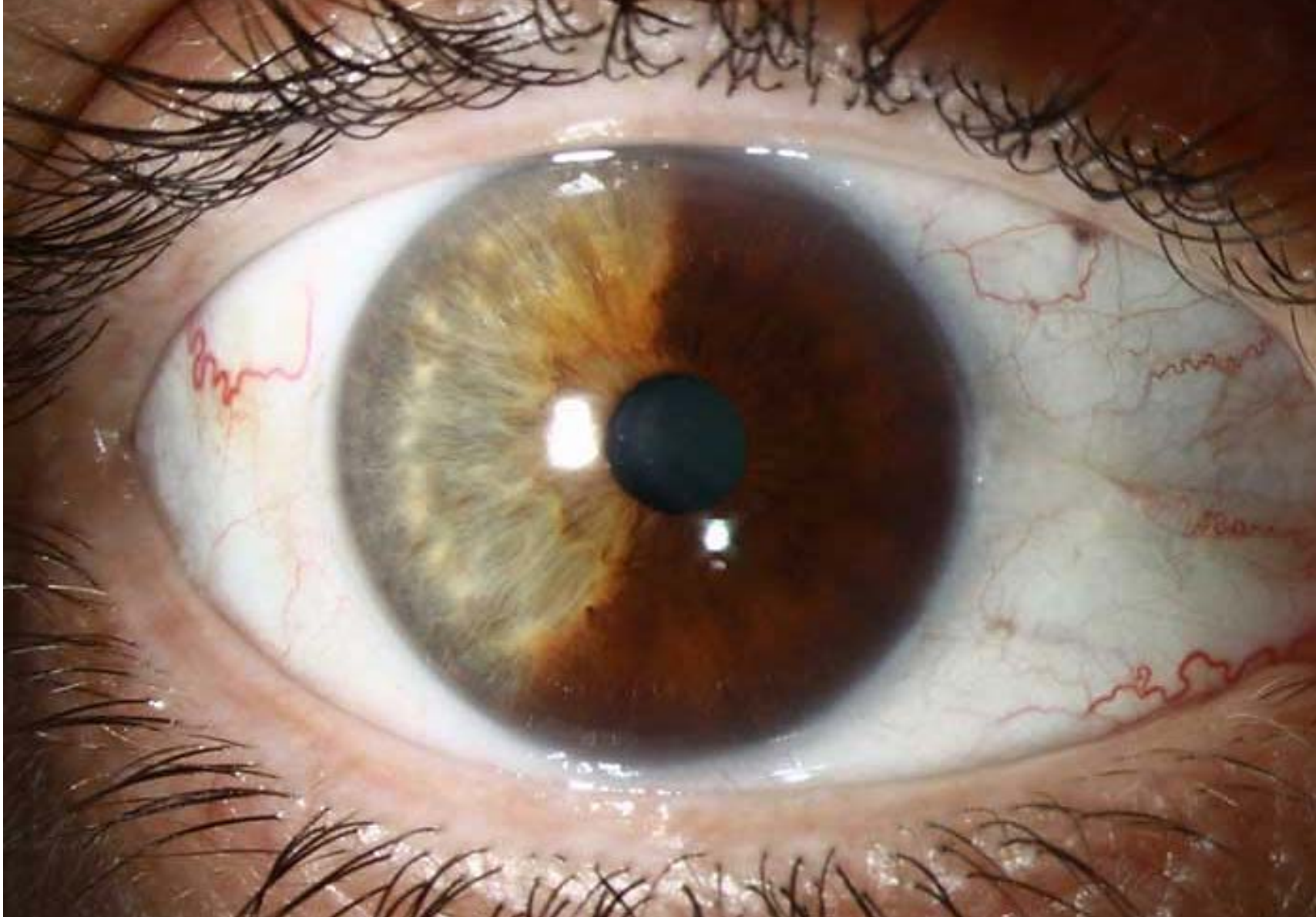


Vision Science and Optometry: Eye Wonder



Welcome everyone

Firstly I would like to acknowledge the Bedegal people that are the Traditional Custodians of this land where we are today. I would also like to pay my respects to the Elders both past and present, and extend that respect to other Aboriginal and Torres Strait Islanders who are present here today.

Our plan for today

1. **Introduction:** what we do in vision science and optometry, and inside 'eye' information
2. **Interactive activities:** please look around the various displays on each bench, ask questions, and enjoy the wonder of eyes!
3. **'Eye Closing' session:** any questions, comments and thank you

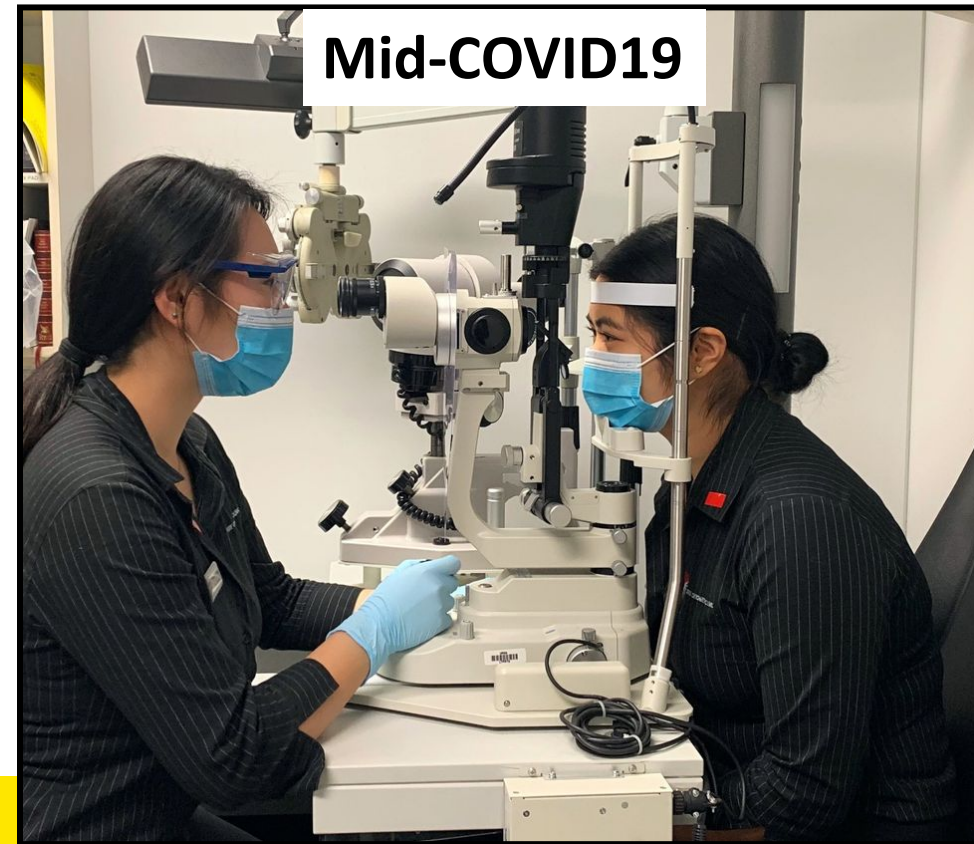
Optometry and Vision Science @ UNSW

Pre-COVID19



- only Optometry and Vision Science School in NSW (undergraduate and postgraduate)
- UNSW Optometry Clinic run by students and staff

Mid-COVID19



What do optometrists do?

- Provide comprehensive vision examinations
- Detect, diagnose and manage problems with eye (& general) health
- Refer patients to other health professionals as needed
- Prescribe certain therapeutics & co-manage eye diseases

What else can optometrists do?

- Prescribe, supply & repair spectacles
- Prescribe & supply contact lenses, solutions
- Advise & manage areas of special vision needs (e.g. low vision, colour vision)
- 'Kids vision': analyse & treat eye co-ordination problems (paediatric & vision therapy)
- Myopia management (e.g. orthokeratology)

Optometry and Vision Science @ UNSW

B VisSci / M ClinOptom @ UNSW*

HSC Direct Entry (ATAR ~98.00)

B VisSci / M ClinOptom @ UNSW*

HSC Direct Entry (ATAR ~96.00)

[* varies each year]

<https://www.optometry.unsw.edu.au/future/admission-requirements>

How to get into Optometry @ UNSW?

B VisSci / M ClinOptom @ UNSW HSC Direct Entry (ATAR*)

***ATAR** (Australian Tertiary Admission Rank)
(or equivalent) 98.00+
Admission requirements

<https://www.optometry.unsw.edu.au/future/admission-requirements>

**No UMAT (Undergraduate Medicine &
Health Sciences Admissions Test)**

What is Vision Science all about?

understanding how we see the world (sensory processes); using vision and imaging related technologies to 'repair' or improve vision



B VisSci / B Sc (VisSci) possibilities?

Ophthalmic industry

- Business management-related options, practice managers
- Optical lens and contact lens design and manufacturing e.g. multifocal lenses, 'bifocal contact lenses'

Public health and vision rehabilitation, education (Guide Dogs, MD Foundation)

Low vision mobility and orientation

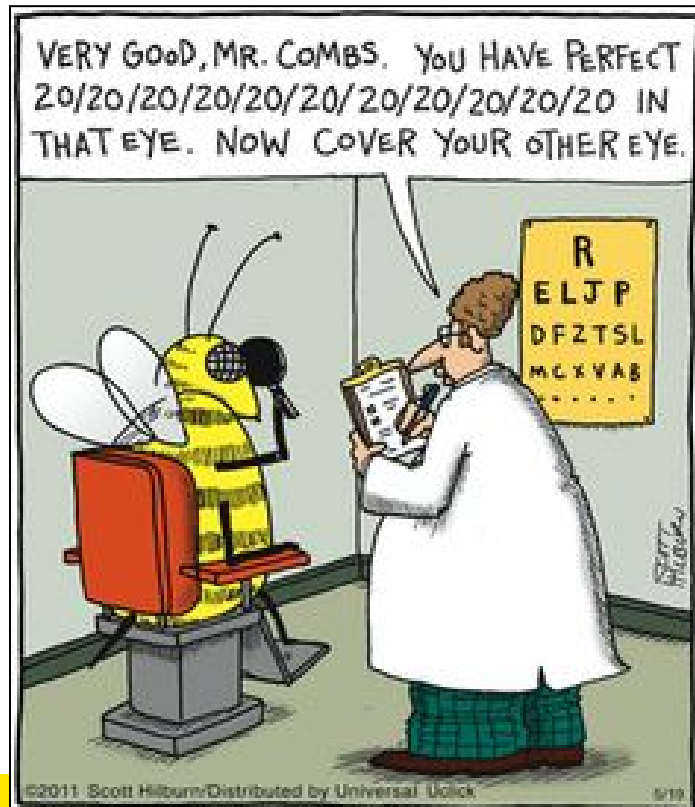
Biomedical imaging

Vision research (e.g. bionic eye - UNSW)

Academic/research & teaching (Honours + PhD pathway)

What about the Clinical Optometry?

Combines experience in specialty eye clinics, eye therapeutics, research projects, ethics & professional development, business studies + more



Where do our MClinoptom students end up?

Clinical practice / locum ~80% (corporate optometry vs independent; city vs rural)

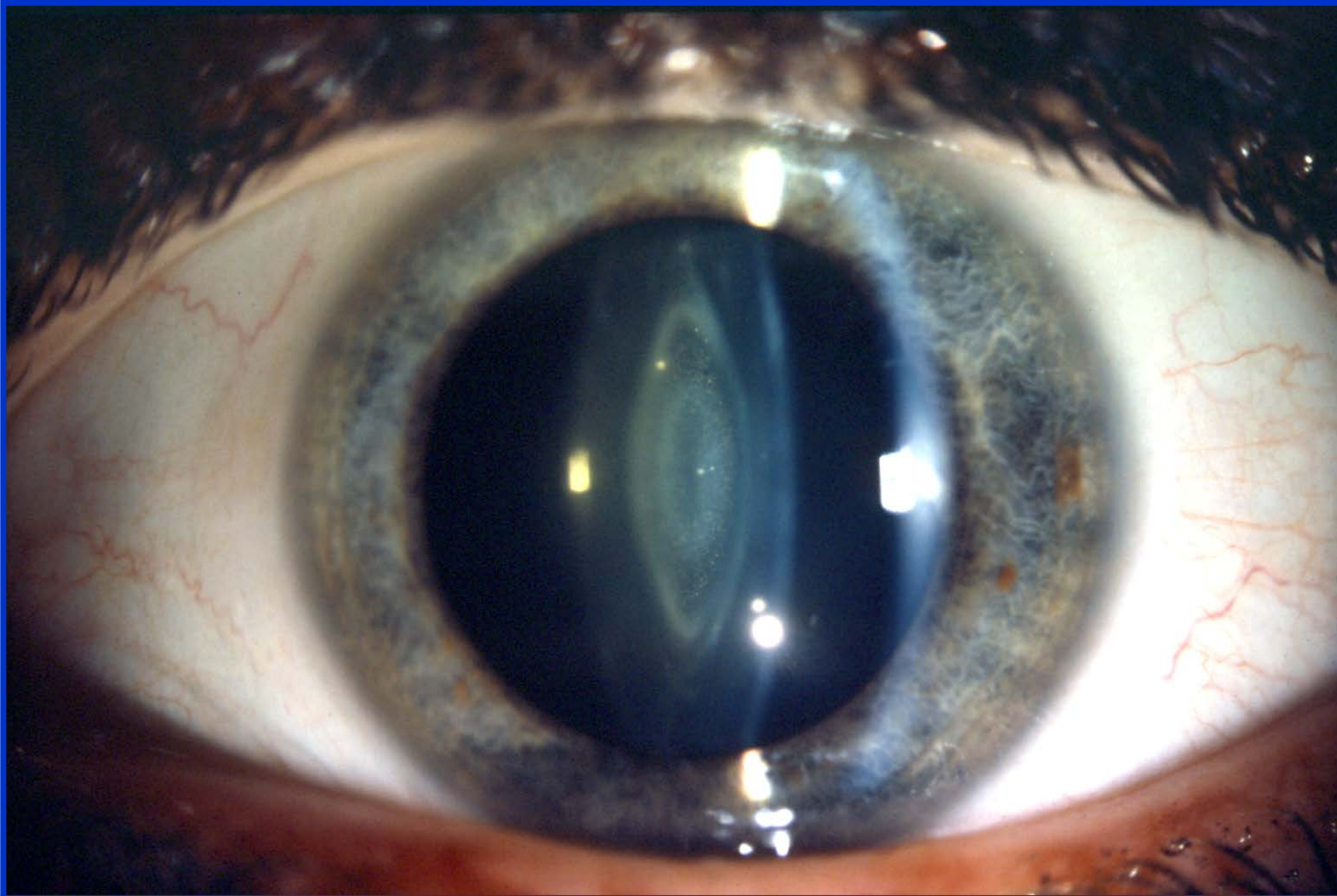
Academic/Research ~5%

Overseas ~3%

Industry/Govt ~5% (contact lens companies, ergonomics, lighting, road safety, vision standards, eye safety, advocacy etc)

Other roles ~3% (dispensing roles or out of profession)

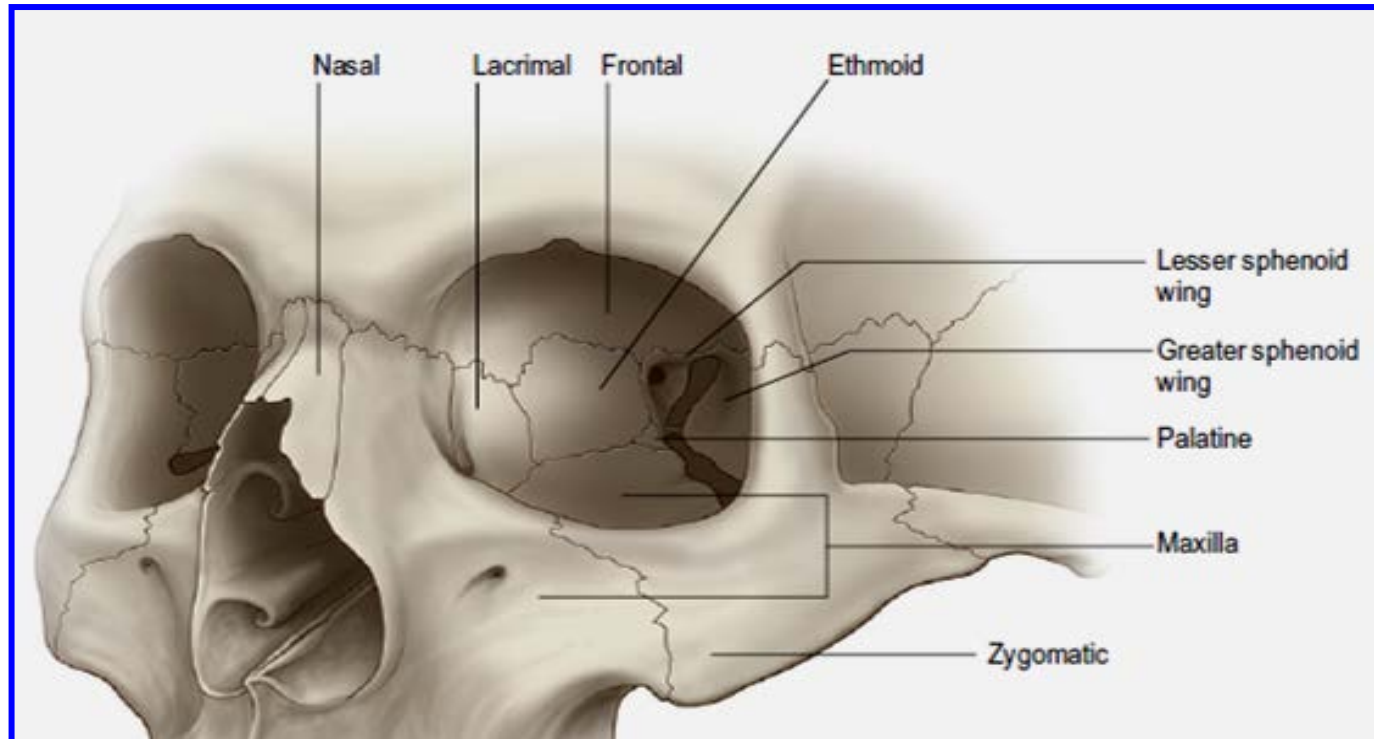
Eye Parts and Functions



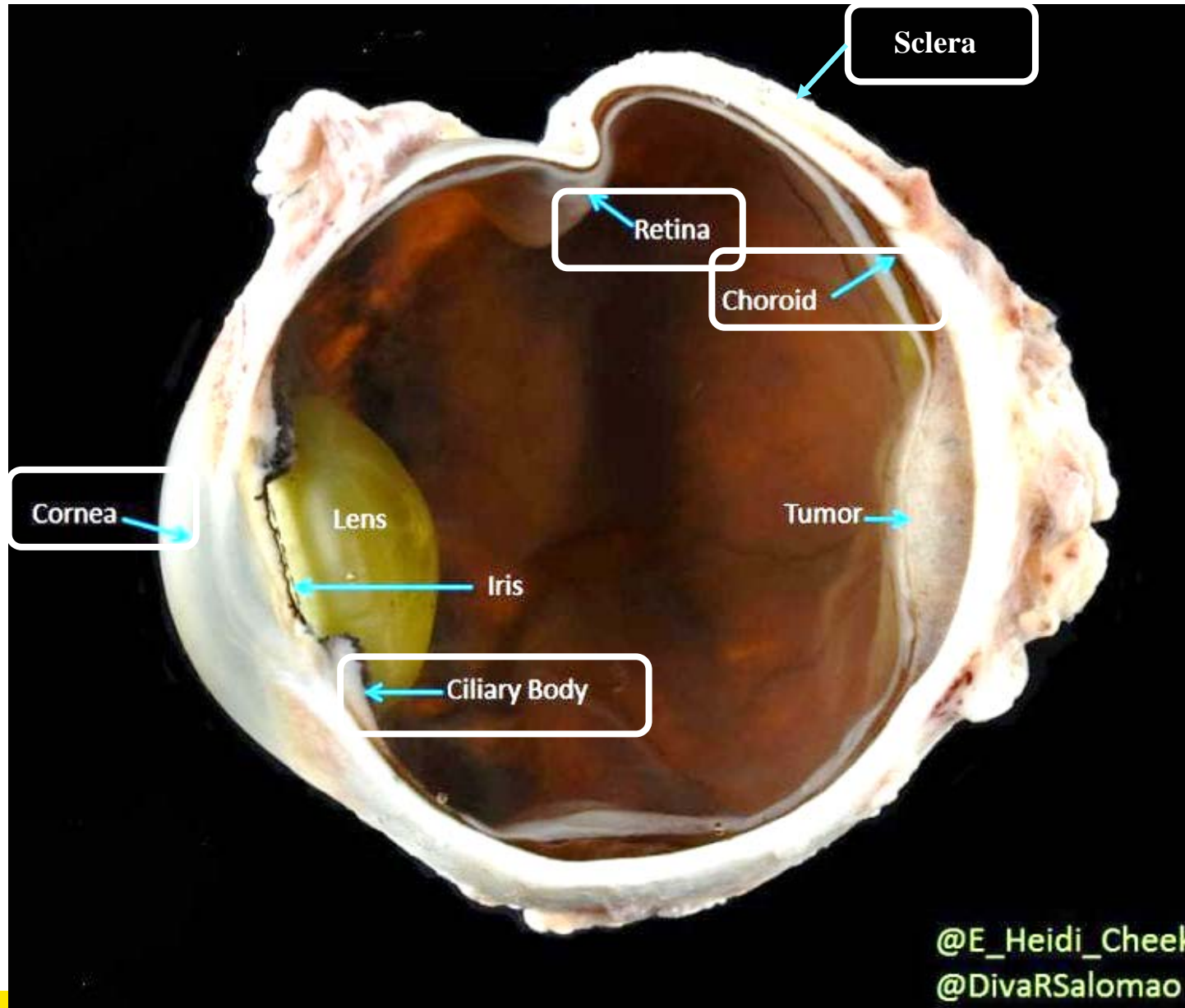
A few 'inside' eye and vision details

Describing the Human Eye

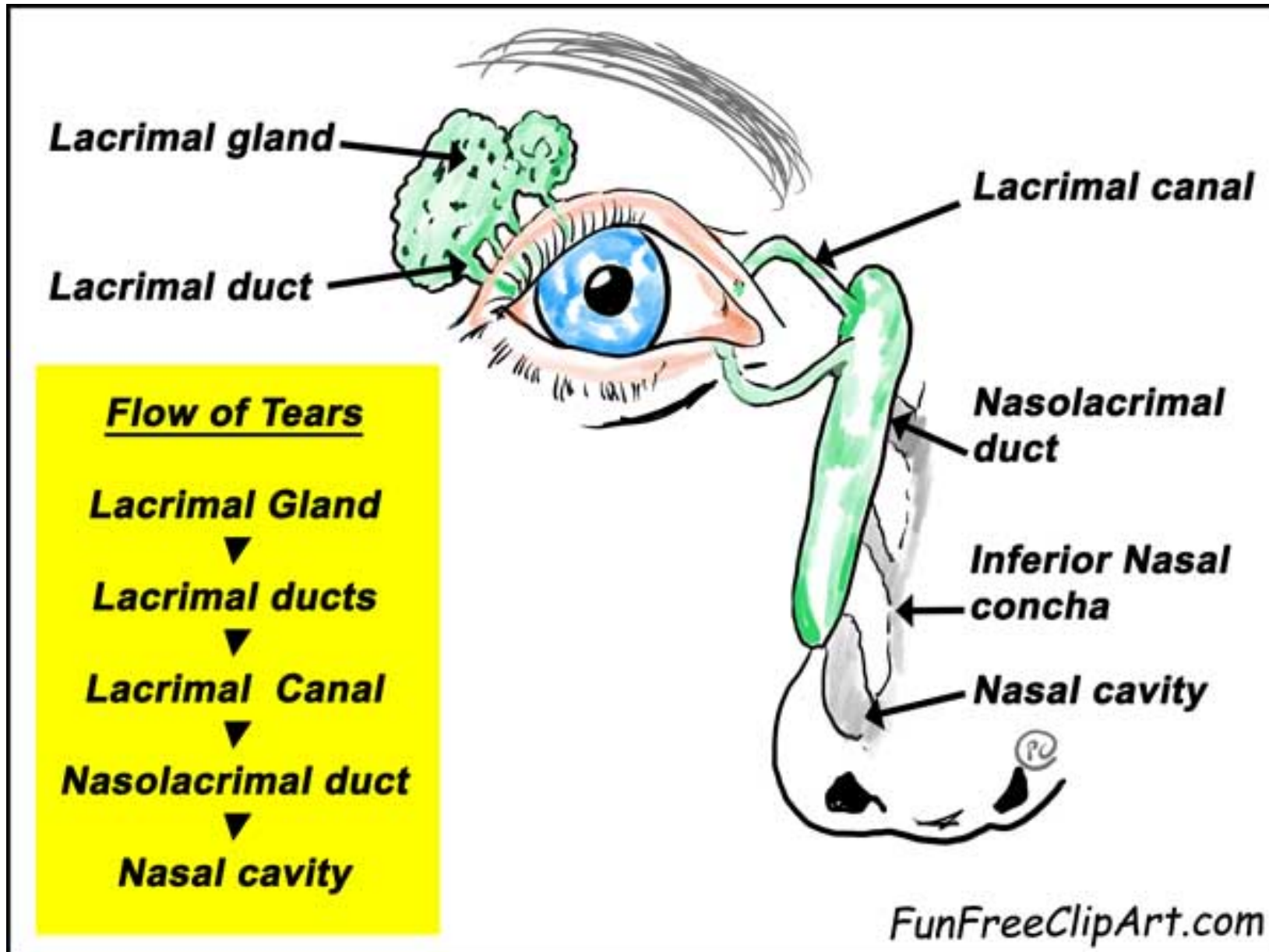
- Human eye = a simple lens system
- Outer cornea & sclera = 'tough container'
- Cornea and lens = transparent, focussing
- Iris/pupil = control light levels inside
- eye muscles = 'dance' together to keep images on the right spot of the retina (both eyes together)
- Retina = neural 'screen' light → signal → optic nerve (axons) → brain visual cortex



Human eye showing main structures: average size?



Where do tears come from?



How do eyes move?



<https://aclandanatomy.com/content/4010614>

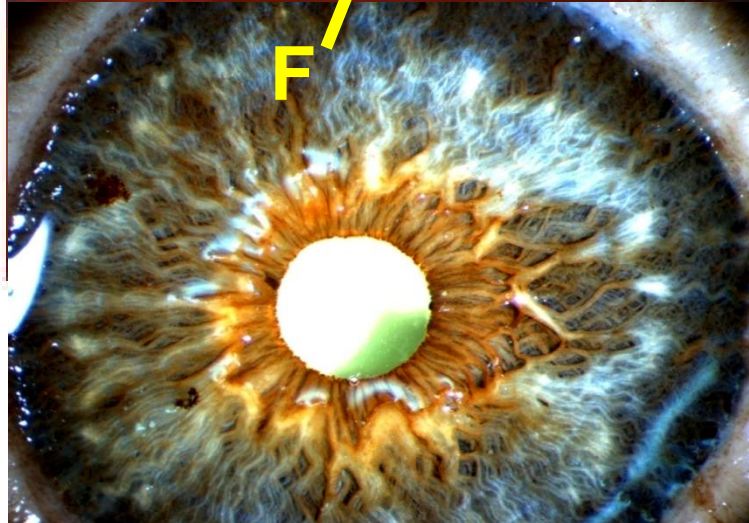
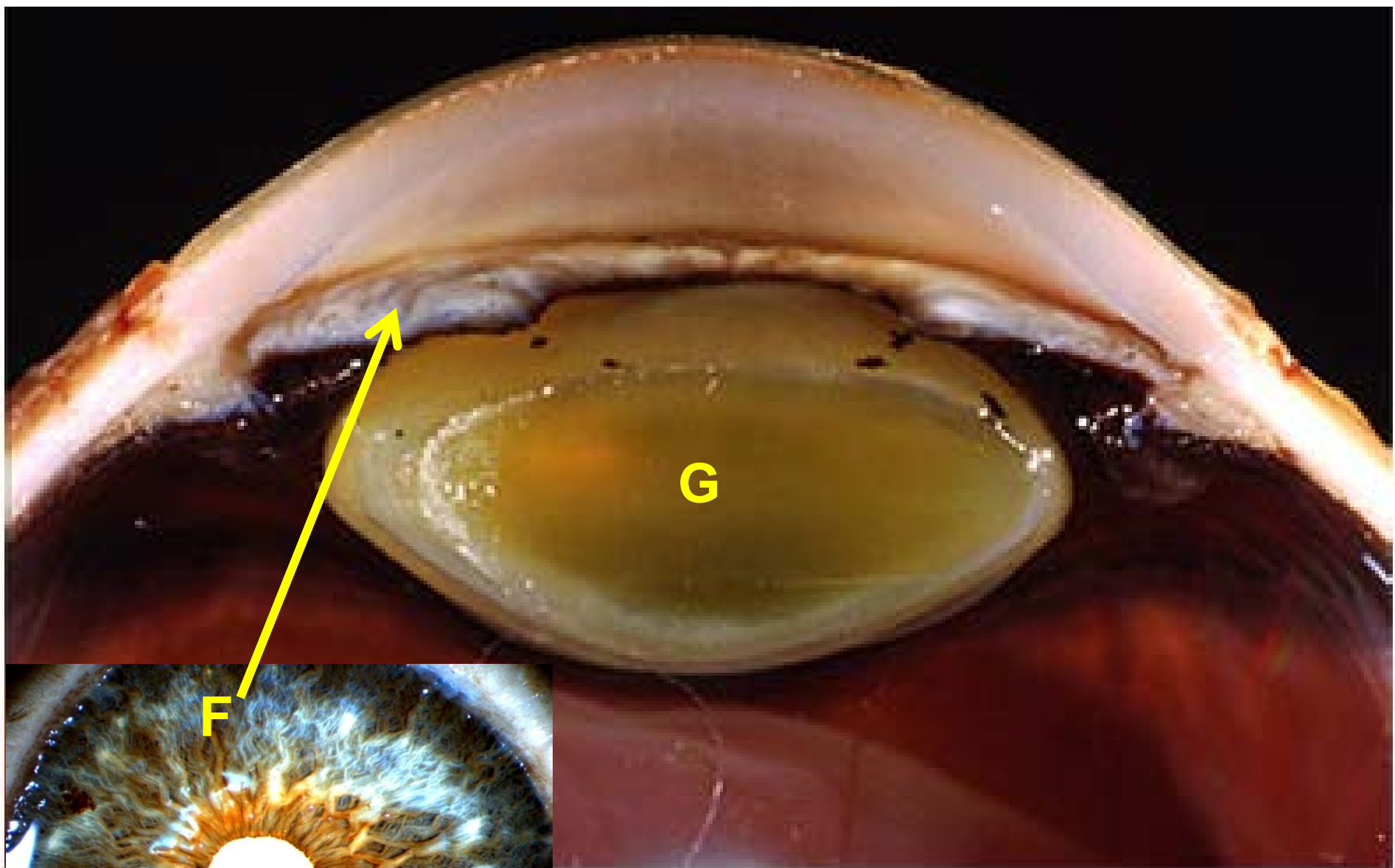
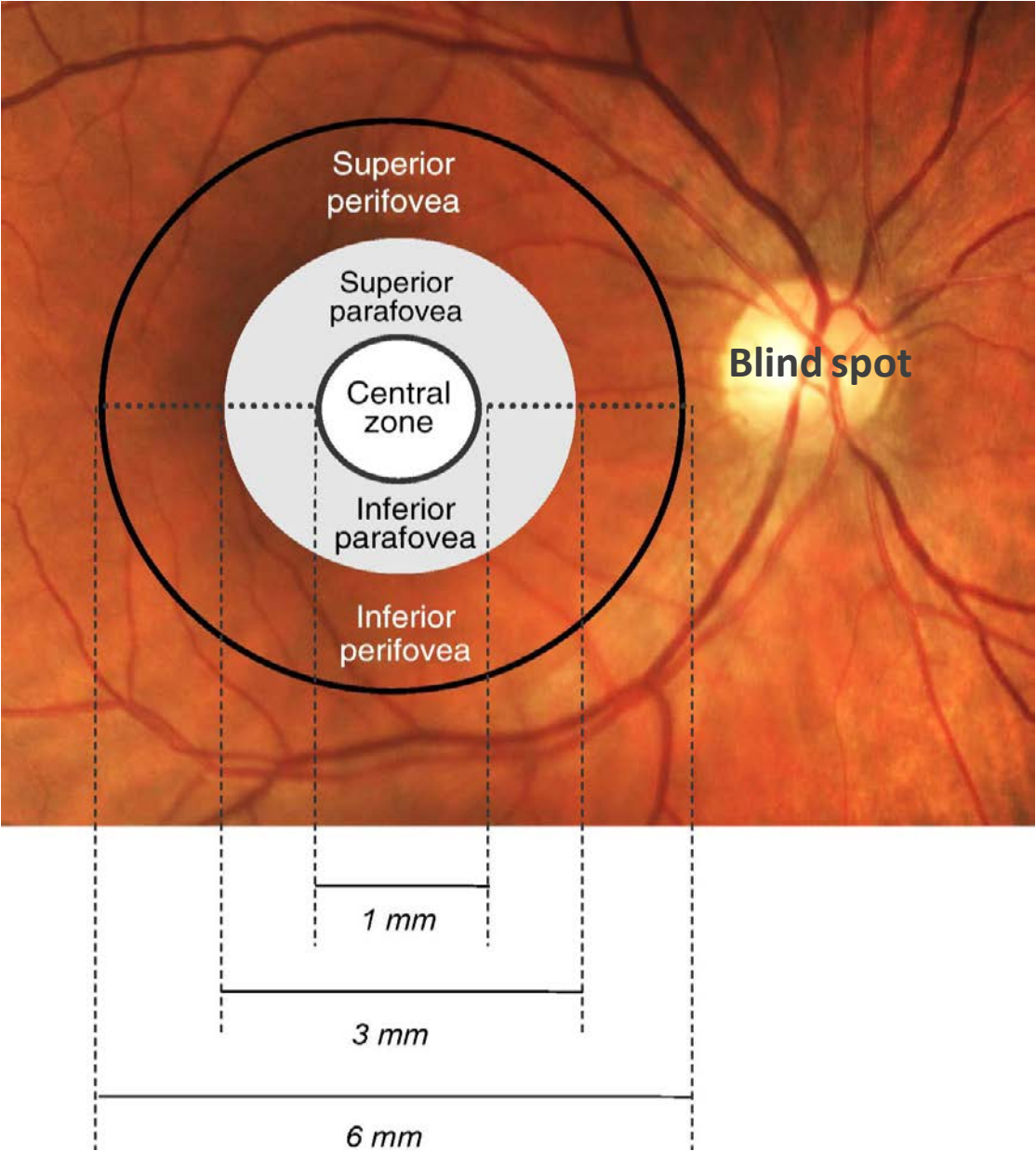
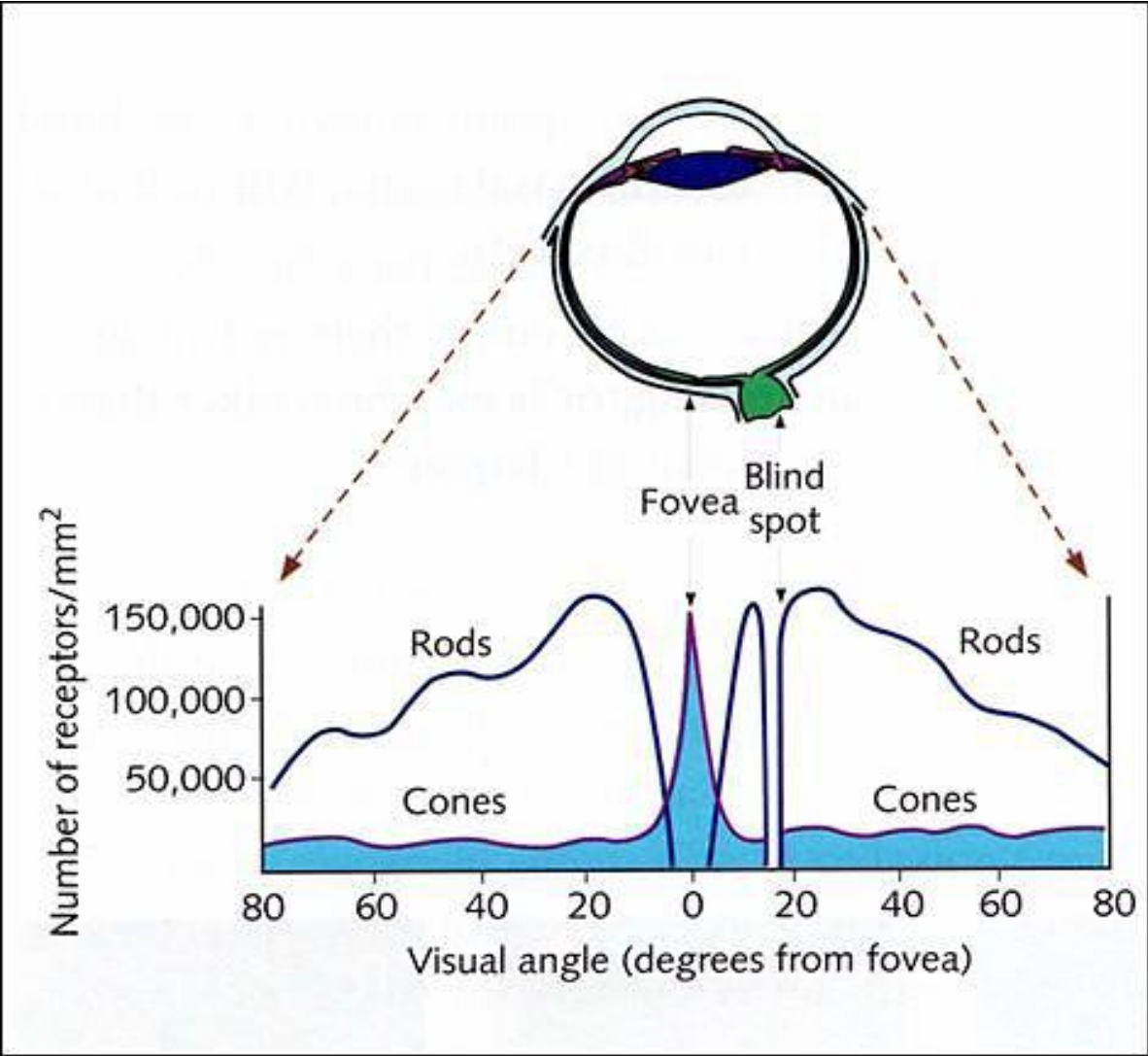
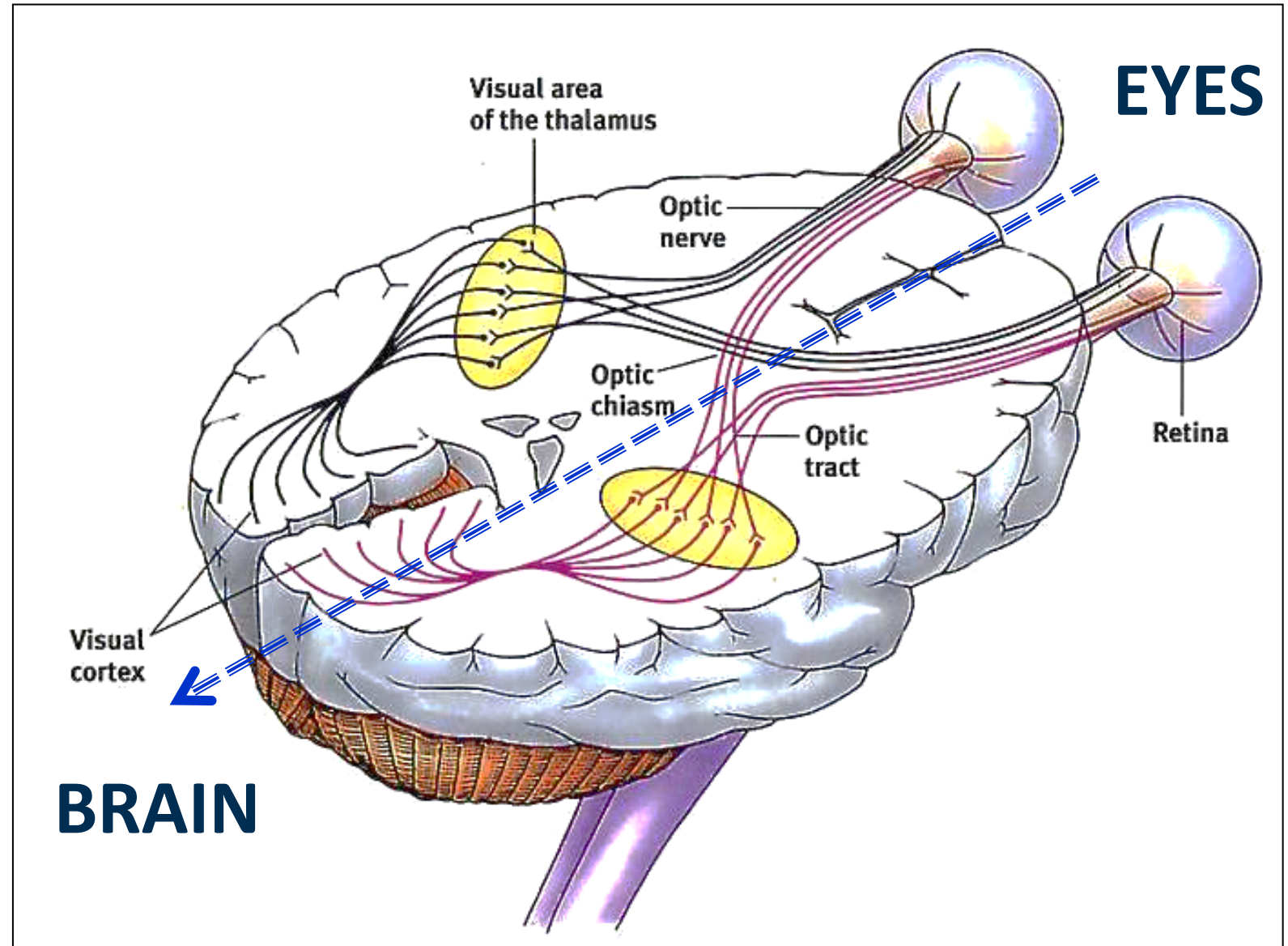
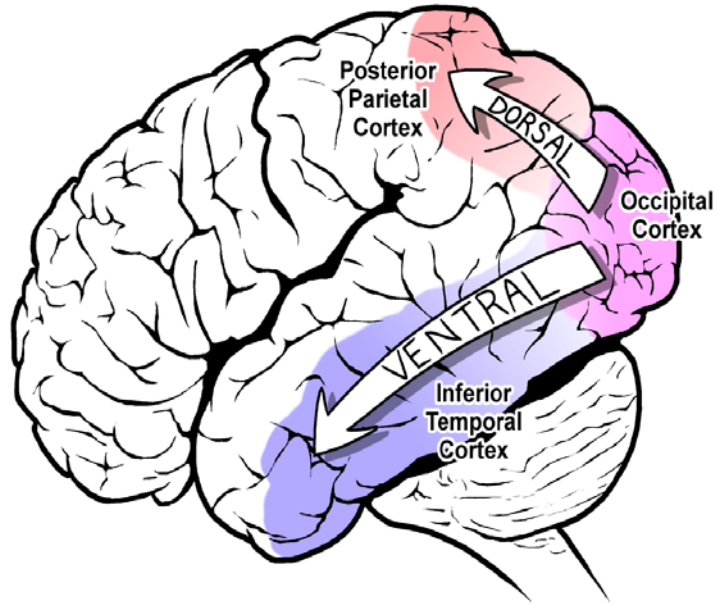


Figure 5.

Inside the eye – the retina



How do we see the world? Pathways from eye → brain



Central *versus* peripheral vision

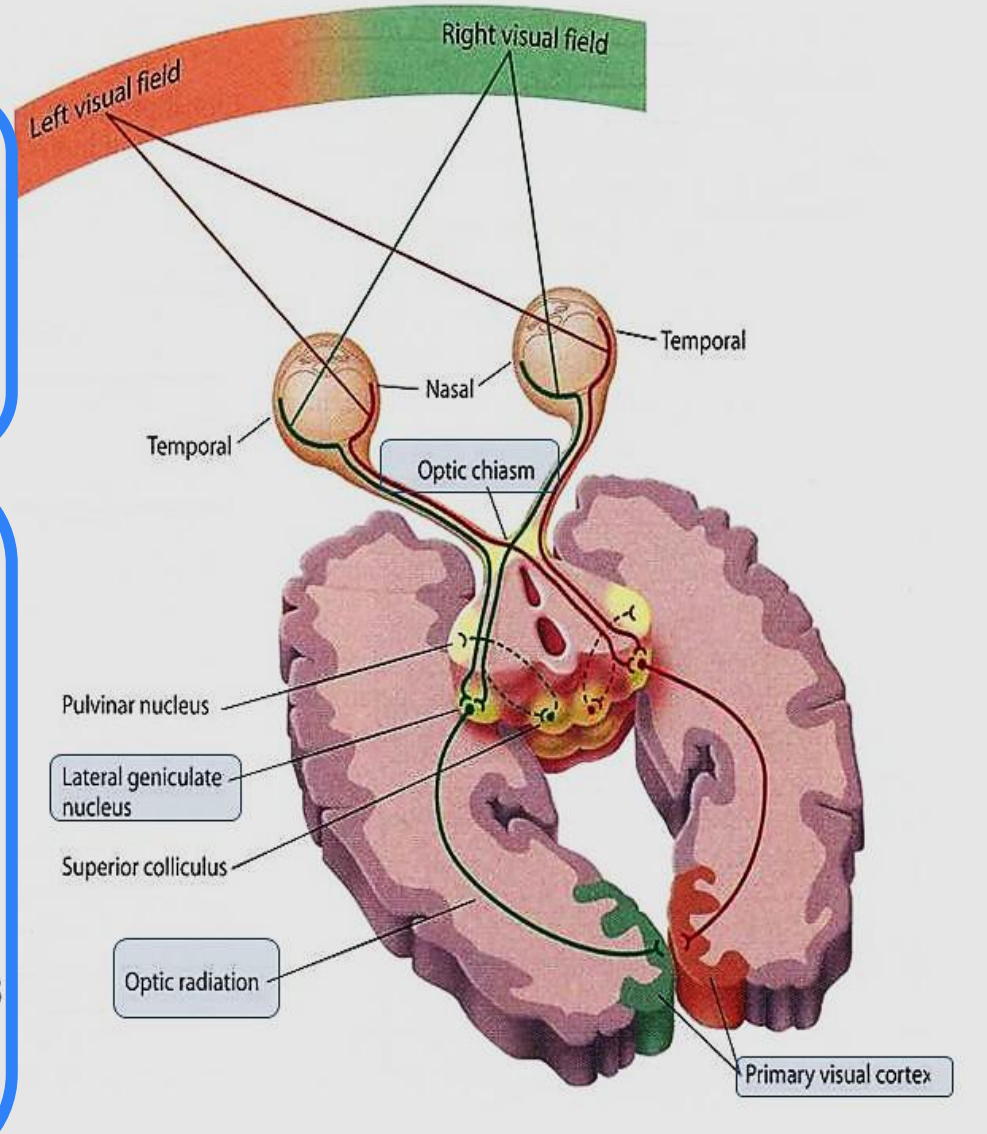


Retina

Visual pathways

Visual Pathway

1. Cones
2. Bipolar neurons
3. Ganglion cell's axon forms the optic nerve
4. Optic nerve to the Optic Chiasm
5. Optic tract
6. Lateral geniculate nuclei of the thalamus
7. Optic Radiations
8. Primary visual areas of the occipital lobes



What happens when things go wrong?



Matching examples?

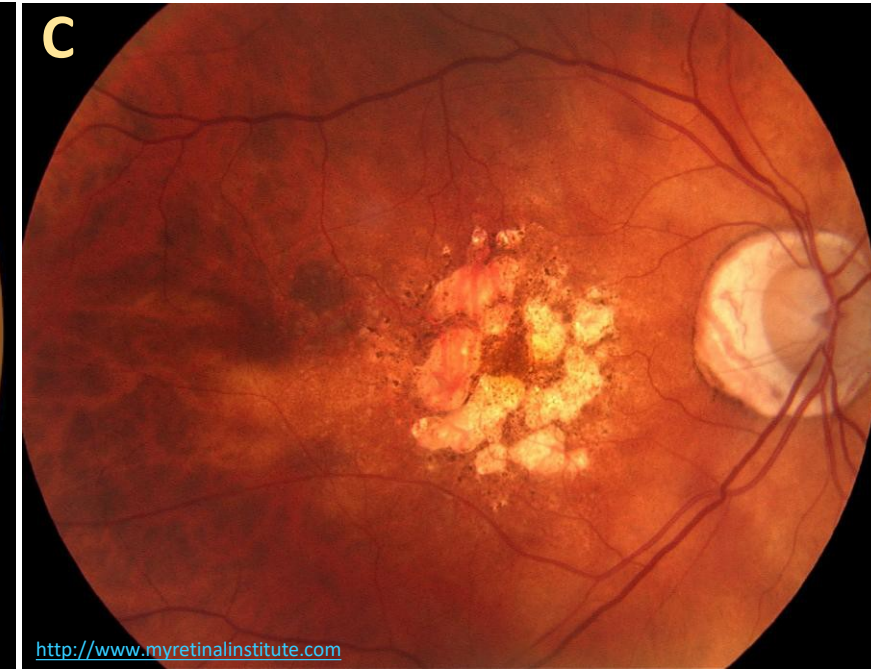
A



B



C



1



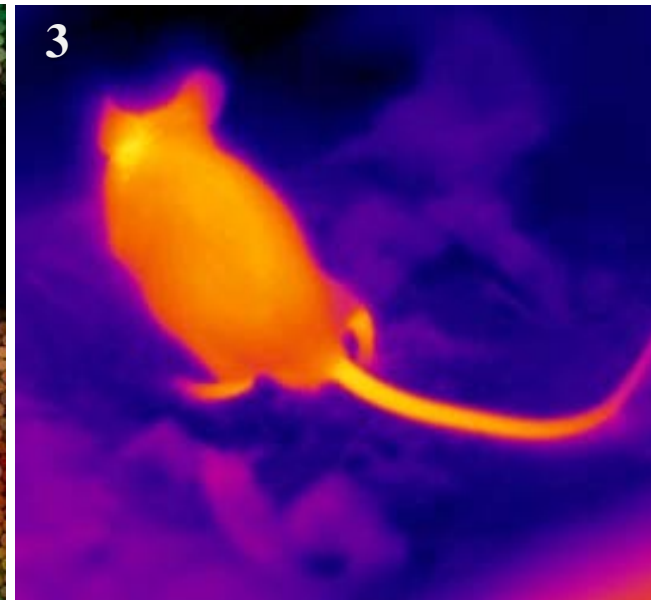
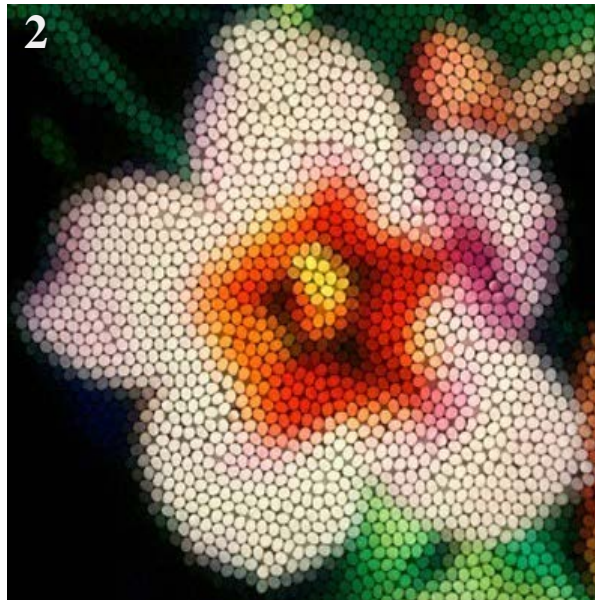
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3



Seeing the world through different eyes?



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 **UNSW SYDNEY**
School of Optometry and Vision Science

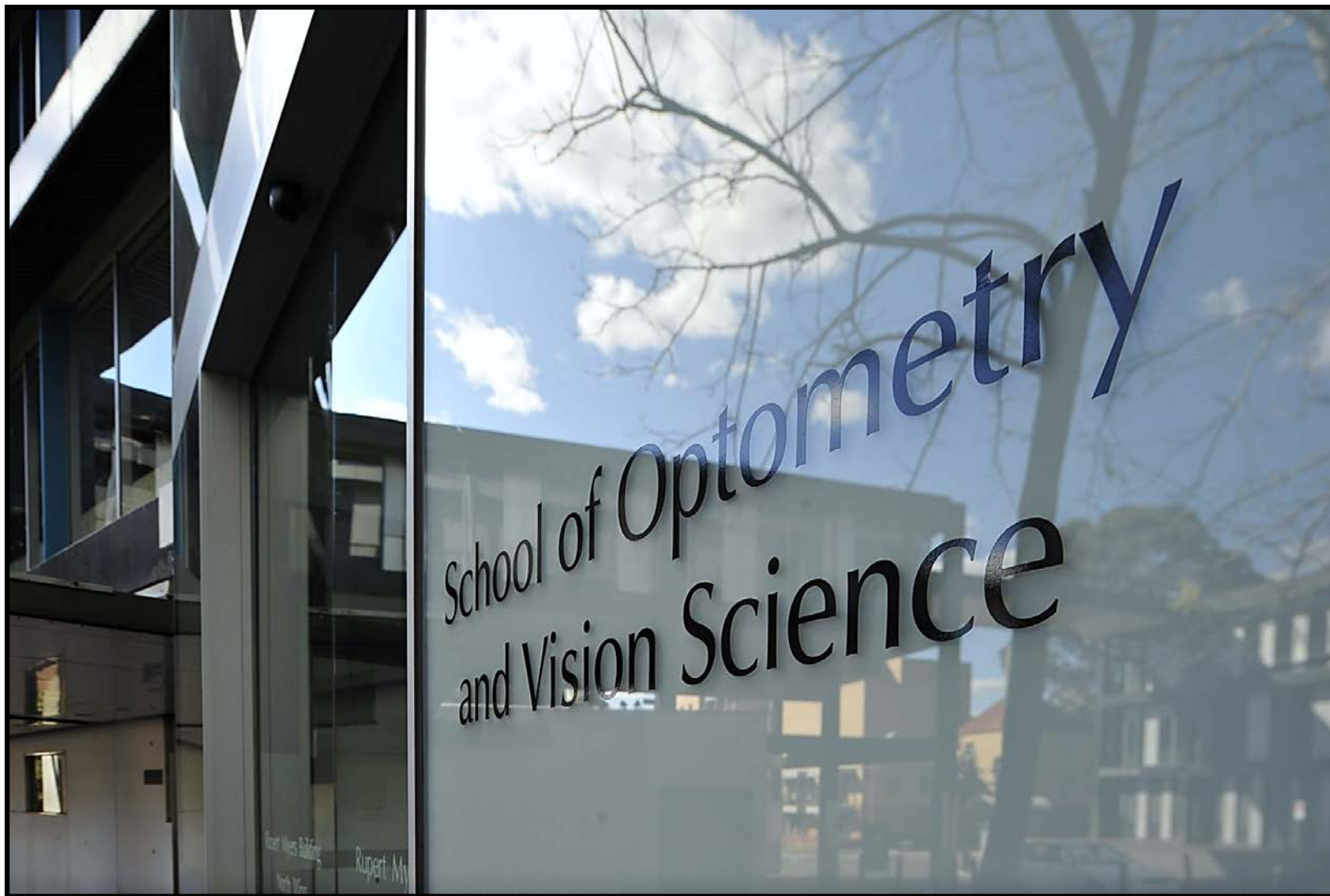
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Thank you – any questions?



You are very welcome to visit our clinic <https://www.optometry.unsw.edu.au/clinic>