

## Moderate prenatal exposure to alcohol and stress in monkeys can cause touch sensitivity

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A new study on monkeys has found that moderate exposure to alcohol and stress during pregnancy can lead to sensitivity to touch in the monkeys' babies. In human children, sensitivity to touch is one of a number of characteristics of the approximately 5 percent of children who over-respond to sensory information. Since these characteristics can lead to behavioral or emotional problems, early identification and treatment are important. Children who are sensitive to touch have unpleasant and sometimes painful reactions to otherwise pleasant or neutral forms of touching.

The study, conducted by researchers at the University of Wisconsin-Madison, appears in the January/February 2008 issue of the journal *Child Development*.

“Our results with monkeys have important implications for preventing childhood disorders,” according to Mary L Schneider, professor of occupational therapy and psychology at the University of Wisconsin-Madison and the study's lead author.

Researchers studied 38 5- to 7-year-old rhesus monkeys born to mothers who either drank a moderate dose of alcohol every day during their pregnancies, were exposed to a mild 10-minute stressor during their pregnancies, drank a moderate amount of alcohol and were exposed to the stressor during their pregnancies, or were undisturbed while they were pregnant. A moderate dose of alcohol for the monkeys was defined as the equivalent of two drinks a day for a human.

Without knowing which situation the mother monkeys had experienced, the researchers rated the monkeys' offspring according to how they responded to repeated touch with a feather, a cotton ball, and a stiff brush. They found that monkeys whose mothers had not been stressed or consumed alcohol got used to touch over time, while monkeys whose mothers had been stressed grew more disturbed by touch over time. Monkeys who had been exposed to alcohol prenatally were disturbed by touch more than monkeys who had not been exposed to alcohol prenatally.

Using a brain neuro-imaging technique known as positron emission tomography, or PET, the researchers found that the monkeys' sensitivities to touch were related to changes in a brain chemical called dopamine in one area of the brain, the striatum. Regulating dopamine plays a crucial role in mental and physical health. Particularly important for learning, dopamine plays a major role in addictions.

“Our findings with monkeys suggest that when mothers are under stress and/or drink alcohol while pregnant, their offspring are at risk for sensory sensitivities,” notes Schneider.

Schneider called for further studies to determine whether reducing sensory sensitivities at an early age in children might help prevent the development of fetal alcohol-related behavioral problems.

“Our findings also have important implications for women of childbearing age,” she added, “suggesting that sensory sensitivities might be reduced by decreasing stress levels and abstaining from alcohol during pregnancy or if planning pregnancy.”

Source: Society for Research in Child Development

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