## A QUICK AND SIMPLE WAY TO THINK ABOUT THE BRAIN

Paul D. MacLean, MD, developed the concept of the triune brain in *The Triune Brain in Evolution: Role in Paleocere-bral Functions*. Rick Hanson, PhD, author of *Hardwiring Happiness: The New Brain Science of Contentment, Calm, and Confidence* built on this original concept.

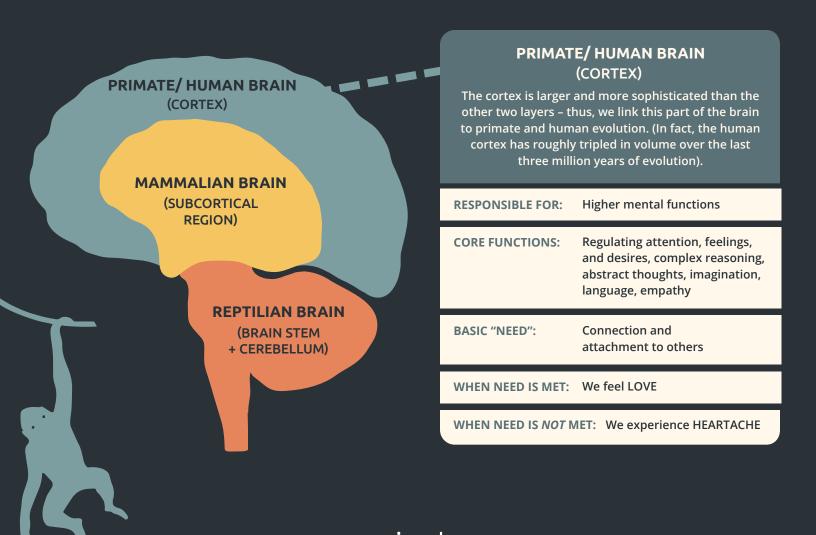
In many ways, the brain is considered the most complex of human organs. But complex doesn't have to mean complicated. Especially when we're trying to explain the brain's different but necessary functions.

Our brain structure can be divided into three layers – the brain stem, the subcortical region, and the cortex. And each layer can be loosely associated with the reptile, mammal, and primate/human phases of evolution, respectively.

So, if you think about it, it's almost as we're carrying a little lizard, a little mouse, and a little monkey inside our brains.

And as the brain evolved, so did its capacity to meet the three fundamental needs of any animal . . . Safety, satisfaction, and connection.

Here's a visual . . .



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### MAMMALIAN BRAIN (SUBCORTICAL REGION)

The subcortical region is associated with mammalian evolution – we might think of it as the little mouse part of the brain.

**RESPONSIBLE FOR:** Feelings and memory formation

**CORE FUNCTIONS:** Emotions, learning and memory,

reward/motivation

BASIC "NEED": Satisfaction and approaching

rewards

WHEN NEED IS MET: We feel CONTENTMENT

WHEN NEED IS NOT MET: We experience FRUSTRATION

PRIMATE/ HUMAN BRAIN (CORTEX)

> MAMMALIAN BRAIN (SUBCORTICAL REGION)

> > **REPTILIAN BRAIN**

(BRAIN STEM + CEREBELLUM)

#### REPTILIAN BRAIN (BRAIN STEM + CEREBELLUM)

The brain stem is the most ancient part of the brain. This brain structure shares a similar function to the brain found in simple creatures, like crabs or lizards.

**RESPONSIBLE FOR:** Survival and maintenance

**CORE FUNCTIONS:** Regulating heartbeat, breathing,

and other vital organs

BASIC "NEED": Safety and avoiding harm

WHEN NEED IS MET: We feel PEACE

WHEN NEED IS NOT MET: We experience FEAR



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MAMMALIAN BRAIN (SUBCORTICAL REGION)

> REPTILIAN BRAIN (BRAIN STEM + CEREBELLUM)

### PRIMATE/ HUMAN BRAIN (CORTEX)

The cortex is larger and more sophisticated than the other two layers – thus, we link this part of the brain to primate and human evolution. (In fact, the human cortex has roughly tripled in volume over the last three million years of evolution).

RESPONSIBLE FOR: Higher mental functions

CORE FUNCTIONS: Regulating attention, feelings, and desires, complex reasoning, abstract thoughts, imagination,

language, empathy

BASIC "NEED": Connection and attachment to others

WHEN NEED IS MET: We feel LOVE

WHEN NEED IS NOT MET: We experience HEARTACHE

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