



The Physiology of Thinking

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The human brain is said to be the most amazing chunk of biological real estate in the known universe

It weighs about 3.3 lb or 1.5 kg – only three living species have brains larger than human beings, the elephant, the whale, and the porpoise – however, in humans the weight ratio between the brain and body far exceeds any of these.

There is no existing specific physiological or biological or explanation for the (seemingly) simple phenomenon of thought in the brain



—Krishnagopal Dharani MD - *Biology of Thought*

Definition: thinking is the process of using one's mind to consider or reason about something. It is a mental behavior wherein ideas, pictures, cognitive symbolizations, or other hypothetical components of thought are experienced or manipulated.



In this sense, thinking is inclusive of imagining, recalling, solving problems, free association, daydreaming, concept formation, and a variety of other procedures.

—Professional Psychological Dictionary

Humans use all of their brain all the time

There are conscious and subconscious portions and a very small percentage is conscious—just the “tip of the iceberg”

Current estimates are that about 90-95% of the neurons in your brain are involved in subconscious thought

However, only 10-15% of what goes on in the brain ever comes to your conscious awareness



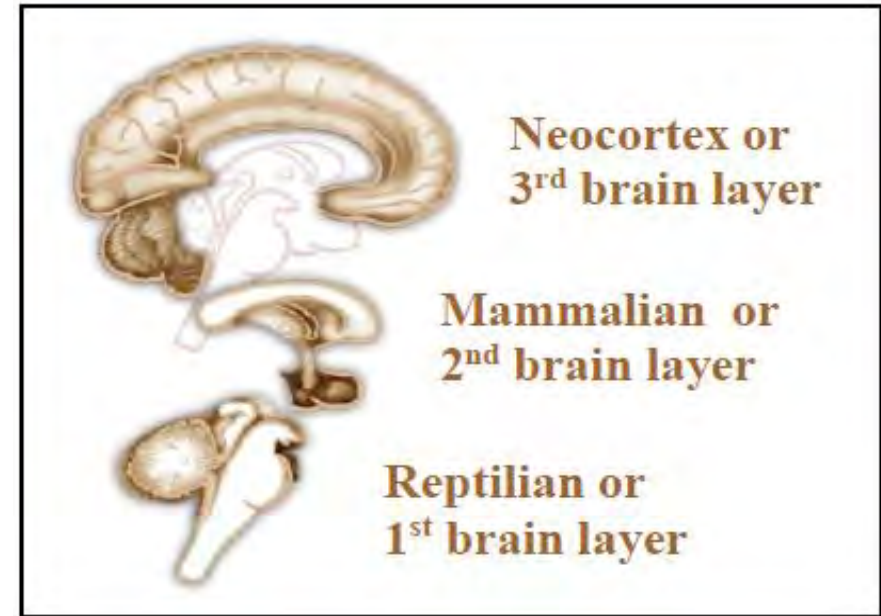
Conscious *thought* – neurons in the neocortex or 3rd layer

Subconscious *thought* – 80% of your brain

Automatic or reactive *thinking* (processes): habits, routines, and reactions are loaded in the 1st and 2nd brain layers (and to some degree in the body)

Your body is your subconscious mind

—Candace B. Pert, PhD



Definitions of conscious versus subconscious thought

Conscious thoughts are ones that you are aware of and can be explained and discussed in a logical or rational way



Subconscious thoughts are much more complex in nature and are difficult to define—they operate in the mind beneath or beyond consciousness—think of them as unreportable mental activities or the totality of mental processes of which the individual is not aware

The human state of consciousness is difficult to define but is characterized by a state in which you know what you believe, know, and imagine; know what you decide and plan; and feel what you feel—which explains nothing!

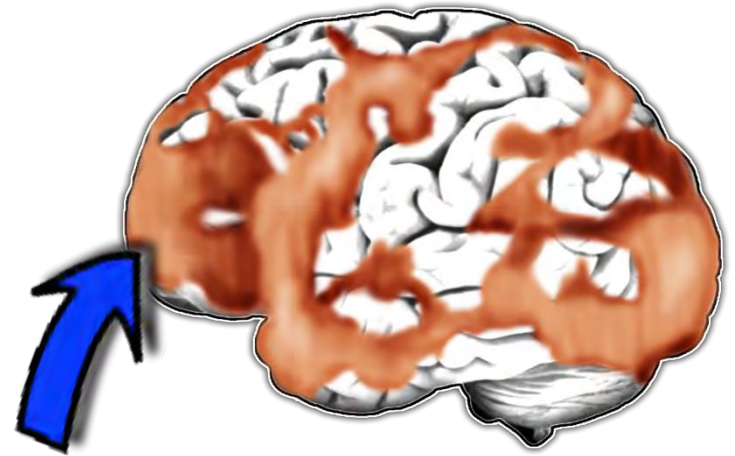
Wakefulness is necessary but not sufficient for consciousness. A great deal has been learned about the neural mechanisms associated with wakefulness but that has not helped much in understanding consciousness. It's still a mystery!



—William R. Klemm, PhD

The subconscious mind functions independently from the conscious mind and it never rests, it is constantly working and it is very powerful

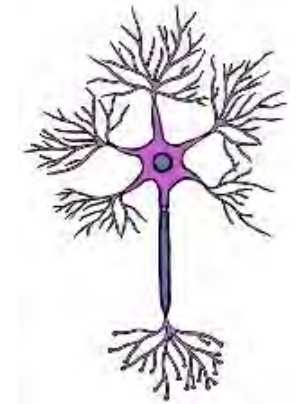
Think about a time when you could not remember someone's name or other piece of data, and the answer came to you several hours later while doing an entirely different activity—that's unconscious mind at work



To be successful in achieve goals, your subconscious thoughts must be in line with conscious ones

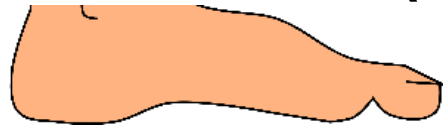
Central Nervous System (CNS) consists of the brain and spinal chord; the Peripheral Nervous System (PNS) is everything else

Neurons are designed to transmit information—but but the neurons in the brain are the only ones that “think” in the sense of *thinking*



PNS neurons monitor processes and collect data from the body and the external environment and inform the brain but at a subconscious level—there are three main types

- **Motor neurons carry signals FROM the brain and spinal chord to the body (muscles, skin, organs, glands)**
- **Sensory neurons carry signals from your body and from external stimuli TO the brain and spinal chord**
- **Interneurons relay signals between motor and sensory neurons (that each follow separate/different pathways)**



Stub your toe: no awareness of pain until the sensory neurons carry data to the brain and it's decoded as "this hurts" (chronic pain may be *remembered* pain)

Caveat #1: If you think you can or you think
you can't you're right —Henry Ford



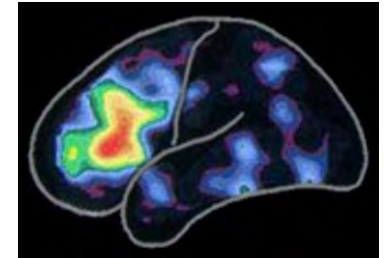
It's your job to tell it what it can do

**Stop talking about what you don't want to have happen and
tell your brain only what you want done in positive
language (affirmation is the programming language of the
subconscious)**

Caveat #2: The ancestor of every action is a thought

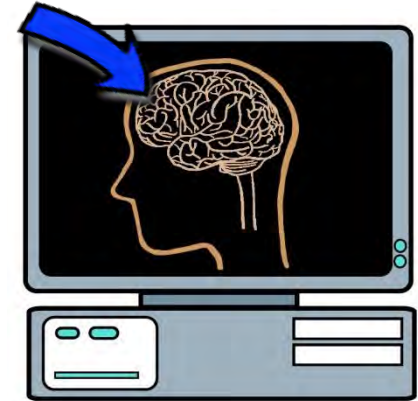
Oliver Wendell Holmes

7-10 seconds before you are aware of a conscious thought, PET scans show that the thought is already in your subconscious mind



You are not responsible for every thought that comes to conscious awareness (except to what you put into your brain that may triggers thoughts); however, once you become aware of a conscious thought, free will allows you harbor the thought and act on it or choose a different behavior

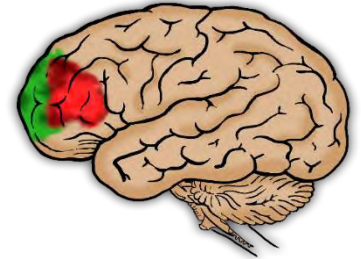
Caveat #3: Mirror neurons fire when you watch the behavior of others as if you were doing it yourself (copycat crimes, child's behavior)



- **Witnessed abuse (actual or virtual) is as damaging as if it was happening to you**
- **When you do something once, the brain already starts to put a neuron pathway in place, which makes it easier to repeat the behavior (practice increases skills)—be careful what you do once! do**

Caveat #4: Short term memory holds a thought long enough to use it (e.g., phone number long enough to call it)

Working memory is a core executive function of short term memory that allows you to hold information temporarily while you process it and manipulate it—involved with immediate perceptual and linguistic processing and important for reasoning, decision-making, and behavior (e.g., playing and video game)



It tends to scrub itself clean when you walk thru a doorway

Caveat #5: Feelings follow thoughts; you can only create a feeling if first you had a thought

If you do not like the way you are feeling, change your thoughts

The brain thinks in pictures—your thoughts are turned into internal mental pictures and images--and the subconscious that does not use language per se can “see” the pictures

It tends to push you toward the pictures it sees

Caveat #6: Affirmation is the programming language of the subconscious
--Marie Stine

Conscious thoughts create internal pictures that give 1st and 2nd layers a map to follow

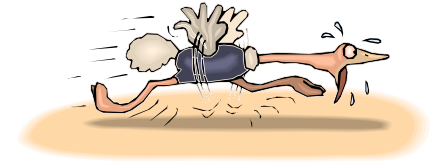
**Tell you brain what you want to have happen
Using positive language and stop talking about
What you do not want to have happen**

Don't touch the stove versus Keep your hand away from the stove



Caveat #7: Your brain-body energy is closely connected with your thoughts and the mental pictures they create

Positive thoughts add energy to your system; negative thoughts deplete your energy—fear, anxiety, and anger are “energy eaters”



Think positively about the day ahead and you increase both your mental and physical energy

—Jon Gordon

Caveat #8: The brain prefers coherence of thoughts

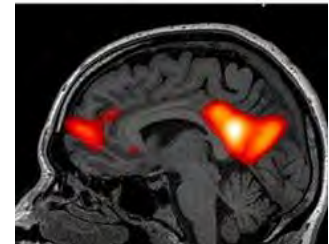
- **Positive thoughts trigger recall of positive memories**
- **Positive emotional states create coherence within the human system**
- **Virtually no energy is wasted when all components of a system are operating in positive congruity**



Caveat #9: The conscious mind can get a joke; the subconscious does not

If you say, *“I feel another bad day coming on,”* your conscious mind may chuckle

The subconscious mind tend to miss the “joke,” takes whatever you say literally, and does everything in its power to help you achieve yet “another bad day”

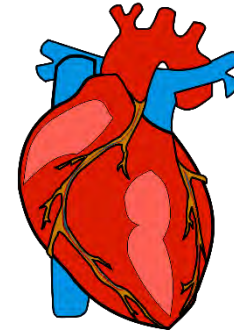


Caveat #10: As you think in your heart so are you

—Proverbs 23:6-9

Heart neurons look just like brain neurons

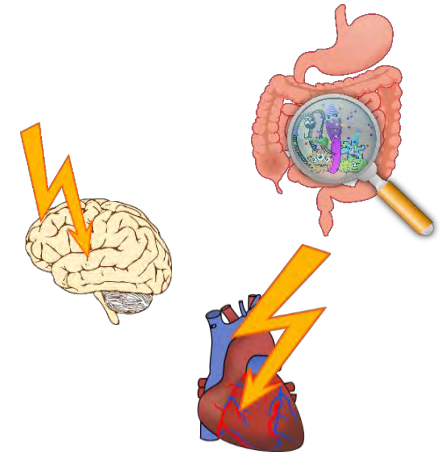
**Brain and heart are connected by an
“unmediated channel”**



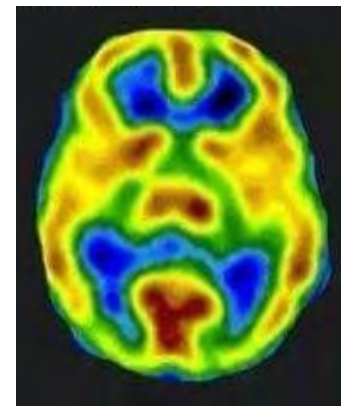
**Since it is a subconscious organ, the
information must be sent to the brain for decoding so you
“get it,” often in the form of some emotion designed to get
your attention ...**

Your gut contains as many or more neurons as your brain and although they do not “think” in the same way as brain neurons, they do

Process information and send it continually Up to the brain via the vagus nerve, the longest and perhaps most complex nerve in your body... some believe that the wisest decisions are made with a combination of input from the brain, heart, and gut (e.g., ‘a gut feeling’)



Caveat #11: The subconscious finds it easier to continue doing what's familiar and self protective even if it is uncomfortable and less successful—learning new behaviors requires conscious thought



Studies have shown that show that 95% or more of a person's decisions, actions, emotions, and behaviors come from the programming in their subconscious mind. This helps to explain how individuals can sabotage their goals and not even be aware of what they are doing.

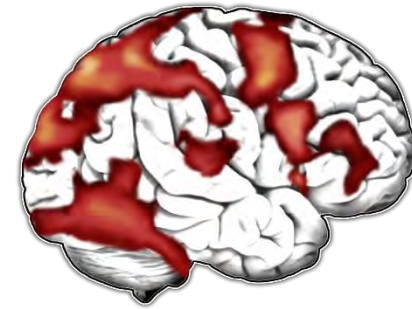
Caveat #12: Thoughts of joy and sadness each generate clearly distinguishable patterns in the brain

Sad thoughts:

Decreased activity in prefrontal areas

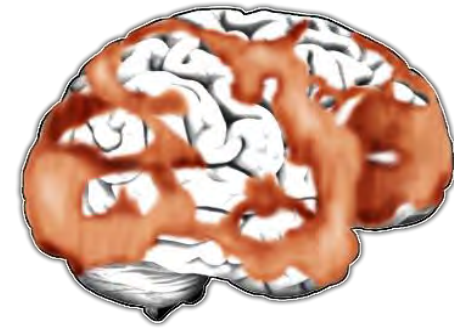
Decreased rates of neuron firing

Decreased overall numbers of ideas and thoughts being generated



Joy or happy thoughts showed an opposite pattern:

- **Increased activity in prefrontal areas**
- **Increased rates of neuron firing**
- **Increased overall numbers of ideas and thoughts being generated**



Joy is the only emotion with no negative outcomes when maintained over time . . . as you think so you are . . .

Caveat #13: Your thoughts can rewire your brain

Your habitual attitudes form neural circuits in the brain—if you choose to maintain a specific attitude, the brain can literally rewire itself to facilitate that attitude

—Doc Childre and Howard Martin
The HeartMath Solution

Think on these things . . . *Apostle Paul, Philippians*