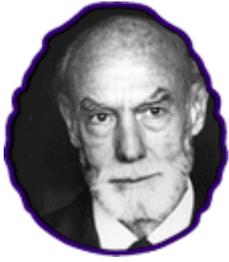


# The Split Brain Experiments

***"THE GREAT PLEASURE AND FEELING IN MY RIGHT BRAIN IS MORE THAN MY LEFT BRAIN CAN FIND THE WORDS TO TELL YOU."***

***-ROGER SPERRY***



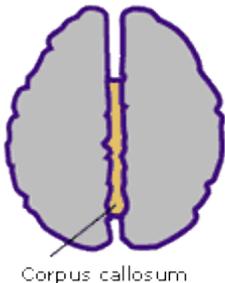
Nobel Laureate Roger Sperry.

## Background

In the 19th century, research on people with certain brain injuries, made it possible to suspect that the "language center" in the brain was commonly situated in the left hemisphere. One had observed that people with lesions in two specific areas on the left hemisphere lost their ability to talk, for example.

The final evidence for this, however, came from the famous studies carried out in the 1960s by Roger Sperry and his colleagues. The results of these studies later led to Roger Sperry being awarded the Nobel Prize in Physiology or Medicine in 1981. Sperry received the prize for his discoveries concerning the functional specialization of the cerebral hemispheres. With the help of so called "split brain" patients, he carried out experiments (just like the one you can perform by yourself in the Split Brain Experiments Game), and for the first time in history, knowledge about the left and right hemispheres was revealed.

## What Does "Split Brain" Mean?



In the 1960s, there was no other cure for people who suffered from a special kind of epilepsy than by cutting off the connection, *corpus callosum*, between the two hemispheres. Epilepsy is a kind of storm in the brain, which is caused by the excessive signaling of nerve cells, and in these patients, the brain storm was prevented from spreading to the other hemisphere when the *corpus callosum* was cut off. This made it possible for the patients to live a normal life after the operation, and it was only when carrying out these experiments one could notice their somewhat "odd behavior."

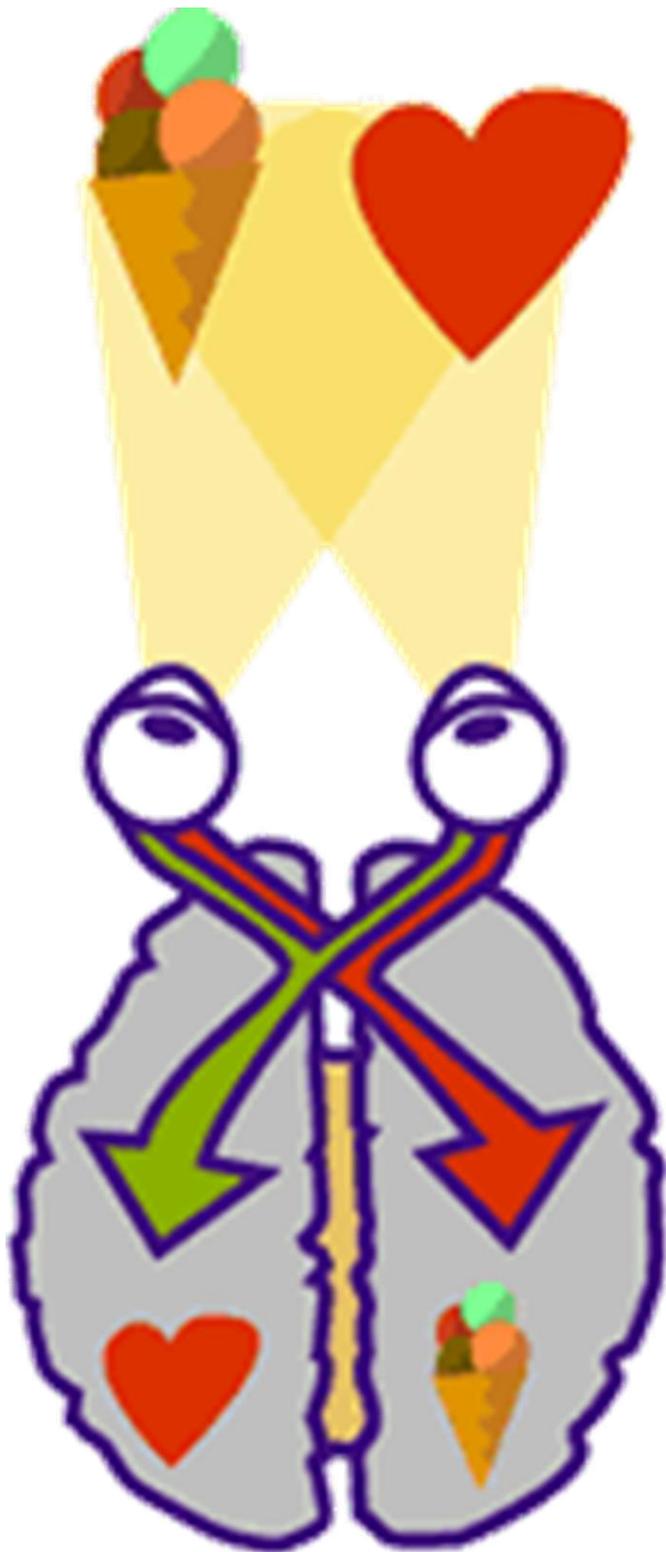
Each hemisphere is still able to learn after the split brain operation but one hemisphere has no idea about what the other hemisphere has experienced or learned. Today, new methods and technology in split brain operation make it possible to cut off only a tiny portion and not the whole of the *corpus callosum* of patients.

## What Came Out of the Split Brain Experiments?

The studies demonstrated that the left and right hemispheres are specialized in different tasks. The left side of the brain is normally specialized in taking care of the analytical and verbal tasks. The left side speaks much better than the right side, while the right half takes care of the space perception tasks and music, for example. The right hemisphere is involved when you are making a map or giving directions on how to get to your home from the bus station. The right hemisphere can only produce rudimentary words and phrases, but contributes emotional context to language. Without the help from the right hemisphere, you would be able to read the word "pig" for instance, but you wouldn't be able to imagine what it is.

Right vision field is connected to the left hemisphere. Left vision field is connected to the right hemisphere.





1. Information from the left half of your visual field of vision goes to your right hemisphere, and information from the right half of your visual field goes to your left hemisphere.
2. Each eye receives sensory information from both the right and left visual fields.
3. The data received from either hemisphere is quickly transmitted to the other across the corpus callosum.
4. In a split brain patient, this information sharing does not take place.

If this was a diagram of a split brain patient:

- a. When asked to communicate what she saw, she would say that she saw the \_\_\_\_\_ because \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_.
- b. When asked to point to what she saw, she would most likely use her \_\_\_\_\_ hand because \_\_\_\_\_  
 \_\_\_\_\_ . She would use that hand and point to the  
 \_\_\_\_\_ because \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_