

# Pupils & Cranial Nerves

Deion Sims, MD  
Resident, Casey Eye Institute

---

---

---

---

---

---

---

1

## Objectives

1. Identify the anatomical pathways involved in the pupillary light reflex pathway.
2. Describe what an afferent pupillary defect is.
3. Recognize the roles of cranial nerves III, IV, and VI in eye movements.

---

---

---

---

---

---

---

2

## Sympathetic

- Dilate or constrict?

---

---

---

---

---

---

---

3



4

---

---

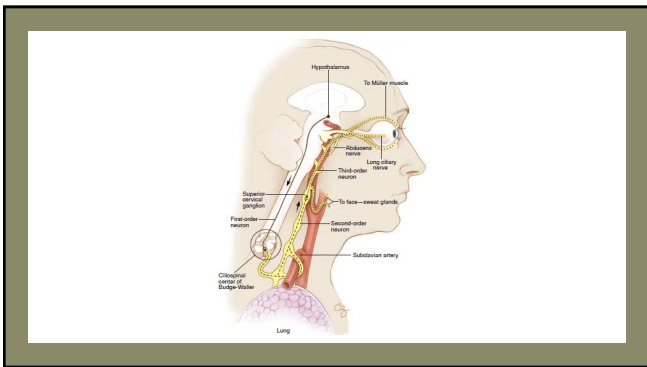
---

---

---

---

---



5

---

---

---

---

---

---

---

**Parasympathetic**

- Dilate or constrict?

6

---

---

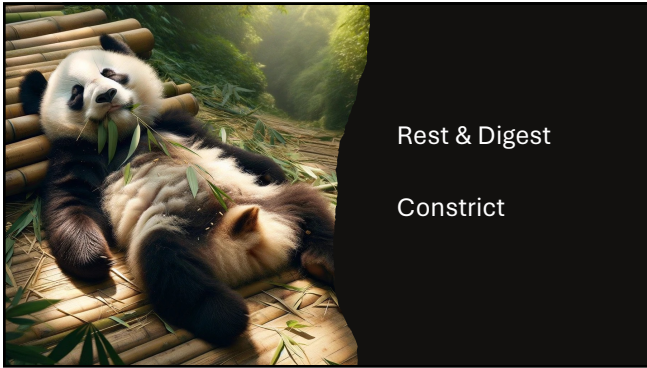
---

---

---

---

---



Rest & Digest

Constrict

7

---

---

---

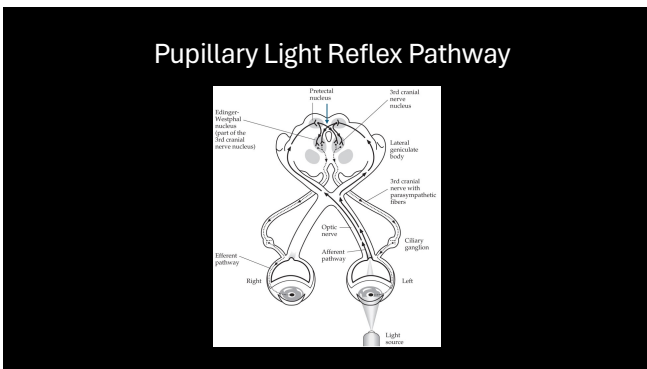
---

---

---

---

---



8

---

---

---

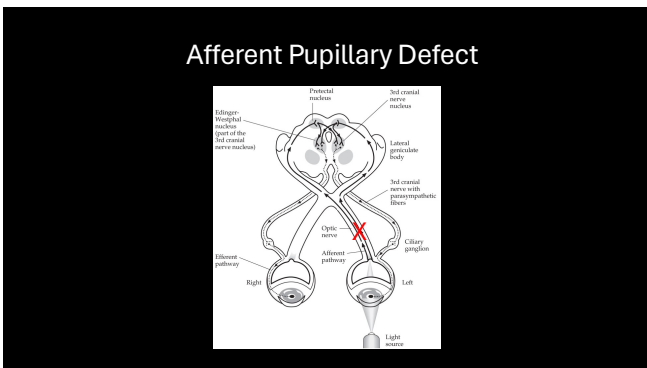
---

---

---

---

---



9

---

---

---

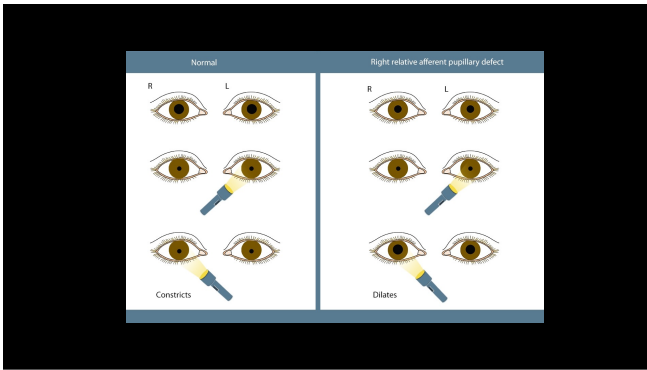
---

---

---

---

---



10

---

---

---

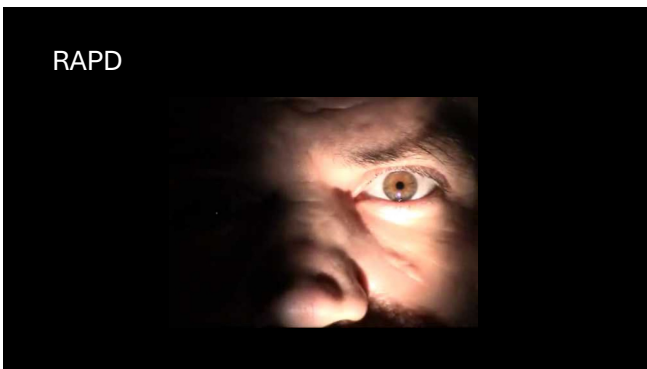
---

---

---

---

---



11

---

---

---

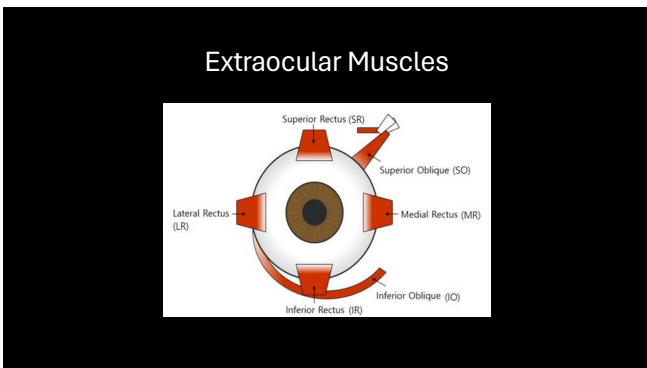
---

---

---

---

---



12

---

---

---

---

---

---

---

---

Name	FUNCTION	
	Motor	Sensory
2. Olfactory		Smell
3. Oculomotor	Superior, medial, and inferior oblique muscles; inferior rectus and inferior eyelid muscles; ciliary and sphincter pupillae muscles	Sight
4. Trochlear	Superior oblique, eyelid muscles	
5. Trigeminal	Muscles of mastication, scalp, supraorbital, forehead, lower lip, lower jaw, mental, mentalis, anterior 2/3 of tongue, anterior digastric	
6. Abducens	Lateral rectus muscle of the eyeball	
7. Facial	Muscles of face, scalp, anterior 2/3 of lacrimal gland, submandibular gland, sublingual, sublingual salivary gland, submandibular, parotid salivary gland, stapedius, posterior digastric	Tongue's taste buds
8. Auditory		Hearing
8. Vestibular		Hearing
9. Glossopharyngeal	Stylopharyngeus muscle, pharynx, parotid salivary gland, lower 1/3 of tongue	Taste buds
10. Vagus	Muscles of the soft palate, pharynx, larynx, trachea, esophagus, stomach, intestines, other abdominal viscera, and the heart	Heart, lungs, thymus, spleen, kidney, esophagus, and the gastrointestinal tract
11. Accessory	Trapezius and sternocleidomastoid muscles	
12. Hypoglossal	Tongue muscles	

13

---

---

---

---

---

---

---

---

Eye Movements and Cranial Nerves

$LR_6 SO_4 AO_3$

Lateral rectus – VI  
 Superior oblique – IV  
 All others - III

14

---

---

---

---

---

---

---

---

Thank you!

15

---

---

---

---

---

---

---

---