

# Behavioral and Sexual Effects?

*This commentary, by DES Action Co-Founder Pat Cody, was first published in DES Action VOICE Issue 104—Spring 2005. In light of the Letter to the Editor on page 4 we felt it would be interesting to re-print her wise and carefully considered thoughts.*

Over the years one of the most perplexing concerns expressed in the DES community has been whether DES exposure affected the neurological system and sexual differentiation. Our readers are aware of physical changes, such as the T-shaped uterus, the higher risk for breast cancer in mothers and daughters, and the risk for clear cell cancer in daughters. Experiments with mice show effects on the reproductive system that also appear in DES Daughters. However, reports on possible neurological effects on humans have not come from experiments but involve analyses of existing factors.

Here, some of the difficulties in getting a valid study are caused by a wide spread in the DES dosages mothers got, in the time in pregnancy when they got it, and for how long they took it. Some mothers began in the classic Smith & Smith regimen of four pills a day, increasing every two weeks until at the end—the 37th week—they were taking 125 mg. per day. This meant the DES-exposed daughter or son had DES during the critical developmental stages of his or her fetus. Other mothers had DES only in the last months, after most development had occurred and fetal life was concentrated on growth.

One 1983 research paper by Vessey et al. stated that, “sex hormones are, however, known to have effects on the organization of the brain in experimental animals with consequential behavioural effects.” Another, often cited, 1982 study by Melissa Hines et al. reported that female rats exposed to DES had altered features of childhood social play and “increased masculine mounting behavior,” while other researchers (Monroe and Silva) noted that same year a decrease in mounting behavior in adult male rats who had been exposed to DES.

Thus, it is apparent that DES did reach the fetal brain in these animals. In an ordinary human pregnancy, the mother's estrogen does not reach the fetal brain. We do not know if DES did reach the brain and, if it did, whether it could influence

brain development. There may be protective factors in humans so that DES would not have the same effects as it has shown in lower mammals.

We have seen reports on animal models that similar environmental estrogens can significantly alter the normal biological process of sex and gender differentiation in the brain. Perhaps DES also has had these effects in humans.

Yet Theo Colborn and her collaborators, in *Our Stolen Future*, write that, “Reports linking wildlife contamination with such unexpected behaviors as females sharing nests and feminized males inevitably raise questions about human parenting and sexual choice. Could hormone disruption alter these human attributes? The science on this is slender indeed. While emerging evidence suggests that variations in sexual preference may stem from differences in biology, scientists have only a dim understanding of the factors involved...”

Our readers may recall in our Spring 2003 issue #96 we summarized an article from the *Journal of Epidemiology* on psychosexual characteristics of DES Daughters and Sons. The data came from the survey of the ongoing study group followed now at the National Cancer Institute for nearly 30 years. Questionnaires were analyzed from 3,946 DES Daughters and 1,761 unexposed women and from 1,343 Sons and 1,356 unexposed men. Results showed that 95% of the subjects, male and female, whether exposed or not, reported exclusively heterosexual partners. One percent of all respondents, exposed or not, reported “mostly same sex.” On possible psychological effects, where questions were only asked of the women, 16% of the DES Daughters and 17% of non-exposed women reported diagnosis and treatment for mental illness—with depression accounting for 78% of the illnesses.

Without a doubt, more research is needed and I conclude with what a scientist once wrote, “**Absence of evidence is not evidence of absence.**”