NSI The NeuroScience Institute

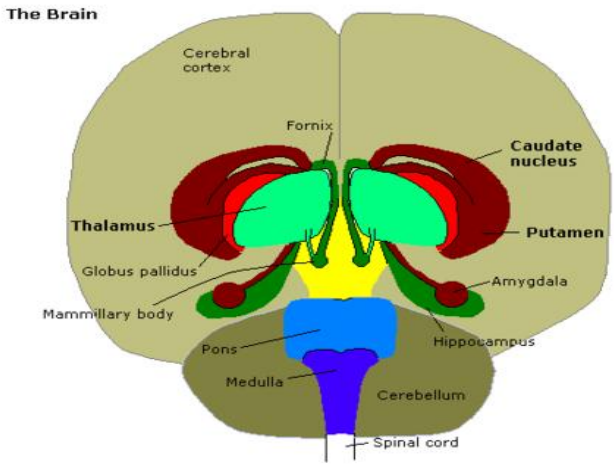
Neurological Tests & Treatments

WHAT IS CONTROLLING YOUR RESPONSES, Impulsive-BEHAVIORS?

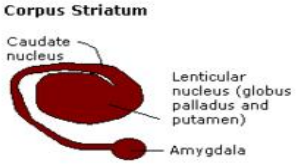
Why so often, we cannot remember TRAUMAS,
the triggers of our emotions and behavior?

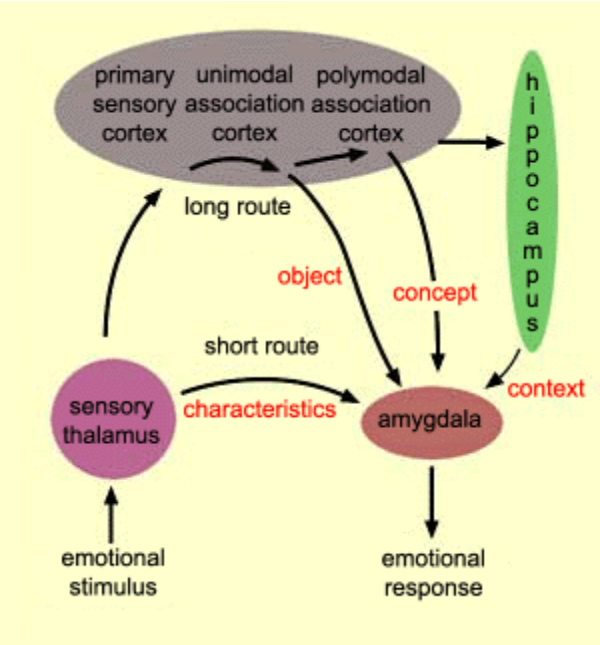
THE TWO PATHWAYS OF FEAR / BEHAVIOR

When the brain receives a sensory stimulus indicating a danger, it is routed first to the thalamus. From there, the information is sent out over two parallel pathways: the thalamo-amygdala pathway (the "short route") and the thalamo-cortico-amygdala pathway (the "long route"). The short route conveys a fast, rough impression of the situation, because it is a sub-cortical pathway in which no cognition is involved. This pathway activates the AMYGDALA, {YOUR BRAINS AUTOMATIC DEFENSE SYSTEM} which, through its central nucleus, generates emotional responses before any perceptual integration has even occurred and before the mind can form a complete representation of the stimulus.



The brain as viewed from the underside and front. The thalamus and Corpus Striatum (Putamen, caudate and amygdala) have been splayed out to show detail.





Subsequently, the information that has travelled via the long route and been processed in the cortex reaches the amygdala and tells it whether or not the stimulus represents a real threat. To provide this assessment, various levels of cortical processing are required.

WHY IMPULSIVE BEHAVIOR:

First, the various sensorys of the perceived object are processed by the primary sensory cortex.

Then the unimodal associative cortex provides the **amygdala** with a representation of the object.

At an even higher level of analysis, the polymodal associative cortex conceptualizes the object and also informs the amygdala about it.

This elaborate representation of the object is then compared with the contents of explicit memory by means of the **hippocampus**, which also communicates. It is your memory control center that **TRIGGERS** the defense control center, over the course of your life, setting off the amygdala.

The hippocampus is the structure that supports the explicit memory required to learn about the dangerousness of an object or situation in **the first place**. The hippocampus is also especially sensitive to the encoding of the context associated with an aversive experience. **It is because of the hippocampus that not only can a stimulus become a source of conditioned fear**, but so can all the objects surrounding it and the situation or location in which it occurs.

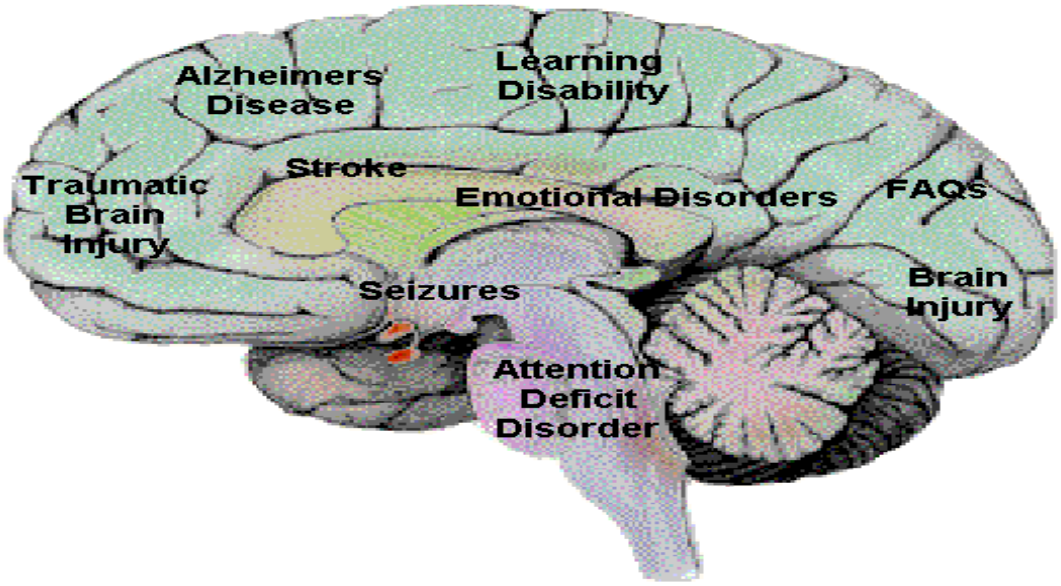
The imminent presence of a danger then performs the task of activating the amygdala, whose discharge patterns in turn activate the efferent structures responsible for physical manifestations of fear, such as increased heart rate and blood pressure, sweaty hands, dry mouth, and tense muscles{a panic attack}. This is how it functions:

> The **amygdala sends impulses** to the hypothalamus for important activation of the sympathetic nervous system, to the thalamic reticular nucleus for increased reflexes, to the nuclei of the trigeminal nerve and facial nerve for facial expressions of fear, and to the ventral tegmental area, locus coeruleus, and laterodorsal tegmental nucleus for activation of dopamine, norepinephrine and epinephrine

Because both of these systems are activated by the same memory indexes, we do not realize that they are actually specialized. But certain experiments and pathological case studies have highlighted their independence. Because there are many functions interrelated with behaviors, effective treatment is generally found in the process of testing and treatments by experienced doctors in this specialty field.

> For example, one woman had suffered such severe damage to her hippocampi that she could not recognize her doctor, even though she saw him every day. Every day, they shook hands and introduced themselves as if for the first time. One day, to test a hunch, the doctor placed a thumbtack in the palm of his hand before extending it to his patient. When she saw it, she pulled her hand back suddenly. **{hippocampus-memory}**
>
> The next day, when she and the doctor were about to shake hands again, she pulled her hand back at the last minute. When the doctor asked her why she had done so, the only explanation she could give was that she had experienced a sudden sense of fear. **{thalamus-hyppocampus-amygdale ..auto-reaction}**

The parallel operation of our **explicit** (hippocampus) and **implicit** (amygdale) memory systems explains **why we do not remember traumas experienced very early in our lives**. At that age, the hippocampus is still immature, while the amygdala is already able to record unconscious memories. **Early childhood traumas can disturb the mental and behavioral functions of adults. They cannot access[**recall**] them consciously.** Gentle persistence, and integrated therapy can aid in bring out the trauma moving the thought to the PF-cortex where logic and reasoning will apply and **normalize the thought-feeling, thereby not exciting the amygdala for fear, defense and (fight-flight) reactive behavior.**



Universally, we know that different parts of the brain control different behaviors although the hippocampus and amygdale are our first line of defense. SPECT- brain photos and QEEG-scans clearly identify functional conditions (what type of ADD, triggers) and why you may experience: Panic Attacks PTSD, mild sleep, Anxiety Disorders basal ganglia, decreasing memory PF-cortex, alcohol-addiction serotonin, PAIN and psychological mood triggers, ADHD, Bipolar, A-stuck-brain~schizophrenia, autism anterior cingulate, Eating disorders, Borderline Personality Disorders~PTSD **amygdala,** OCD and other compulsive addictions and behaviors that lead to self medicating with drugs, alcohol or compulsive reactions (fight or flight, mood disorders). These conditions usually result in physical and mental debilitating PR-cortex effects (memory, logic, reasoning) and as life progresses premature- dementia.

Why The Crosby Centers: {unlike any other**}**
Through new technology, we an Identify the brain conditions and functions which can take the guess work out of knowing the areas directing the behavior and with technical measurements to identify functionality, a team of experienced doctors can identify the triggers and **treat the underlying causes** which can result in changing your life and many life rewarding benefits. Call now for an assessment and details- 1.877-379-2273

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