Homeostasis, Thermal Regulation and Neuro-inflammation
Cascading system failure in the human system

Brain activity generates heat. If that heat is too great and is not released quickly enough, parts of the brain shut down and malfunction. Further issues arise for the patient. In many situations, the natural biological brain cooling mechanisms should be assisted.

Any change (imbalance) throughout the body alters resistance to the flow of electricity through the nerves in that location. The building blocks of life (oxygen, glucose, nutrients, amino acids,...) are delivered to that area according to the resistance through a series of processes. The body pulls those building blocks of life from what is available elsewhere in the body.

Using the analogy of a movie to a picture: The body functions as a movie. It flows together through time. If we take a “snapshot” (picture) of the body at any point in time, the body is fixed in place with the entirety of all systems in a particular state. In every moment, there are no electrical signals flowing. They have stopped because time has stopped.

When we start time again, the electrical signals are the fastest transmission through the body and are conducted at different rates for the different systems. This response time and corresponding resistance and heat buildup affect how the building blocks of life are sent to every system. All that has developed over time affects the resistance in the various parts of the body and affects the entire balance of the system. Lifting weights of specific weights and cadence affects the muscular system in a particular way. Lifting weights in a different manner has a stronger effect on the system of tendons and on the skeletal system.

The body has ultimately built a balance from all of the building blocks of life that it has been provided over its lifetime in conjunction with the activity that it has done.

This balance is fixed at any one point in time, but is constantly in motion once time starts again. When time starts, the body continues to adjust and alter the balance.

Nerve conduction velocity in the brain and spinal cord is faster than the rest of the body. Any extra resistance generates heat, and the systems of the body prioritize controlling and releasing the heat in the brain (biological brain cooling).

Since the brain responds near instantaneously “speed of thought”, resistance and thus heat generated in the brain is fastest to build up. The body reallocates the building blocks of life to the brain as rapidly as possible according to priority to allow the brain to continue functioning.

At some point, if the brain is overloaded (too warm), functional deterioration occurs and systems (parts) of the brain begin to shut down.

The human body operates as an interconnected system. If other parts of the body are also under strain, (increased electrical resistance), then the building blocks of life have to be allocated to them as well. If the digestive system is processing food, less of the building blocks of life are available for the brain. A simple example is brain fog after eating a large meal at lunch. The digestive system is processing food and thus it feels like it should be nap time for the brain.

If a human exercises, their brain adapts and their muscles adapt and they get better at exercising and develop the habit. Learning something and practicing in the right ways activates the brain in specific ways and the brain gets better at doing that thing.

A person can do many different things and use their brain in many different ways. Sitting and watching a movie activates different parts of the brain versus watching a documentary versus watching videos and trying to learn a language. These activities are vastly different from the way the body and brain is used when learning an instrument or participating in a sport or hunting or escaping from danger.

Each of these different activities builds up the pathways in the brain in different ways. Some common examples are chronic stress responses or trauma responses.

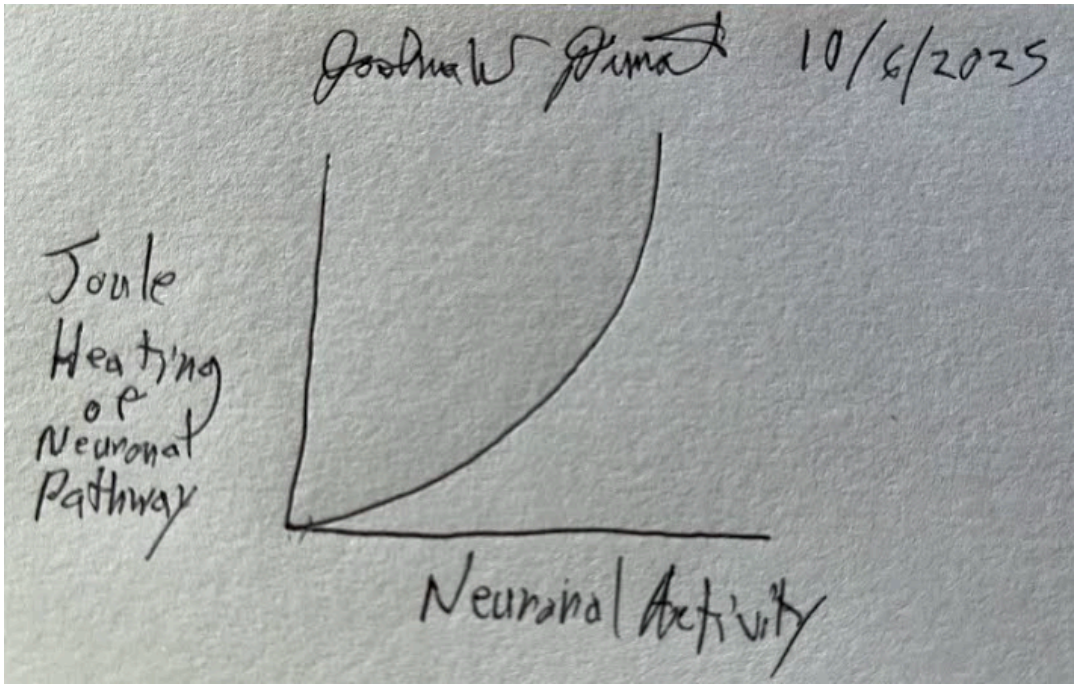
Ignoring external stimuli, thinking in different ways will build the brain in different ways. Take the thought experiment where a person is asked to lie down in a dark room for an hour and practice counting to 51 by two's. For instance 1,3,5,7,9,11… Initially, they will be able to generate the sequence. After they have run the sequence through several times, they will begin to memorize it. If they run it through enough times, it will become habitual. If the person could do only that task for an hour a day for weeks, that sequence would become a deep part of them.

In this same way, when a person does something that they have never done before, their brain has to adjust to thinking in that way. One common example is love. A child grows and goes through puberty. At some point they may become attracted to someone "feelings develop" and their pattern of thinking has changed. If they act on those feelings and they are reciprocated, a certain pattern of thinking develops in their mind. If those feelings are not reciprocated, another pattern develops. These ways of thinking generate heat in the brain. Different parts of the brain are activated in different ways with experiences.

In the same way that nerve impulses are transmitted at differing speeds throughout the different systems of the body, nerve impulses transmit at different speeds throughout the brain. There is more or less resistance as various parts of the brain have been used. More or less heat is generated in each part of the brain as that new pattern of thinking is developed.

This heat that is generated from each different pattern of thinking has to be released to the environment and the rest of the body for the entire system to be in balance. If the heat is generated too quickly and thermal regulation is not fast enough to restore a balance, parts of the entire system (in this case the brain) begin to shut down and fail.

As parts of the brain fail, if balance cannot be restored, other parts of the body begin failing. A cascading system failure occurs and myriad ailments can befall an individual.



I posit that resistance through neuronal pathways increases at an increasing rate. This increases heat generation and results in shutdown if balance cannot be restored to the entire system.

As a corollary, any mental state that involves increased thinking and thus neuronal activity above baseline is generating more heat in the brain above baseline. This heat needs to be released to the body or to the environment. The biological brain cooling processes can be assisted by having the patient's head in a cooler environment (cooler ambient temperature), physically cooling the head such as with migraine masks, cooling the air travelling through the nasal passages or cooling the blood entering and leaving the brain.

An alternative course of action to reduce neuronal activity is to teach a patient how to slow their mind through meditation and other practices.