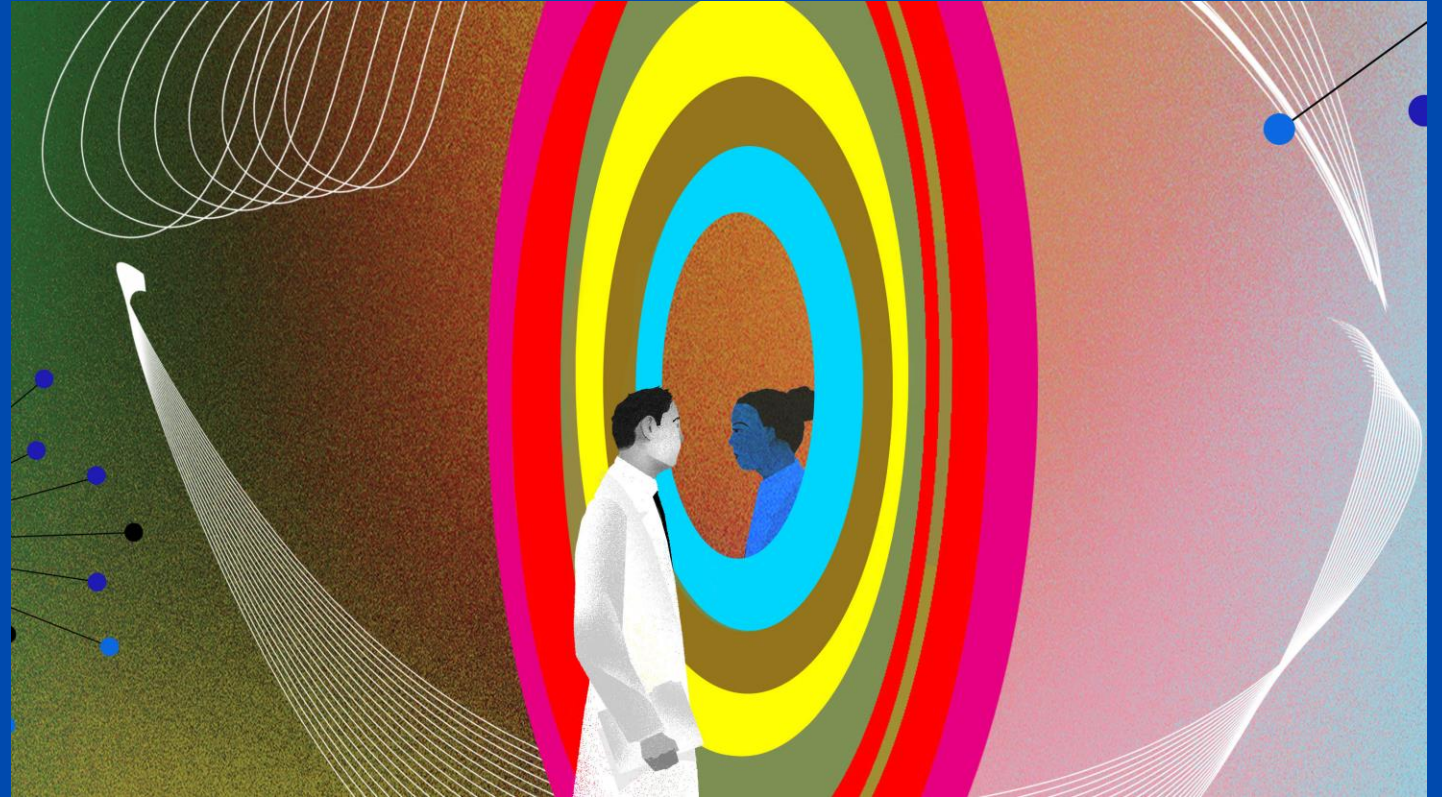


PARKINSON'S DISEASE AND YOUR VISION

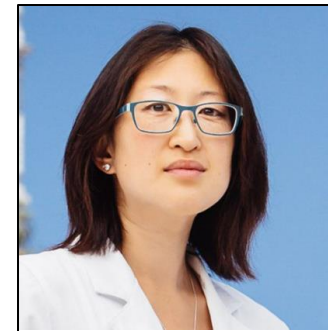


UC Berkeley Herbert Wertheim School of
Optometry & Vision Science

ABOUT US

Optometrists across Multiple Specialties

- Primary care
- Dry eye
- Binocular vision
- Ocular disease
- Low vision



UC Berkeley Herbert Wertheim School of
Optometry & Vision Science

PARKINSON'S DISEASE AND YOUR EYES

Why does this matter?

- Vision is a major predictor of quality of life
- Vision is important in maintaining independence
- Proactively managing your eye health early will likely benefit you down the road



PARKINSON'S DISEASE AND YOUR EYES

Lecture goals:

- Know what ocular symptoms/diseases are associated with Parkinson's disease (PD)
- Know how these ocular diseases are treated
- Know how to proactively manage your eye health

PARKINSON'S DISEASE AND YOUR EYES

Topics:

- Dry eye disease
- Eye movement difficulties
- Glaucoma
- Changes in visual function
- Hallucinations

PARKINSON'S DISEASE AND YOUR EYES

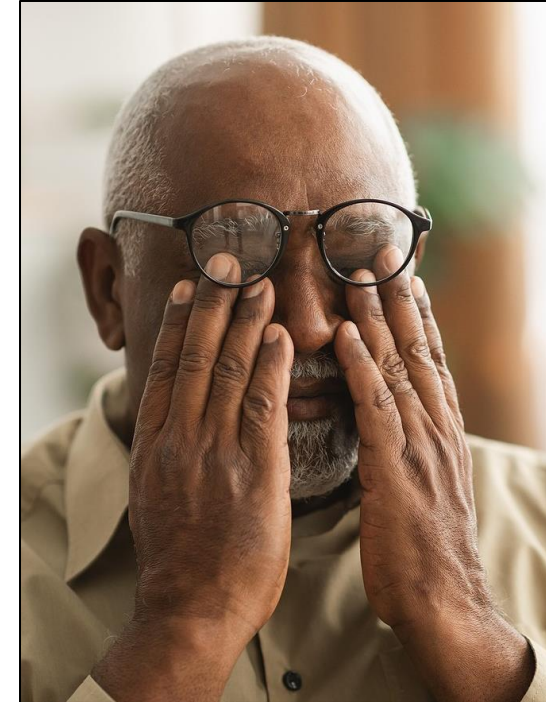
Topics:

- Dry eye disease
- Oculomotor difficulties
- Glaucoma
- Changes in visual function
- Hallucinations

DRY EYE DISEASE

What it is:

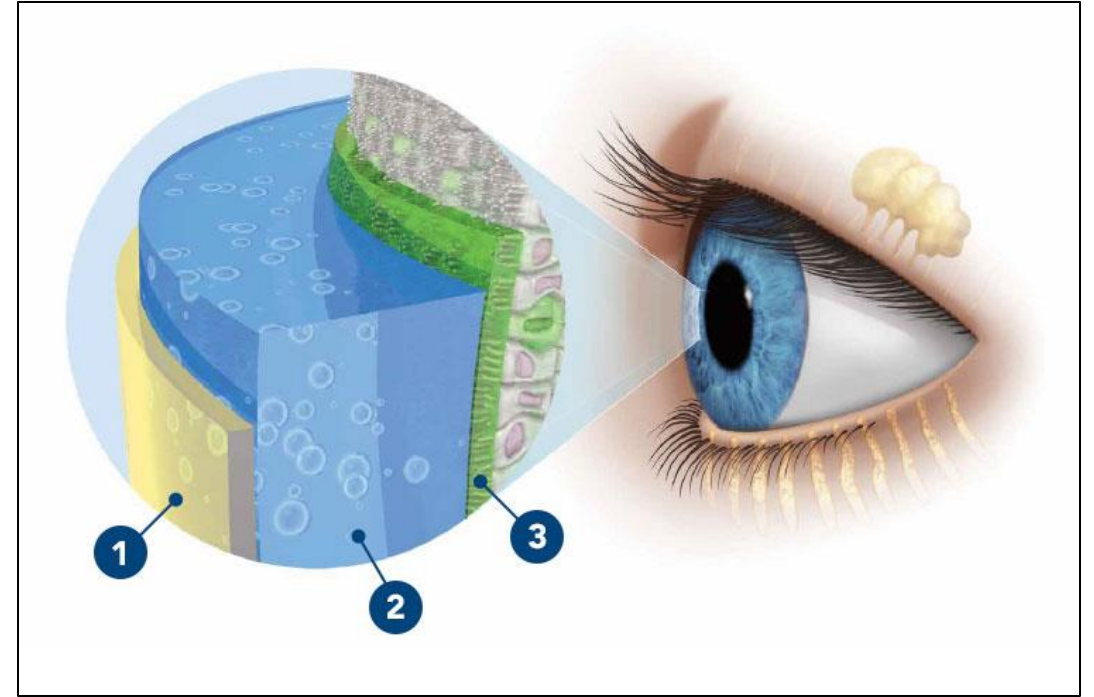
- Inflammatory disease
- Eye is not producing enough tears
OR
tears are evaporating too quickly
- Common disease, but more severe
in patients with PD



DRY EYE DISEASE

Why it happens:

- Low blink rate
- Reduced tear production
- Worsening tear film stability



DRY EYE DISEASE

Symptoms:

- Burning, tearing, gritty feeling
- Foreign body sensation
- “Tired eyes”
- **Blurred vision!**



DRY EYE DISEASE

Treatment:

- Artificial tears



DRY EYE DISEASE

Treatment:

- Artificial tears



UC

m School of
Optometry & Vision Science

DRY EYE DISEASE

Treatment:

- Artificial tears
- Eye ointment



DRY EYE DISEASE

Treatment:

- Artificial tears
- Eye ointment
- Prescription anti-inflammatory drops



DRY EYE DISEASE

Treatment:

- Artificial tears
- Eye ointment
- Prescription anti-inflammatory drops
- Warm compresses



DRY EYE DISEASE

Treatment:

- Artificial tears
- Eye ointment
- Prescription anti-inflammatory drops
- Warm compresses
- Eyelid scrubs



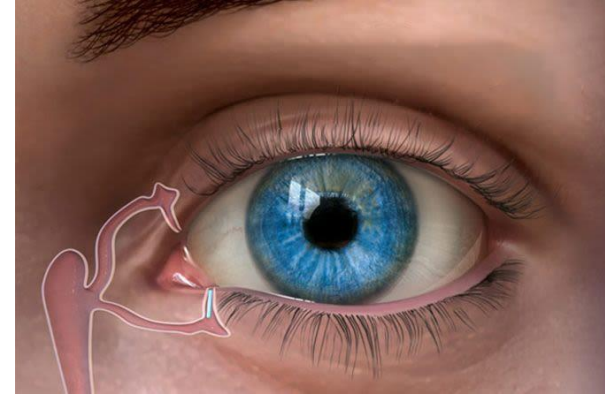
UC Berkeley

Reim School of
Vision Science

DRY EYE DISEASE

Treatment:

- Artificial tears
- Eye ointment
- Prescription anti-inflammatory drops
- Warm compresses
- Eyelid scrubs
- Punctal plugs



DRY EYE DISEASE

Treatment:

- Artificial tears
- Eye ointment
- Prescription anti-inflammatory drops
- Warm compresses
- Eyelid scrubs
- Punctal plugs
- Moisture chamber goggles



DRY EYE DISEASE

Treatment:

- Artificial tears
- Eye ointment
- Prescription anti-inflammatory drops
- Warm compresses
- Eyelid scrubs
- Punctal plugs
- Moisture chamber goggles
- Intense pulsed light (IPL)



UC Berkeley Herbert Wertheim School of
Optometry & Vision Science

DRY EYE DISEASE

Treatment:

- Artificial tears
- Eye ointment
- Prescription anti-inflammatory drops
- Warm compresses
- Eyelid scrubs
- Punctal plugs
- Moisture chamber goggles
- Intense pulsed light (IPL)
- And many more . . .



DRY EYE DISEASE

What You Can Do

- Ask your eye doctor about treatment options for dry eye
- If your treatment is not working, try something else



PARKINSON'S DISEASE AND YOUR EYES

Topics:

- Dry eye disease
- Oculomotor difficulties
- Glaucoma
- Changes in visual function
- Hallucinations

EYE MOVEMENT (OCULOMOTOR) DIFFICULTIES

What it is:

- Unsteady gaze
(saccadic intrusions)
- Gaze limitations
- Uneven tracking of moving target (cogwheel pursuits)
- Convergence insufficiency



OCULOMOTOR DIFFICULTIES

Why it happens:

- Uncertain, likely due to dopamine deficiency in the brain

OCULOMOTOR DIFFICULTIES

Symptoms:

- Double vision
- Difficulty keeping your place when reading
- Difficulty moving eyes in extreme gaze
- Feeling like the world is moving (more rare)



OCULOMOTOR DIFFICULTIES

Treatment:

- Glasses with prism



OCULOMOTOR DIFFICULTIES

Treatment:

- Glasses with prism
- Vision rehabilitation (typically earlier)



OCULOMOTOR DIFFICULTIES

Treatment:

- Glasses with prism
- Vision therapy (early in disease)
- Line guides



OCULOMOTOR DIFFICULTIES

Treatment:

- Glasses with prism
- Vision therapy (early in disease)
- Line guides
- Reduce “off” periods, or read during “on” periods



OCULOMOTOR DIFFICULTIES

What You Can Do

- Discuss management of “off” periods with your doctor if visual symptoms are worse at this time
- Find an eye doctor specializing in “binocular vision” or “vision therapy” for specialized treatment



PARKINSON'S DISEASE AND YOUR EYES

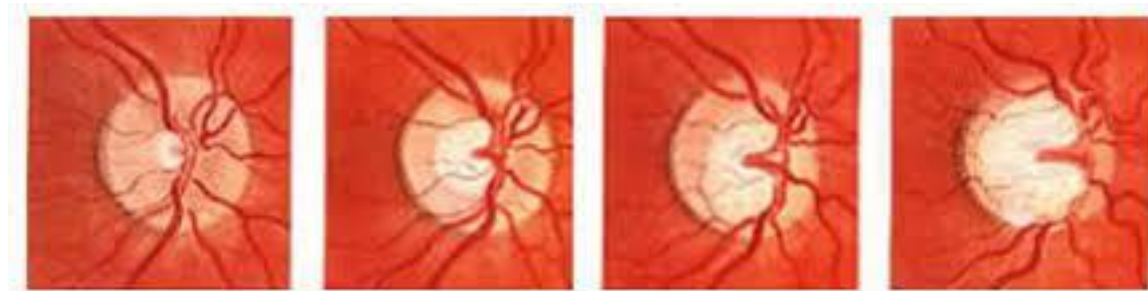
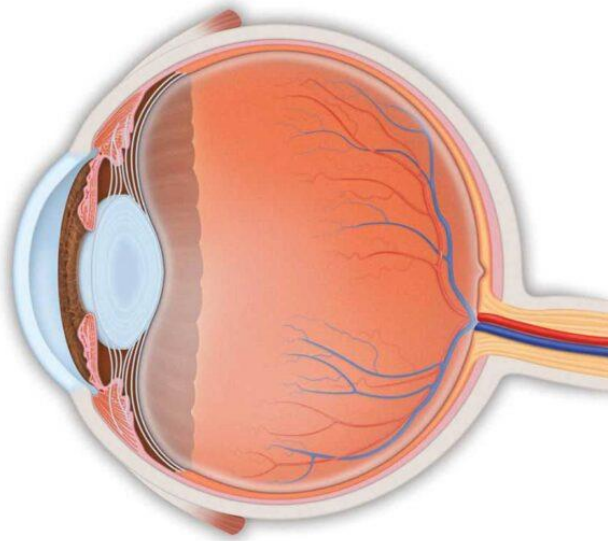
Topics:

- Dry eye disease
- Oculomotor difficulties
- Glaucoma
- Changes in visual function
- Hallucinations

GLAUCOMA

What it is:

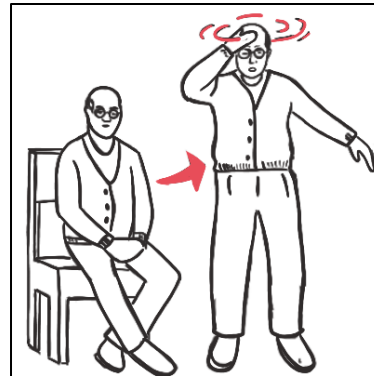
- Damage to the optic nerve, causing thinning of optic nerve tissue over time
- Untreated it can eventually cause blindness



GLAUCOMA

Why it happens:

- Still up for debate!
 - Is this a disease associated with Parkinson's disease OR
 - Are the optic nerve changes another reflection of the neurodegeneration taking place?
- Neurogenic orthostatic hypotension likely makes things worse



GLAUCOMA

Symptoms:

- No symptoms early on!
- Gradual narrowing of peripheral vision
- It is possible to lose all vision eventually
 - Risk is much lower if treatment starts early



GLAUCOMA

Treatment:

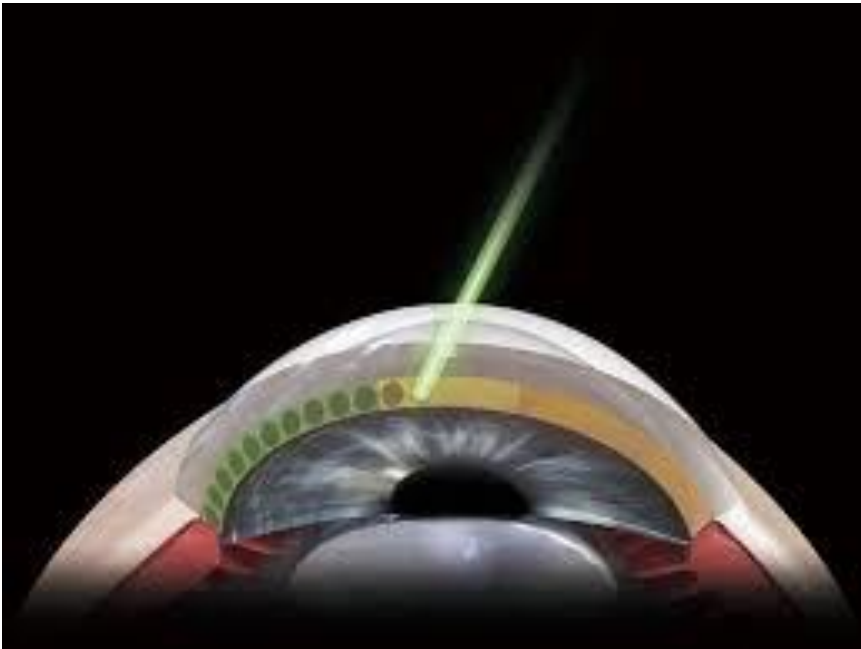
- Eye drops



GLAUCOMA

Treatment:

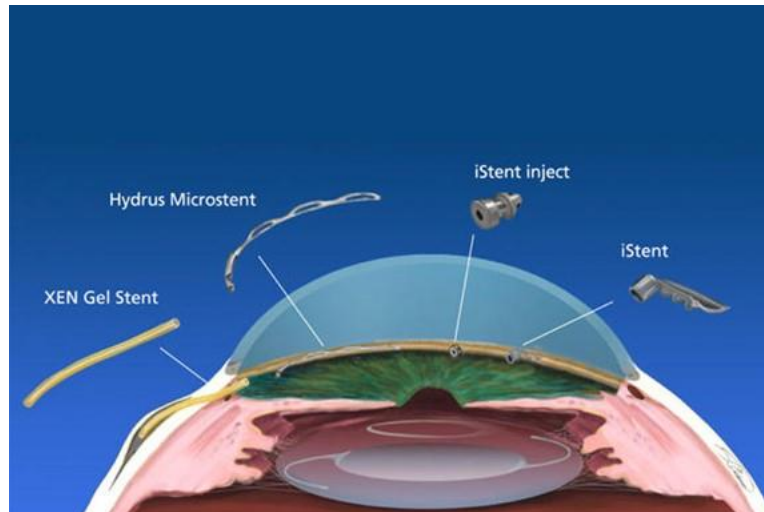
- Eye drops
- Laser treatment (selective laser trabeculoplasty)



GLAUCOMA

Treatment:

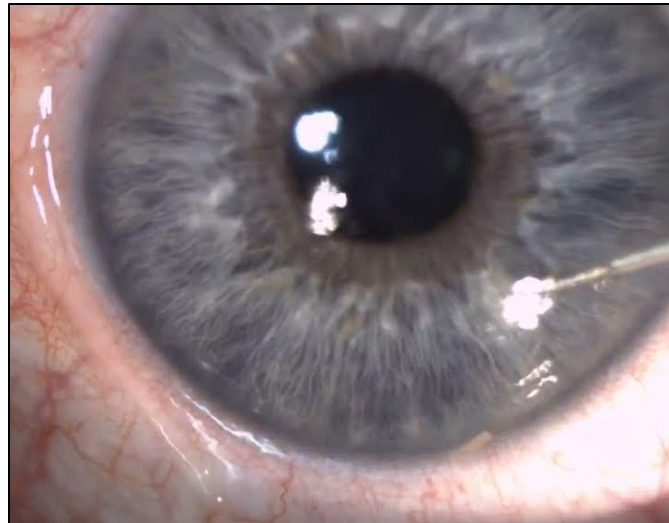
- Eye drops
- Laser treatment (selective laser trabeculoplasty)
- Minimally invasive glaucoma surgery (MIGS)



GLAUCOMA

Treatment:

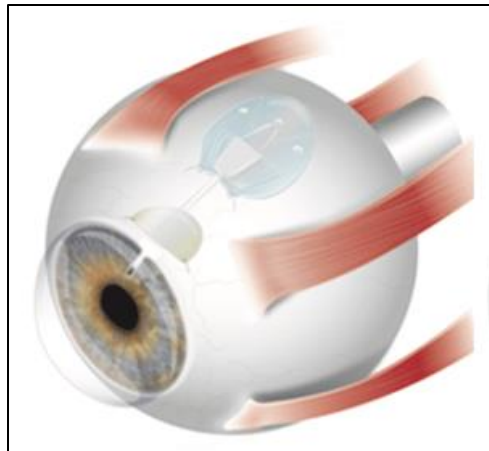
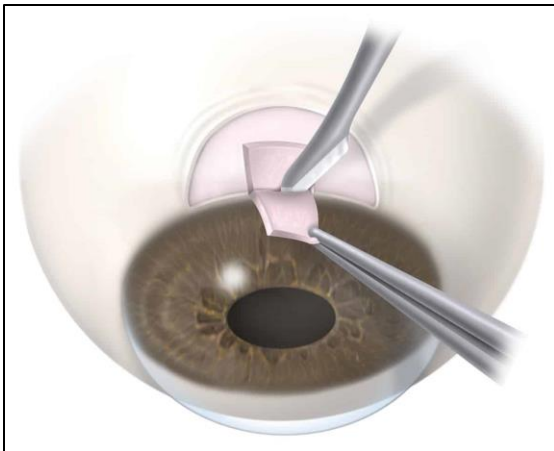
- Eye drops
- Laser treatment (selective laser trabeculoplasty)
- Minimally invasive glaucoma surgery (MIGS)
- Ocular implants



GLAUCOMA

Treatment:

- Eye drops
- Laser treatment (selective laser trabeculoplasty)
- Minimally invasive glaucoma surgery (MIGS)
- Ocular implants
- Traditional glaucoma surgery



GLAUCOMA

What You Can Do

- Be sure to get an eye exam every year
- Ask your eye doctor about your risk for glaucoma
- Actively monitor/manage hypotension if you have glaucoma

PARKINSON'S DISEASE AND YOUR EYES

Topics:

- Dry eye disease
- Oculomotor difficulties
- Glaucoma
- Changes in visual function
- Hallucinations

CHANGES IN VISUAL FUNCTION

What it is:

- Reduced contrast sensitivity
- Reduced color vision
- Reduced depth perception (stereopsis)



CHANGES IN VISUAL FUNCTION

Why it happens:

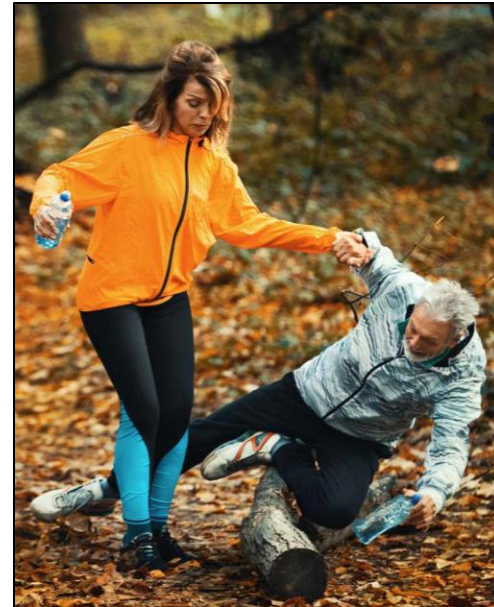
- Complex, likely due to dopamine deficiency in the retina
- Glaucoma can also contribute



CHANGES IN VISUAL FUNCTION

Symptoms:

- Discomfort in bright light
- Difficulty seeing in low light
- Bumping into things
- Difficulty judging distance



CHANGES IN VISUAL FUNCTION

Treatment:

- Tints can improve visual discomfort (typically yellow/orange)



CHANGES IN VISUAL FUNCTION

Treatment:

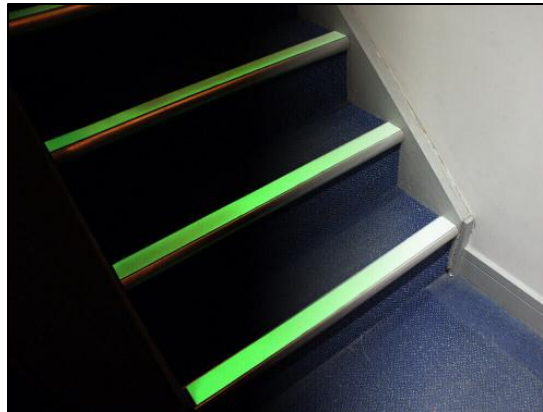
- Tints can improve visual discomfort (typically yellow/orange)
- Use good lighting when reading



CHANGES IN VISUAL FUNCTION

Treatment:

- Tints can improve visual discomfort (typically yellow/orange)
- Use good lighting when reading
- Make adaptations to help safely navigate common places
 - Bright tape to highlight changes in elevation around the home
 - Night lights along hallways or under furniture
 - etc



CHANGES IN VISUAL FUNCTION

What You Can Do

- Find an eye doctor specializing in “low vision”
- Be prepared with a list of visual tasks that you need help with

PARKINSON'S DISEASE AND YOUR EYES

Topics:

- Dry eye disease
- Oculomotor difficulties
- Glaucoma
- Changes in visual function
- Hallucinations

HALLUCINATIONS

What it is:

- Seeing things that are not there
- In Parkinson's disease:
you typically know the
hallucinations are not real



HALLUCINATIONS

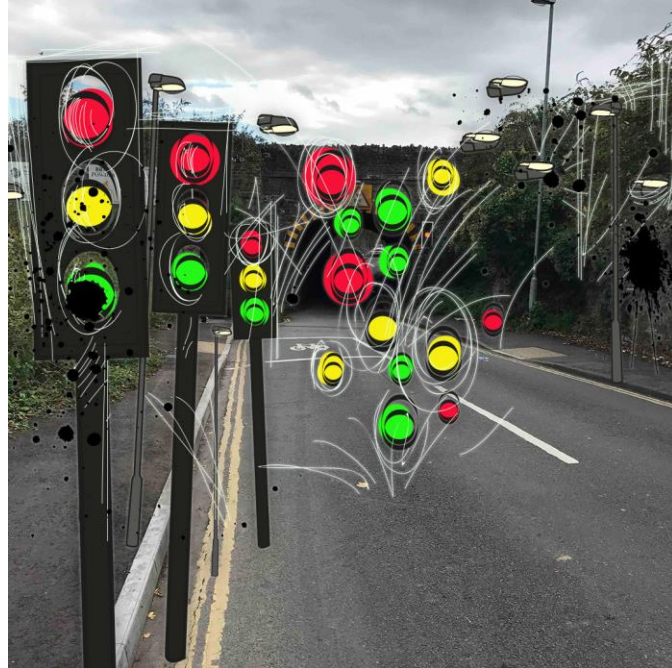
Why it happens:

- Complex, associated with:
 - Lower visual acuity
 - Worse contrast sensitivity
 - Worse color vision
 - Longer disease duration
 - REM sleep disturbance
 - Cognitive decline

HALLUCINATIONS

Symptoms:

- Often occur in low light, when tired
- Range from shadows/shapes to complex images



HALLUCINATIONS

Treatment:

- Reducing anti-Parkinson's medications can reduce symptoms:
 - Anticholinergics
 - NMDA antagonists
 - MAO-B inhibitors
 - Dopamine agonists
 - Levodopa/carbidopa
- Prescribing cognition-enhancing or anti-psychotic medications

HALLUCINATIONS

What You Can Do

- Tell your doctor if you are experiencing hallucinations and want to reduce your symptoms
- Be aware that you may experience more symptoms when you are in low-lighting situations

PARKINSON'S DISEASE AND YOUR EYES

Topics:

- Dry eye disease
- Oculomotor difficulties
- Glaucoma
- Changes in visual function
- Hallucinations

PARKINSON'S DISEASE AND YOUR EYES

Find an eye doctor who fits your needs

- Help manage multiple conditions
- Refer to others for specialty care
- Provide trusted information



UC Berkeley Herbert Wertheim School of
Optometry & Vision Science

Thank you!

jenhfisher@berkeley.edu



UC Berkeley Herbert Wertheim School of
Optometry & Vision Science