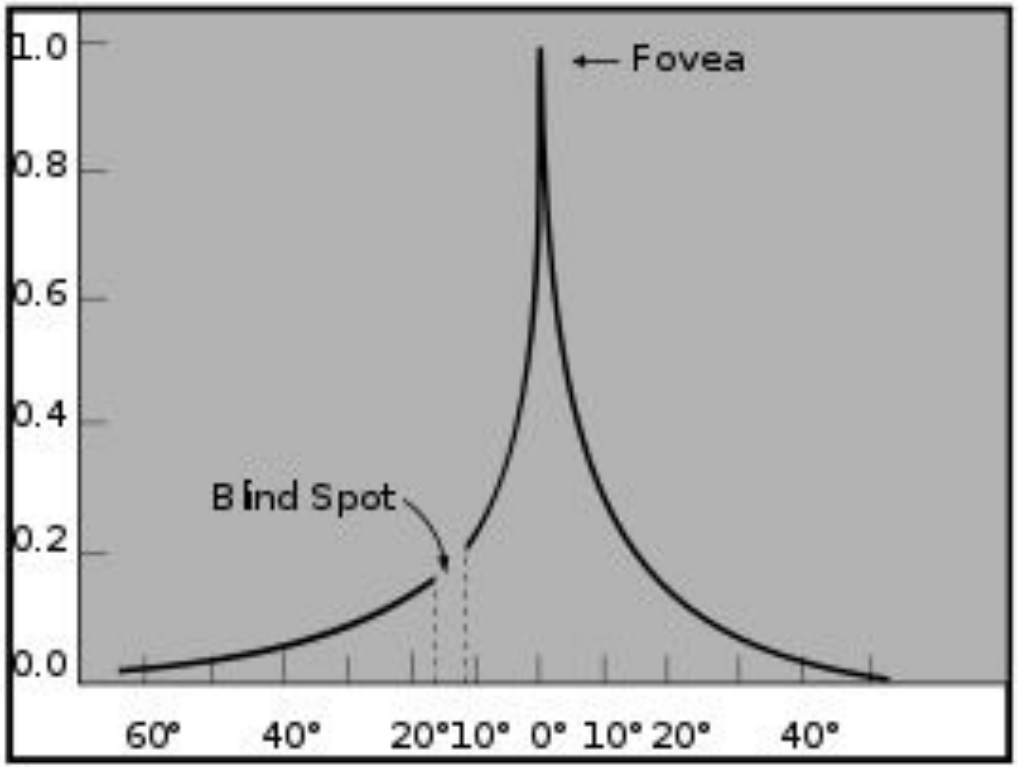
Your Vision

- ~190 degrees of visual field
- ~120 degrees of binocular field
- Each eye has:
  - ~90 temporal
  - ~60 nasal

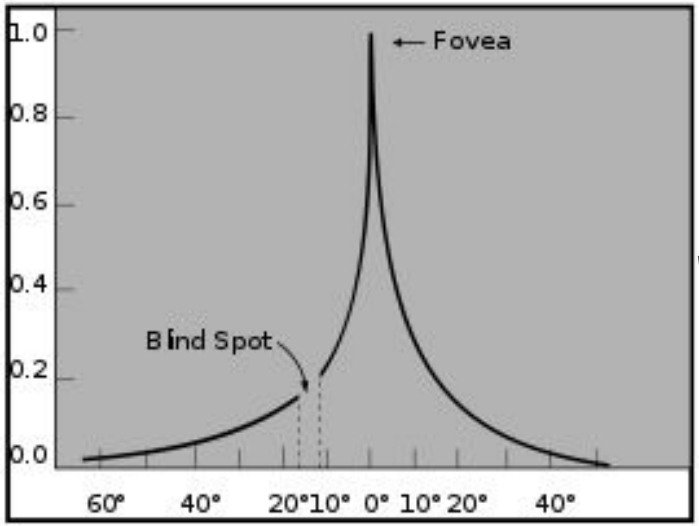


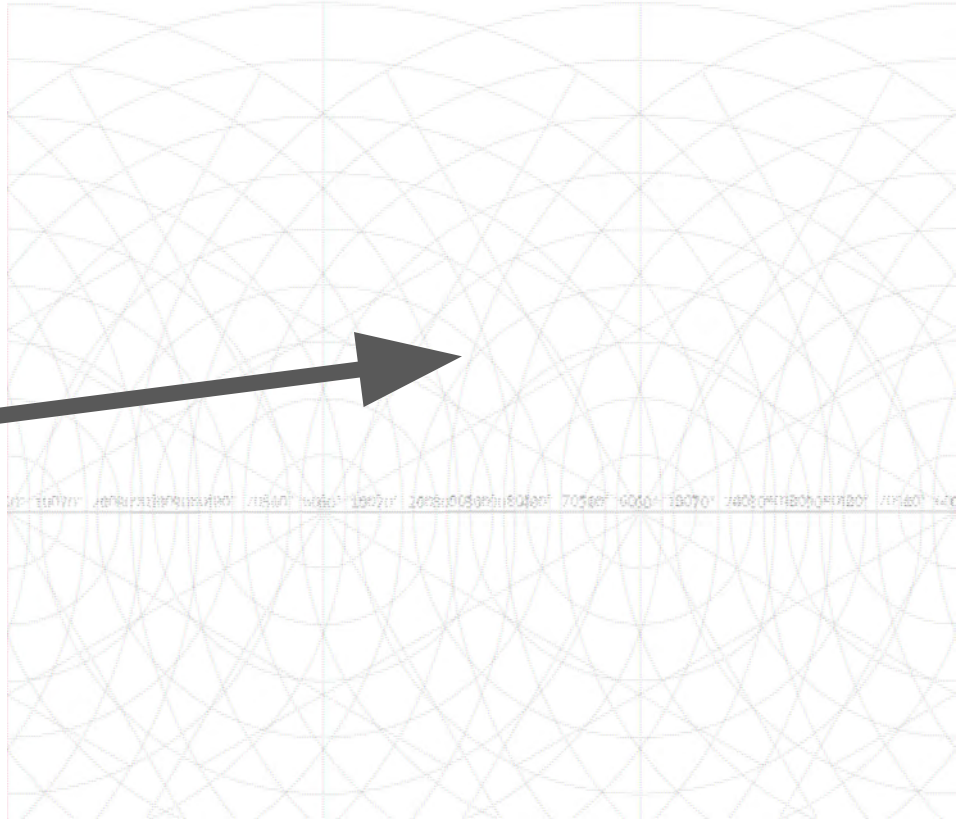
Traditional Plot of Visual Acuity Relative to Fovea

Decimal	Snellen
1.0	20/20
0.8	20/25
0.6	20/32
0.4	20/50
0.2	20/100
0.1	20/200



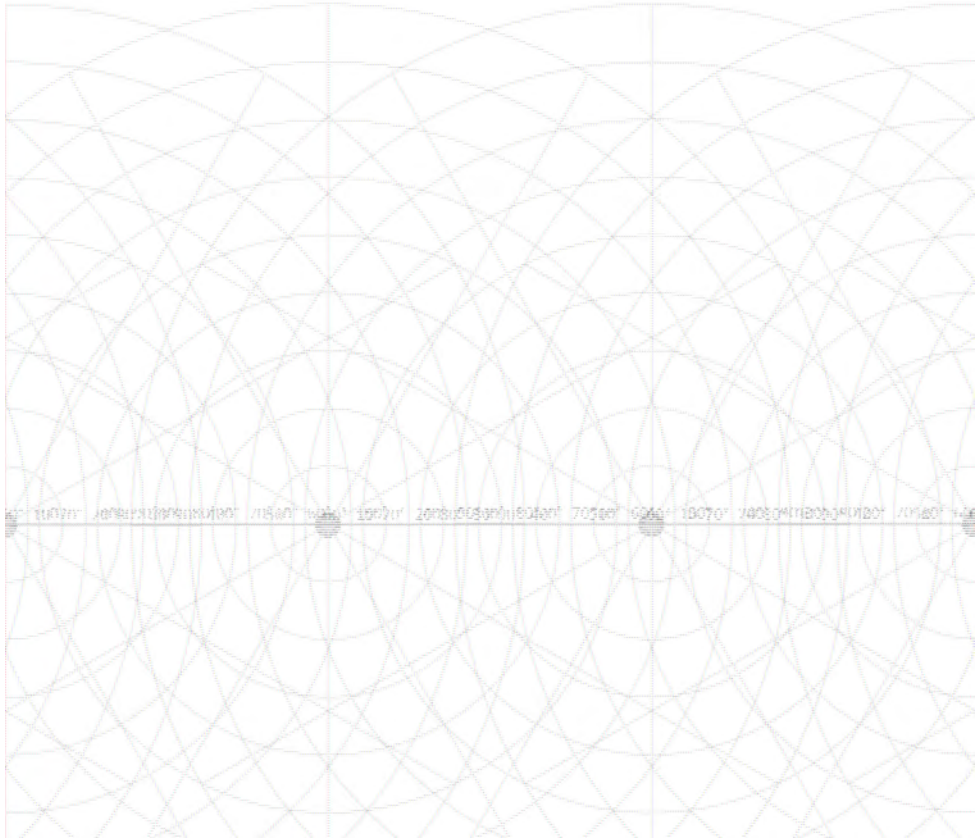
Plot of Acuity within Visual Field





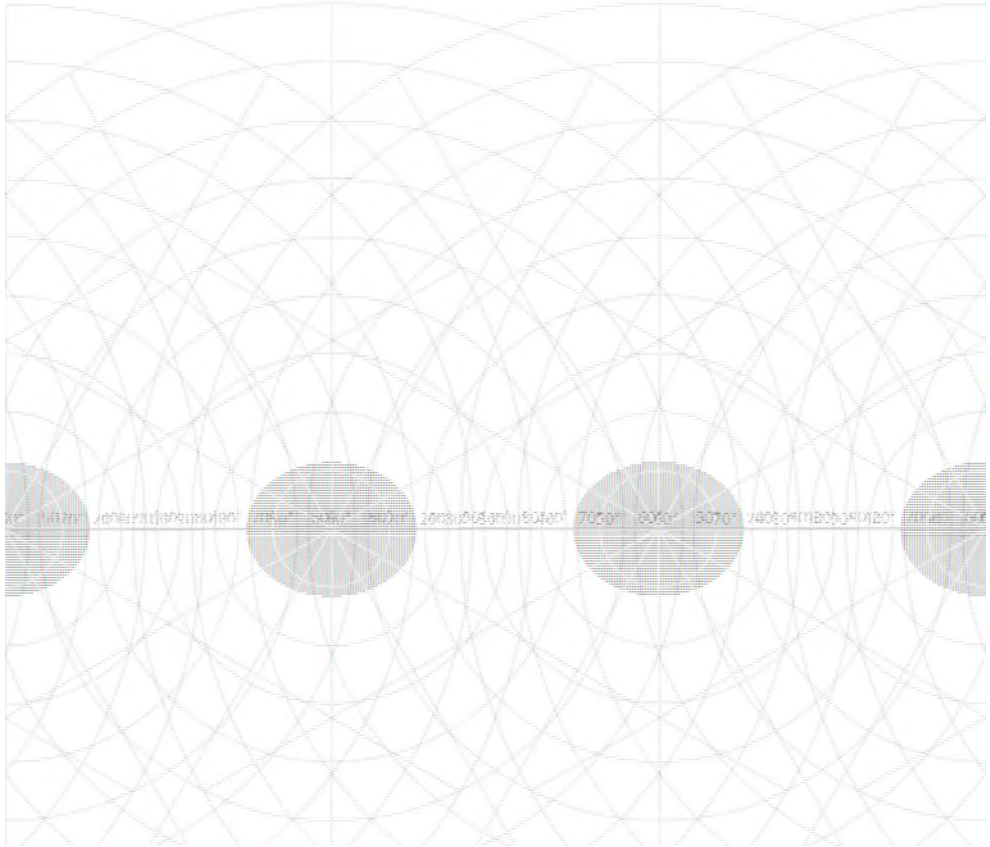
Acuity within Visual Field

Area of Best Possible Vision



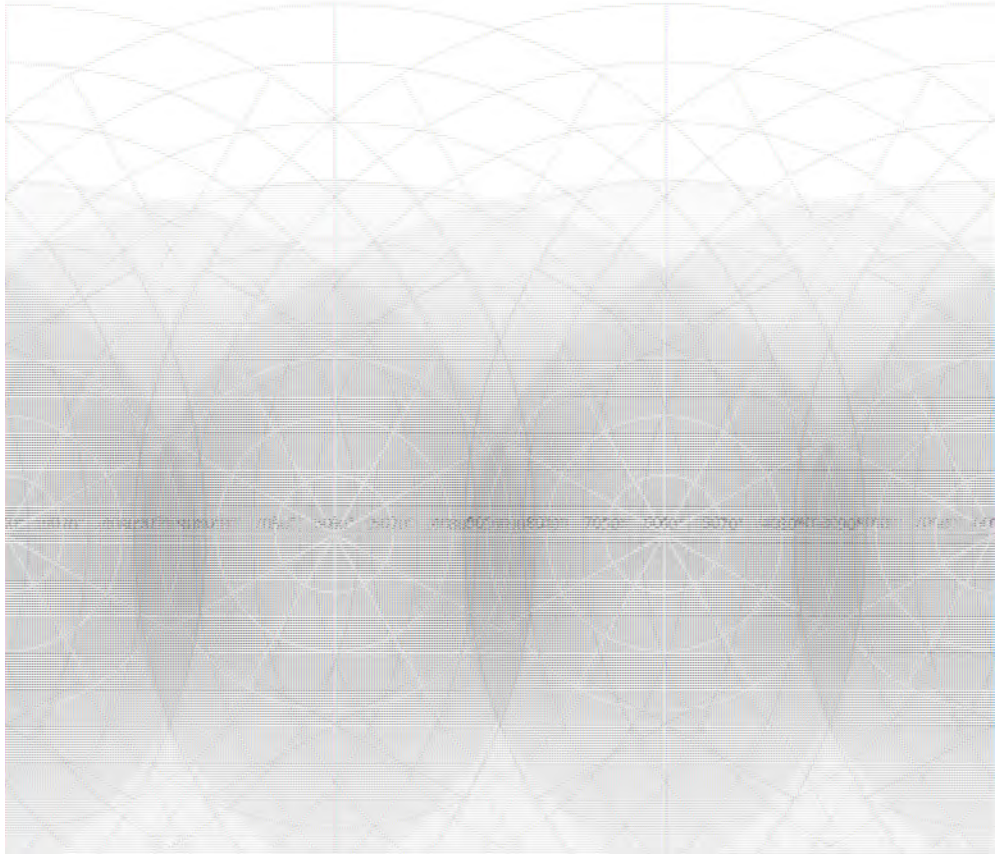
Acuity within Visual Field

Better than low vision.



Acuity within Visual Field

Low Vision to Legally Blind



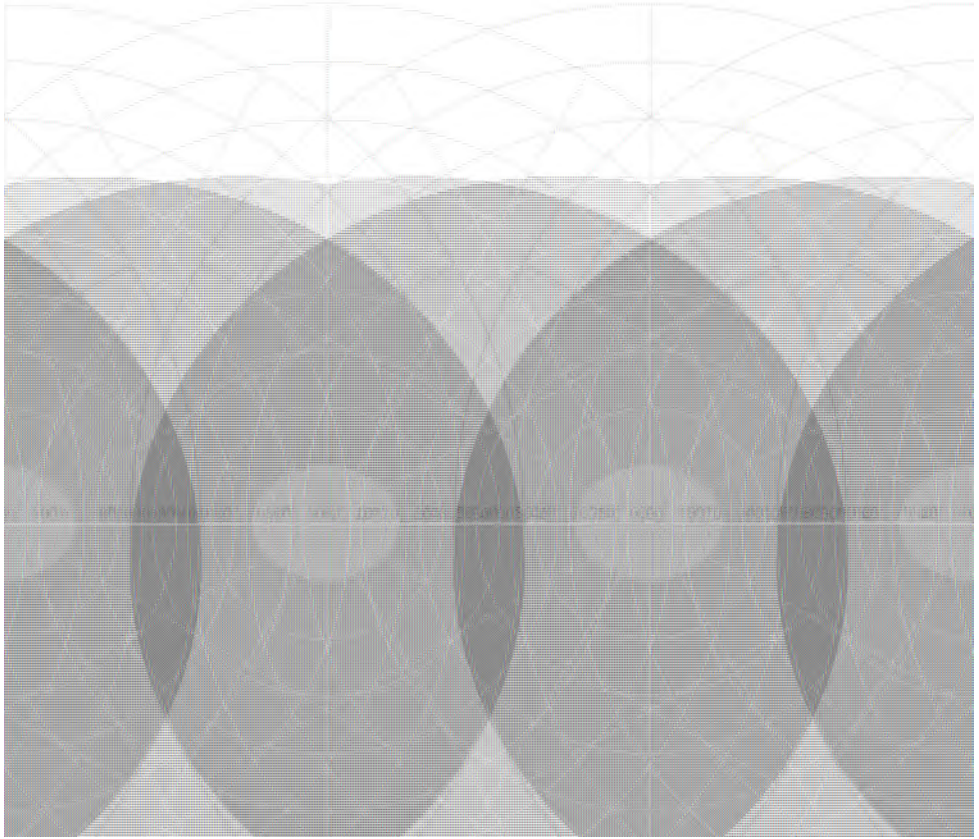
How We See

It's not a picture

We focus on various areas within a scene to create a picture in our minds using these little snapshots

Orange: Where Things Are (ambient)

Purple: What Things Are (focal)



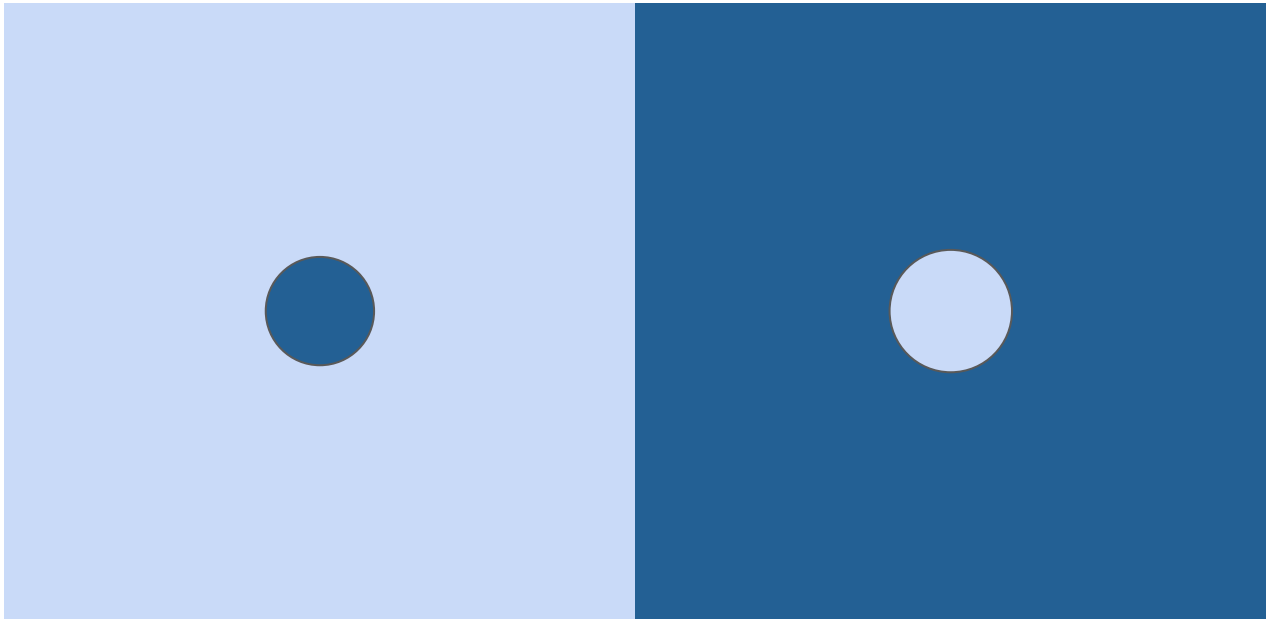
Knowing what you know now, how is this picture misleading?

NORMAL

Diabetic Retinopathy

How about this one?

The brain takes whatever info it has available, and does the best it can with it.



Simulation from Vision Scientists

Common Path of a Low Vision Patient

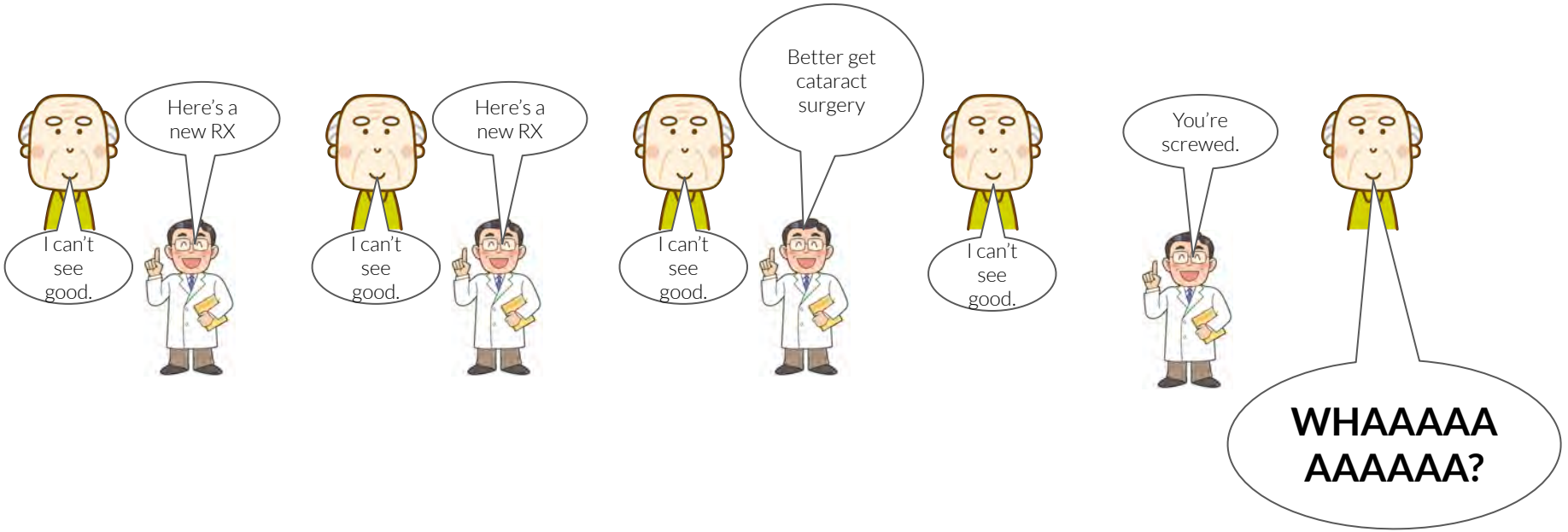
I can't see good.

You have macular degeneration. There's no cure. Bub-bye.

Denial
Anger
Bargaining
Depression
Acceptance

Potential openness to low vision care (if they know it exists)

The Years Preceding



Principles - Impairment vs. Disability

Impairment is only a disability when a person is unable to do something they want to do.

We're helping overcome the disability.
We're not helping overcome the impairment.

Questions that don't make sense
What's the best tint for macular degeneration?
What's the best lamp for retinitis pigmentosa?
What's the best software for albinism?

Disabilities Show Up in **Activities of Daily Living (ADLs)**

- Inability to read books
- Inability to distinguish currency
- Playing cards
- Reading pill bottles, newspaper,
- Reading the menu at a restaurant
- Seeing computer screen
- Seeing detail of faces
- Seeing street signs
- Finding the right button on a microwave
- Turning the oven/stove to the appropriate setting

Principles - Types of Help

- Make it brighter
- Make it bigger (without field reduction)
- Use another sense
- Make it less bright
- Make it bigger (with field reduction)

Methods - Tools to Help

Beware the *Law of the Instrument*

If the only tool you have is a hammer, it is tempting to treat everything as if it were a nail.

Custom eyeglasses (our frequent instrument) are often a relatively expensive solution

Methods to Make it Brighter

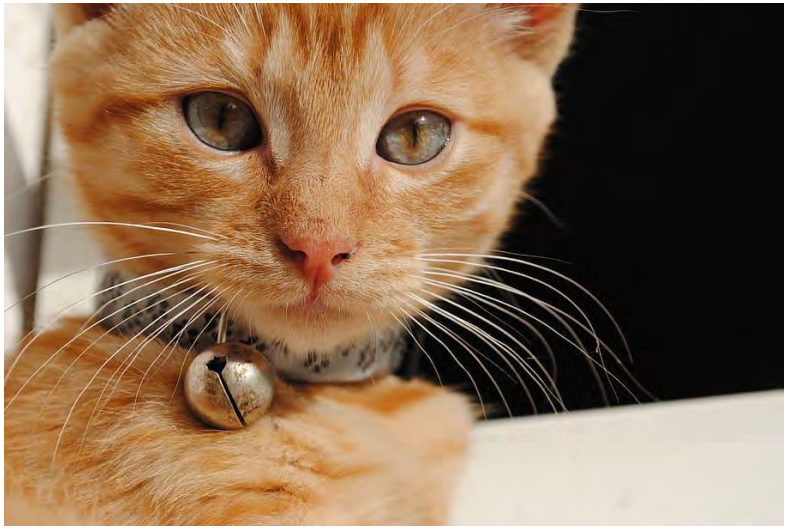
- What wattage are the lightbulbs in their house?
- What contrast is their television screen/monitor?
- Direct vs Ambient Light
  - Task lighting vs. overhead lighting
- What temperature are their lights?
  - Do they see better with different light temperatures? 2700K vs 6000K?

Methods to Make it Bigger (without reducing field)

- eReader/Phone/Tablet - increase font size
- Large print books
- Large print playing cards
- Large print music
- Bigger Monitor/TV, lower resolution
- Digital Magnifiers/CCTV's

Methods to Use Another Sense

- Hey Siri!
- Hey Alexa!
- Bump Dots
- Talking Watches
- Talking Glucose Monitors, etc.
- Audible
- OCR Tools



Methods to Make it Less Bright

- Filters (Amber, Grey, Plum, etc)
- Hats
- Visors
- Window Tinting
- Heavier Curtains

Methods to Make it Bigger (reduced field)

- Handheld Magnifiers
- Stand Magnifiers
- Telescopes
- High-Powered Reading Glasses
- Digital Magnification
- High add bifocals (did you know they're available up to like a +20.00?)

More Magnification = Less Field of View

Naked Eye

2x magnification

4x magnification

6x magnification

8x magnification

10x magnification

How Much Bigger Do We Want to Make It?

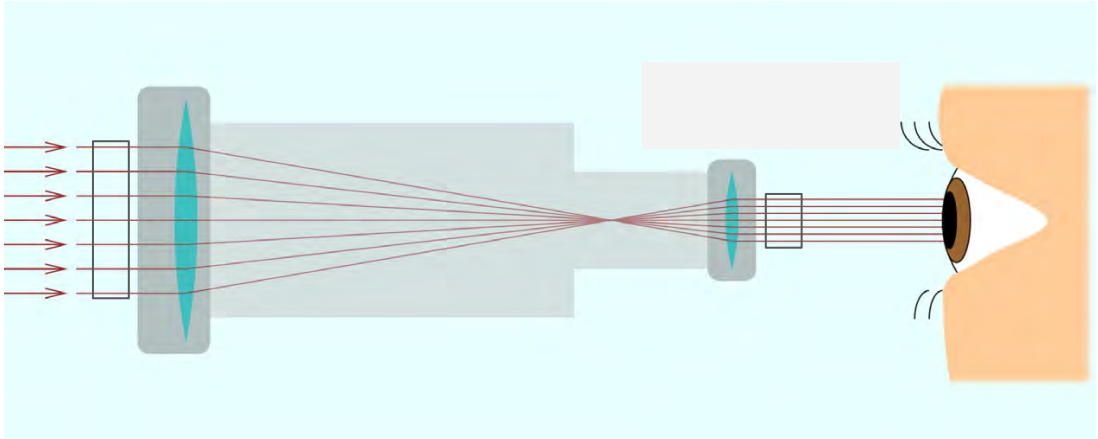
For Distance - Snellen is good

Patient sees 20/200
Wants to see 20/40
200/40 = 5

We need to magnify something to 5X its size

Why Snellen for Distance?

Acuity is measured at 20 ft (optical infinity)
Distance Optics are afocal (parallel rays in, parallel rays out)



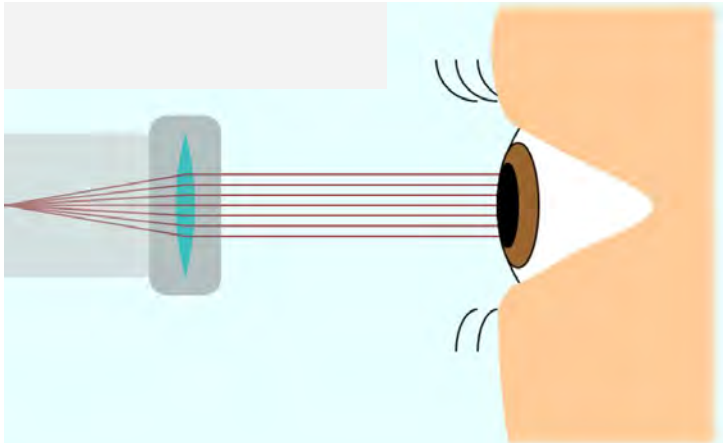
Near - Beware Snellen, Consider M-size

- Snellen is aligned around a reading distance of 40 cm
- Using M-size gives us flexibility to allow patient to CHOOSE their reading distance
- 1 M ~ 8 point font

With a reading card, what size CAN they see? (M size)
How far away are they from their material? (meters)
What size do they WANT to see? (M size)

Near Device Calculation - Not X, Diopters

- Near Devices are **focal** (focused for a specific working distance)
- Magnification changes based on device location relative to work
- **Focal length doesn't change**
- X values on near devices are almost always wrong

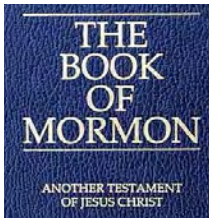


Calculating Diopters Equivalent

Smallest Size
4M size

Reading Distance
0.4 meters

$$\frac{4}{0.4} = \frac{\mathbf{10}}{2} = 5 \text{ Diopters}$$



2M

1M

$$\frac{\mathbf{10}}{1} = 10 \text{ Diopters}$$

M-Sizes of Common Reading Materials

- Newspaper print: .8M – 1M
- Large print bible: 1.25-2M
- Medication bottles: .4M-.8M
- **Common Target is 1M**

The Chicago Times.

VOLUME XI. CHICAGO, ILLINOIS, MONDAY MORNING, APRIL 24, 1865. NUMBER 119.

Summary

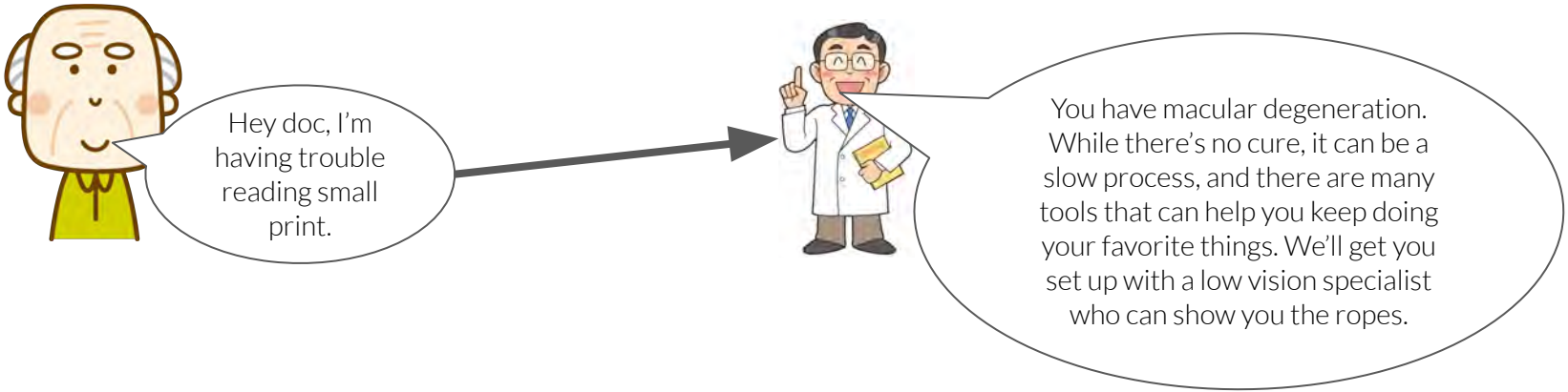
- Low vision is nothing like it looks in pictures and on reports
- We can’t help with the impairment. We can help with the disability
- Disability = Someone can’t do something they want to do
- How we help:
  - Make it brighter
  - Make it bigger (without field reduction)
  - Use another sense
  - Make it less bright
  - Make it bigger (with field reduction)

Additional Resources

- Amazing eBook - $12 (doesn't go to me)
  - Written by a dream team of low vision doctors
  - Low Vision Educators from all of the optometry schools nationwide

- Beware education from companies that sell the stuff that they're educating you about…they're probably not going to recommend a hat.

Charlie's Dream World



Until Then…