

Prenatal Exposure to Drugs

©2002-2010 Teresa Kellerman www.fasstar.com

Q: I once heard a neurologist speak at a medical meeting I attended and he asked, "**Which caused more problems for children over their lives - prenatal exposure to cocaine, amphetamine or alcohol?**" The answer he gave was alcohol because it alone caused permanent brain damage. There must be literature on this and amphetamine use in the neurological literature and in the anti addiction community.

A: **Alcohol is more damaging than other drugs** because it is a teratogen (it directly kills brain cells and interferes with normal development of the fetus). "FAS represents the largest environmental cause of behavioral teratogenesis yet discovered and, perhaps, the largest single environmental cause that will ever be discovered." [Riley, E. P., and Vorhees, C. V. (1986). *Handbook of Behavioral Teratology*. Plenum Press, New York, NY.]

Some reports have said that babies whose mothers smoke or use illicit drugs are at higher risk for certain problems, but most women who smoke also drink alcohol, and most women who abuse illicit drugs abuse alcohol as well. Treatment specialists I consulted report that the only drug that is used alone is heroin. The neurological effects seen in drug-exposed children are almost certainly due to alcohol exposure. This is supported by animal research. (It is impossible to conduct controlled scientific studies in humans due to ethical factors.)

A major problem in interpreting the results of human studies on prenatal drug effects is the extent to which the outcomes attributed to the drugs resulted from concurrent abuse of alcohol, tobacco, and other substances. -Institute of Medicine 1996 Report to Congress

There is a generally decreasing trend of illicit drug use among pregnant women, according to a recent survey conducted by the National Institute of Drug Abuse (NIDA). However, there is an increase in binge drinking among pregnant women, in spite of 30 years of public knowledge about Fetal Alcohol Syndrome.

According to the U.S. government's Household Survey on Drug Use and Health, 17% of pregnant women smoked cigarettes, 13% of pregnant women drank alcohol, 4.7% were binge drinkers, and less than 3.7% used illicit drugs during pregnancy. The most common illicit drug used was marijuana. Native American women and white women reported higher rates of binge drinking and illicit drug use during pregnancy than black or Hispanic women.

According to that survey, of all the women who reported use of illicit drugs during pregnancy, 97% were also consuming alcohol. When we see lasting effects in babies born to mothers who tested positive for illicit drugs, we must consider the likelihood that she also drank alcohol and that the effects we see in development and behavior are most likely due to the prenatal exposure to alcohol.

Alcohol:

The reason that alcohol does more damage than any of the other drugs is that the alcohol molecule is very tiny and passes directly through the placenta into the baby's blood stream almost instantly. Additionally, the alcohol molecule affects several different neurotransmitters and all cells can take it up, as opposed to the cocaine molecule that affects only one neurotransmitter.

It is known that prenatal exposure to alcohol can cause a wide range of disabilities in the baby - anything from mild learning disabilities to attention deficits, memory deficits, behavior disorders, dental problems, birth defects (heart, joints, ears, eyes, liver, etc.), miscarriage, and death. The FASD Center for Excellence now reports that there is a strong link between prenatal alcohol exposure and Sudden Infant Death Syndrome (SIDS).

Consider how many babies are exposed to alcohol. According to the SAMHSA National Household Survey on Drug Abuse, about 60% of women between the ages of 18 and 35 drank alcohol during the past month. About half of all pregnancies are unplanned. Many pregnancies are not discovered until several weeks after conception, during which the developing baby is at risk. One in every twenty women age 18-25 are heavy drinkers. That means that one child in every classroom has been exposed to heavy drinking, and about five children in every classroom were exposed to light or moderate levels of alcohol.

Of all the substances of abuse, including heroin, cocaine, and marijuana, alcohol produces by far the most serious neurobehavioral effects in the fetus. -Institute of Medicine 1996 Report to Congress

Marijuana:

Evidence has shown that the effects of maternal marijuana smoking on the unborn child are, at most, about the same as those of maternal tobacco smoking, and diminish rapidly as the infant matures, disappearing entirely within a few years. (David F. Duncan, Dr.P.H., C.A.S. Brown University Medical School, 1998).

Tobacco:

According to a fact sheet published by the NIDA, pregnant women who smoke cigarettes run an increased risk of having stillborn or premature infants or infants with low birthweight. Children of women who smoked while pregnant have an increased risk for developing attention deficit disorders (ADHD) and conduct disorders.

Methamphetamine:

As for methamphetamine (Crystal, Crank, Ice), animal studies indicate that prenatal exposure alone does not seem to have any effects. But there may be a risk to males who were exposed prenatally to meth and later use it as adults. The effect is a greater decrease in dopamine in the part of the brain that is associated with Parkinson's Disease than males who were not prenatally exposed. Females who were prenatally exposed had the same effects as females not exposed. (National Institute on Drug Abuse, NIDA Notes, May 2002, Vol. 17, No.2) Because of the lack of research on humans, the National Institute of Health has provided funding for research in this area. (NIDA RFA-DA-01-005) As soon as the results are published, I will add them to this report.

Ecstasy:

As for information on ecstasy (MDMA) use during pregnancy, one study indicates no significant behavioral effects or birth defects, but does show increased sense of smell. *Neurotoxicol Teratol* (1991) 13 (1) p13-20
<http://users.aber.ac.uk/stb5/mdmaneurotoxicity.htm> Another study on ecstasy showed low birth weight, but with recovery during growth after birth. There were no effects on exposure in early pregnancy, but exposure during the last half of pregnancy showed potential for mild learning disabilities. *J Neurosci* 2001 May 1; 21(9):3228-3235

Cocaine:

Many of the research studies on the effects of cocaine during pregnancy have been contradictory. This is a review of all research on prenatal cocaine exposure: <http://come-over.to/FAS/CrackFalseStudy.htm> . While early research showed an infrequent increase of genitourinary tract malformations, later research has not been able to replicate this.

Foster parents report that babies who were reportedly exposed only to alcohol were very hypertonic - increased muscle tone - that caused them to stiffen when held, with arched back or extended limbs, not able to sleep for very long. Babies who were reported to be exposed only to cocaine were more hypotonic - decreased muscle tone - more relaxed and lethargic, sleepy rather than wakeful, not colicky like the babies with FAS. Babies who were known to be exposed to both alcohol and cocaine seemed to fair better than the babies exposed only to alcohol. This is not scientific data, only information from personal observations of parents. Again, it is difficult to determine exactly what and how much babies were exposed to due to the nature of addiction and the hesitancy to be honest in reporting use of alcohol and other drugs. Testing at birth can prove recent exposure to cocaine, but alcohol is out of the baby's system in a matter of hours and will not show up on a test. Unless the new meconium test is effective and widely used, we will not know for sure. That's why animal studies are so important. And the animal studies show that alcohol is by far the number one culprit of brain damage during before birth. (National Institute on Alcohol Abuse and Alcoholism No. 24 PH 350 April 1994).

Additional Sources:

U.S. Department of Health and Human Services, Day et al., 1994

“Risk and Reality: The Implications of Prenatal Exposure to Alcohol and Other Drugs” (1994) by Joanne P. Brady, Marc Posner, Cynthia Lang and Michael J. Rosati.

For more research on prenatal alcohol and drug exposure, see <http://www.come-over.to/FAS/Research.htm>