

Brain pain the same for ego blow, physical punch

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WASHINGTON (AP) --To a part of the brain that registers pain, the distressful reaction from social rejection is just as great as from a poke in the eye, according to researchers who measured the neural reactions of people who thought they had become outcasts in a game.

In an experiment at UCLA, researchers monitored the blood flow in the brains of people who had been led to believe that other players in a computer ball game were intentionally excluding them and refusing to let them play with the group.

The shock and distress of this rejection registered in the same part of the brain, called the anterior cingulate cortex, that also responds to physical pain, said Naomi I. Eisenberger, a UCLA researcher and first author of the study appearing this week in the journal *Science*.

"The ACC is the same part of the brain that has been found to be associated with the unpleasantness of physical pain, the part of pain that really bothers us," Eisenberger said.

"There's something about exclusion from others that is perceived as being as harmful to our survival as something that can physically hurt us, and our body automatically knows this," the researcher said.

Eisenberger said the study suggests that social exclusion of any sort -- divorce, not being invited to a party, being turned down for a date -- would cause distress in the ACC.

"You can imagine that this part of the brain is active any time we are separated from our close companions," she said. "It would definitely be active when we experience a loss," such as a death or the end of a love affair.

The tendency to feel rejection as an acute pain may have developed in humans as a defensive mechanism for the species, she said.

"Because we have such a long time as infants and need to be taken care of, it is really important that we stay close to the social group. If we don't we're not going to survive," said Eisenberger.

"The hypothesis is that the social attachment system that makes sure we don't stray too far from the group piggybacked onto the pain system to help our species survive."

This suggests that the need to be accepted as part of a social group is as important to humans as avoiding other types of pain, she said.

Just as an infant may learn to avoid fire by first being burned, humans may learn to stick together because rejection causes distress in the pain center of the brain, said Eisenberger.

"If it hurts to be separated from other people, then it will prevent us from straying too far from the social group," she said.