



Latest Evidence on Alcohol and Pregnancy

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Alcohol is the most commonly used recreational substance. In 2012, almost 90 percent of people in the United States over 18 years of age reported that they had consumed at least some alcohol in their lifetime, and 56 percent reported drinking within the last month (Substance Abuse and Mental Health Services Administration [SAMHSA], Center for Behavioral Health Statistics and Quality, 2012). If you're over 21 years of age, drinking alcohol is legal, socially acceptable and in most cases safe.

But according to a 2014 report from the Centers for Disease Control and Prevention

(CDC), at least 38 million men and women in the United States drink too much, meaning that their alcohol use carries serious health risks. The CDC defines drinking too much as high weekly alcohol intake (≥ 15 drinks/week for men, ≥ 8 drinks/week for women), and binge episodes (≥ 4 drinks in a single episode). Drinking too much also includes any alcohol use by a pregnant woman (CDC, 2014).

In 2005, the U.S. Surgeon General's office issued an *Advisory on Alcohol Use in Pregnancy*, which stated that, "No amount of alcohol

Abstract Alcohol increases risk for miscarriage, birth defects and other problems, and it is the sole cause of the range of physical, developmental and cognitive problems known as fetal alcohol spectrum disorders (FASD), which can affect up to 5 percent of all pregnancies. Many women report drinking early in pregnancy, often before they know they're pregnant. When knowledgeable of the latest research evidence, nurses can counsel women of the risks alcohol use poses to a healthy pregnancy. DOI: 10.1111/j.1751-486X.12219

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consumption can be considered safe during pregnancy” (Carmona, 2005). In 2014, an international charter issued by representatives from 35 countries and published in the journal *The Lancet Global Health* called for “broad-based policy initiatives and actions at different levels of every society ... to encourage abstinence from alcohol during pregnancy” (Jonsson, Salmon, & Warren, 2014, p. e137). However, many people, even some health care professionals, aren’t fully aware of the research confirming the dangers of maternal alcohol use and might continue to erroneously advise women that light to moderate drinking during pregnancy is OK.

Women and Ethanol

The form of alcohol contained in beer, wine and other alcoholic beverages is ethanol. Ethanol is a small molecule and is soluble in both water and lipids. Once consumed, ethanol is absorbed readily from the digestive tract, and then becomes diluted within the body’s extracellular water content. It freely passes through cell membranes into the cytoplasm. In high-enough concentrations, ethanol can impair cell function to the point of causing cell death.

Alcohol is ingrained in our culture. Many people find the effects of alcohol to be pleasant, and drinking is common in many social gatherings. Use of alcohol may also serve as a coping response to common life stressors, such as marriage, family and work. But women and men respond differently physiologically to drinking alcohol. On average, women are smaller than men, and pound for pound their bodies contain less water. Thus, consuming the same amount of an alcohol beverage—a glass of wine, a bottle of beer or a standard mixed drink—will raise the blood alcohol content in a woman significantly more than in a man. After a bout of drinking, a woman’s brain and other organs remain exposed to ethanol, along with its toxic metabolite acetaldehyde, at higher levels until these substances are broken down and eliminated from the body (Office of Research on Women’s Health [ORWH], National Institutes of Health, 2008). As a result, drinking alcoholic beverages can be more risky for women than for men. In particular, high use can have serious health consequences. Among those who drink heavily, women tend to experience more heart, liver and

brain damage from alcohol compared to men. Alcohol use is also associated with an increased risk of breast cancer (ORWH, National Institutes of Health, 2008).

Alcohol Use in Pregnancy

Pregnancy represents a special case in alcohol use. In the early 1970s, Christy Ulleland, a pediatric resident in Seattle, noted that many babies born to women with alcoholism had failure to thrive. Two colleagues, David Smith and Kenneth Jones, conducted a closer examination of these infants and identified a specific pattern of facial malformations, growth deficiencies, structural brain defects and low IQ that they labeled fetal alcohol syndrome (FAS). Soon, other studies in Germany and Sweden reinforced these findings (Eustace, Kang, & Coombs, 2003; Fetal Alcohol Spectrum Disorders (FASD) Center for Excellence, Substance Abuse and Mental Health Services Administration, n.d.; ORWH, National Institutes of Health, 2008).

Further research has demonstrated that alcohol is a teratogen, a substance that can cause abnormal development in a growing fetus (Eustace et al., 2003; Gass, 2014; Nykjaer et al., 2014). In a pregnant woman, alcohol readily crosses the placenta to enter the fetal bloodstream. The immature fetal liver lacks the

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enzymes to process alcohol, and the fetus must rely on the mother for alcohol metabolism (FASD Center for Excellence, Substance Abuse and Mental Health Services Administration, 2007; WebMD, 2013).

Recognition of the effects that even low levels of prenatal alcohol exposure can have on the physical and cognitive development of a child led to the coining of the umbrella term FASD. Within the full range of this spectrum, a newborn may have birth defects most commonly involving the heart or kidneys, and/or neural anomalies involving the eyes, ears and parts of the brain. A child affected by FASD may exhibit poor overall growth, abnormal limb

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