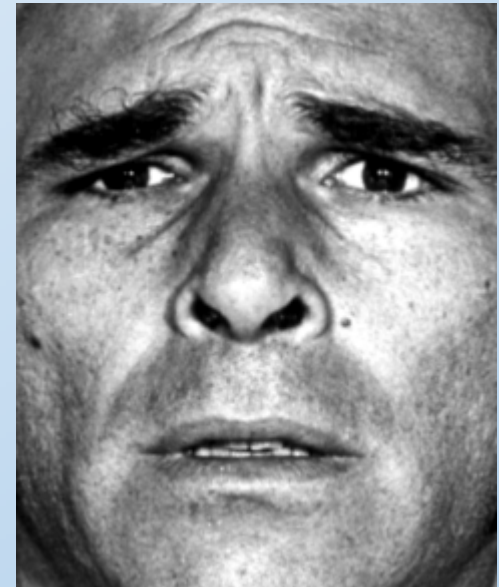
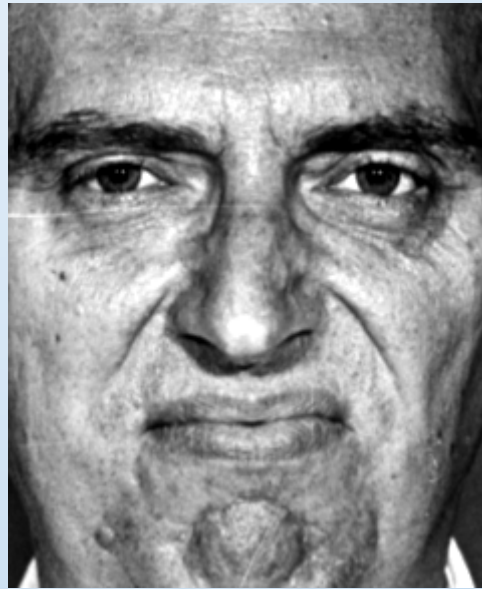


情绪的物质基础

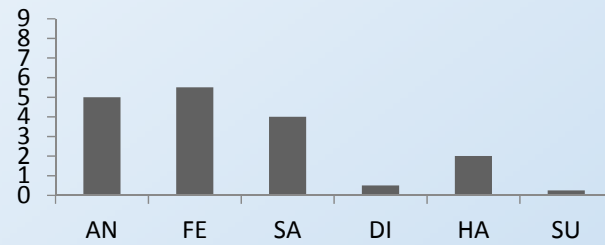
情绪神经科学

Ekman's Standardized Emotional Expressions

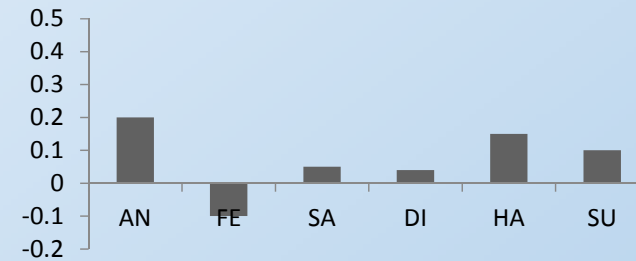


不同情绪的生理特点

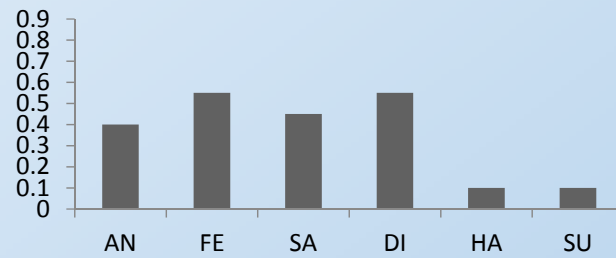
Heart rate



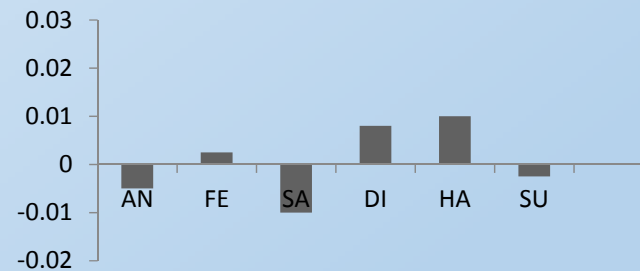
Finger temperature



Skin conductance



Muscle activity

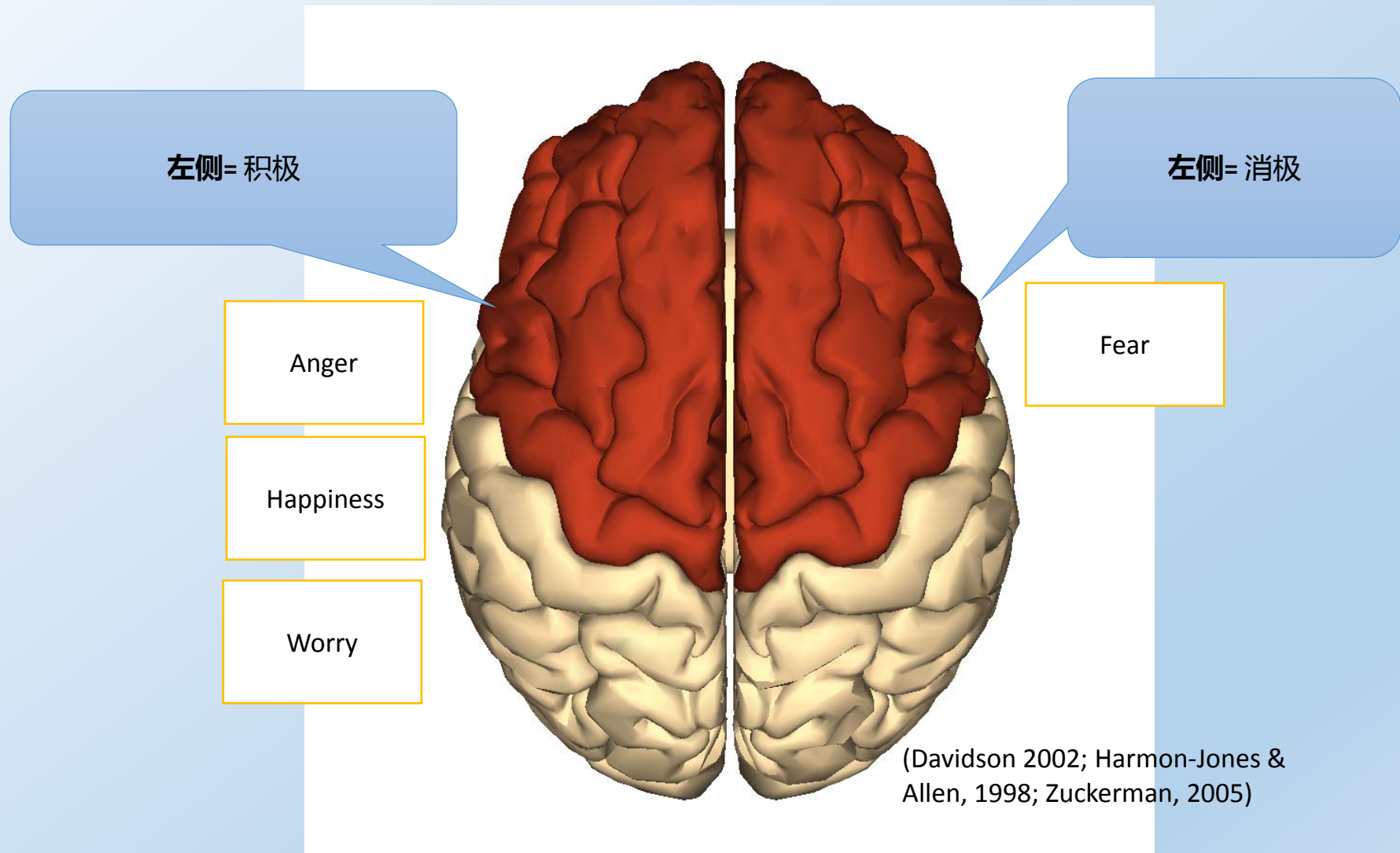


(Levenson, Ekman, & Friesen, 1990)

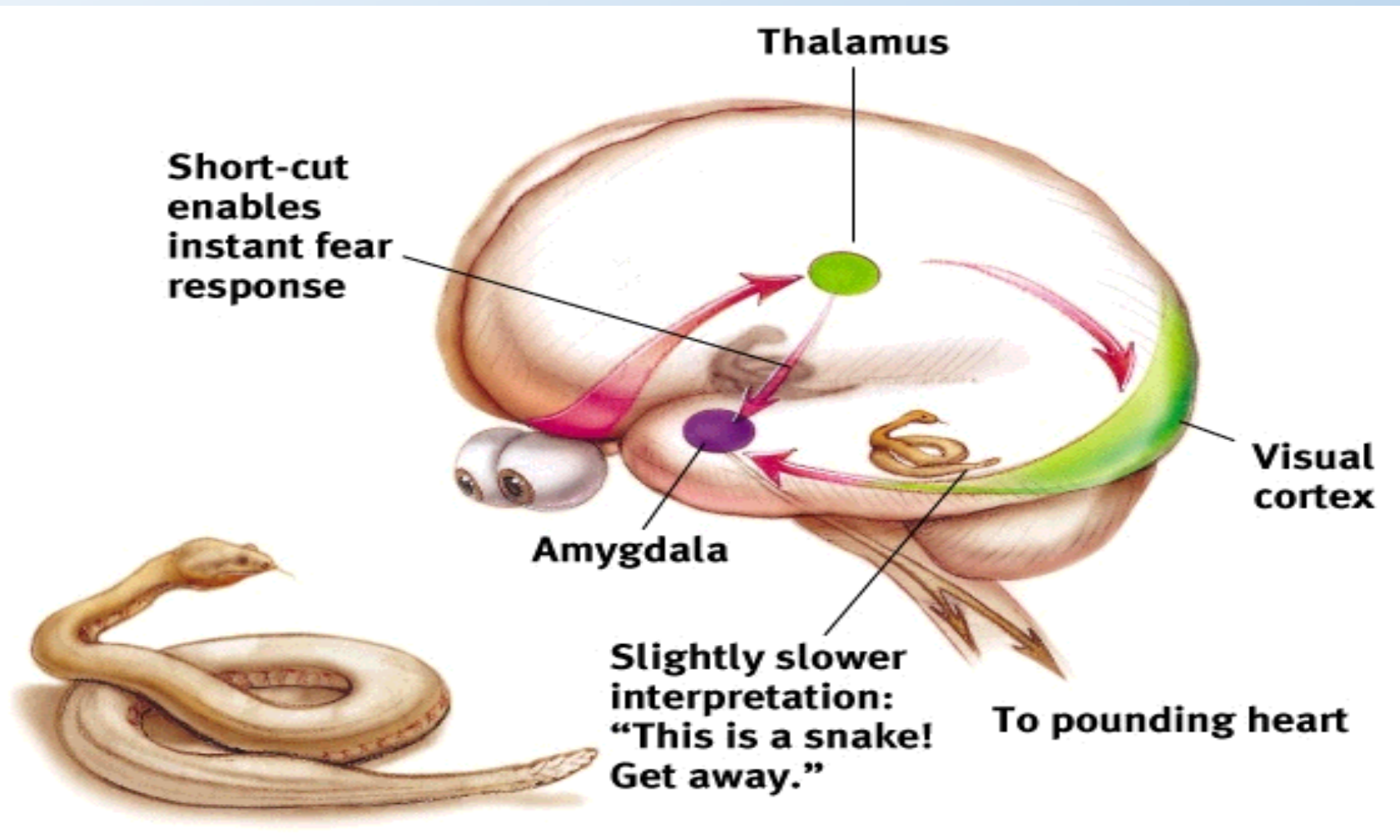
不同情绪的生理特点

- Anger : ↑ HR, ↑ Finger Temp, ↑ SCL
- Fear: ↑ HR, ↓ Finger Temp, ↑ SCL
- Disgust: no change HR, no change Finger Temp, ↑ SCL
- Sadness: ↑ HR, no change Finger Temp, ↑ SCL

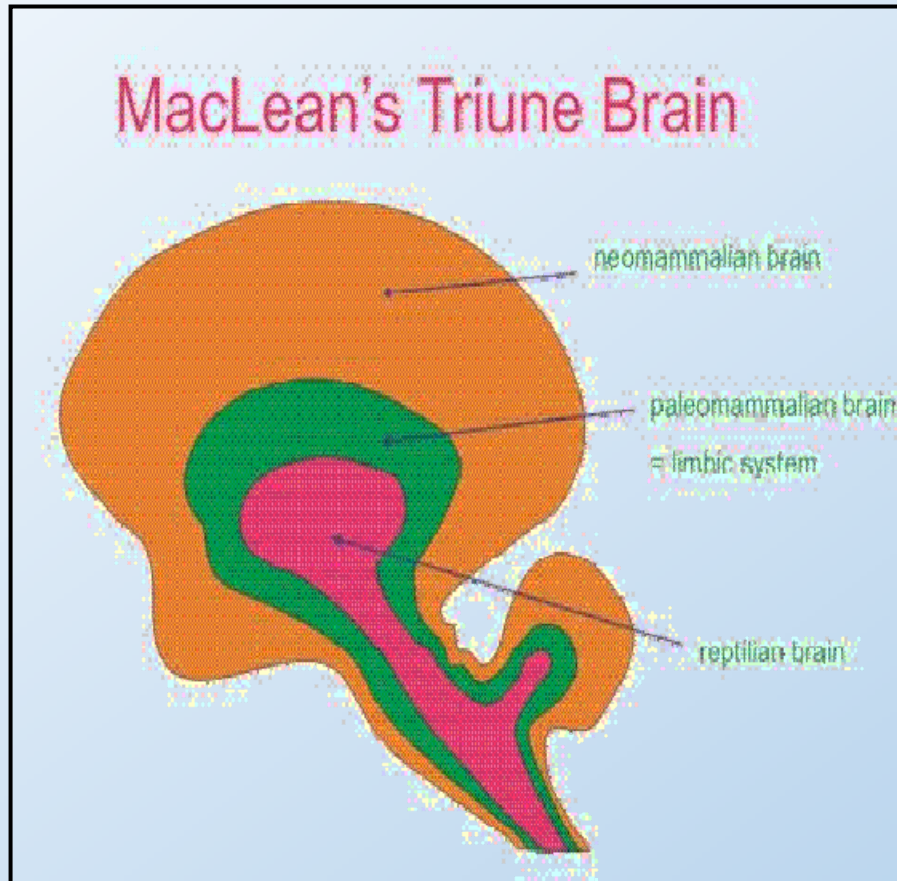
左右半脑



大脑的情绪回路



情绪相关的大脑区域-概论



爬行动物脑:

- 运动
- 基础情绪 (探索, 回避, 攻击, 性)

古哺乳动物脑:

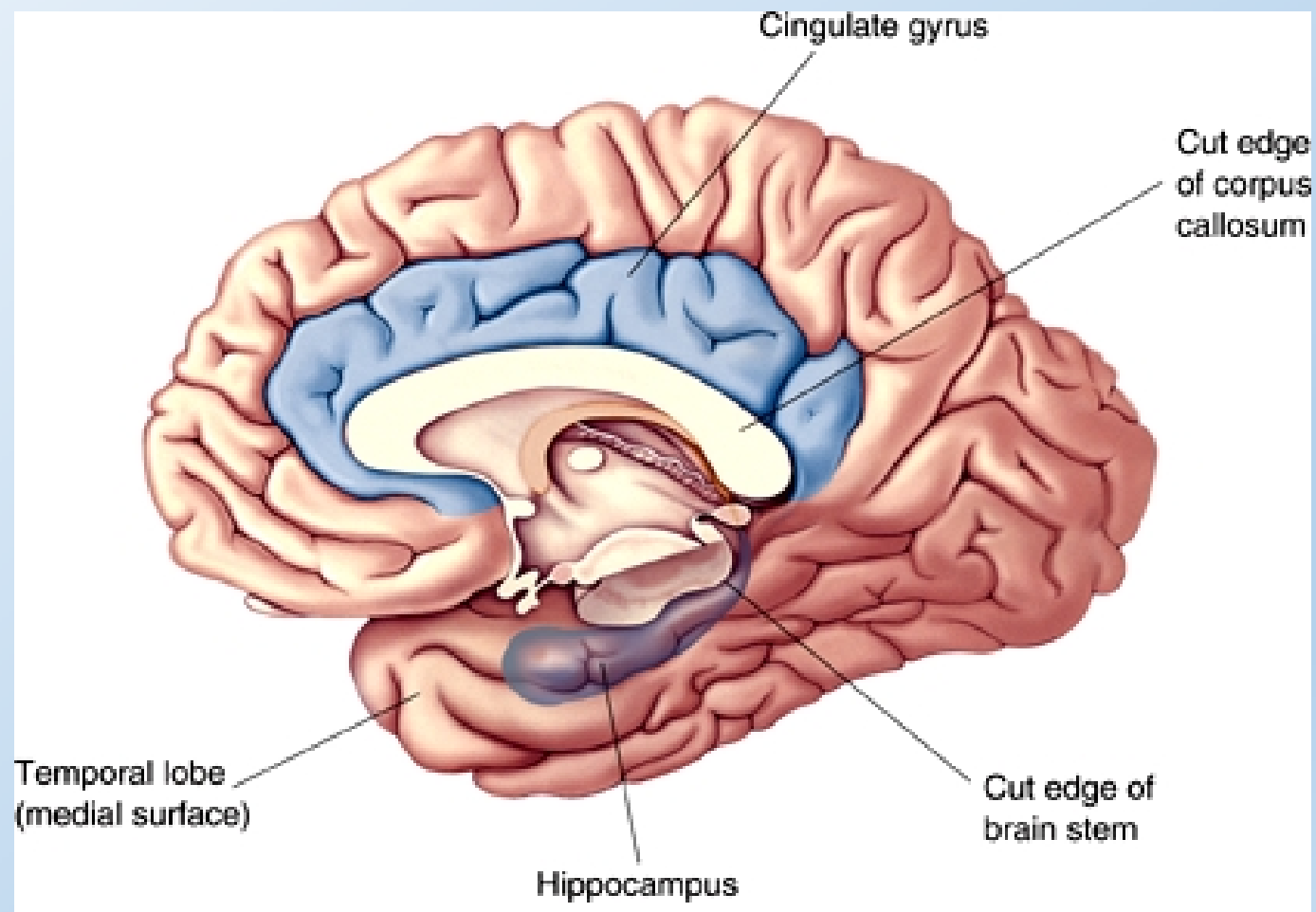
- 记忆, 社会活动

新哺乳动物脑:

- 认知/对情绪的评估

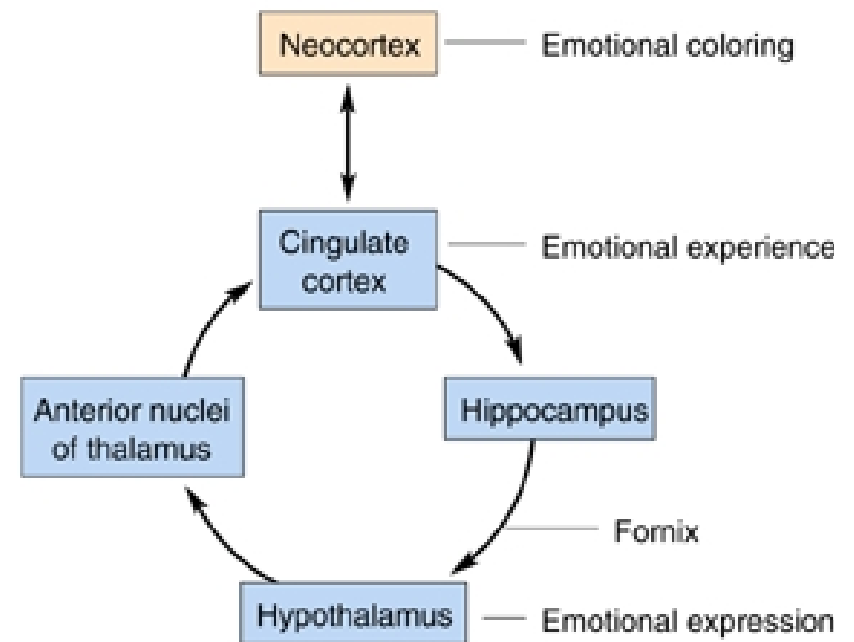
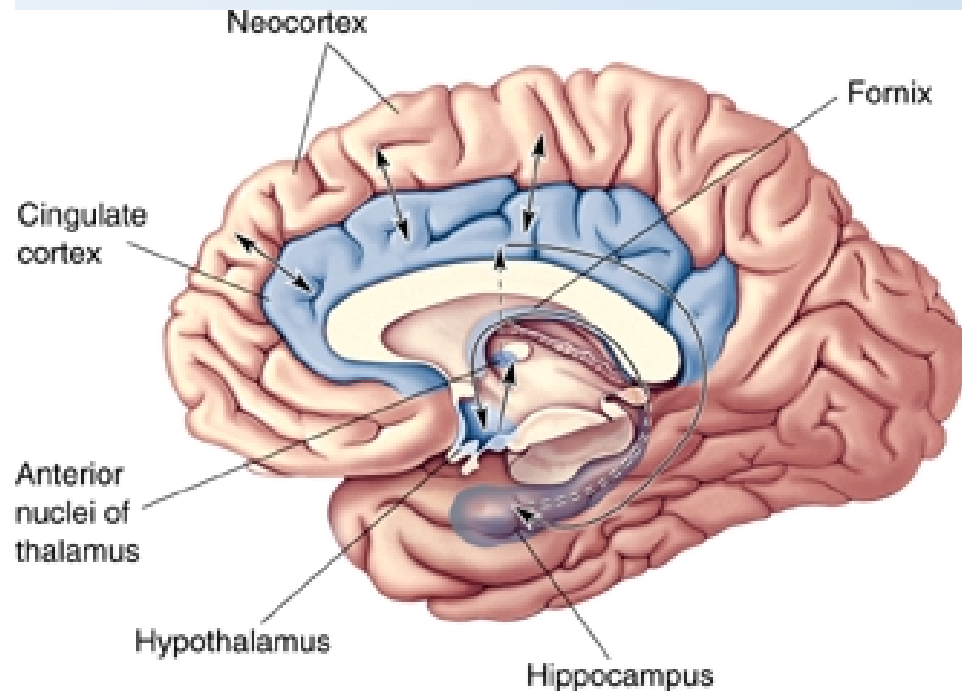
边缘回路，边缘系统

- Broca's Limbic Lobe



边缘回路，边缘系统

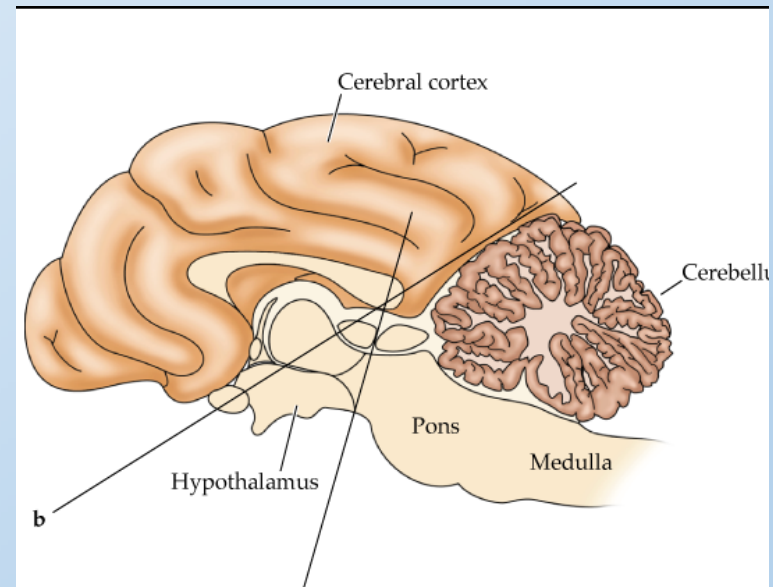
- The Papez Circuit



Copyright © 2007 Wolters Kluwer Health | Lippincott Williams & Wilkins

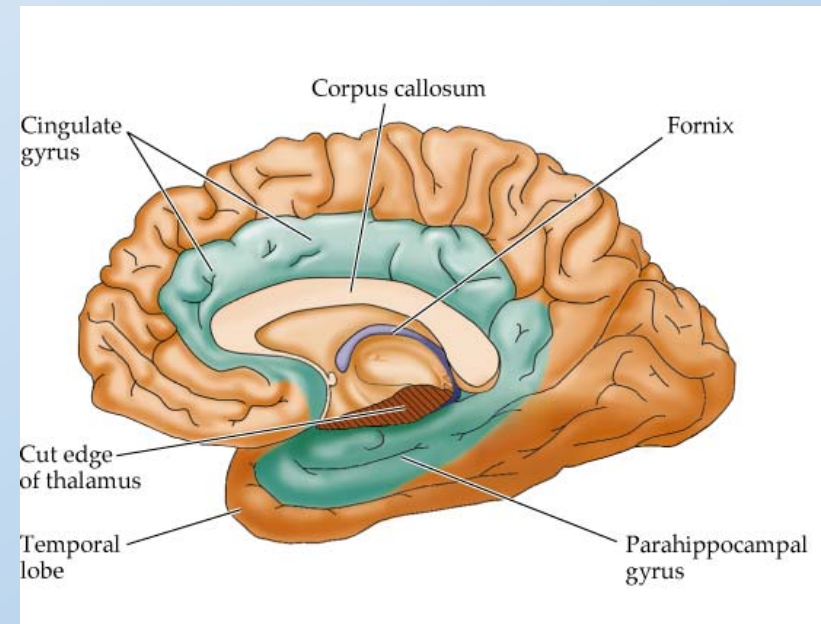
Flynn, 1960s

- 猫的下丘脑:
攻击, 怒



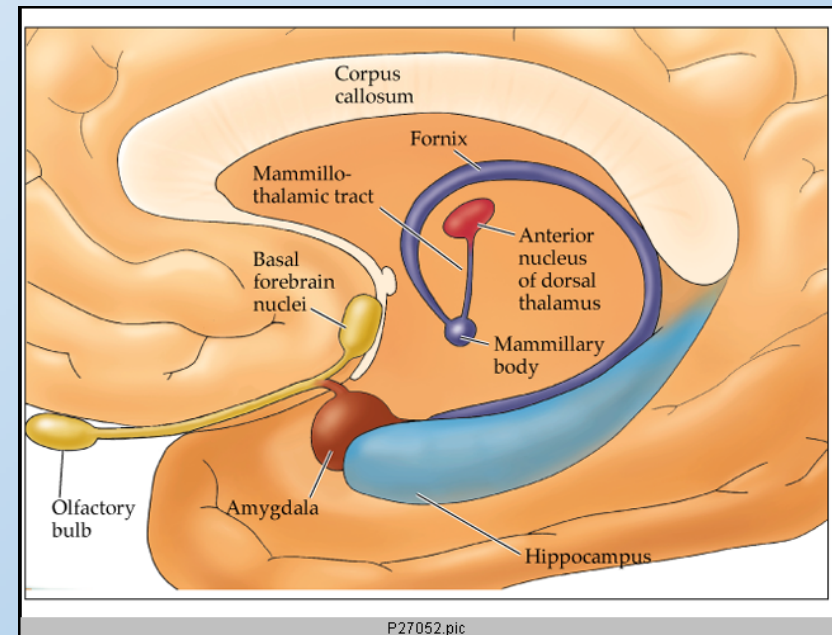
Nucleus Accumbens(伏隔核)

- 奖赏



其它相关度较小的脑区

- Hippocampus (海马)
- Olfactory (嗅球)

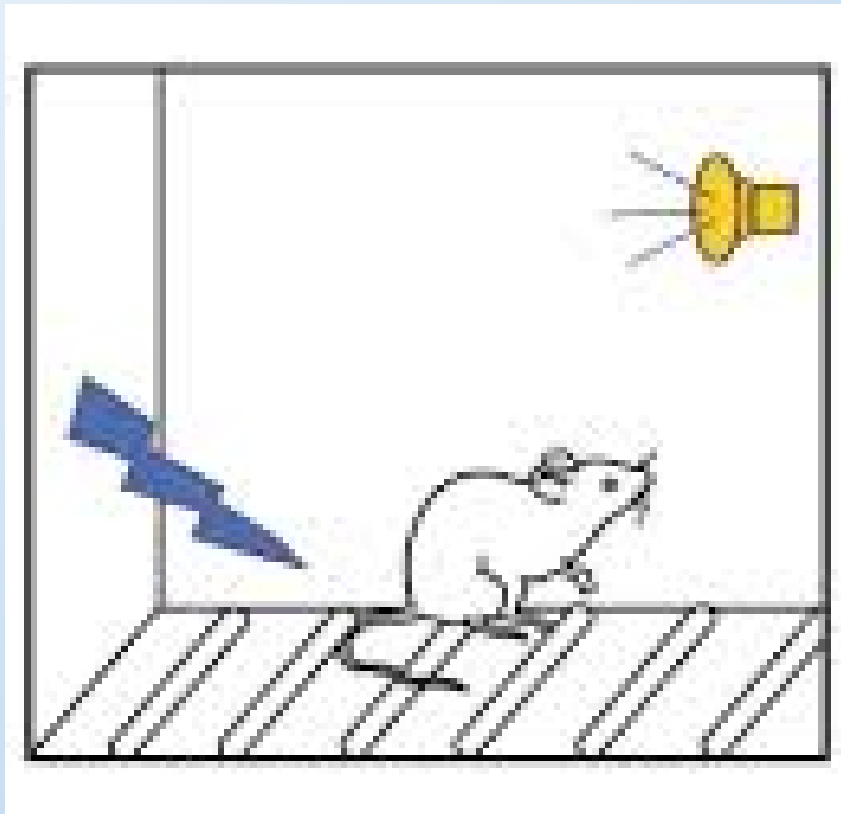


杏仁核 恐惧

Unconditioned stimulus (US) is paired with a Conditioned stimulus (CS) for cued or contextual fear conditioning.		Conditioned Response (CR)
 The diagram illustrates the process of fear conditioning in two stages. In the first stage, a mouse is shown with a yellow starburst labeled 'shock!' next to it, representing the unconditioned stimulus. In the second stage, a mouse is shown with a green starburst labeled 'shock!' next to it, and an orange bell icon above it, representing the conditioned stimulus. A green ampersand (&) is placed between the two stages. In the third stage, a mouse is shown with a green starburst labeled 'shock!' next to it, and a green bell icon above it, representing the conditioned response.		 The diagram shows a mouse with a green starburst labeled 'shock!' next to it, and a green bell icon above it, representing the conditioned response.
Unconditioned stimulus: Foot shock	Conditioned stimulus: Tone	A tone : Fear

[Armony, J.L. \(2013\). Current emotion research in behavioral neuroscience: The role\(s\) of the amygdala. *Emotion Review*, 5, 104-115. doi:10.1177/1754073912457208](#)

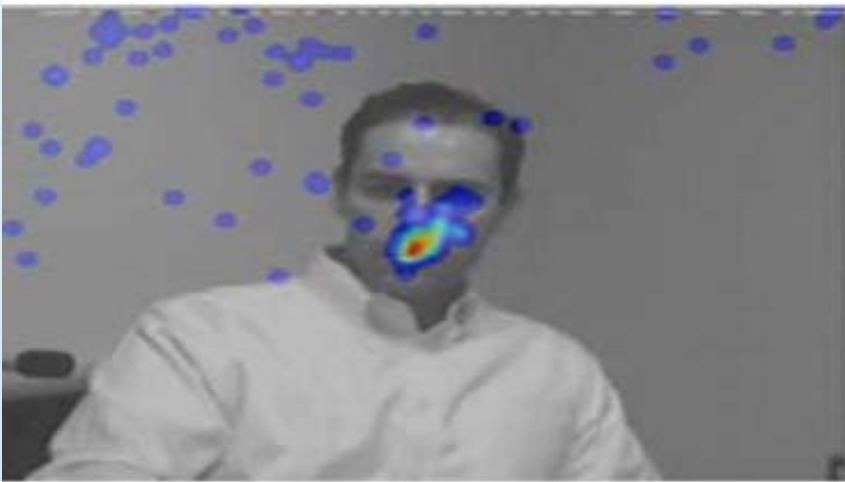
杏仁核 恐惧



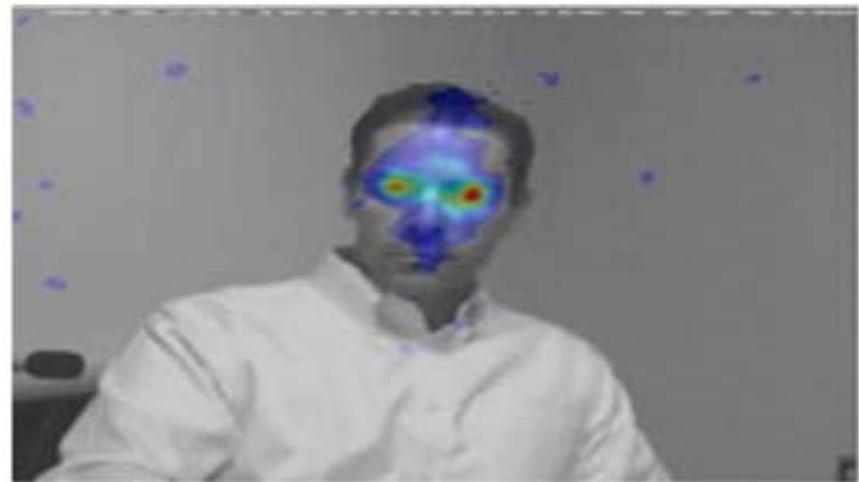
[Armony, J.L. \(2013\). Current emotion research in behavioral neuroscience: The role\(s\) of the amygdala. *Emotion Review*, 5, 104-115. doi:10.1177/1754073912457208](#)

杏仁核强烈的影响注意的对象和内容

S.M.



Healthy, female controls



(Spezio et al., 2007)

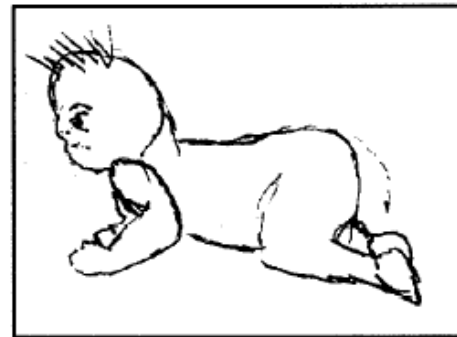
画一下你印象中的六种基本情绪



HAPPY



SAD



AFRAID



SURPRISED



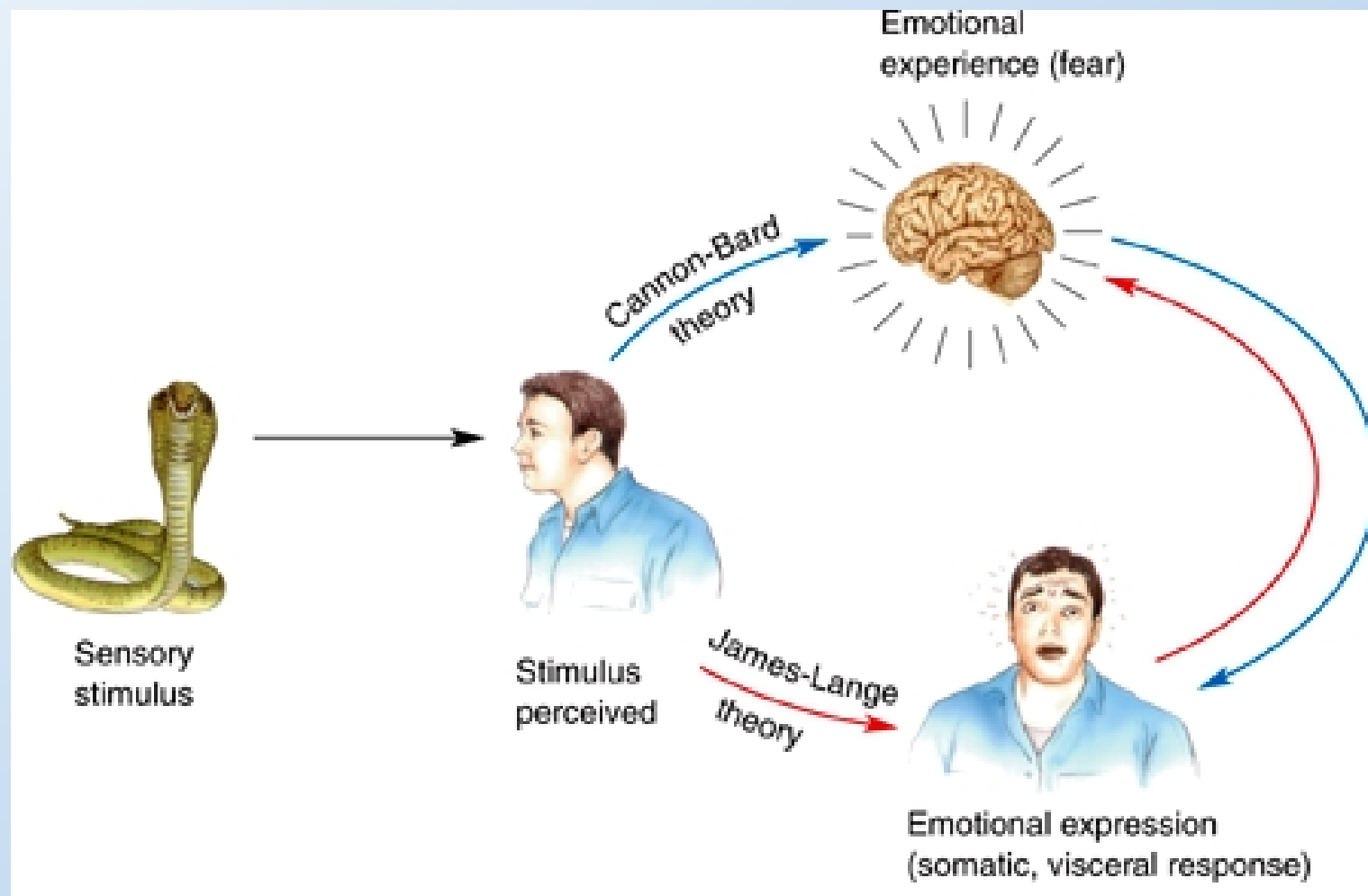
DISGUSTED



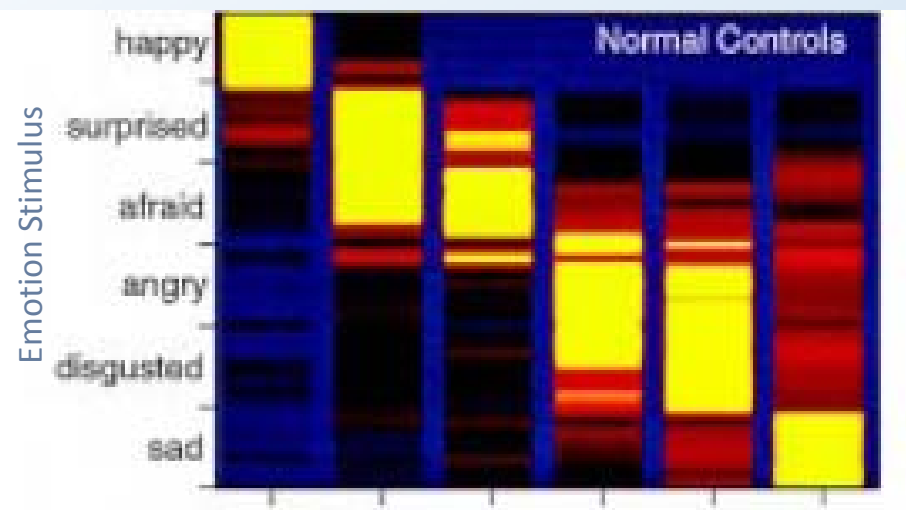
ANGRY

(Adolphs et al., 1995)

神经过程

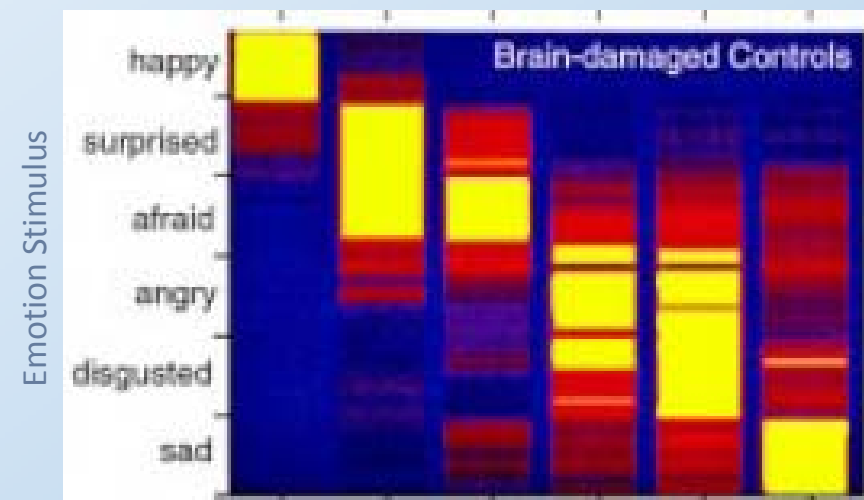


END



Happy surprised afraid angry disgusted sad

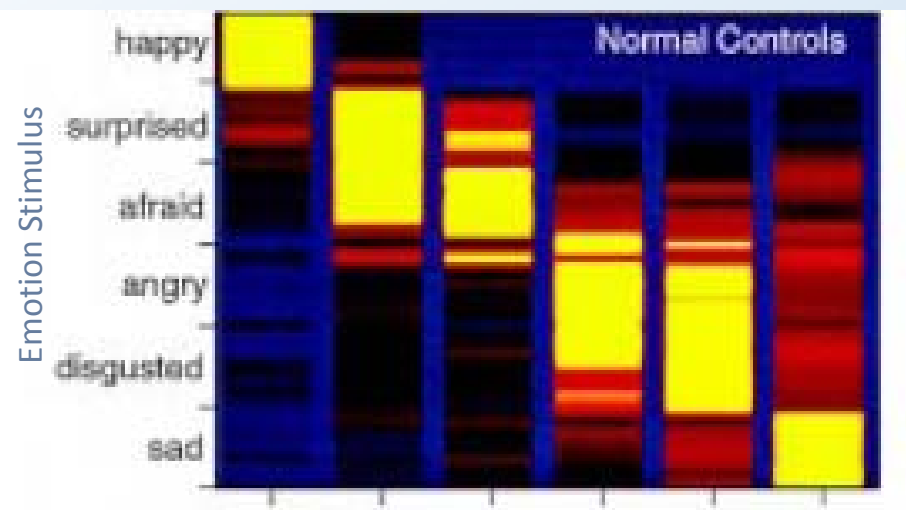
Ratings of Emotional Intensity



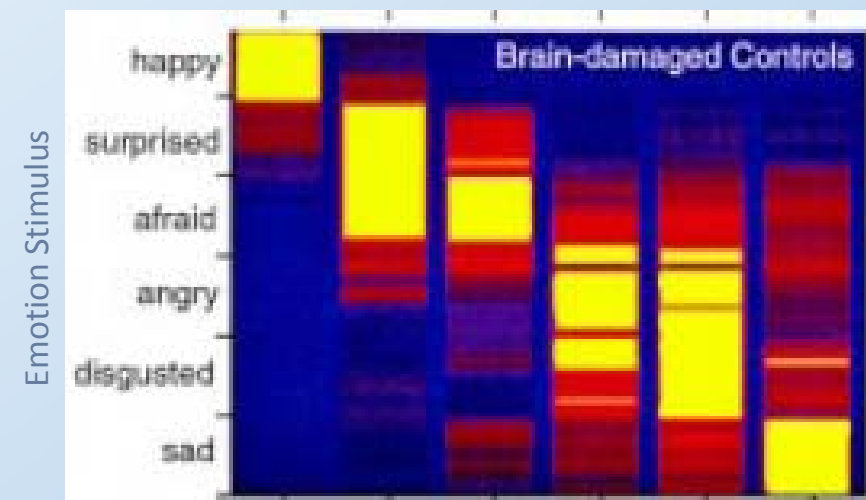
Happy surprised afraid angry disgusted sad

Ratings of Emotional Intensity

(Adolphs et al., 1999)

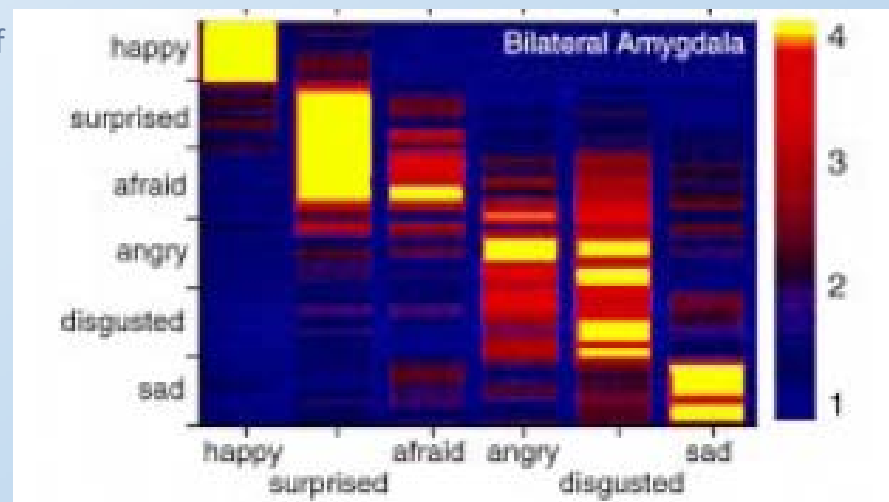


Happy surprised afraid angry disgusted sad



Happy surprised afraid angry disgusted sad

Ratings of



Emotional Intensity

(Adolphs et al., 1999)