

PSYC 1340 / VLST 2110 Perception

Recitation 3

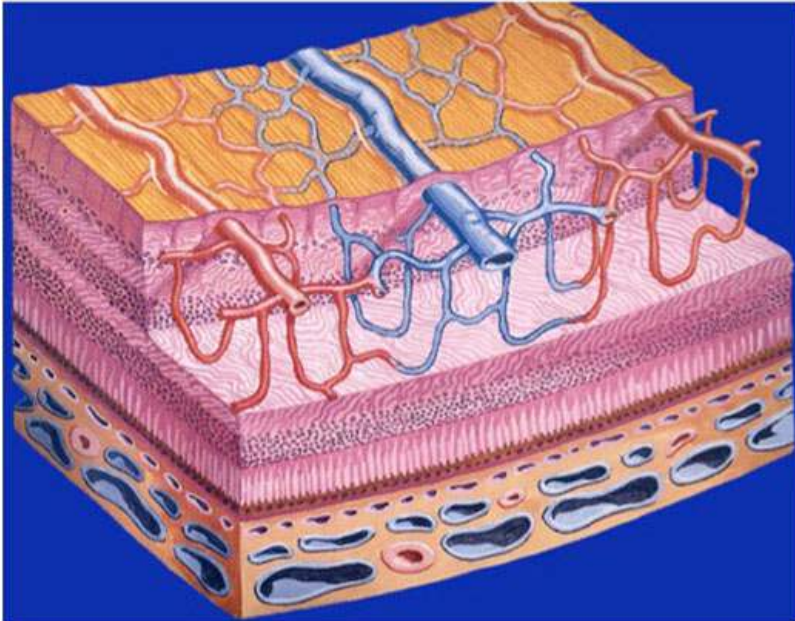
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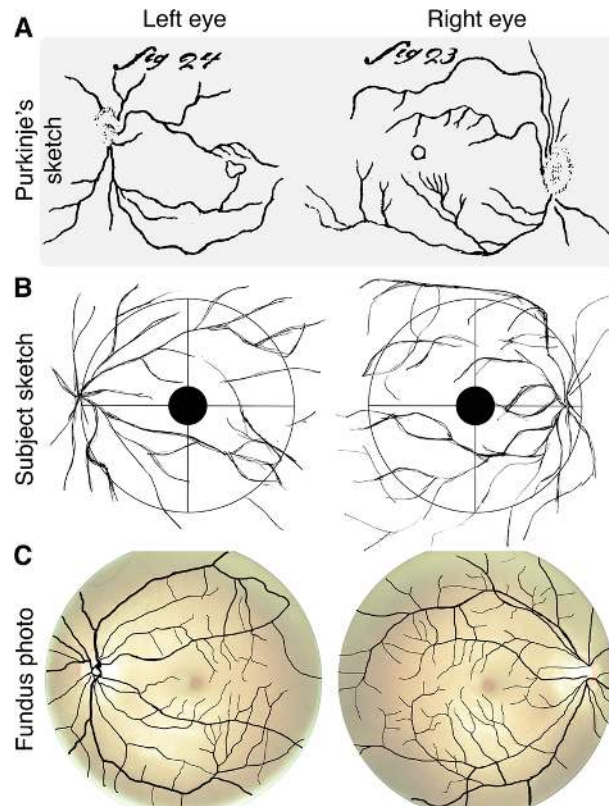
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Eye Anatomy

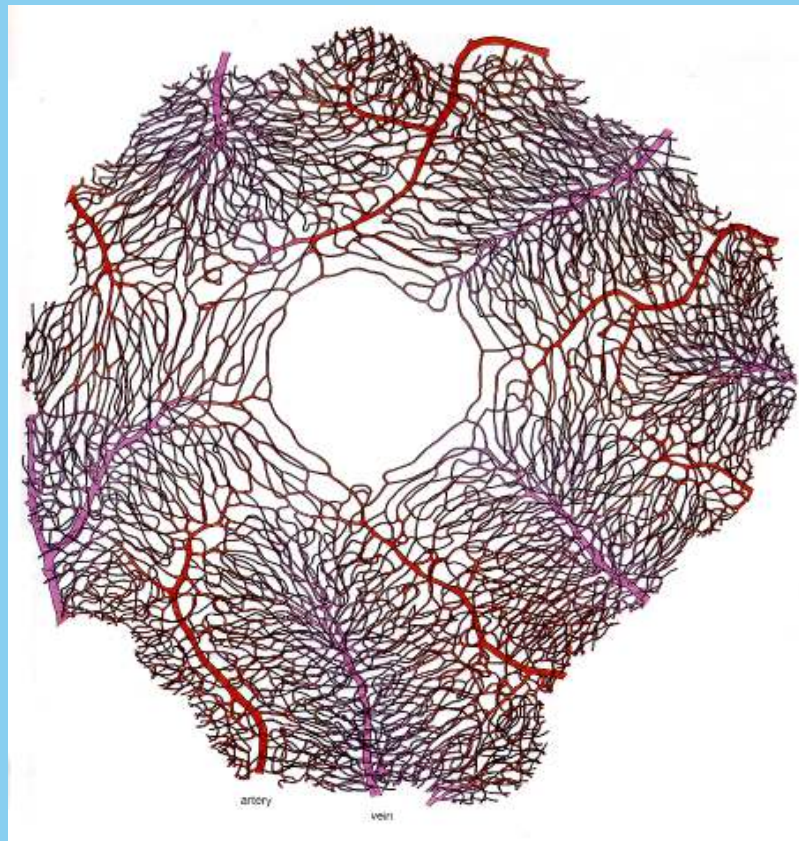
- Why don't we see the blood vessels in the back of our eyes?
- What other things do we filter out automatically?



Purkinje Trees

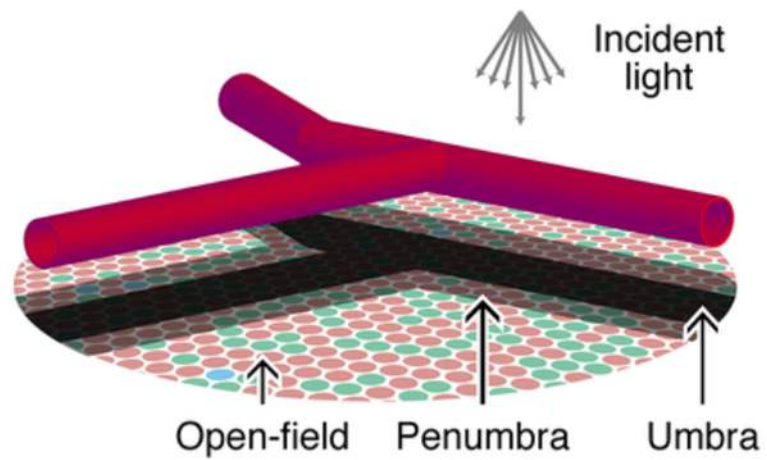


Demo



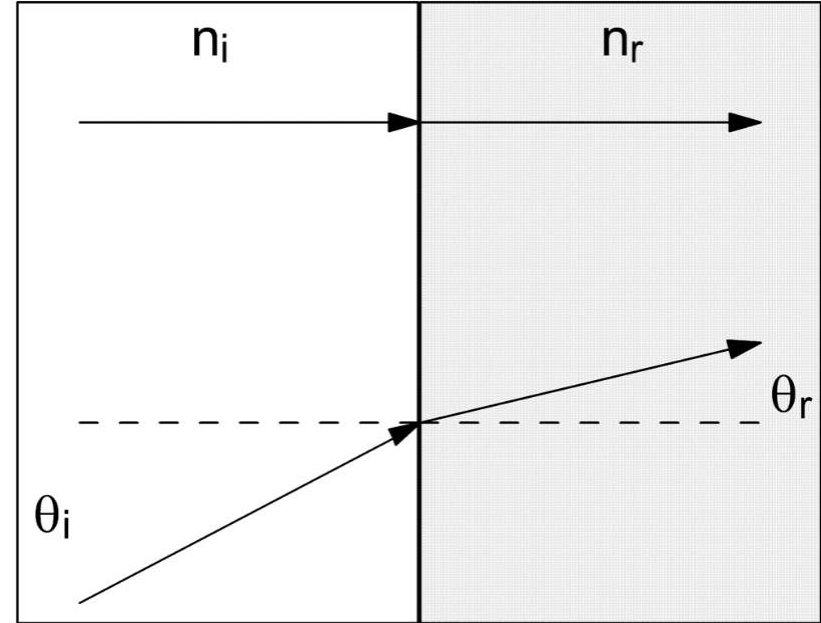
Why does that work?

A



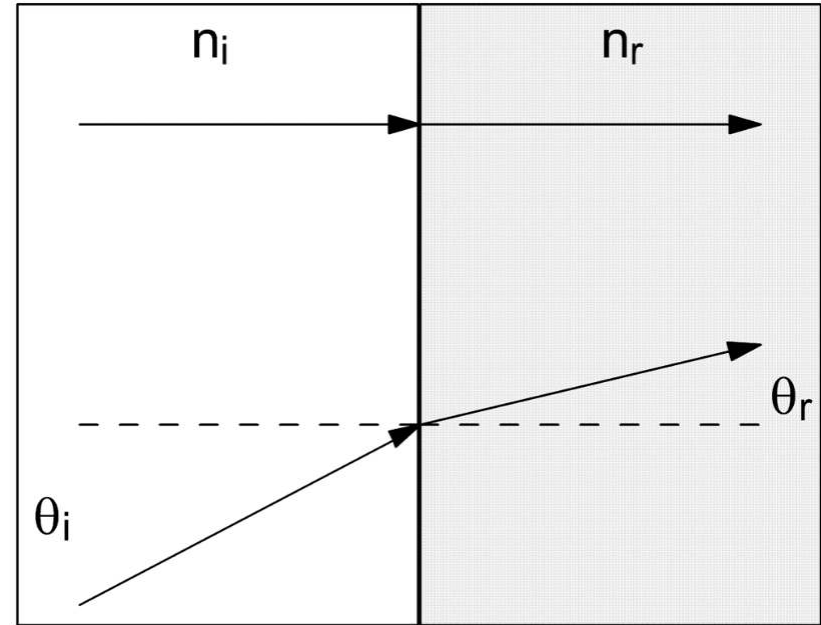
Snell's Law

- When light passes through something with a different refractive index, it bends.
- $n_i \sin(\theta_i) = n_r \sin(\theta_r)$
- n_i = incident material index of refraction
- θ_i = angle of incidence
- n_r = refracting material index of refraction
- θ_r = angle of refraction



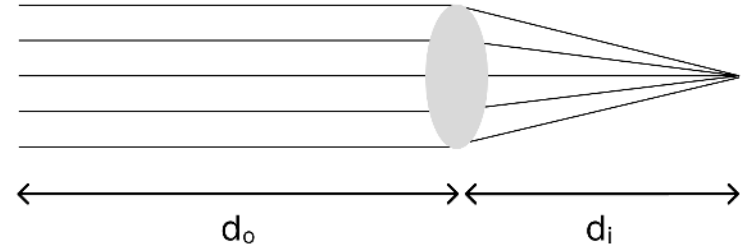
Snell's Law Practice Problem

- $n_i \sin(\theta_i) = n_r \sin(\theta_r)$
- Light passes from air ($n = 1$) into a diamond ($n = 2.419$) at a 35 degree angle. What is the angle of refraction?
- Now the light passes from the diamond into water ($n = 1.333$). What is the angle of refraction?



Lensmaker's Formula

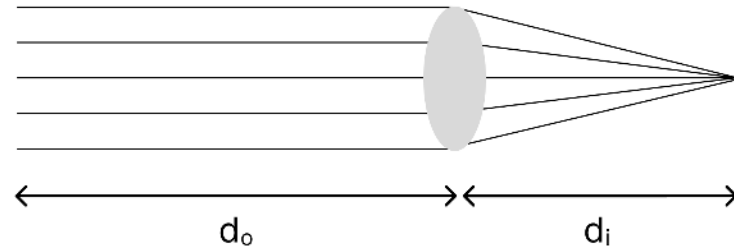
- $\frac{1}{d_o} + \frac{1}{d_i} = \frac{1}{f} + D_c$
- d_o = Distance from lens to stimulus.
- d_i = Distance from lens to retina.
- f = Focal length of the lens
- D_c = Diopter value of external correction.
- To account for external lens correction, you can add the diopter value of that lens to $1/f$
- Units are in meters!



Lensmaker's Formula

Practice Problem #1

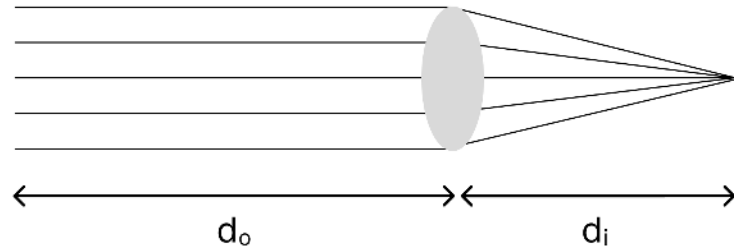
- $\frac{1}{d_o} + \frac{1}{d_i} = \frac{1}{f} + D_c$
- Imagine a person with a 17mm length eye needs 2 diopters of correction. What is the focal length of this person's eye?



Lensmaker's Formula

Practice Problem #2

- $\frac{1}{d_o} + \frac{1}{d_i} = \frac{1}{f} + D_c$
- Imagine a person with a 17mm length eye needs -8.25 diopters of correction. What is the focal length of this person's eye?



See you next week!