

*Q: I was looking back at the study questions for lecture 32. You ask what is meant by the phrase "a loss of noise aversion with preservation of auditory thresholds." Does that mean that the rat is able to discriminate between different sound intensities but does not find the noise to be aversive?*

A: Your answer is very close to the correct meaning. Preservation of thresholds means that the rat can respond to sounds down to a low intensity level, and this level is as low as in a normal animal.

*In response to a student question about the gate-control theory of pain as described in lecture:*

The "T" structure in the diagram represents neurons with axons that form the spinothalamic tract.

When both large and small fibers are active, the duration of transmission to the T cells will depend on how many of each type are active, and how active they are. Normally, enough large fibers are active that the gate does not stay open, so pain sensations are not prolonged, if they occur at all. It is also true that, as you suggest, the faster conduction of large fibers will tend to close the gate, resulting in transient activation of the T cells.

Prolonged activity of small fibers can occur normally as well as in pathological conditions. The small fibers may be activated much more than the large fibers by peripheral stimuli that cause pain, as in case of some injuries. However, most such pain in normal individuals can be treated by drugs that reduce peripheral inflammation. In case of causalgia, it is as you have written: there are an abnormal number of small fibers in comparison to large fibers.

*Q: I have a question about the automatic writing experiments you described in last week's lectures. As I understand it, language abilities for most people are localized in one half of the brain (the left half). So in the hypnotism experiments, how can the right hand (left hemisphere) write without the help of the (already occupied by reading) left hemisphere?*

*What I'm asking, I guess, is what do you think these experiments show? Should the results be interpreted as indicating a dissociation between two parts of the left hemisphere (as opposed to a left/right dissociation)? If so, which parts?*

A: The subjects in the automatic writing experiments do not have divided brains. The consciousness appears to have been divided into two parts, but both parts have language, so we can assume that both parts are using the left hemisphere for that. Both parts can be active simultaneously, which is different from the expression of multiple personalities where only one personality is awake at any one time.

It is not known whether the dissociation is between different parts of the brain. I know of no functional imaging studies of this phenomenon. It would be an interesting research project.