

Effects of Children Exposed to Alcohol, Tobacco and Drugs (ATOD) Before Birth

Substance abuse during pregnancy has become a major health issue and the use of alcohol, tobacco and drugs during pregnancy is not insignificant. Substance use during pregnancy can lead to numerous negative effects. The consequences of prenatal substance use include three kinds of effects; immediate teratogenic (drug) effects that emerge during the first year before environmental effects become salient, latent teratogenic effects not visible in infancy that reflects brain function that becomes relevant later in development, and postnatal environmental effects (1).

The impact of prenatal substance use on the development and behavior of the exposed child has been documented:

Substance	Effects on Pregnancy	Effects on Newborn
Alcohol	There is no safe level of alcohol use during pregnancy	Fetal Alcohol Syndrome (FAS) <ul style="list-style-type: none"> ● Growth restriction, facial anomalies, central nervous system dysfunction, neonatal abstinence syndrome characterized by jitteriness, irritability, and poor feeding (2). ● Growth retardation (3). ● Increased risk of attention deficit hyperactivity disorder (4) ● Stillbirth and infant mortality (5) ● Decreased learning and memory skills (6).
Tobacco	Tobacco smoke reduces the delivery of oxygen to the fetus through the presence of carbon monoxide, cyanide, and aromatic hydrocarbons. Nicotine and other substances in tobacco also cause a reduction in placental blood flow creating further reductions in oxygen delivery as well as reductions in nutrients to the unborn baby.	<ul style="list-style-type: none"> ● Low birth weight (7-8). ● Genetic defects (9-10). ● Premature births (11-12) ● Behavioral problems including Attention Deficit Disorder (13). ● Asthma and respiratory disorders (14). ● Doubles risk of Sudden Infant Death Syndrome (SIDS) (16-17). ● Numerous health problems when infants exposed to secondhand smoke: frequent ear infections, pneumonia, asthma, mental retardation, slower growth, hyperactivity, learning disabilities (18).
Marijuana	There is no evidence that marijuana is safe for the childbearing woman.	<ul style="list-style-type: none"> ● Increases the risk of low birth weight (19). ● Increase in behavior problems (20). ● Other circumscribed deficits in cognitive functioning of the child (21). ● Altered response to visual stimuli and

		increased tremulousness (22).
Cocaine	Cocaine use during pregnancy can cause multiple complex problems in utero and after birth. Separating cocaine use from other significant factors such as poverty, malnutrition, abuse, neglect and other drug use which can affect research outcomes is difficult (23)	<ul style="list-style-type: none"> ● Placental abruption, preterm birth and low birth weight (24) ● Microcephaly (25). ● Subtle cognitive and motor changes (26).
Heroin/Opiates	Abrupt withdrawal from opiates during pregnancy is not recommended as maternal withdrawal symptoms threaten the fetus.	<ul style="list-style-type: none"> ● Stillbirth, fetal growth restrictions, preterm birth, neonatal mortality (26). 7 ● Newborn at risk for neonatal abstinence syndrome, a severe, potentially fatal narcotic withdrawal syndrome, high-pitched cry, poor feeding, hypertonicity, tremors, irritability, sneezing, sweating, fever, vomiting, diarrhea, and occasionally seizures (27). 8 ● Herpes Simplex – Can be passed in utero. ● Hepatitis – can be transferred to infant from mother affected during birth, and occasionally in utero (30) ● Human Immunodeficiency virus (HIV) – can be passed from mother to child in utero, during childbirth, or as the result of breastfeeding (31).
Methamphetamine	Methamphetamine use during pregnancy affects development of a baby's brain, spinal cord, heart, and kidneys. Prenatal exposure to methamphetamine is currently being evaluated in neonates and infants through an ongoing study with Dr. Barry Lester at Brown University.	<ul style="list-style-type: none"> ● Prenatal complications, such as placental abruption and premature delivery; baby's blood pressure to rise rapidly, leading them to suffer strokes or brain hemorrhages before birth; learning disabilities, growth and developmental delays; gastroschisis and other problems with the development of their intestines (Gastroschisis is a condition in which a baby is born with a hole in the abdomen, causing the intestines to be outside the body); suffer developmental and skeletal abnormalities, some babies born without parts of their arms or legs; sleep disturbances and altered behavioral patterns (32). ● Increase in growth restriction and withdrawal symptoms (33). ● Preterm delivery, low birth weight, agitation with neonatal withdrawal (34).

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