

Balanced Brain for Better Behaviors

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This paper explains the neurology behind the behaviors that are often observed in children with Fetal Alcohol Spectrum Disorder (FASD). FASDs are primarily brain damage caused by prenatal exposure to alcohol. The most common symptoms of FASD behaviors are:

- Memory deficits (forgetting rules or consequences)
- Impulsivity (acting without thinking)
- Immaturity (stunted social/emotional/conscience development)
- Poor judgment (making decisions without regard to risk)

Prenatal alcohol exposure interrupts brain development and impacts many brain systems, including the regulation and production of various neurotransmitters, including:

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| Dopamine (happy, excitement) | may be too low |
| Serotonin (happy, calm, contentment) | may be too low |
| Oxytocin (warm, trusting, loving) | may be too low |
| Testosterone (aggression, libido) | may be too high |
| Cortisol (stress, fight or flight) | may be too high |

Children with FASDs have behaviors that indicate they may not produce enough dopamine, serotonin and oxytocin, and they may produce too much testosterone and cortisol. These levels may fluctuate over the course of the day.

The child who demands constant attention, who pushes other people's buttons to get a reaction, who manipulates others, or who incites drama, may have too little dopamine. The child who seems sullen and depressed may have too little serotonin. The child who is hateful and mistrustful may have too little oxytocin. The child who is angry all the time, who intentionally breaks the rules, or who engages in self abuse, may have several neurotransmitters out of balance. There are ways we can help the brain produce a healthy balance of the neurochemicals so the brain can function better, giving the child more control over behavior.

We can help the overall performance and function of the brain by making sure the child gets adequate rest at night and lots of fluids throughout the day, and by eliminating artificial additives from the diet (no Red 40 and other colors with numbers, no MSG, no Nutrisweet/aspartame).

Dopamine can be increased with

- Lots of personal attention (5 minutes per hour)
- Reward systems that change every month
- Competition, games that can be won, prizes
- Thrilling activities (roller coasters, races)
- Vacation, party, day trips (zoo, park)

Adderall

- Vigorous daily exercise
- Humor and silly play
- Music and rhythm
- Video games
- Anticipation

Serotonin can be increased with

- Chocolate (dark or light, but no colors)
- Turkey, chicken, nuts, cheese, eggs, bananas

SSRIs (Paxil, Celexa, Prozac, etc.)

- Green tea, fish oil
- Mild exercise, a walk outside

Oxytocin can be increased with

- Hugs, massage, cuddling
- Pleasant sensory experiences

Cuddly pets with soft coats

- Playing with happy babies
- Generosity, gift giving

Testosterone levels and libido decrease with some medications, like SSRIs.

Cortisol can be decreased with relaxation exercises, calm music, taking a walk outside.