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ONE ARTISTIC, ONE LOGICAL

Each Side of Brain Does Its Own Thing

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Each hemisphere of the human brain has its own way of solving problems and each handles information differently, according to a Caltech research investigator.

He said all the evidence indicates that man is different from all other animals in this basic specialization of the two hemispheres of the brain.

Santosh Kumar, a research fellow in biology, said although the typical righthanded person's right hemisphere is "mute" in that it does not use words, it is better at understanding abstract ideas than the left hemisphere.

On the other hand, the left hemisphere, where language is stored, shows little or no aptitude for learning many nonverbal concepts, Kumar said in a report of his work with Roger Sperry, professor of psychobiology at Caltech.

Sperry and his group have done a series of experiments on hemispheric specialization in which they found evidence that the two hemispheres of the brain have basic differences that are correlated with handedness, cerebral dominance and ability or tendency to think in different modes.

Kumar reported that the left hemisphere can be thought of as the brain's spokesman because it deals with words. It usually gets the credit for intelligence.

But his tests clearly show that the mute right hemisphere of the typical righthanded person is superior to its fellow in the kind of thinking not dependent on language.

Normally, the two hemispheres influence each other, so the studies are done with volunteer patients who have had brain surgery in which one hemisphere was removed, or in whom the two hemispheres were disconnected to control severe epilepsy.

The left side is better when language is required, and also handles calculations and logical reasoning better. The right side is more concerned with appreciation of the arts.

Kumar gave each of four subjects two tasks, one designed to test the mute hemisphere and the other the verbal one.

In the nonverbal test, each subject had to sort 16 small blocks according to height and width by feeling them with one hand and without looking at them. The blocks were of six shapes and three noticeably different weights, but these differences were irrelevant to the task and were added merely to

make the test more complicated. The reason only one hand could be used at a time was to allow the information to enter only one hemisphere of the brain at a time.

The nerves of the left hand are linked chiefly with the right hemisphere, those of the right hand to the left hemisphere. Thus, Kumar said, the right side of the brain knows what the left hand feels and the left side knows what the right hand feels.

The hands of the subjects were tested separately and their success in sorting the blocks compared.

One subject achieved 100% correct responses in the mute right hemisphere. In contrast, his verbal left hemisphere was only 50% successful in its sorting task, and worked much more slowly. The other subjects showed similar, though less striking results.

The test of the left hemisphere was also done with 16 objects, but these were all familiar and easily identified.

Kumar said the left hemisphere had the advantage here because each of the objects had a familiar name, or word, that stood for it. In this test the left side achieved uniform high scores compared with the right.