

# Emotions, Aggression and Stress

midterms marked!

↳ avg: 81%.



2<sup>nd</sup> MT will prob be a bit harder

Subcortical = "emotion generator"  
 cortex = guide & regulate emotions/  
 emotional response

# Neural Circuits of Emotion

## "Papez" circuit LIMBIC SYSTEM

feeding fighting fleeing ...

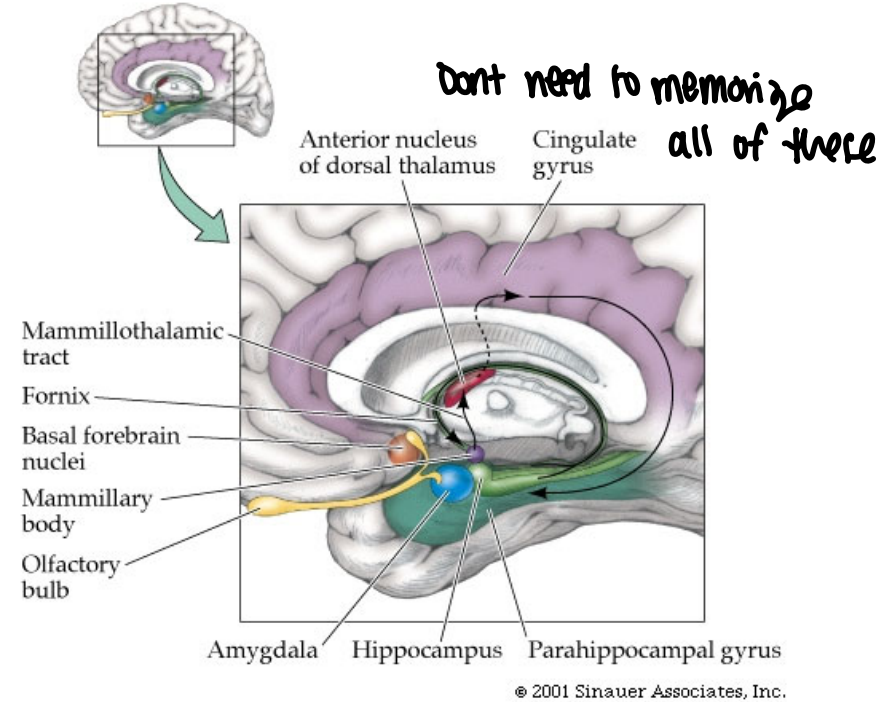
Three big players

Hippocampus =  
 Amygdala =

Prefrontal cortex =

refers to location, means  
 border/edge  
 right under the cortex mostly

connect 2 Hth → incr.  
 physiological arousal



• breaks steering wheel = PFC

→ talk abt particular subregions of PFC in this class

areas of PFC relevant to emotion

Or b i nstead i a l



still know what they should do - when watch clip of their behavior they know what actions were wrong, just in moment can't regulate

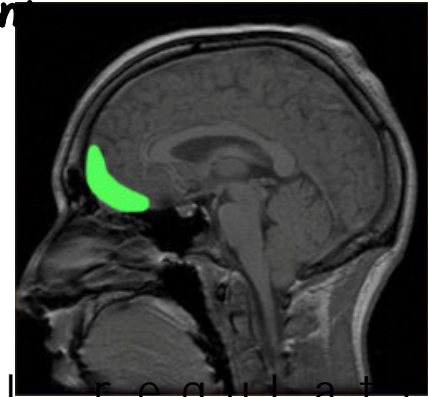
emotion regulation main effect



don't get consequences of actions & don't regulate emotional response at the time-

"smth that makes everyone in the room uncomfortable"

Core deficit: impaired emotional regulation



Phineas Gage changed - grumpy after

exp w/ 2 jokes

- joke w/ punchline  
↳ no dmg = laugh

- weird punchline that makes no sense  
↳ w/ PFC laugh - don't know

humor = detect errors for way should be  
w/ PFC dmg - don't know what it "should be"

prone to develop  
seizures, doesn't  
respond well 2 treatment →  
remove amygdala

temporal lobe

"basically have little rocks  
where amygdala should be"

what keeps  
us in  
line

can identify some, but →

physiological response blunted  
as well (↑ heart rate, pupil dilation, etc) x

Core deficit;  
don't respond to them

painful  
stim

ouch!!

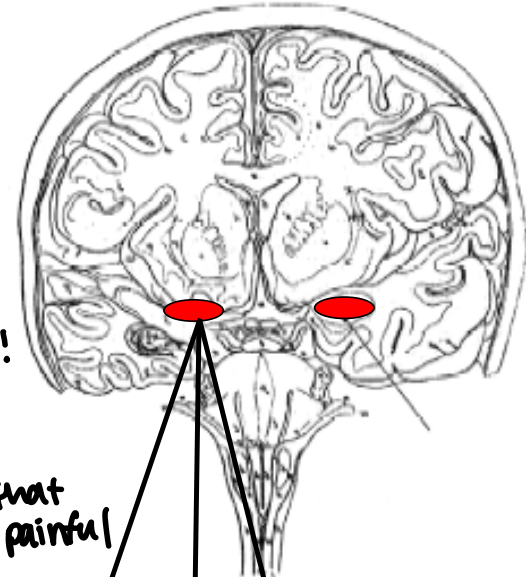
oh... that  
was painful

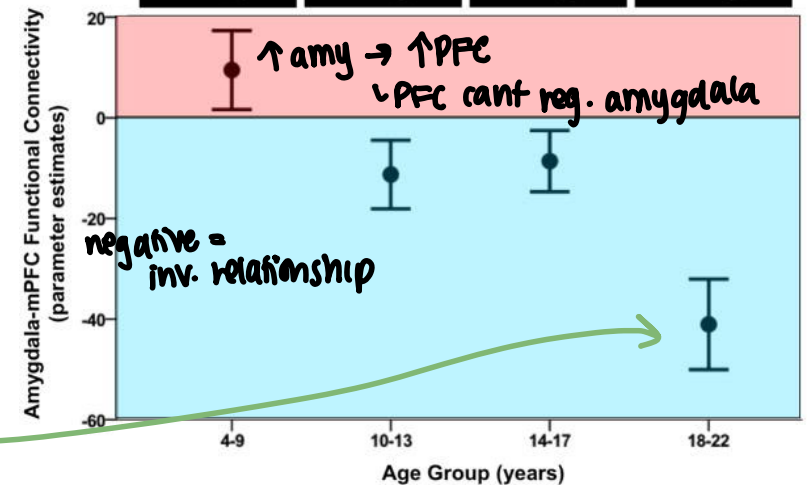
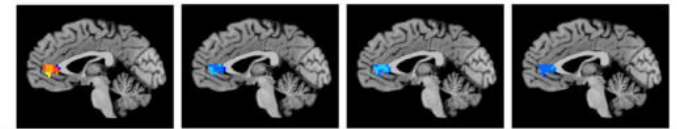
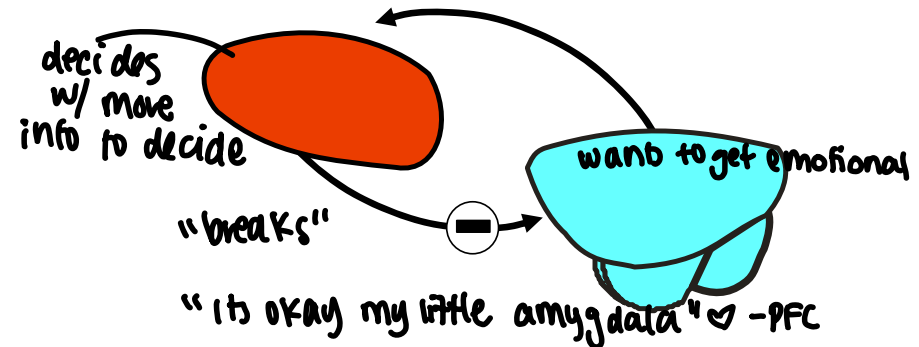
send projections

①

②

③





functional imaging study → show them emotionally provoking stimuli but unsure of what should feel (ambiguous)

circuits don't fully develop till adulthood and

reduced

Study:

Results

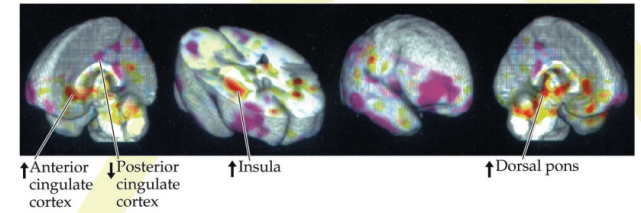
-sweat on palms

came before

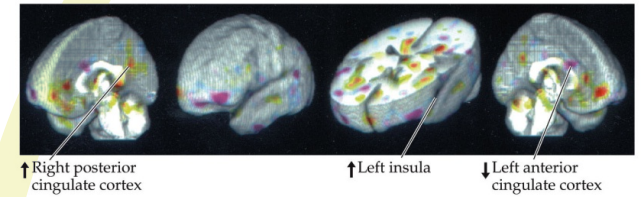
one

Don't memorize

(a) Sadness



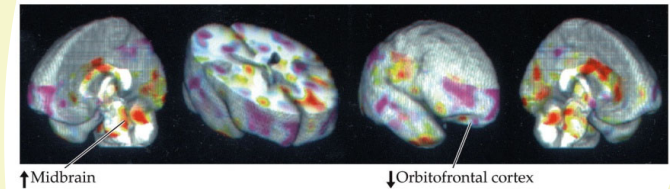
(b) Happiness



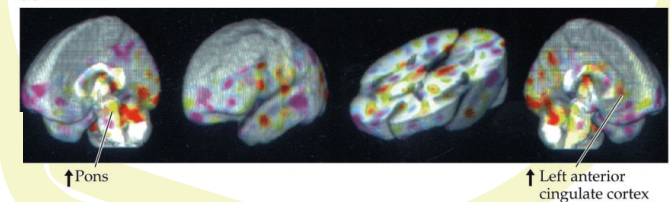
Biological Psychology 5e, Figure 15.15 (Part 1)

© 2007 Sinauer Associates, Inc.

(c) Fear



(d) Sadness



Biological Psychology 5e, Figure 15.15 (Part 2)

© 2007 Sinauer Associates, Inc.

get brain & body ready  
to handle events  
(esp emergency)



Stress Response (the body's response)



or emotionally charged  
events

"chew away brain/body"

The most damaging stressor is the one you can't do anything about

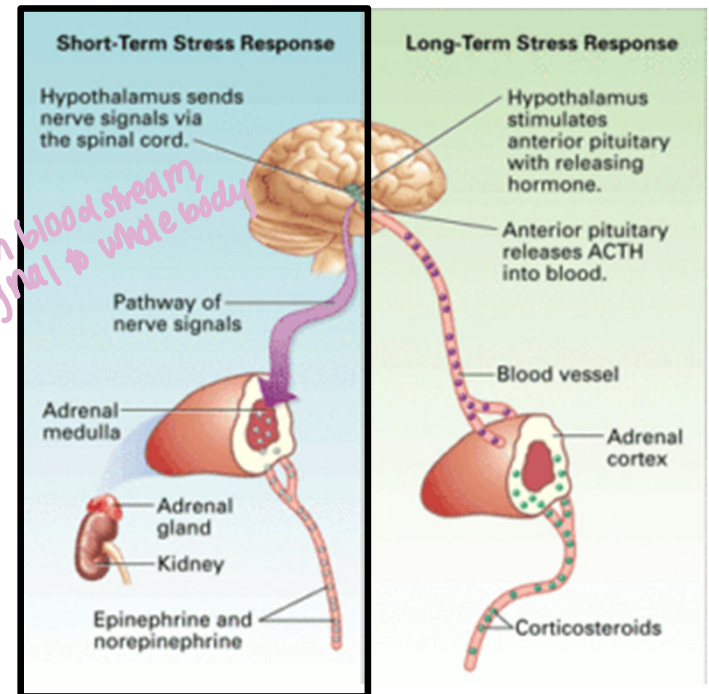
can't do anything about it

world used to be way more  
scary - life threatening  
all the time

→ stress = √ ☺, but

## 1) Sympathetic Nervous System

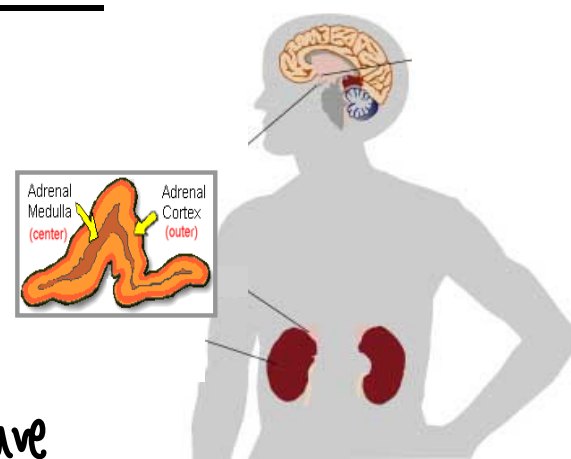
adrenal medulla,





→ relieve sensory signals, determine if threat or not

2) Hypothalamic-pituitary axis (HPA)



CORT  
↳ j call it this

adrenal cortex

-diff species have diff version)

-some systems shut down

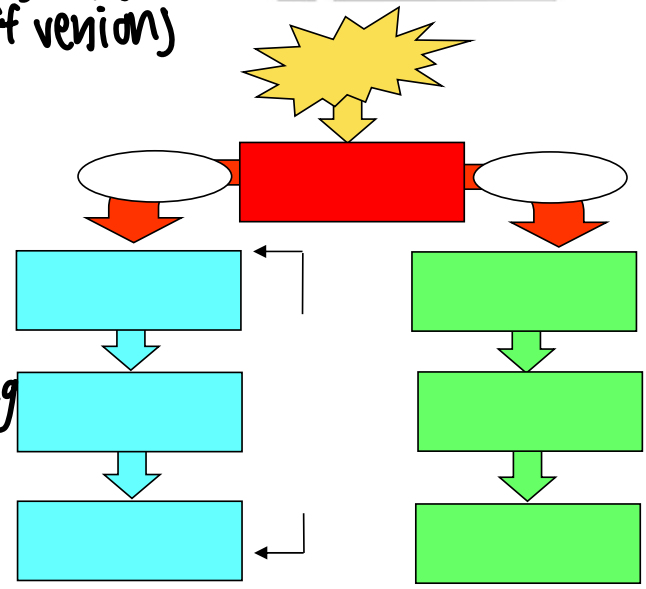
enhance how cells use glucose

• dont feel it as bad in acute situation

swelling protects dmg joint & sensitizes pain receptors

↓

not good if this is life threatening circumstances



### The Stress Response and Consequences of Prolonged Stress

Principal components of the stress response	Common pathological consequences of prolonged stress
Mobilization of energy at the cost of energy storage	Fatigue, muscle wasting, steroid diabetes
Increased cardiovascular and cardiopulmonary tone	Hypertension (high blood pressure)
Suppression of digestion	
Suppression of growth	Psychogenic dwarfism, bone decalcification
Suppression of reproduction	Suppression of ovulation, impotency, loss of libido
Suppression of immunity and of inflammatory response	Impaired disease resistance
Analgesia	Apathy
Neural responses, including altered cognition and sensory thresholds	Accelerated neural degeneration during aging

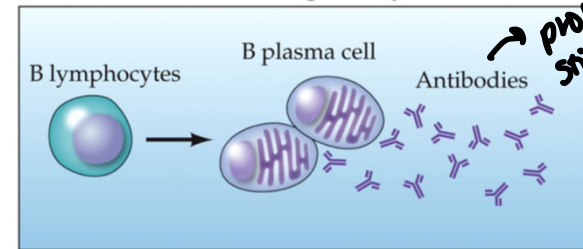
inability to process glucose efficiently

exercise can help reduce long term consequences

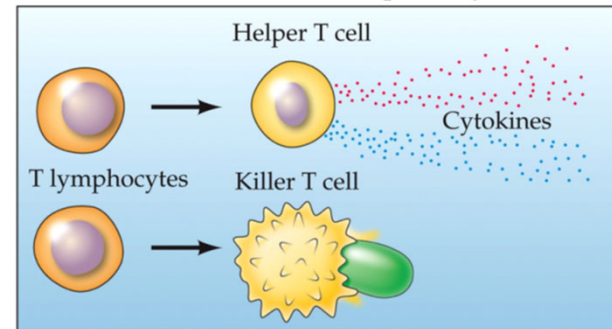
→ detects infection → signal to sleep centers

engulf it & break it down

Humoral immune response system



Cell-mediated immune response system



takes a lot of energy, no time/E under stress

Chronic stress reduces circulating levels of both B and T cells

- 
- 
- 

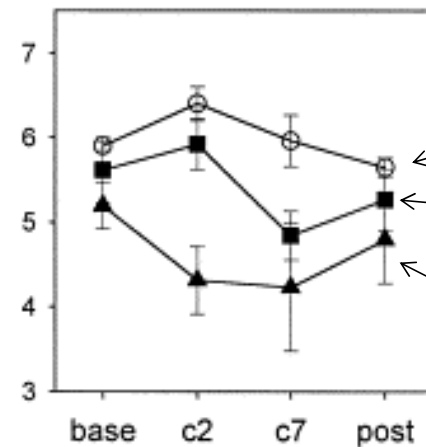
social stressors

*Helicobacter pylori*



just there, but kept @ bay by immune system

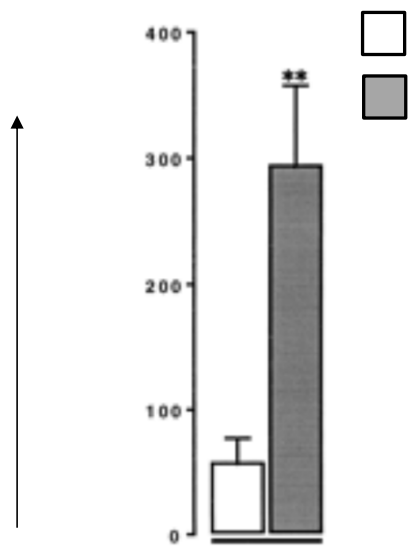
Lymphocytes



fight basically

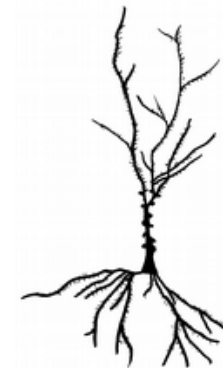
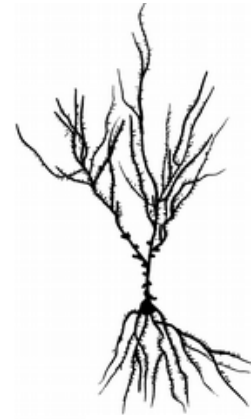
↓ β cells

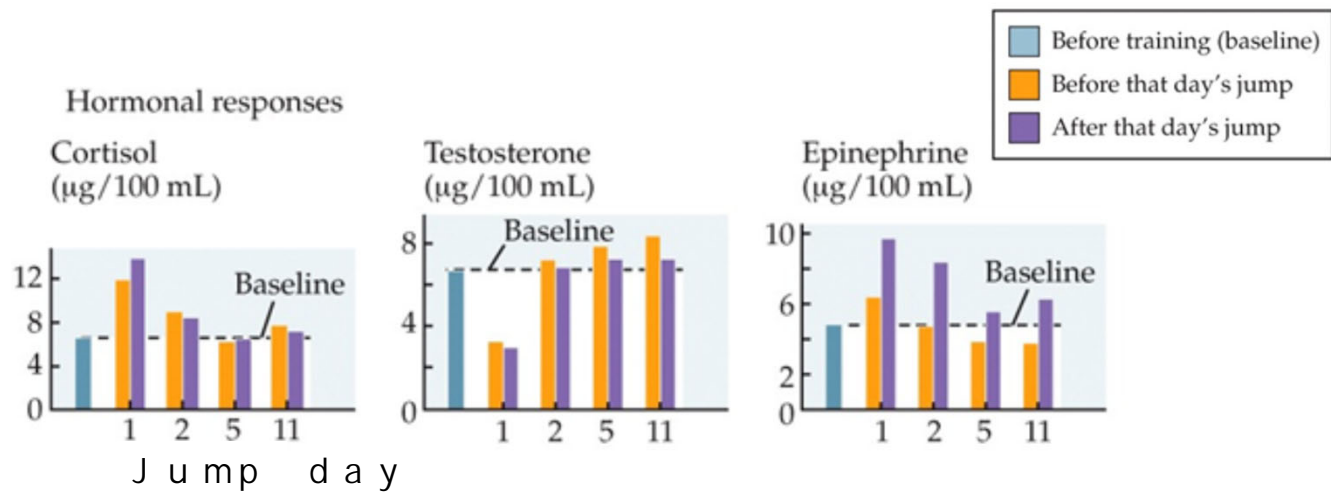
\_\_\_\_\_



---

Chronic stress





## *Social*



a c t i v a t e s   t h e s e   s t r e s s   s y s t e m s



# Social

Study :

