

Alcohol Fact Sheet



A leader in providing behavioral health services

Fetal Alcohol Syndrome

Nearly 30 years ago, scientists first coined the term “fetal alcohol syndrome” (FAS) to describe a pattern of birth defects found in children of mothers who consumed alcohol during pregnancy.

Today, FAS remains the leading known, preventable cause of mental retardation. Behavioral and neurological problems associated with prenatal alcohol exposure may lead to poor academic performance as well as legal and employment difficulties in adolescence and adulthood. Despite

attempts to increase public awareness of the risks involved, increasing numbers of women are drinking during pregnancy.

This Fact Sheet deals with new data on the prevalence and nature of the neurobehavioral problems associated with alcohol use during pregnancy and explores underlying alcohol-induced damage to the developing brain.



Definitions of FAS

Mental handicaps and hyperactivity are probably the most debilitating aspects of FAS.

Problems with learning, attention, memory, and problem-solving are common, along with incoordination, impulsiveness, speech and hearing impairments. Deficits in learning skills persist even into adolescence and adulthood.

The adverse effects of prenatal alcohol exposure exist along a continuum, with the complete FAS syndrome at one end and incomplete features, including cognitive behavioral deficits, on the other.

Infants with suboptimal neurobehavioral responses may later exhibit subtle deficits in such aspects of daily life as judgment, problem solving and memory.

FAS is defined by four criteria:

- Maternal drinking during pregnancy
- A characteristic pattern of facial abnormalities
- Growth retardation
- Brain damage manifested by intellectual difficulties or behavioral problems

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Alcohol-related neurodevelopmental disorder (ARND) is a condition identified when signs of brain damage appear following fetal alcohol exposure in the absence of other indications.

Cognitive and Behavioral Impairments

The broad range of cognitive and behavioral disabilities associated with prenatal alcohol exposure is attributed by researchers to a generalized impairment of mental functioning.

Recent studies on FAS and ARND reveal that some neurobehavioral functions are consistently impaired, while others are not.

Some specific neurobehavioral impairments associated with prenatal alcohol exposure include:

Verbal Learning—Children prenatally exposed to alcohol exhibit a variety of problems with language and memory. Children with FAS ages 5 to 16 learned fewer words compared with a group of children of comparable mental age who did not have FAS.

Both FAS and Non-FAS groups demonstrated an equal ability to recall information learned previously.

These findings indicate that FAS-related learning problems occur during the initial stages of memory formation (i.e., encoding). **Clinically, this pattern helps distinguish FAS from Down's Syndrome, in which learning and recall are equally impaired.**

Visual-Spatial Learning—Children of mothers who drank heavily during pregnancy perform poorly on tasks that involve learning spatial relationships among objects.

In one experiment, groups of children with and without FAS were equal in their ability to recall com-

mon, small household and school-room objects.



mon, small household and school-room objects. However, children with FAS had greater difficulty subsequently restoring the objects to their original positions on the table.

Attention—Attention problems have been considered a hallmark of prenatal alcohol exposure. **FAS is often incorrectly diagnosed as attention deficit hyperactivity disorder (ADHD) and treated inappropriately.**

Children with ADHD exhibit difficulty focusing and sustaining attention over time. In contrast, children who were exposed to alcohol prenatally were able to focus and maintain attention, but display difficulty in shifting attention from one task to another.

Reaction Time—Individual differences in intelligence are based in part on how quickly the brain processes information. Prenatal alcohol exposure has been associated with slower, less efficient information processing in school-age children and even children as young as 6 1/2 months.

Executive Functions—Important deficits in FAS involve executive functions. These are activities that require abstract thinking, such as planning and organizing.

Maternal drinking during pregnancy is related to longer reaction times among the children.

Children with FAS respond poorly when asked to switch from naming animals to naming types of furniture, and then back to naming animals.

They also have difficulty abandoning demonstrably ineffective strategies when approaching problem-solving tasks, a type of behavioral inflexibility referred to as perseveration.



Brain Functions—The behavioral and cognitive impairments associated with FAS reflect underlying structural or functional changes in the brain.

A common finding is reduced size of the cerebellum, a structure involved in balance, gait, coordination, and cognition.

In summary, the outlook for persons diagnosed with FAS should not be considered hopeless.

Techniques for viewing the living brain, such as magnetic resonance imaging, reveal reduced overall brain size in persons with FAS and reductions in the size of specific brain structures.

Causal Mechanisms

Alcohol metabolism is associated with increased susceptibility to cell damage caused by potentially harmful substances called free radicals. Free radical damage can kill sensitive populations of brain cells at critical times of development in the first trimester of pregnancy.

New research suggests that the third trimester may also represent a particularly sensitive period for brain cell damage associated with FAS.



Alcohol or its metabolic breakdown products can also interfere with brain development by altering the production or function of natural regulatory substances that help promote the orderly growth and differentiation of neurons.

Research using cell cultures has shown that many of alcohol's adverse effects on brain cells can be prevented by treatments aimed at restoring the balance of regulatory substances upset by alcohol.

Maternal Drinking

Clinically significant deficits are possible in children whose mothers drink less than five drinks per week.

Vulnerability to a given alcohol level during pregnancy varies markedly from person to person, possibly reflecting genetic factors, nutritional status, environmental factors, co-occurring diseases, and age.

The minimum quantity of alcohol required to produce adverse fetal consequences is unknown.

We know that the potential for FAS and ARND can be completely eliminated if pregnant women did not consume alcohol.

Prevention Efforts—Brief questionnaires for assessing alcohol problems in women show promise

as a screening instruments for identifying risk drinking by pregnant women.

Pregnant women who are consuming alcohol but are not “problem” drinkers often decrease their drinking level following these types of assessments without subsequent treatment.

An overall decline in alcohol consumption has also been noted among pregnant women following a brief intervention, which can be conducted by a primary care provider.

This may include a discussion of the risks of maternal drinking and suggested alternatives to alcohol use. Pregnant women with higher drinking levels may benefit from a 1-hour motivational interview focusing on the health of the unborn

child. Women who are alcohol dependent require intensive alcoholism treatment.



Research Efforts—Progress is being made most notably in research aimed at understanding the basic mechanisms involved in the neurobiological damage and in developing potential new therapies to prevent that damage.

We are also increasing our understanding of the long-term cognitive and physical challenges of children who are exposed to alcohol in the womb. As a result, clinicians and behavioral scientists are finding ways to identify these children early and ways to help.

Major new prevention research efforts are now focused on finding and treating women who drink during pregnancy. Women who are alcohol dependent require intensive alcoholism treatment immediately.

The Path to Healing

Reaping the benefits of treatment begins by recognizing the signs of alcohol addiction.

This step is best facilitated by having a comprehensive evaluation done by an addictions healthcare professional. Although alcohol addiction can be diagnosed by primary care physicians, most often the physician will refer the patient to a psychiatrist, psychologist or clinical counselor specializing in addictions.

Treatment is a partnership between the patient and the healthcare provider. It is important that informed consumers understand their treatment options and fully discuss all their concerns with a treatment provider as they arise.



A key element of Rimrock's treatment programs is the active involvement of patients in the management of their own illness.

Patient empowerment is developed through the use of educational sessions, skills training and a strong emphasis on encouraging the individual patient to accept responsibility in managing their own condition. Along with the empowerment of our patients, we offer a treatment regimen which includes comprehensive clinical assessments, individualized treatment plans and services for the whole family.

Another important part of Rimrock's program is the emphasis we place on the integration of a broad spectrum of community, health, and human services

for the benefit of the patient. This includes addressing a patient's physical, psychological, social and economic needs, which improves the likelihood of a successful treatment experience.

Healthcare services should be readily available to those persons needing treatment for addictions, since taking advantage of opportunities when they are ready for treatment is often crucial. Many times, patients can easily be lost in red tape if treatment is not immediately available or is not readily accessible.

Counseling, both individual and/or group and other behavioral therapies, are critical components of effective treatment for addictions.

In therapy, patients address issues of motivation, build skills to resist drug use, replace addictions with constructive and rewarding non-drug-using activities, and improve problem-solving abilities. Behavioral therapy also facilitates interpersonal relationships and the individual's ability to function in the family and community.

Successful recovery principles in addiction treatment are characterized by the integration of personal, family, professional and other community resources toward the goal of enhancing the duration and quality of life of those we serve.

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We're on the Web!
www.rimrock.org

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