

Fetal Alcohol Syndrome

WHAT IS FETAL ALCOHOL SYNDROME (FAS)?

Fetal Alcohol Syndrome (FAS) describes the changes in a child born to a mother who consumed a significant amount of alcohol during pregnancy. The definition of “significant” is not known and therefore it is recommended that women who are pregnant should not drink any alcohol. Children with FAS have changes to their facial features as well as problems with growth, development and learning. The term Fetal Alcohol Spectrum Disorders or FASD is a broader term that describes any facial or developmental changes related to prenatal alcohol exposure- not all the features of FAS are present.

The changes that occur in children with FAS and FASD depend on the amount, frequency and the timing of the consumption of alcohol by the mother during pregnancy. In the first three weeks to three months of pregnancy vital organs like the heart and the kidney are developing. Drinking alcoholic beverages in that time period can be especially harmful.

In 2015, the American Academy of Pediatrics (AAP) stated that consuming alcohol at any time during pregnancy causes increased risk of physical and neurocognitive developmental disorders in a child, and that no amount of alcohol is safe to consume during pregnancy.

WHAT CAUSES THE CHANGES IN THE FETUS?

The alcohol in the blood of the mother moves to the blood of the fetus. Because the ability of the fetus to get rid of alcohol is much less than the mother, alcohol concentration in the blood of the fetus becomes much higher than that of the mother. Alcohol interferes with the ability of the fetus to use oxygen and develop normally, and permanent brain damage can occur.

WHAT ARE THE EYE FINDINGS IN FAS AND FASD?

FAS/FASD most commonly affects the Eyelids:

- Short palpebral fissures (smaller eyelid openings)
- Prominent Epicanthal folds (larger than normal fold of skin near the inner corner of the eye)
- Telecanthus (large distance between inner corners of the eyes)
- [Ptosis](#) (droopy eyelids)

OTHER PARTS OF THE EYE CAN ALSO BE AFFECTED:



Anterior Segment (front part of the eye):

- Cornea and Anterior Chamber abnormalities
- Lens: cataract formation

Posterior Segment (inside back of the eye):

- Optic Nerve: alcohol exposure affects the development of the optic nerves and can stunt the growth of the optic nerve- this is called [optic nerve hypoplasia](#). A small or hypoplastic optic nerve can cause decreased vision which cannot be corrected.
- Retinal Vessel Tortuosity: this has unknown visual significance

OTHER EYE MOVEMENT AND VISION DISORDERS:

- [Amblyopia](#): decreased vision in one or both eyes.
- [Strabismus](#): misalignment of the eyes
- [Refractive disorders](#): need for glasses
- [Nystagmus](#) - or shaking of the eyes- this can also cause decreased vision

WHAT OTHER PHYSICAL CHANGES AND DEVELOPMENTAL DISORDERS OCCUR IN FAS?

The upper lip may be thin and the area between the nose and upper lip- called the philtrum may be wide and flat- without the normal vertical curves. [See figures below].

Abnormalities of the heart and skeletal system have also been reported. Growth and developmental delays, behavioral problems, learning disabilities and neurocognitive disorders affecting IQ (measure of intelligence) can occur in FAS and FASD. The effects of FAS extend beyond childhood and continue to affect people in adulthood. The changes caused by prenatal alcohol exposure can cause lifelong disabilities.

Fig. 1: Example of physical changes that can occur in FAS. Note the thin, flat upper lip and the shortened eyelids.



HOW COMMON IS FAS?

The estimated incidence of FAS (the full syndrome of fetal alcohol exposure) is 6 cases per 1,000 births. The estimated incident of FASD (one or more symptoms of Fetal Alcohol exposure) is 24-48 cases per 1,000 births. That means up to 5% of all babies born in the US are affected by FASD. Some experts believe this to be an underestimate, and that there are even more children with undiagnosed FAS and FASD. (AAP 2015)

FAS is the leading preventable cause of birth defects and intellectual and neurodevelopmental disabilities. (AAP 2015)

HOW ARE THE EYE PROBLEMS IN FAS TREATED?

Strabismus, amblyopia, and the need for glasses (refractive error) can be treated. Some eye conditions, such as strabismus, may require surgery. Impairment of vision caused by optic nerve hypoplasia cannot be treated. However, the pediatric ophthalmologist can help the family and school personnel optimize the child's learning experience.

HOW ARE THE DEVELOPMENTAL AND LEARNING DISORDERS TREATED?

Children with FAS/FASD may need special accommodations in school and at home. Providing this support to the child will help them develop and achieve as best they can. Your school system likely has resources to help facilitate learning and social interactions at school. There are also support groups available for children and parents of children with FAS/FASD. One example is [Families Moving Forward](https://familiesmovingforwardprogram.org) at <https://familiesmovingforwardprogram.org>

IS THERE ANYTHING THAT CAN BE DONE TO PREVENT FAS?

Yes. Since there is no known "safe" amount of alcohol that can be consumed during pregnancy, the recommendation is to abstain from drinking any alcohol during



pregnancy. The U.S. Surgeon General has given the following advice about alcohol use during pregnancy:

- A pregnant woman should not drink alcohol.
- A woman who is trying to get pregnant should not drink alcohol because she will not know that she is pregnant for the first few weeks of the pregnancy.
- A pregnant woman who has already used alcohol during her pregnancy should stop right away.
- Because nearly half of all pregnancies in the United States are unplanned, women of childbearing age should talk with their doctor about how to prevent an alcohol-exposed pregnancy.

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