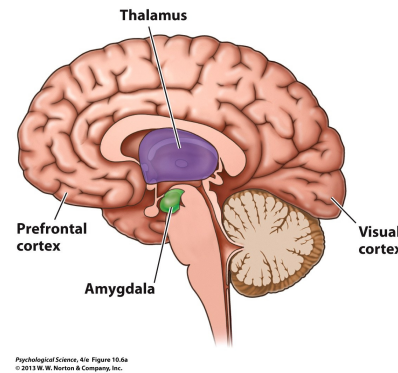


The Emotional Brain

The primary role of the amygdala is to evaluate aspects of a stimulus relevant to emotions of fear and alarm.



Patients with damage to the amygdala

- were able to recognize facial expressions of happiness, sadness and surprise like those without damage to the amygdala.
- However, recognition of anger, disgust and fear was impaired.
- People with damage to the amygdala could not determine whether the person (a) or (b) shows trustworthiness (see picture on the right or [page 372](#)).

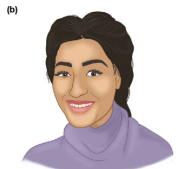


FIGURE 9.27
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Emotions from Brain Processes

We can have two simultaneous emotional reactions to an event that travel different pathways in the brain.

- The **route through the cerebral cortex** may be more conscious, deliberate and slower (sensory information, thalamus, visual cortex, amygdala).
- The **pathway directly to the amygdala** may be less conscious, automatic and faster (sensory information, thalamus, amygdala).

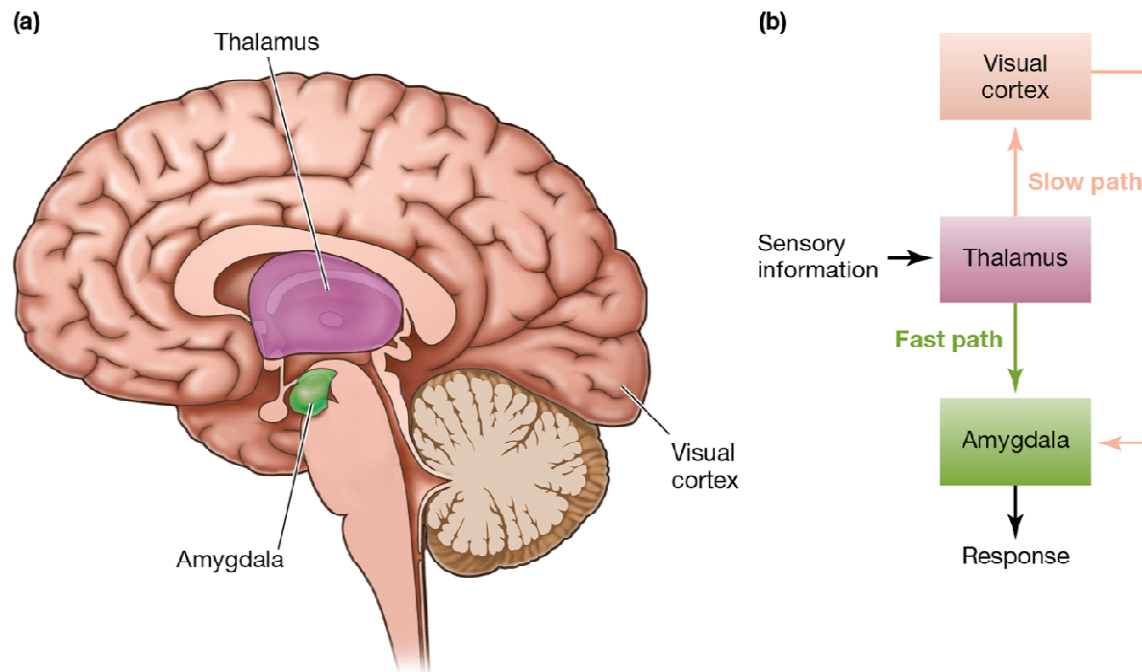


FIGURE 9.26

Emotions from Brain Processes

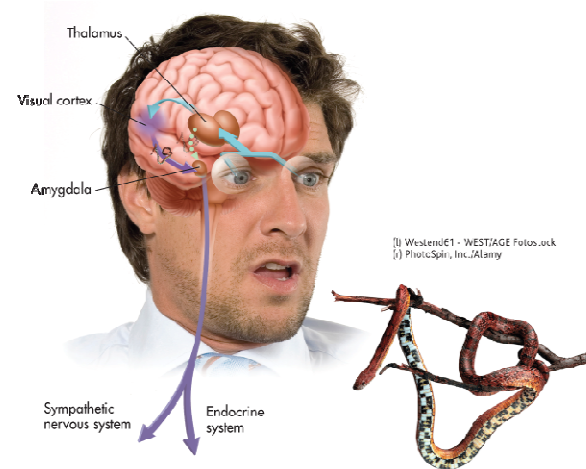
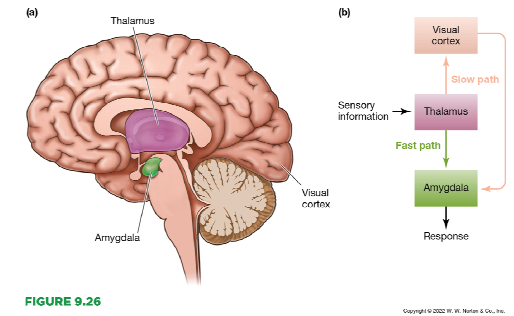


Figure 8.4
Heckhausen/Nolan, *Psychology*, 8e, © 2018 Worth Publishers
SCURCP Research from LeDoux (1994a, 1994c)



There are two routes to fear

- Sensory input
- Thalamus,
- Cortex (appraises the visual stimulus),
- Amygdala (19 ms)

This pathway is **slower**, but provides more accurate details about the stimulus (think hi-res images)

- Sensory input
- Thalamus,
-
- Amygdala (12 ms)

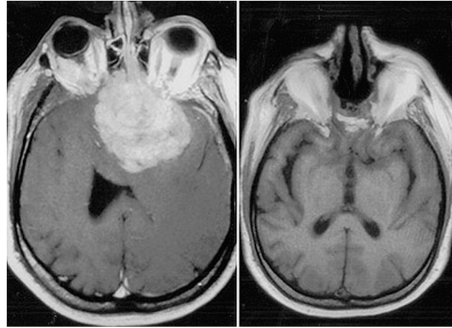
This pathway is **fast**, but provides little detail about the stimulus (think lo-res images)

Emotions from Brain Processes

For first 5 seconds,
I thought it's a dinosaur 🙄



Emotions and Decision Making



Psychological Science, 4th Edition, 10.1
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We tend to think of emotions interfering with our decision-making processes. However, emotions can help us make decisions in ambiguous situations.

Elliot had a brain tumor (left picture for a similar patient) removed, but he was no longer able to experience emotions. Elliot appeared did not express sadness, impatience or frustration, nor any emotional expression from disturbing images injured bodies. He made many bad decisions because he couldn't feel any negative emotions that made him avoid bad situations (bad gambling decisions, bad business decisions, the effect his behavior had on others, etc.) Unlike the Vulcan Spock from Star Trek, emotions can help us avoid bad decisions.

Display rules are the norms for the control of emotional expression.

Men and women have similar emotional experiences, however, there are cultural display rules of emotional expression.

In a study of differences in display rules of emotional expression, men and women watched an emotional film (e.g. an alien is bursting out of a chest, from Alien).

- When men and women were aware that they were being observed, both men and women had similar physiological response, but the women tended to be more emotionally expressive.



- When men and women were unaware that they were being observed, both men and women had similar physiological responses AND both had similar emotional expressions. In American culture, men are not supposed to show emotions.

Display Rules

