

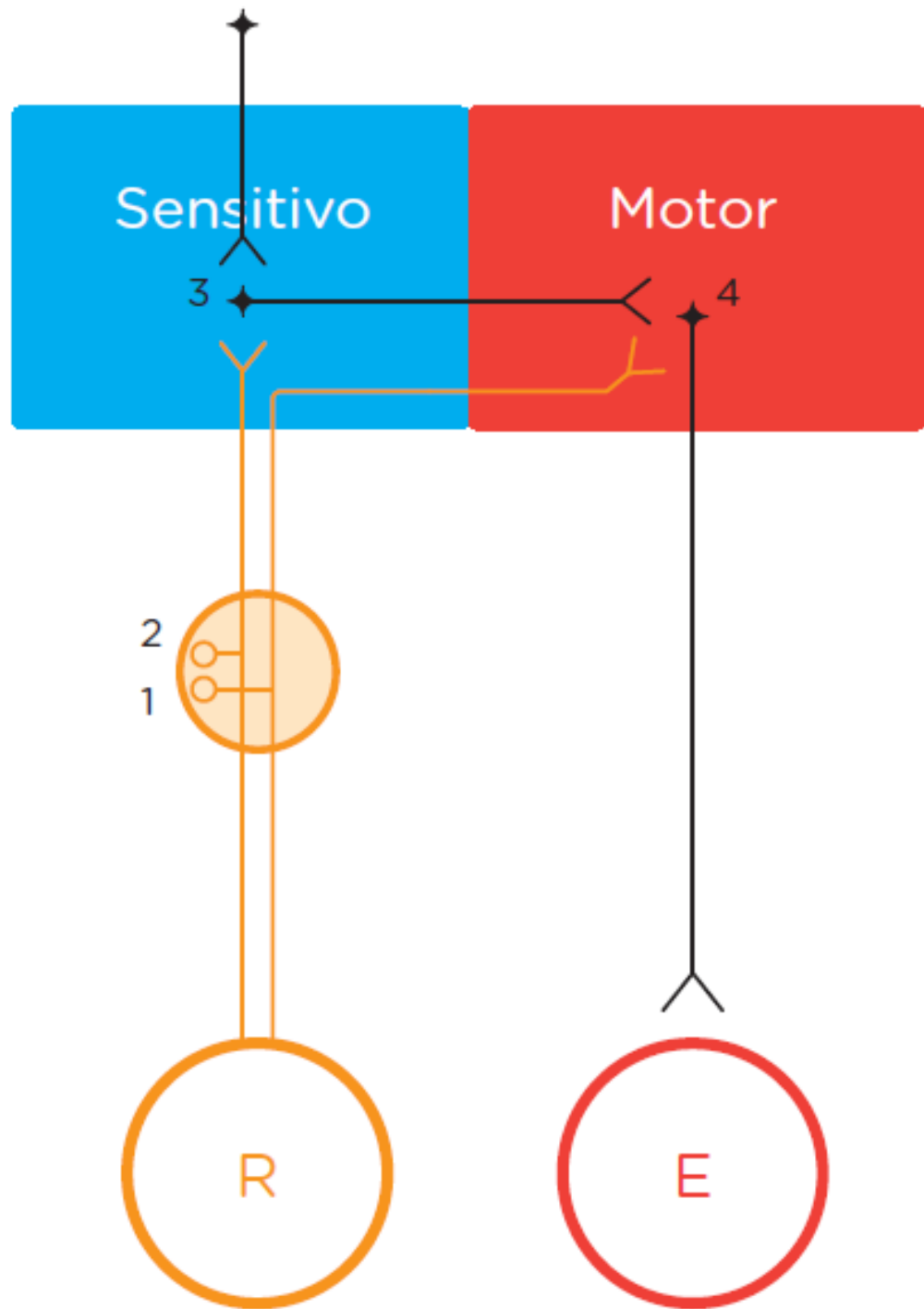
# Organización General del Sistema Nervioso

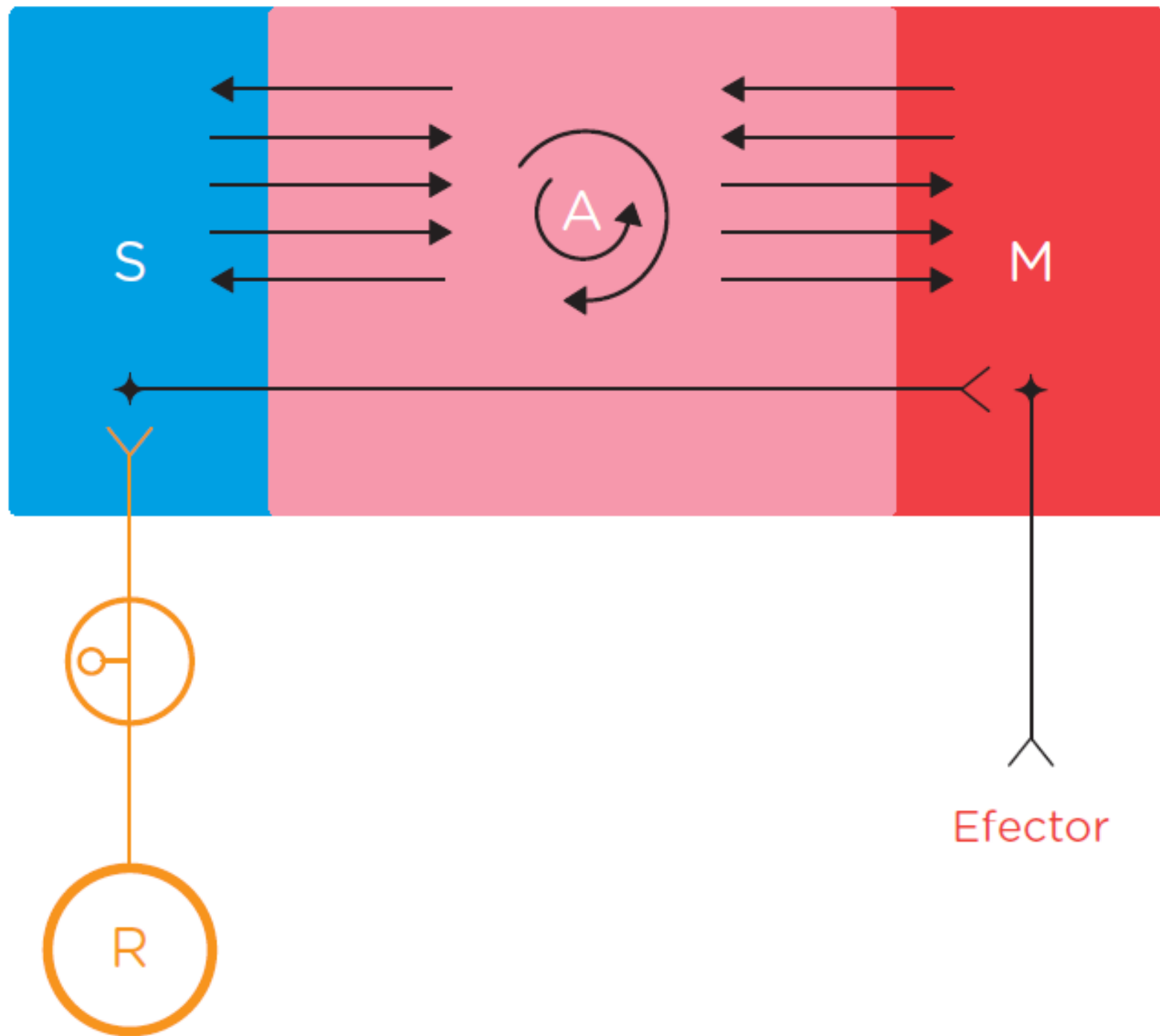
*Nelson D. Villalba M.D. M.Sc.*



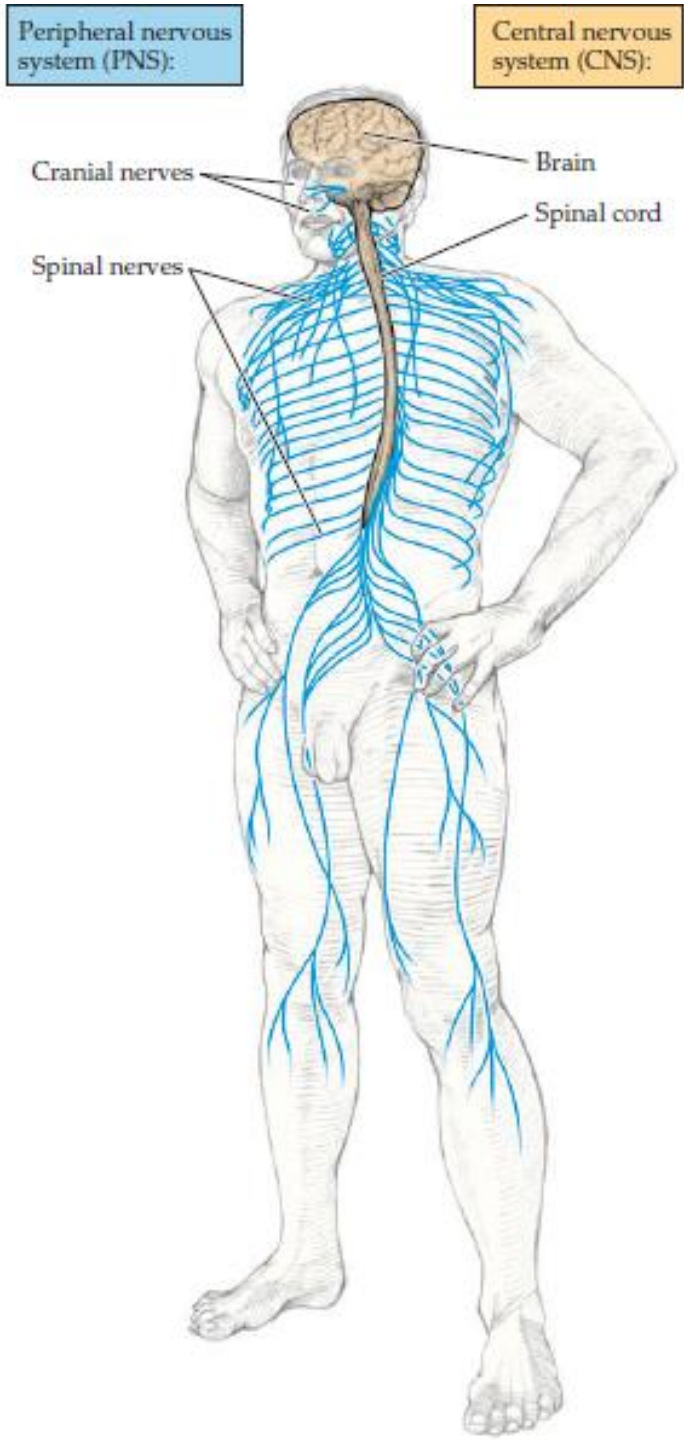




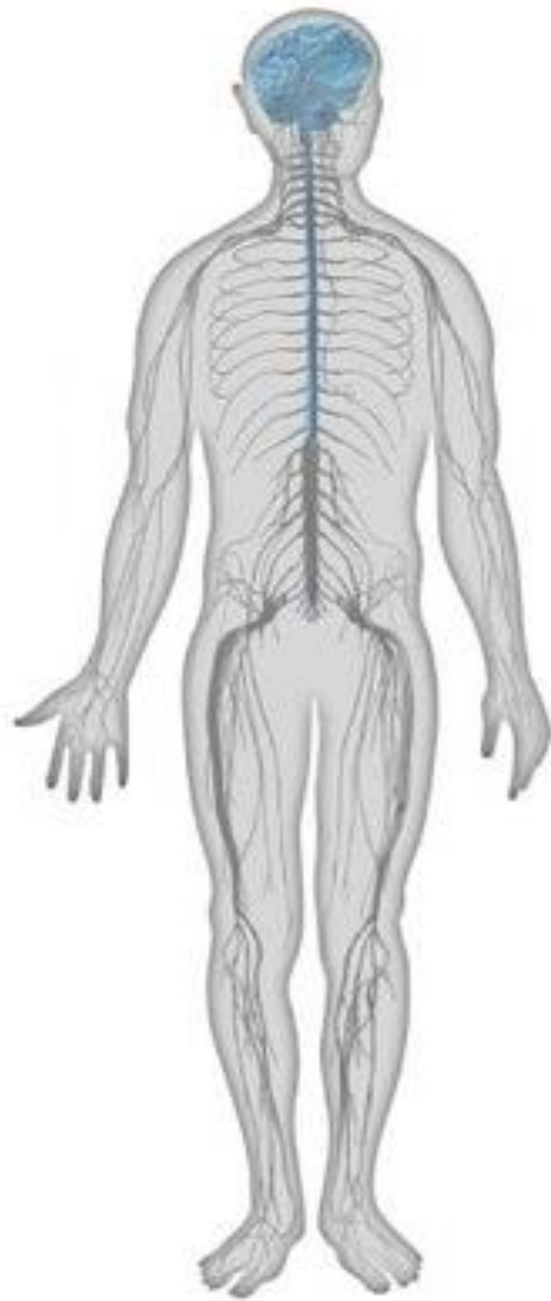




# Clasificación Sistema Nervioso



# Clasificación Sistema Nervioso



Central



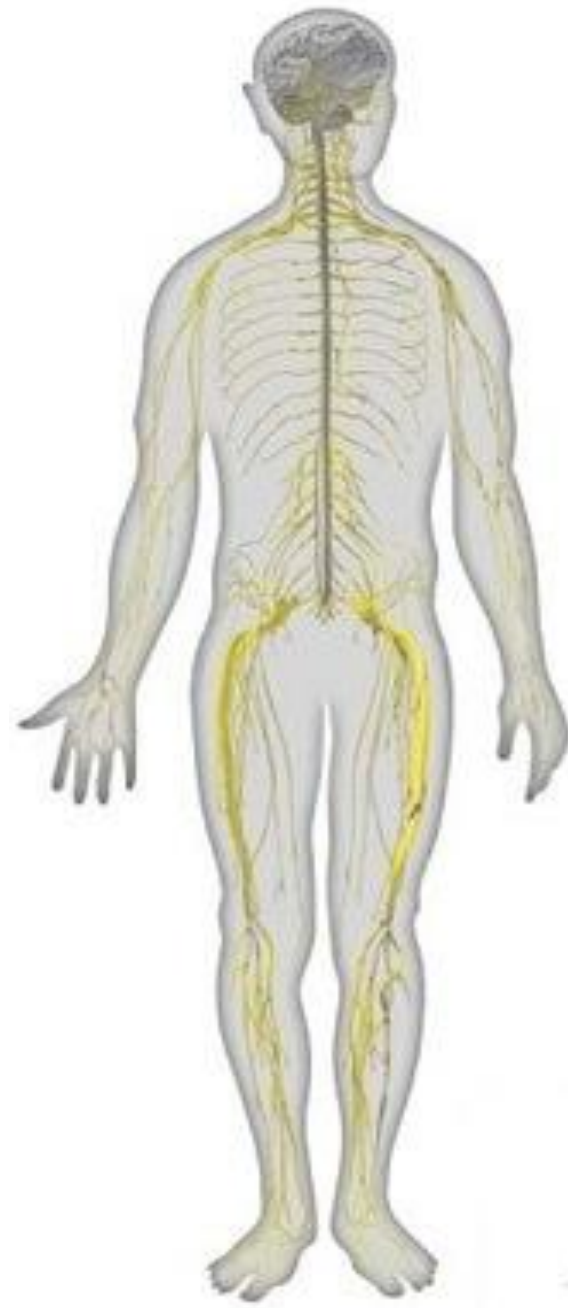
Periférico



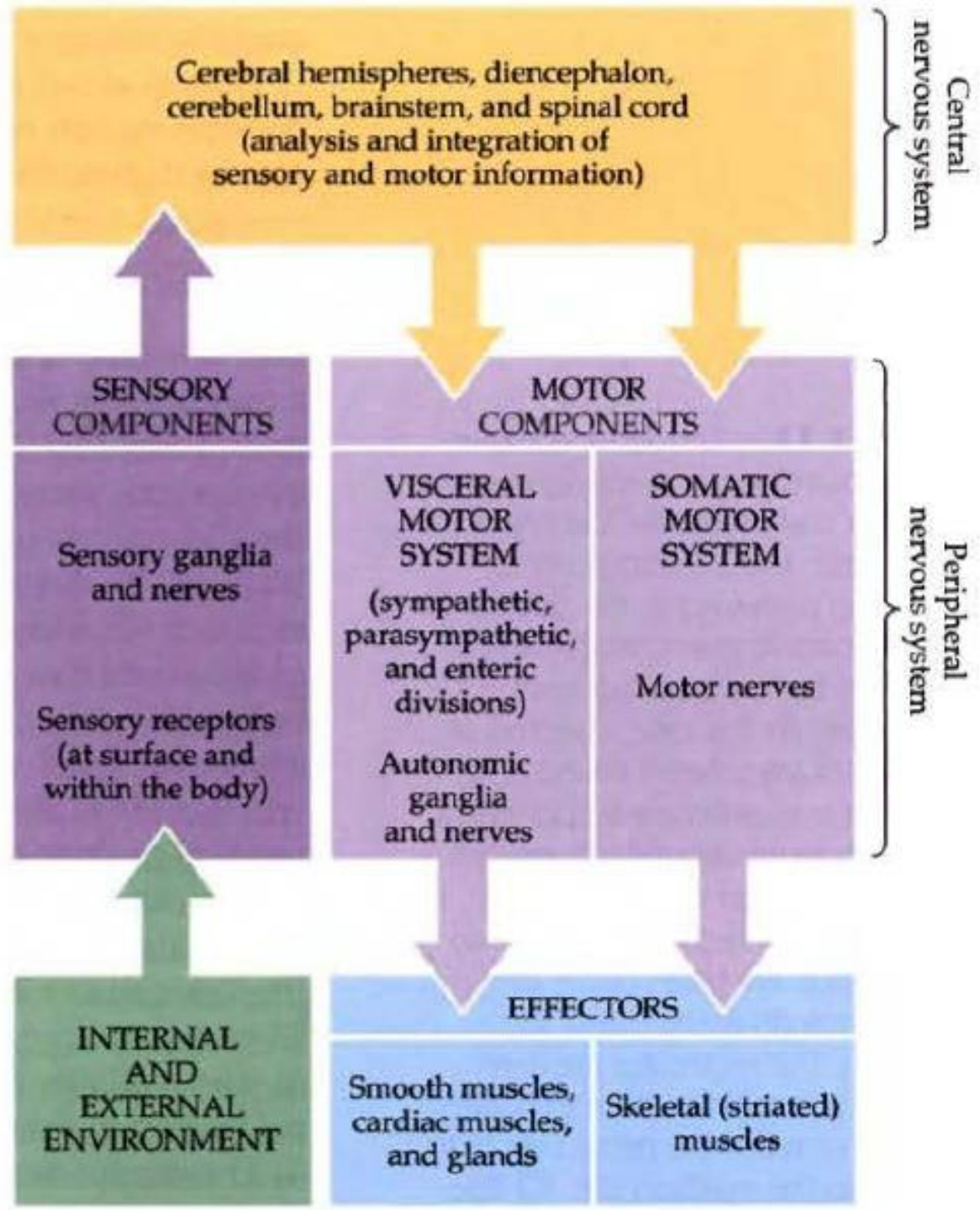
# Clasificación Sistema Nervioso



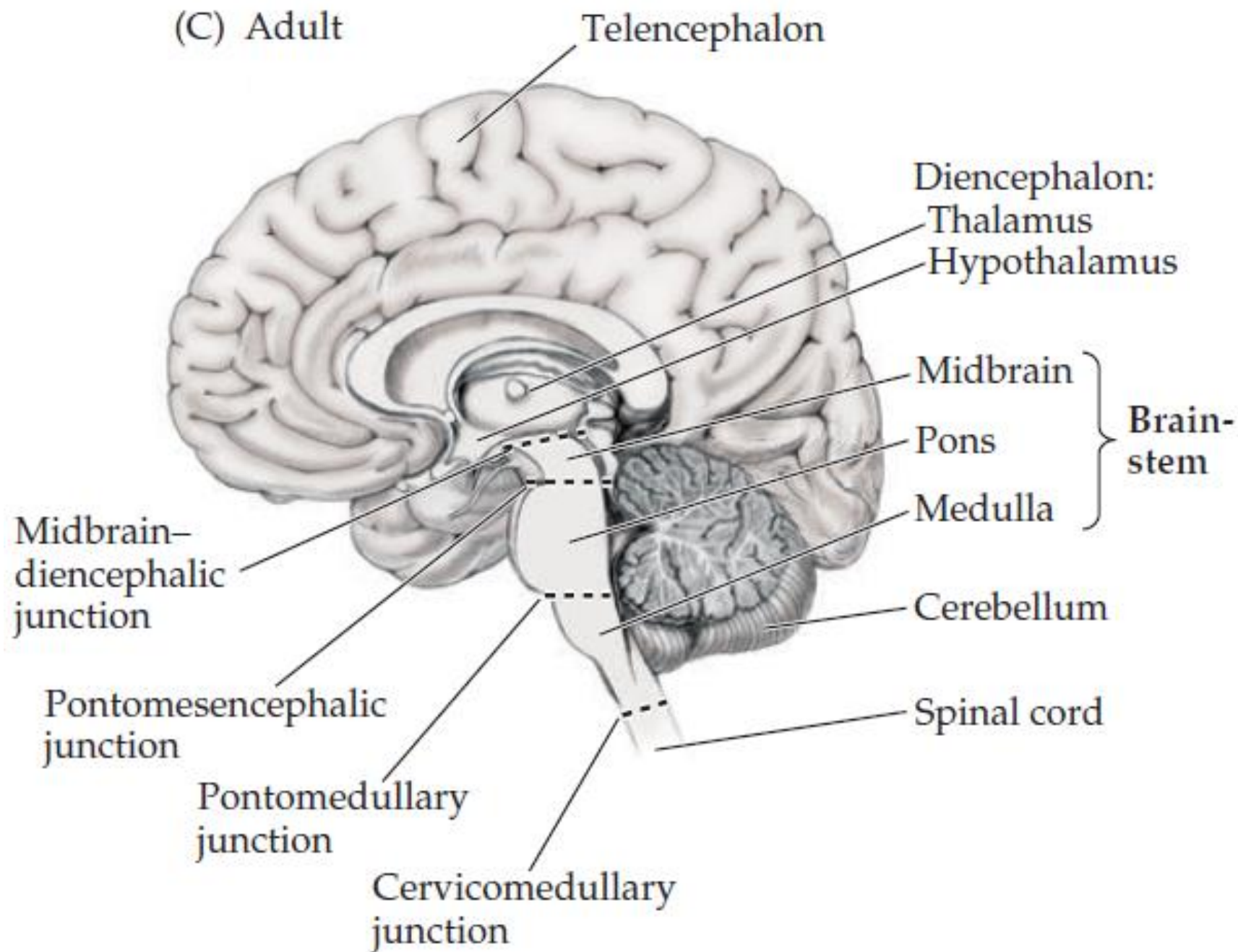
Central



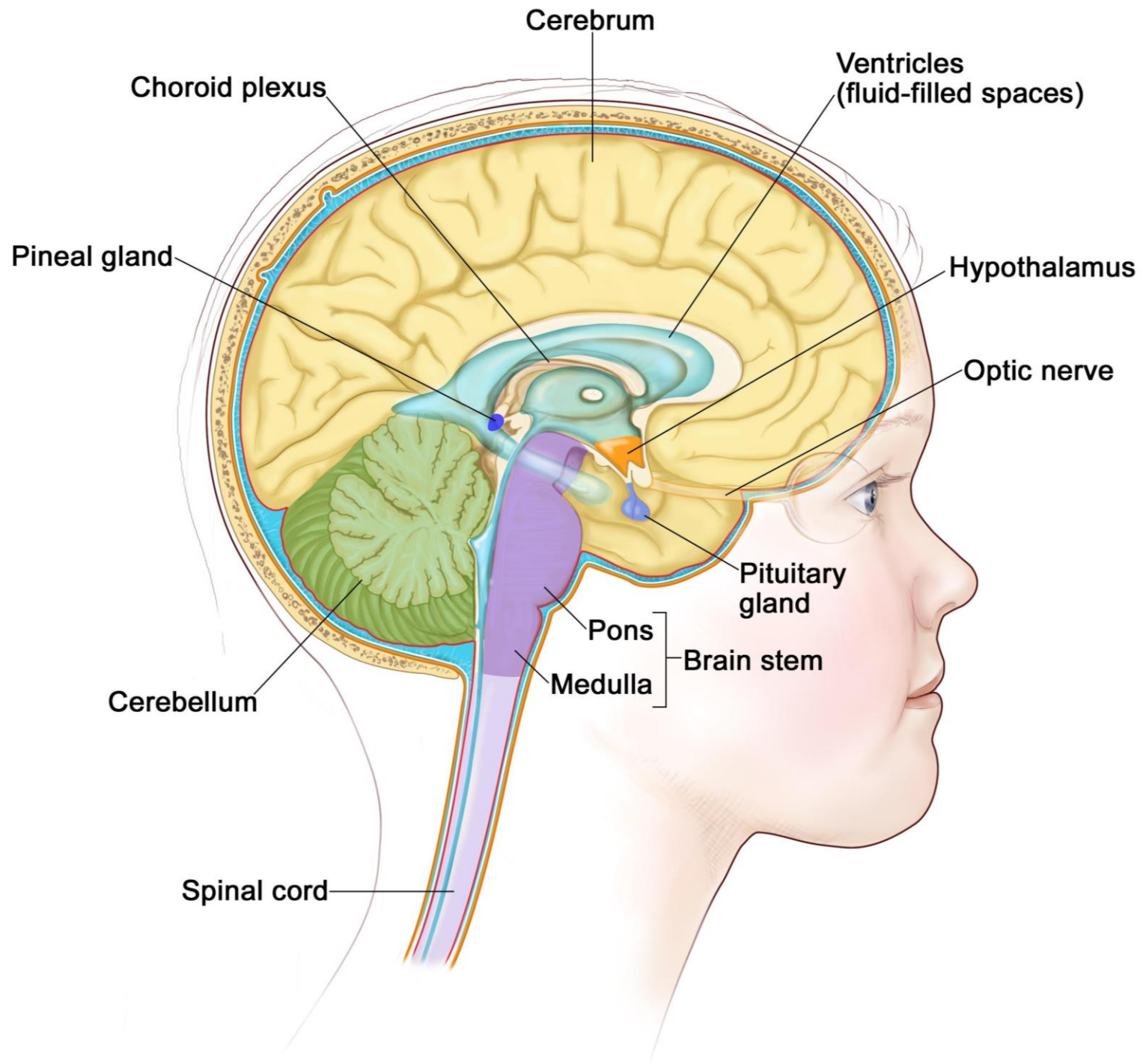
Periférico



(C) Adult



# Sistema Nervioso Central



(A) Cerebral hemispheres

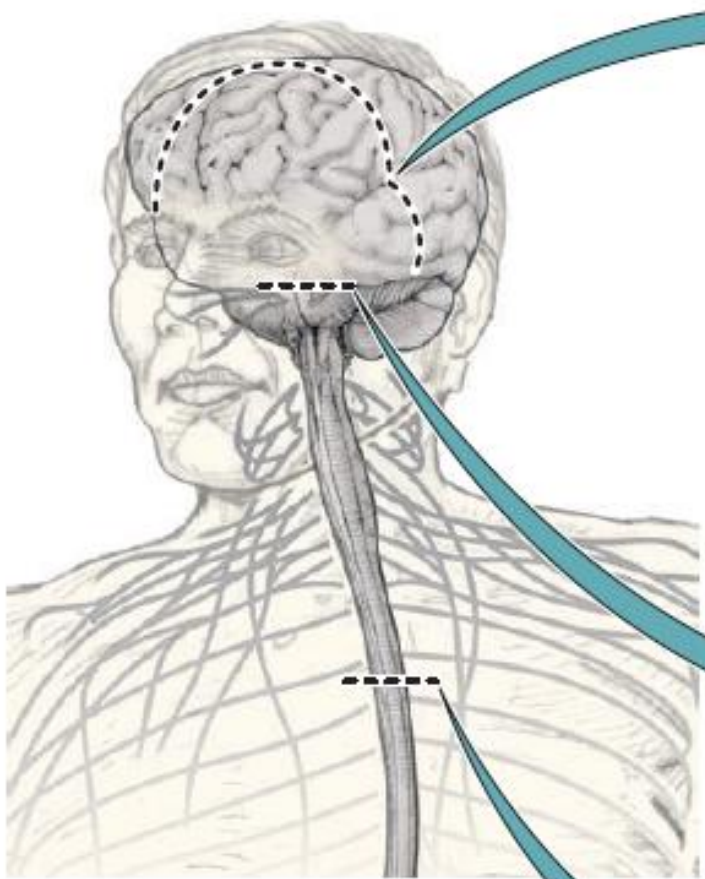
- White matter
- Gray matter:
- Thalamus
- Basal ganglia
- Cortex

(B) Brainstem

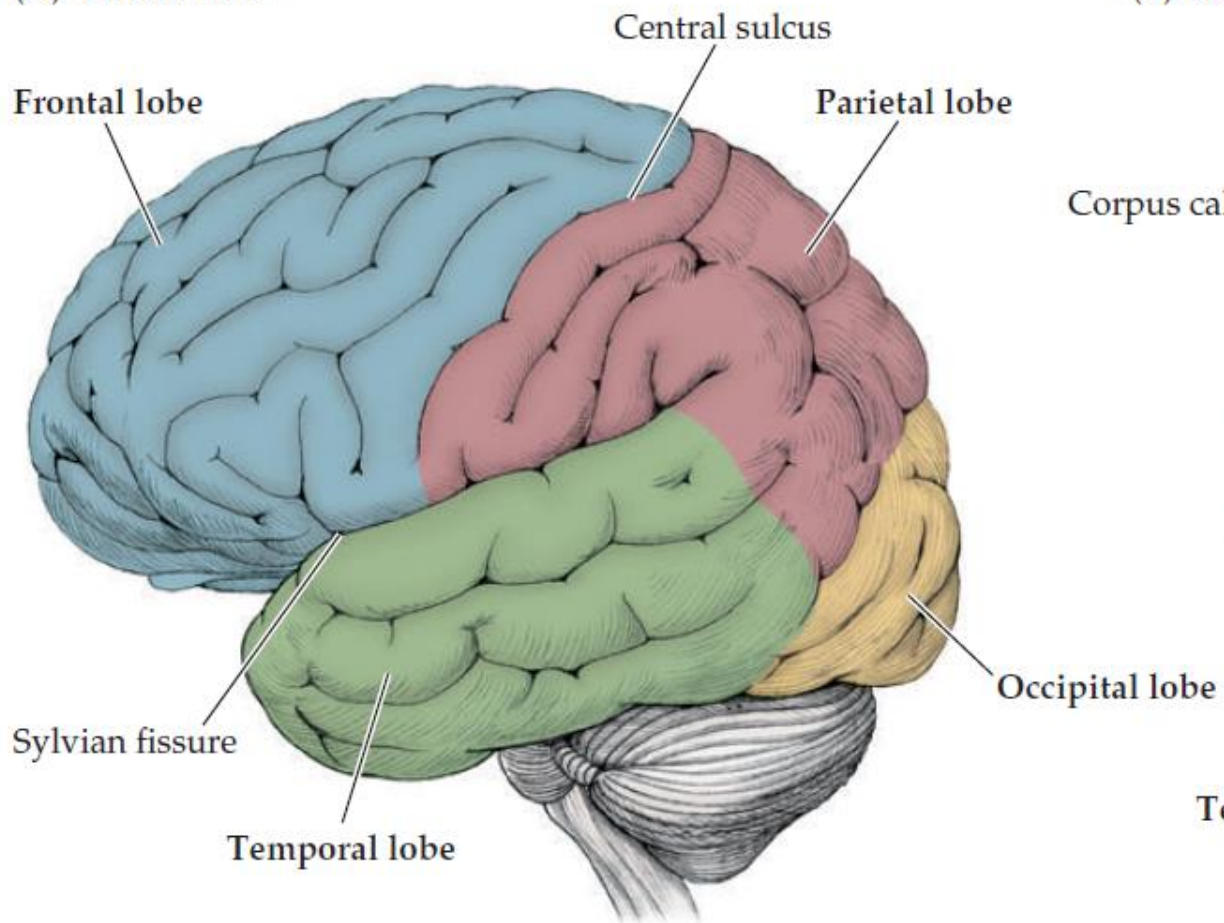
- Gray matter
- White matter

(C) Spinal cord

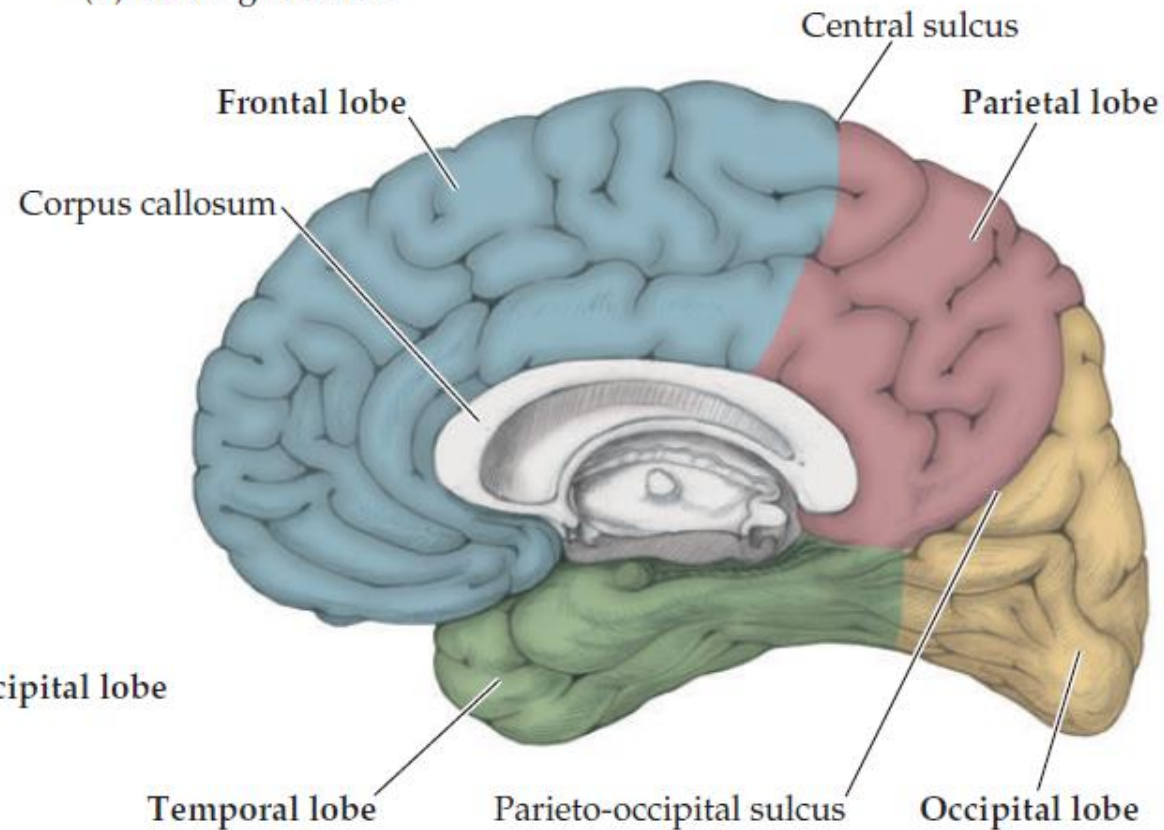
- Gray matter
- White matter

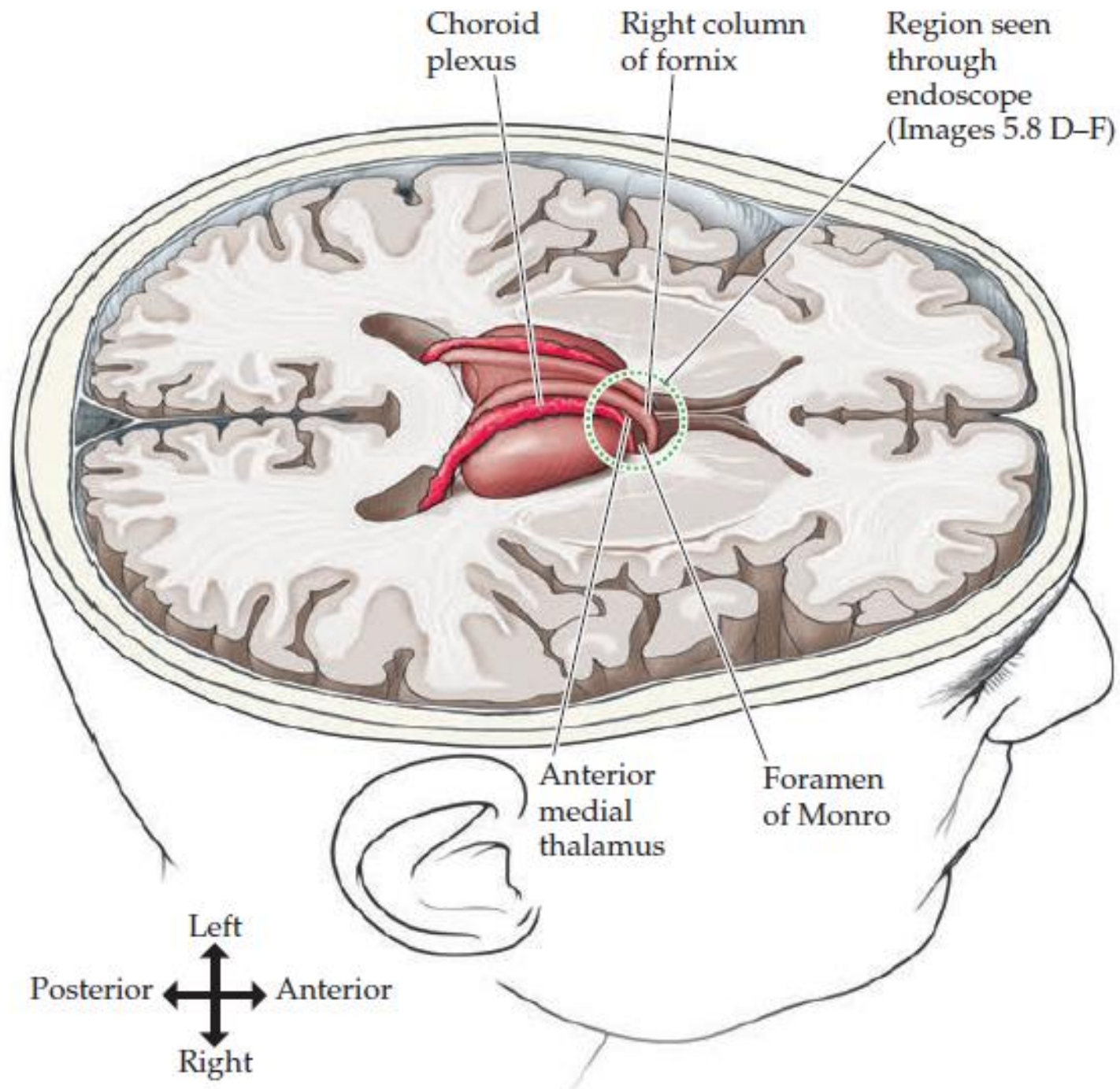


(A) Lateral view

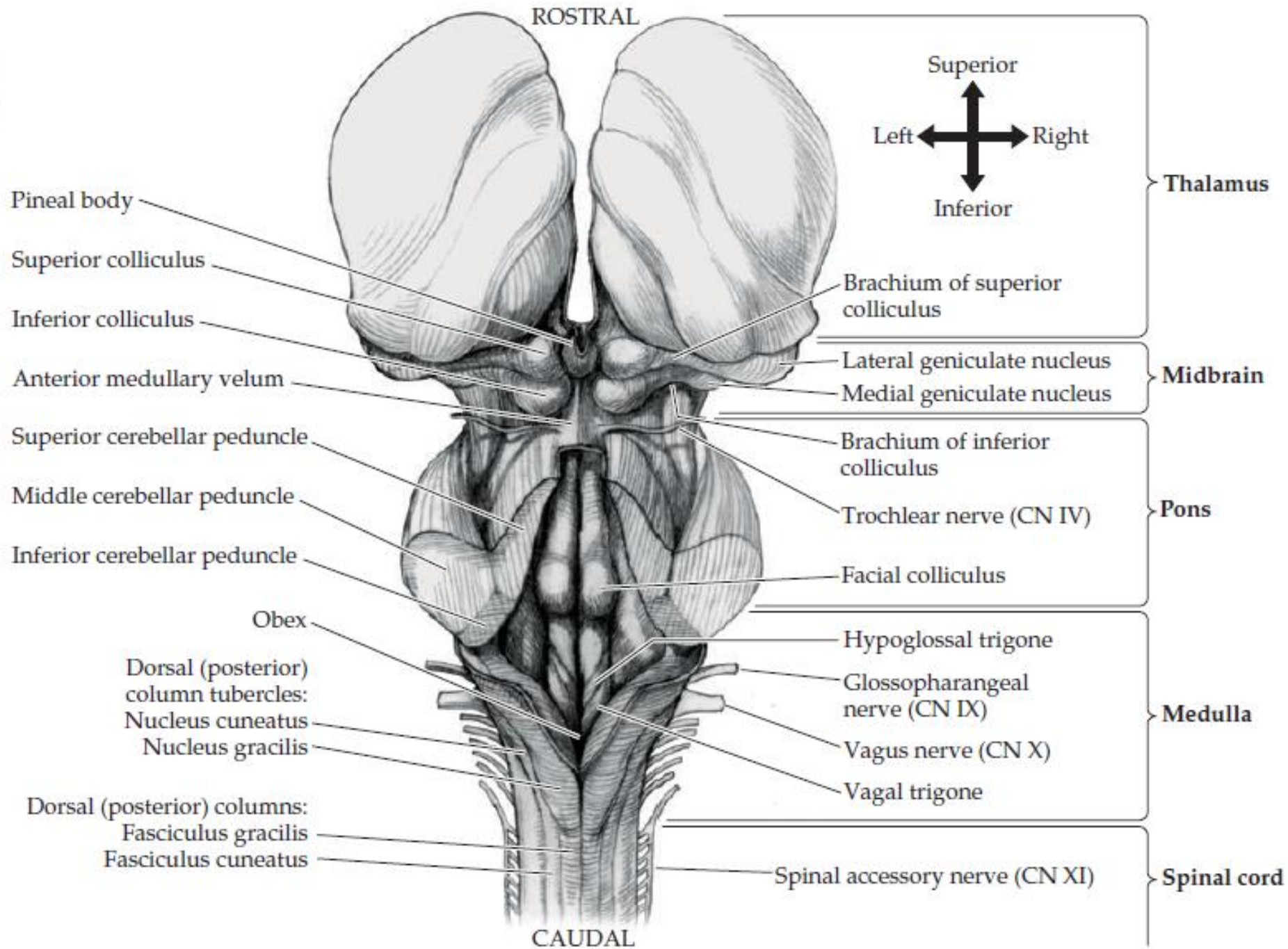


(B) Midsagittal view

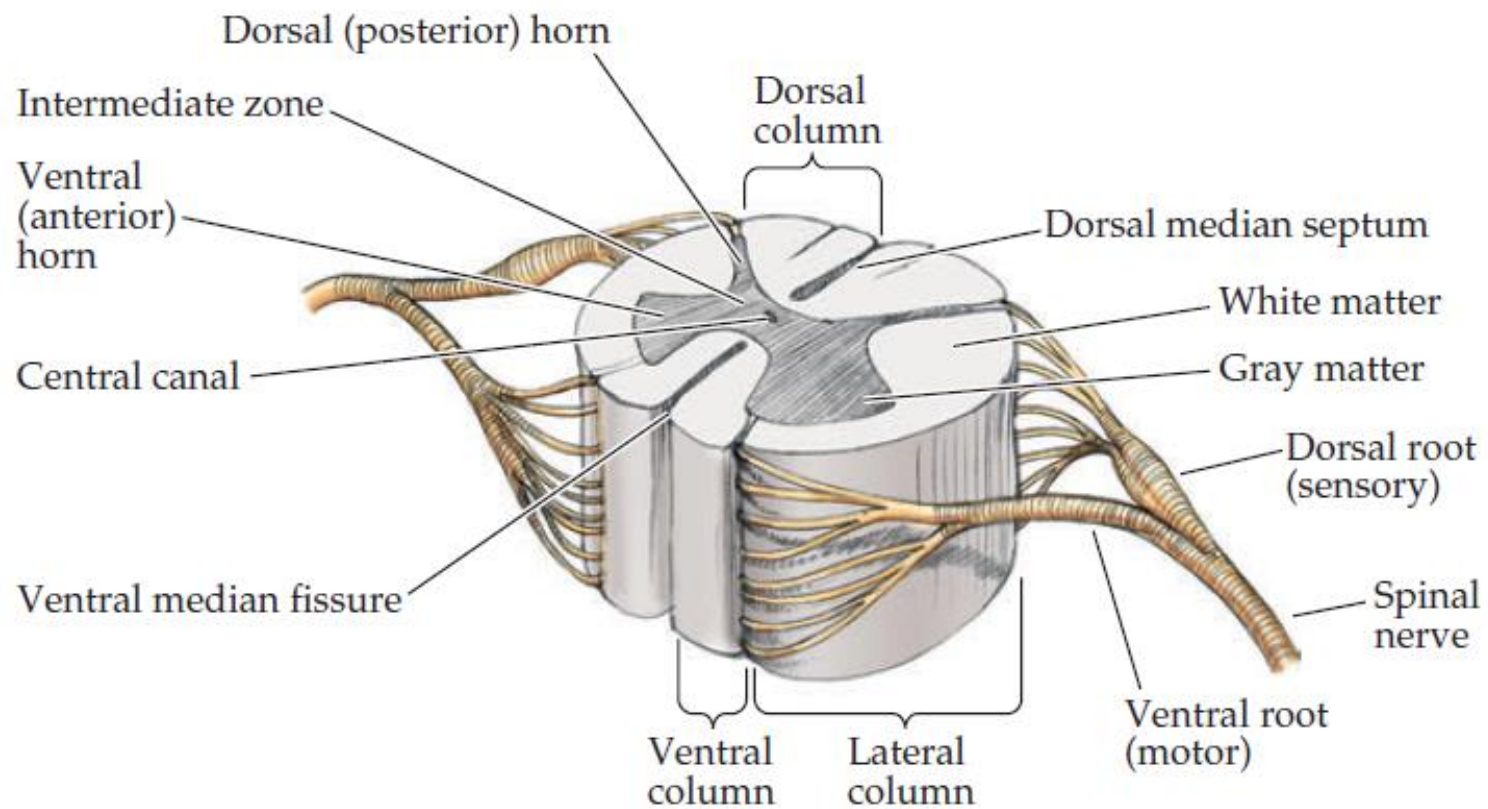
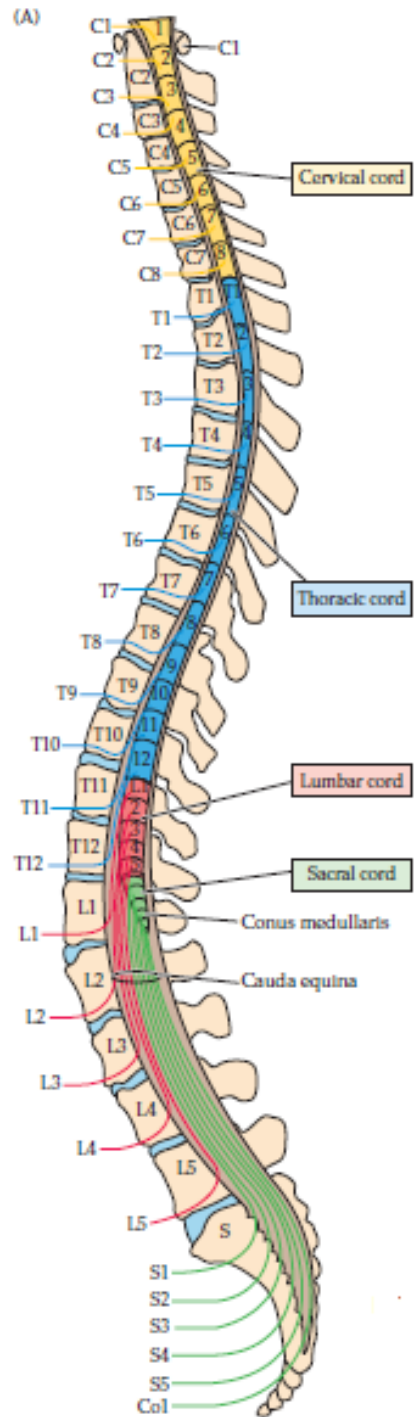




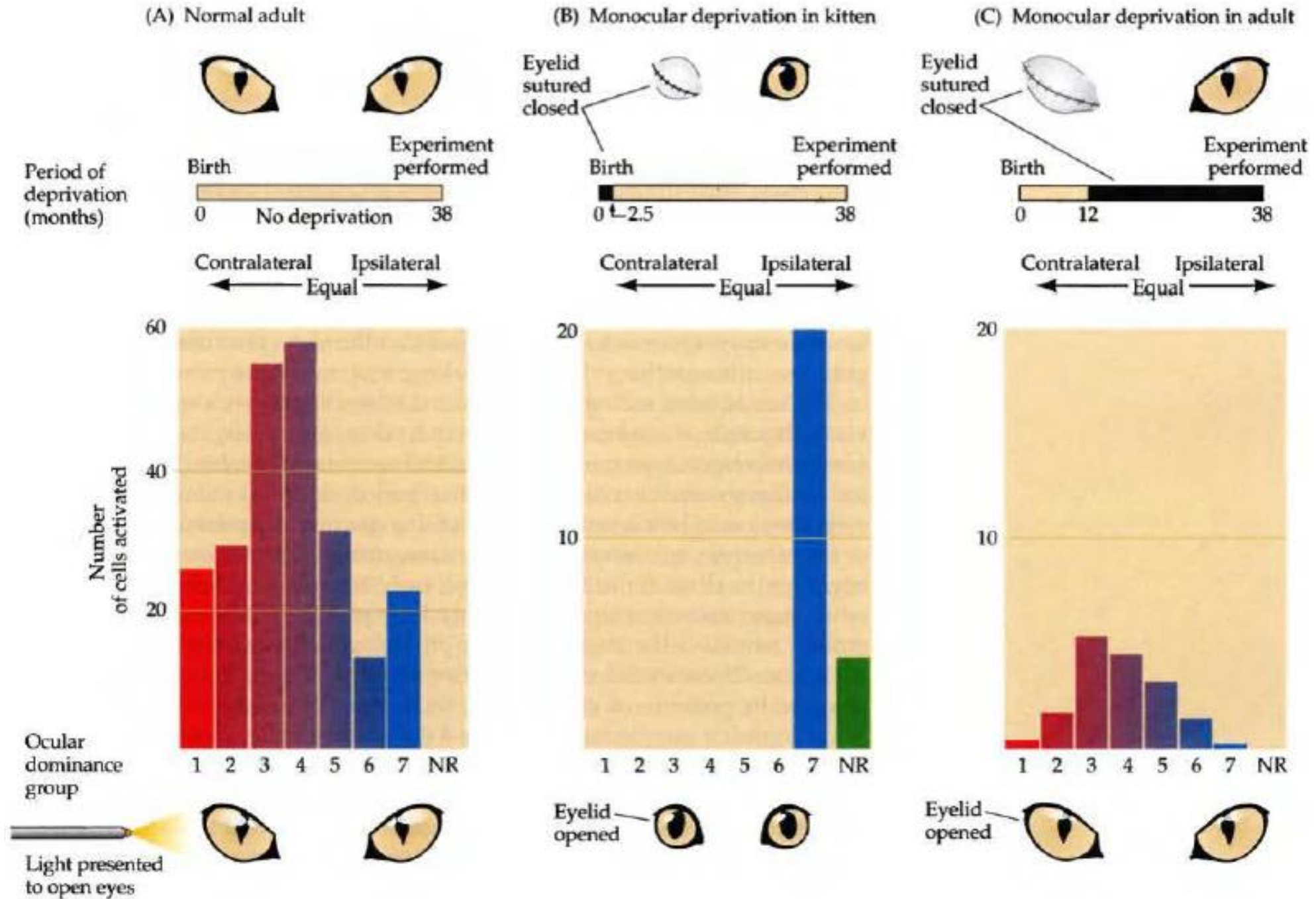
(B)





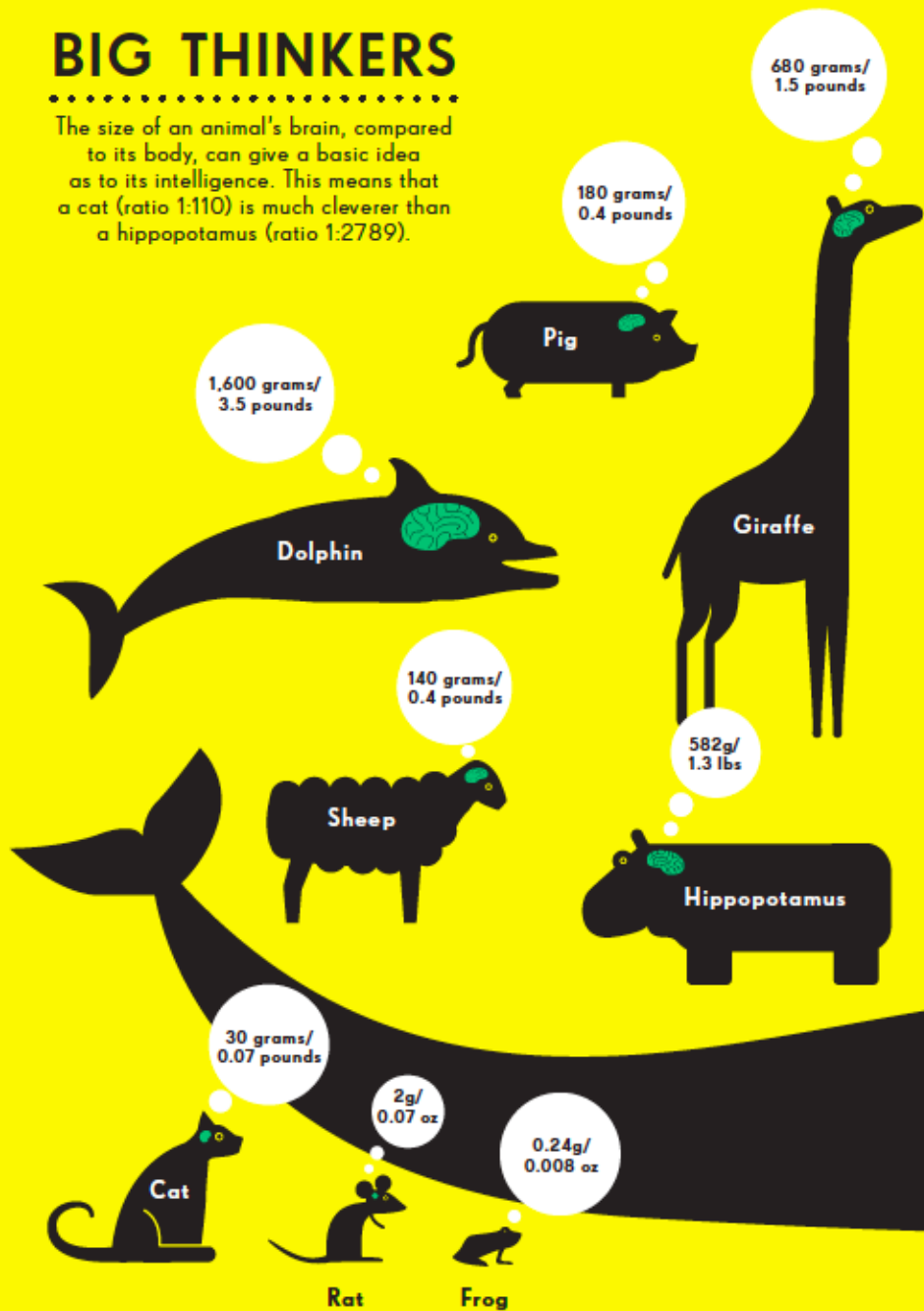


# Sistema Dinámico



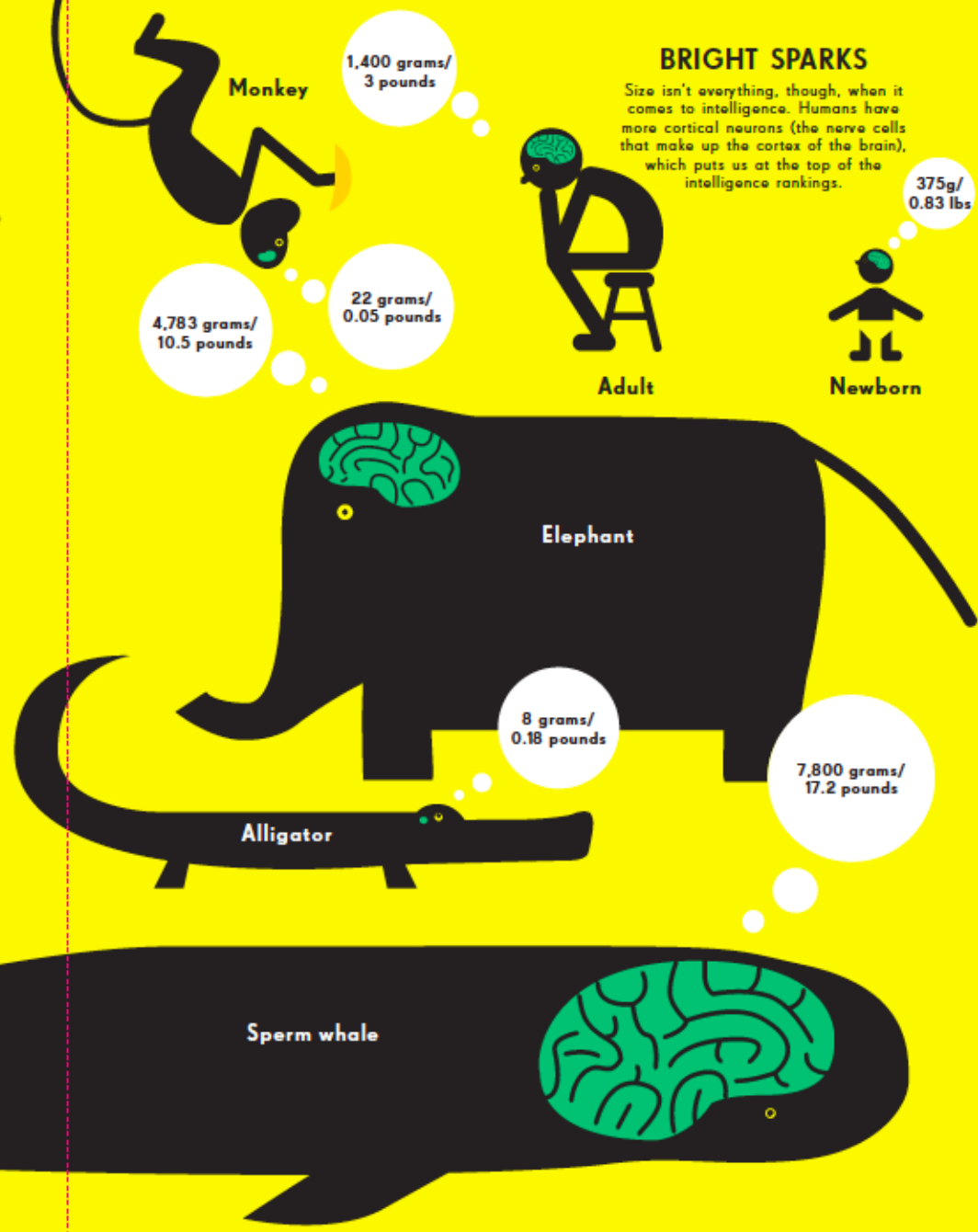
# BIG THINKERS








The size of an animal's brain, compared to its body, can give a basic idea as to its intelligence. This means that a cat (ratio 1:110) is much cleverer than a hippopotamus (ratio 1:2789).




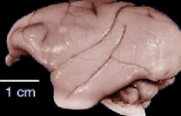
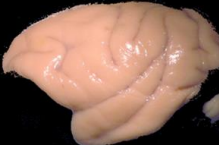
# BRIGHT SPARKS

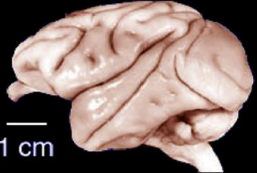
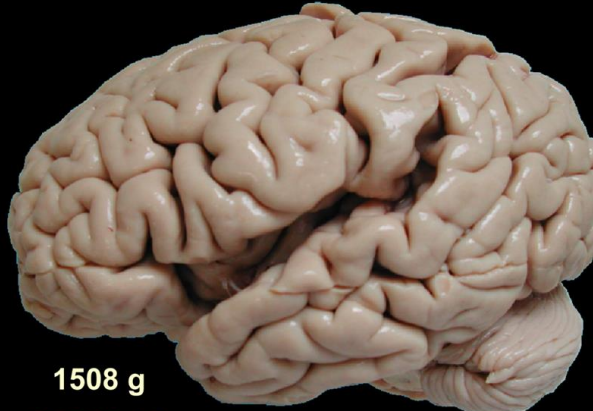
Size isn't everything, though, when it comes to intelligence. Humans have more cortical neurons (the nerve cells that make up the cortex of the brain), which puts us at the top of the intelligence rankings.

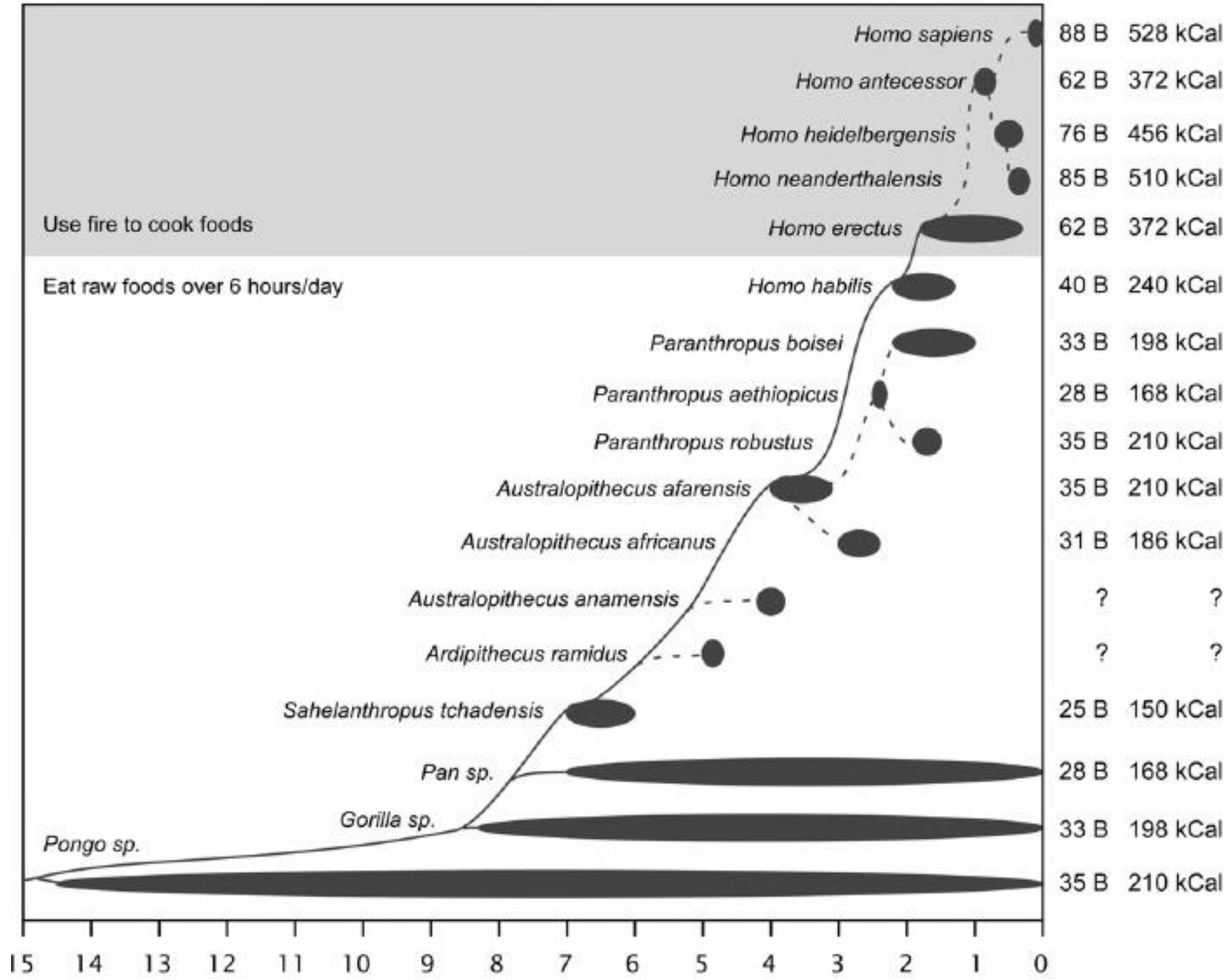


smoky shrew	short-tailed shrew	mouse	hamster	star-nosed mole	rat	eastern mole
						
0.176 g	0.347 g	0.416 g	1.020 g	0.802 g	1.802 g	0.999 g
36 M	52 M	71 M	90 M	131 M	200 M	204 M

guinea pig	marmoset	agouti	galago	owl monkey
				
3.759 g	7.78 g	18.365 g	10.15 g	15.73 g
240 M	634 M	857 M	936 M	1468 M

capybara	squirrel monkey	capuchin monkey
		
76.036 g	30.22 g	53.21 g
1600 M	3246 M	3690 M

macaque monkey	human
	
87.35 g	1508 g
6376 M	86000 M





Capybara

Rhesus  
Macaque

Western  
Gorilla

Human

African Bush  
Elephant

non-primate

primate

primate

primate

non-primate

48.2 g

69.8 g

377 g

1232 g

2848 g

0.3  
billion  
neurons

1.71  
billion  
neurons

9.1  
billion  
neurons

16.3  
billion  
neurons

5.59  
billion  
neurons

## Whole brain

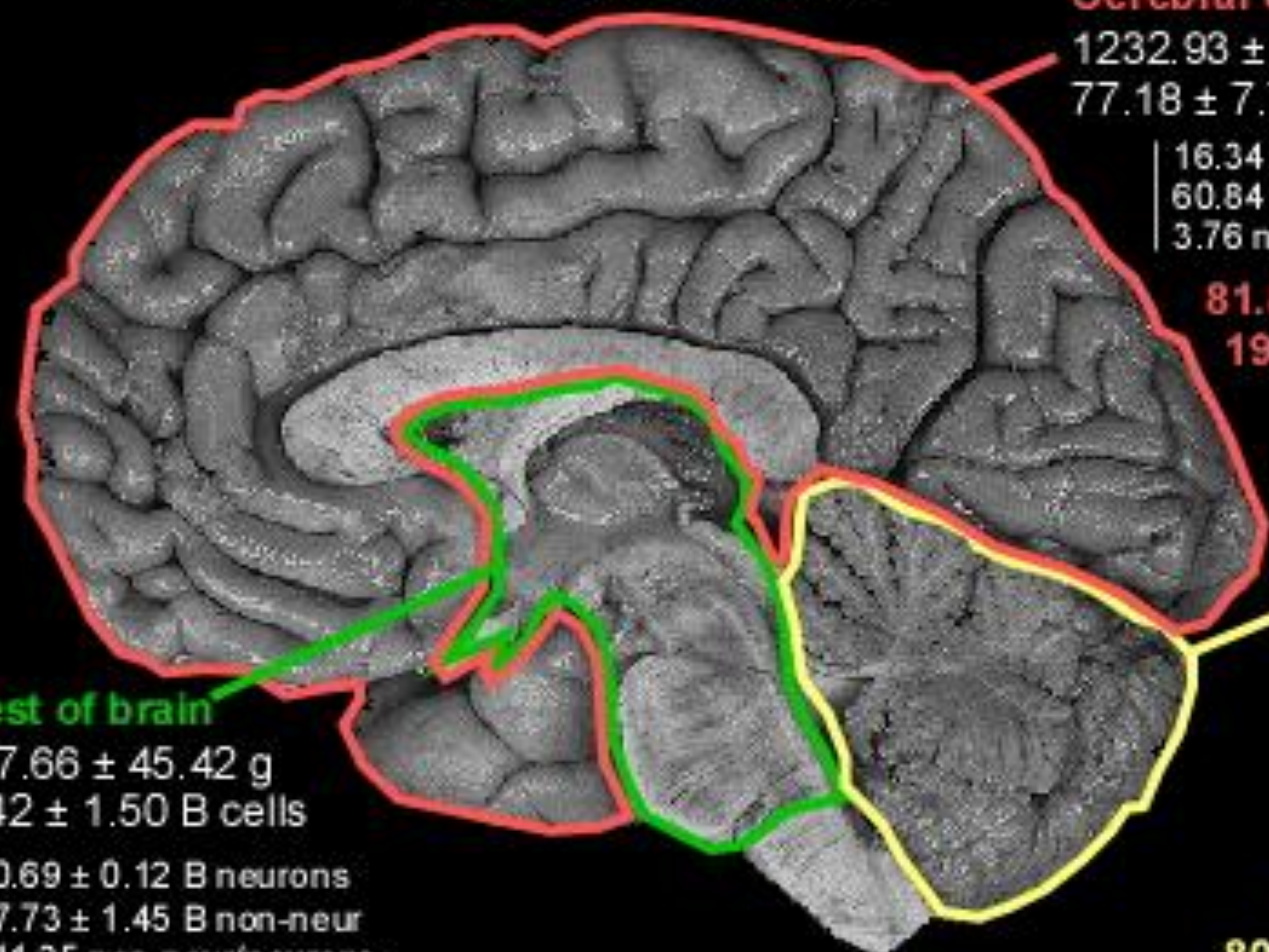
1508.91 ± 299.14 g

170.68 ± 13.86 B cells

86.06 ± 8.12 B neurons

84.61 ± 9.83 B non-neur

0.99 non-neur/neurons



## Cerebral cortex (GM+WM)

1232.93 ± 233.68 g

77.18 ± 7.72 B cells

16.34 ± 2.17 B neurons

60.84 ± 7.02 B non-neur

3.76 non-neur/neurons

**81.8% of brain mass**

**19.0% of brain neurons**

## Cerebellum

154.02 ± 19.29 g

85.08 ± 6.92 B cells

69.03 ± 6.65 B neurons

16.04 ± 2.17 B non-neur

0.23 non-neur/neurons

**10.3% of brain mass**

**80.2% of brain neurons**

## Rest of brain

117.66 ± 45.42 g

8.42 ± 1.50 B cells

0.69 ± 0.12 B neurons

7.73 ± 1.45 B non-neur

11.35 non-neur/neurons

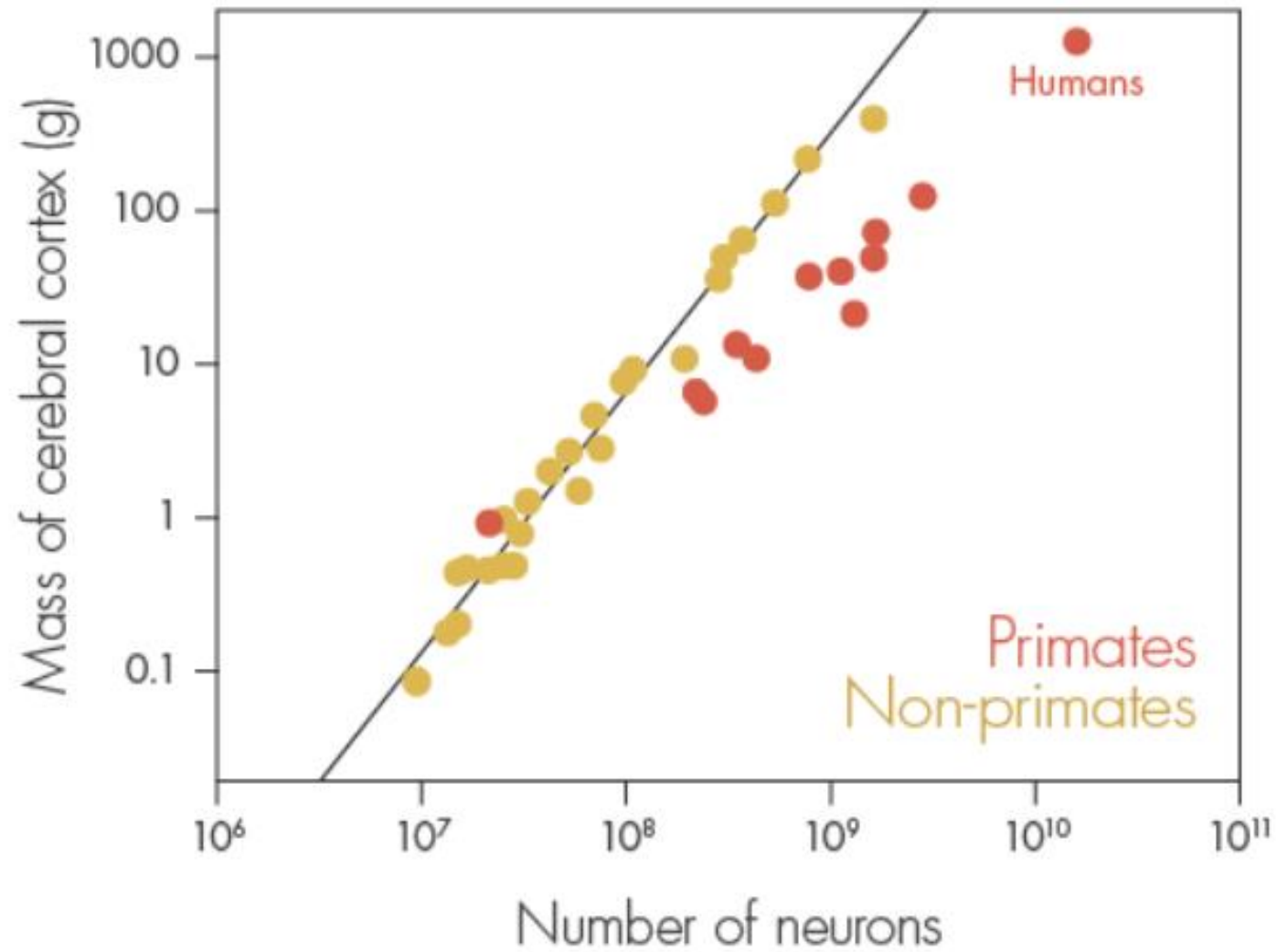
**7.8% of brain mass**

**0.8% of brain neurons**

[www.suzanaherculanohouzel.com/lab](http://www.suzanaherculanohouzel.com/lab)

modified from Azevedo et al., J Comp Neurol (2009)

# BRAIN DENSITY





UN PAJARITO ME CONTÓ  
UN SECRETO DE ALGUIEN...



MATÉ AL PAJARITO.  
NADIE TIENE POR QUÉ ANDAR HABLANDO DE NADIE.

