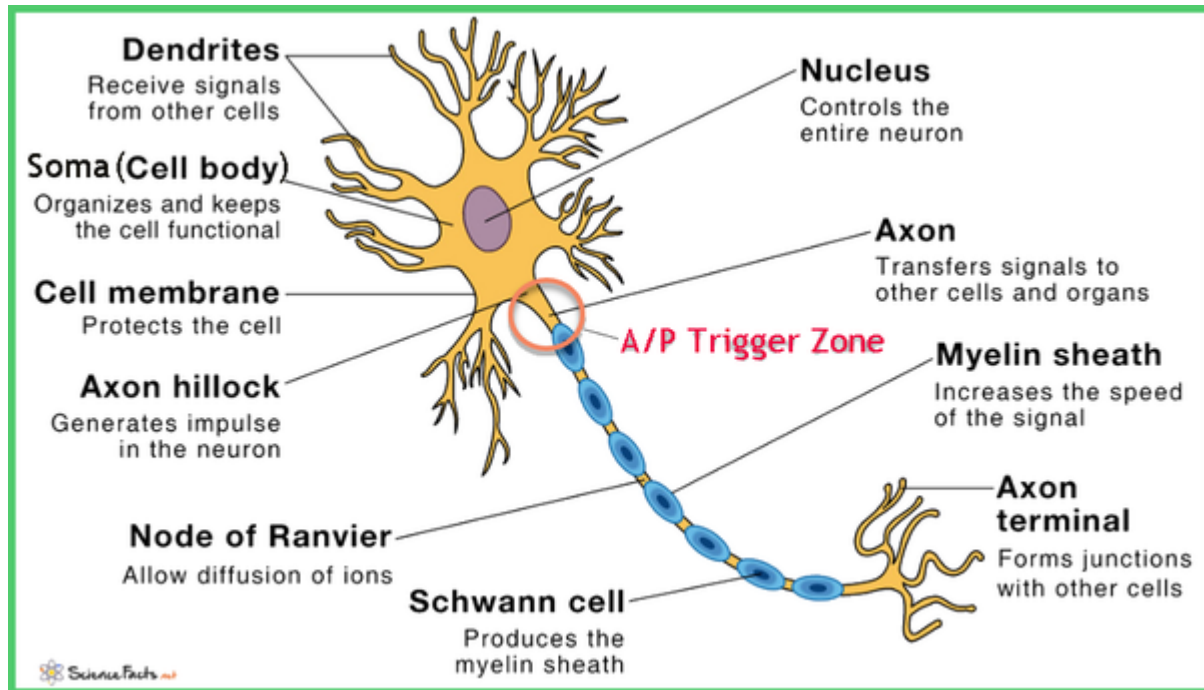


# Axons: Definition & Function



This brief video will help you understand what the Axon does in your mind:

Video @ <https://vimeo.com/598889814> (3:03 minutes)

The nervous system is designed to control almost every system in the body. It does so through the use of neurons, which communicate with cells and tissue in different systems. This article addresses a part of the neuron, called the axon, which is important in this cellular communication.

If we compared the human body to a computer, then the nervous system would be the motherboard. It is the main control unit for the body, and through the nervous system, other functions in the body are regulated. Therefore, the nervous system is

one of the most important systems in the human body as its effects can be seen in all other systems.

The nervous system communicates through the use of cells, called neurons. These cells participate in cell-to-cell communication for the purposes of regulating bodily processes. This is done through the generation of electrochemical stimulation that relays from neurons to other neurons and effector (target) cell. The delivery of this stimulation is going to be mediated by a portion of the neuron known as the axon.

Axons are extended regions of the neuron cell membrane. It starts from a portion of the cell body, known as the axon hillock. From there, the axon extends towards the target cell to what is known as the terminal.

Some axons will also have additional structures to assist with communications. In areas of the nervous system that require faster communication, the axons will contain insulation, known as myelin sheaths. This insulation speeds up the transmission of cell-to-cell communication and stimulation. Not all axons will have these sheaths, but the ones that do function quicker.

The axon terminal is the site of neurotransmitter release. Neurotransmitters are chemical messengers that are released from the axon and received by target cells. This process is critical for delivery of the message to the cells and tissues that are being controlled. The terminal, then, is the final point of stimulation in the axon before the charge is delivered.

Lesson Summary: The axon is an extended region of the neuron cell membrane and the portion of the cell responsible for delivering cell-to-cell communication. Neurons are the cells that communicate and the axons are merely a smaller part of the larger story. This is sometimes sped up by myelin sheaths, which are a type of insulation that speeds up the transmission of cell-to-cell communication and stimulation. Through transmission of electrical charges and the release of neurotransmitters, axons are able to control target cells in order to regulate bodily processes.

(adapted from study.com)



“I find then a law, that evil is present with me, the one who wills to do good. For I delight in the law of God according to the inward man. But I see another law in my members, warring against the law of my mind, and bringing me into captivity to the law of sin which is in my members.”

Romans 7:21-23

We have billions neurons in our brain constantly communicating with each other.

This communication takes place through electrical and chemical signals and messages. A message must be sent and received for every physical and spiritual activity performed by the human body.

Romans 7:21-23 is a neurospiritual passage because resisting the “law of sin” “warring against the law of my mind” involves a biological and spiritual struggle.



## **Axons: Definition & Function**

Test and Answers

### **1. How does the nervous system control every system in the body?**

The nervous system is designed to control almost every system in the body. It does so through the use of neurons, which communicate with cells and tissue in different systems.

### **2. If we compared the human body to a computer, what would the nervous system be?**

If we compared the human body to a computer, then the nervous system would be the motherboard.

### **3. The nervous system communicates through the use of cells, called:**

**Neurons**

### **4. The delivery of this stimulation is going to be mediated by a portion of the neuron known as the:**

**Axon**

5. In areas of the nervous system that require faster communication, the axons will contain insulation, known as:

**myelin sheaths**

6. The axon terminal is the site of neurotransmitter:

**release**

7. What brain activity does Romans 7:21-23 describe?

Romans 7:21-23 describes a war that is taking place in our minds every second of every day.

8. What kind of signals and messages do Axons send?

We have 86 billion neurons in our brain constantly communicating with each other. This communication takes place through **electrical and chemical signals and messages**. A message must be sent and received for every physical and spiritual activity performed by the human body.

## 9. Why is Romans 7:21-23 a neurospiritual passage?

Romans 7:21-23 is a neurospiritual passage because resisting the “law of sin” “warring against the law of my mind” involves a biological and spiritual struggle.