

Sawaliram

By

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Why Can't We See Sound Or Hear Colour? (Alyina, 13, Al Qamar Academy, Chennai)

It's an interesting question and it has a two-part answer.

We have various senses. These give us information about our surroundings and ourselves. For example, we come to know if something touches our body. This sensation of touch is present all over our body. Then we have a sense of smell, a sense of taste, a sense of hearing and a sense of light. These senses respond to some things outside our body.

Then there are sensations that depend on our internal workings. For example, our sense of hunger is entirely internal.

Sometimes, some particular sense is concentrated in one organ. For example, the sense of smell or taste is concentrated in our nose, throat and mouth. A sweet applied to the skin of our foot will not give us any sensation except touch. If light falls on the back of our head, we do not sense it (except as heat).

Thus, it looks like particular receptors are specially designed to receive and feel particular sensations. But this is not entirely correct. For example, our tongue is specialized to feel taste but it does have a sense of touch.

The sense organs (as they are called) have nerve endings which are affected by the stimulus received. Some nerves are specially designed to respond to some particular sensation(s). When such a specific sensation arrives at these nerves, they get activated and send signals to the brain. The signals from all the nerves are similar. However, each type of nerve is connected to particular areas of the brain. Each brain area is specific for a function or sensation. When a signal from some nerve reaches a particular area of the brain, brain tries to make sense out of it. If the signal reaches the brain area responsible for hearing, the brain thinks that it is a sound signal etc.

So, the main point here is that the nerve-ending at the sense organs are specialized to receive and respond to some particular signal(s). On receiving a stimulus, the nerve sends a signal to the brain. The signals sent by all the nerves are of a similar nature. A signal's meaning depends on which area of the brain that the signal reaches.

Thus, the wiring in our nervous system is such that signals from a particular sense organ reach a particular area of the brain. Therefore, normally, we do not see sound or taste a scene. However, the word 'normally' is important.

In some individuals, the wiring gets mixed up. These people taste sounds and see tastes. This is called synaesthesia. It means that two senses are mixed up. Many people have reported that when they see some letters (for example, 'A' or 'N'), they feel a taste of chocolates in their mouth, or that when they hear some musical instrument they see some colour along with it.

Many researchers have worked on this condition and found it to be true. And now synaesthesia is believed to be very common. Scientists do not know the exact reason for synaesthesia but one reason might be that the signal from the sense organ reaches the 'wrong' area of the brain.

So, we do see sounds and taste colours.

