

ALPHABETICAL BRAIN™ VOCABULARY HUMANIST FAMILY BRAIN STUDY

DETAILS ABOUT YOUR CONNECTOME #9 July 31, 2019

WHAT IS YOUR CONNECTOME? AND WHY IS IT SO IMPORTANT?

The purpose of your connectome is to make possible the transmission of biochemical current (ionic signals/impulses) all around your brain and also up and down your body.

The word connectome describes the biological structure of the 3-Dimensional communication network of human bodies. It connects your brain to your nervous system. The discovery of this massive communication process, which connects all of your body's organs through neural pathways, proves that your brain controls all of the movements of your body.

Also, the complexity of the network structures of your connectome makes possible your brain's neuroplasticity, which gives your mind the ability to reason, imagine, and remember. It gives you the flexibility to make choices and decisions.

Your neural pathways and the axon fibers inside them connect your 100-200 billion neurons and 1,000 trillion synapses, whether polarized, depolarized, or re-polarized in the zillions of molecules of your body. The pathways and fibers make possible the ability of your mind's mental functions.

These mental functions facilitate your brain's biological ability to change itself by itself and your mind's cognitive (mental) ability to experience willpower by choosing among cultural alternatives.

Therefore, the functional interactions between the biological structures of your *connectome* and the psycho-social processes of your *mind's (self's)* mental functions give you the brainpower to be a creative person.

In addition, you have the *willpower (free will)* to make choices among many options anytime you decide what goals you plan to achieve.

THE COMPLEXITY OF YOUR CONNECTOME MAKES POSSIBLE YOUR BRAIN'S ADAPTABILITY

During the last hundred years or so your "**brain**" and "**spinal cord**" have been called your *central nervous system* or **CNS** for short. All the other nerves and neurons in your body have been called your *peripheral nervous system* or **PNS**. Your brain and spinal cord constitute your **CNS**, which you need to think of as your *body's main control center (wiring)*. It is responsible for coordinating all your internal bodily processes and your muscle movements.

A component of your **PNS**, your *autonomic nervous system (ANS)*, is responsible for regulating the activity of your internal organs. Your **ANS** has two separate systems: your *sympathetic nervous system* and your *parasympathetic nervous system*.

Your *sympathetic nervous system* speeds up your heart rate in response to danger or pleasure, for example. Also, it stimulates other bodily organs, meaning it activates (*excites*) all your other organs and muscles. In contrast, your *parasympathetic nervous system* relaxes (*inhibits*) the stimulation of your bodily organs, most noticeably your heart.

This means that the primary function of your parasympathetic nervous system is to calm your emotional responses to distressful or disruptive events. It does so by reestablishing your body's emotional balance (*homeostasis*). It is the specific part of your nervous system that all of your mindfulness and meditation strategies and skills strive to manage.

In other words, this parasympathetic component of your peripheral nervous system calms your feelings so you can think more clearly about your reactions to upsetting experiences or events. You can focus your attention on relaxing by deliberately taking a few deep slow breaths and by focusing on specific bodily postures. Or you can simply take a walk or jog when you feel extra tension in your body.

Another way of describing the structure and functions of your **PNS** is to think of it as having a component called your *somatic nervous system (SNS)*. Your **SNS** is also known as your *voluntary nervous system*. It is most observably associated with the voluntary control of your body's movements via your skeletal muscles.

Your **SNS** consists of *afferent nerves* (sensory nerves that are made up of sensory neurons) and *efferent nerves* (motor nerves that are made up of motor neurons). The sensory neurons and motor neurons both transport biochemical signals but in separate neural pathways, which are part of your total *connectome network*.

Your *efferent nerves* are responsible for sending out commands from your **CNS** to your muscles and organs, including your skin, by stimulating muscle contractions. Your skeletal muscles give you the ability to move your body. Your *efferent nerves* consist of your *motor neurons*, which include all of your non-sensory neurons.

Your *sensory neurons* include the sensory receptor cells, neural pathways, and the parts of your brain involved in sensory perception. They facilitate your vision, hearing, touch, taste, smell, and balance. These *afferent nerves* are responsible for relaying sensations from your body (muscles and organs) to your **CNS**.

The "a-" of afferent and the "e-" of efferent correspond to the prefixes ad- (to, toward) and ex- (out of).

Today, all of the nerves and neural pathways in your brain and spinal cord and the rest of your body should be known collectively as your brain and body's *connectome network*. In the past there was no detailed knowledge (explanations) about how your brain and nervous system actually communicated at the extremely tiny molecular level of quantum effects.

Now, however, with the fabulous new block fluorescent 3-D microscopes, the connections of neurons and the biochemical flows of ionic energy from one part of your body to every other part of your body are being understood more clearly for the first time in human history. Now the nano-microscopic functions of your biochemical neural signals are understood well enough by brain scientists and science journalists that they understand the way the smaller *cellular connectome circuits* function within the larger *connectome area networks*.

The *cellular circuits* and *area networks* have a variety of specialized functions that make possible an infinite number of possible connections among your 100-200 billion *neurons* and 1,000 trillion *synapses*. Now it is known how the *tiny cortical circuits* and the *huge connectome area networks* activate or inhibit your body's diverse movements, whether conscious or unconscious.

When you increase your brain vocabulary and expand your self-awareness, you will become more knowledgeable about the brainpower (mental force), which you can create for yourself by yourself. Now you can learn more about our own brain structures and mental functions and use that knowledge to cope better with the daily challenges of existence.

Since we live in the most technically sophisticated civilization in history, your choices are limited only by your personal knowledge and your curiosity to learn. You can energize your lifelong quest to increase love, knowledge, and wisdom in the world, if you question traditional ideas that have no objective evidence of their truthfulness.

Scientific humanism can help you create a modern perspective about your own human nature and potential as a thinking person with unlimited potential. You can choose to bond with other human beings to create a better global human civilization in the future by fighting ignorance and terrorism with knowledge and courage.

You can become part of a global movement advocating international universal human rights based upon liberal progressive democratic values.

RECOMMENDATION: You may print this pdf version and read it and edit it by adding or deleting ideas. Then, you can read your edited version of these ideas according to a *reinforcement schedule*, such as a few hours later and a few days later and then several times in the next week or two. This strategy can help you take advantage of the power of the *spaced-repetition method of memorization*. Such deep introspection can change your adaptive self-identity and increase your self-esteem (positive emotions about yourself). Remember always: **"You are your memory!"**