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FETAL ALCOHOL SPECTRUM DISORDERS  
(FASD)

BACKGROUND

**HISTORY, TERMINOLOGY, & DIAGNOSTIC CRITERIA:** The original name used was Fetal Alcohol Syndrome (FAS) and it was first described in 1973. For children who were exposed to alcohol in the womb but did not demonstrate all diagnostic criteria, the term, Fetal Alcohol Effects (FAE) was coined. Eventually, FAS and FAE were combined into the term, Alcohol Related Neurodevelopmental Disorder (ARND). Partial FAS (pFAS) was developed as a diagnostic term if all criteria for FAS were not met. The Federal government developed the term, Fetal Alcohol Spectrum Disorder (FASD), as an umbrella descriptive phrase to include all variants of fetal alcohol based deficits. This term recognizes that the range of prenatal alcohol based deficits lie along a spectrum of both type and degree. However, FASD is not considered a diagnostic term, and therefore should not be used as such. The diagnostic terms are FAS, pFAS, and ARND.

In 1996, the Institute of Medicine (IOM) developed specific diagnostic criteria:

- Physical growth deficiency.
- Two of the three primary facial abnormalities must be present: smooth philtrum, thin vermilion border, small palpebral fissures.
- Evidence of Central Nervous System (CNS) malfunction.
- A known history of intrauterine alcohol exposure.

In 2004, the Centers for Disease Control (CDC) further refined the criteria:

- Documentation of all three facial abnormalities.
- Documentation of height, weight, or both being at or below 10%.
- Documentation of head circumference below 10%.
- Documentation of cognitive functioning being at or below 3% = 70.

In 2005, the Canadian Medical Association developed yet another variant of the diagnostic criteria for FAS. The result of the strict application of these varying systems is that as many as 90% of children who lie along the FASD spectrum are missed. There is no typical profile for FASD. Most MRI's are normal and hence not useful diagnostically. Specialized depth MRI's are needed to reveal some of the neurological damage. The most common misdiagnosis is AD/HD. Neither FAS nor ARND are considered psychiatric disorders. Therefore they do not appear in the DSM-4 nor will they appear in the DSM-5 to be released in 2013. However, FASD diagnostic terms have been listed in the International Classification of Diseases (currently ICD-9) for some 25 years now.

**PHYSIOLOGY:** Children with FASD often grow very slowly and are can be short in stature and petite in build, frequently falling below the tenth percentile in height, weight, and head circumference. This results from several factors: 1) restricted arterial blood flow (dopamine), 2) disrupted growth hormones, and 3) impairment in the small intestines such that they don't absorb nutrients well and are vulnerable to Small Intestine Bacterial Ovegrowth (SIBO). This looks like Failure to Thrive (FTT) and it is as far as that term goes, but if clinical thinking stops there, the

underlying FASD is overlooked. The petite build however, usually disappears with weight gain in adolescence; and a subset, primarily girls, become significantly overweight. Height, however, often does not catch up to norms. FASD adults are often below the twenty-fifth percentile in height. The three major craniofacial deformities resulting from IUE to alcohol are: 1) thin upper lip, 2) flattened philtrum, 3) shortened palpebral fissures which makes the eyes look farther apart (diagnostic schemas). Additional facial dysmorphology can include: 1) a shortened nose relative to the length of the midface and 2) forehead sloping and flattening. However, only about 32% of children with FASD exhibit the craniofacial symptoms while 68% do not (Streissguth and Kanter 1997). This is the primary reason the majority of FASD children are missed diagnostically, for the widespread myth that all FASD children exhibit the facial dysmorphology remains in vogue. IUE to alcohol also tends to induce hypotonic muscle tone which interferes with infants' being able to bring their hands to the midline as part of self soothing. This is one of the ways IUE damages self-regulation, and in this case, from the earliest days.

**NEUROLOGY:** Research has continued to demonstrate that ever lower and singular doses of alcohol are sufficient to produce neurological damage. Hence, the significant brain damage can occur at alcohol levels below that required to create physical defects. Alcohol during the first trimester can both thin the corpus callosum and shift its position forward and down. This produces emotional dysregulation that looks like, and often gets diagnosed as, bipolar disorder, but it is not. Thus, mood stabilizers have little or no effect. The third trimester of pregnancy encompasses the fastest rate of brain growth in the human life span. It is this rate of growth that creates the folds in the cerebral cortex. The more folds there are, the higher the individual's I.Q. Alcohol exposure during the third trimester prevents the formation of these folds (mesencephaly = smooth brain) and this lowers I.Q. The hippocampus is significant part of memory system. It is also an essential link in translating visual input into a response. In damaging the hippocampus, alcohol exposure can interfere with memory processing as well as responding to visual input. Executive functioning is the area most commonly impacted by IUE to any substance. (A simple Executive Functioning exercise- find the number between 1-1000 using only yes/no questions).

**DOPAMINE:** Alcohol impacts the dopamine receptor system. Dopamine acts on all smooth muscle and the uterus is smooth muscle. Dopamine produces uterine contractions and this is a major factor in alcohol producing premature births. Dopamine causes arteries to constrict, and this restricts blood flow to the fetus. This arterial constriction contributes to growth retardation and physical dysmorphology when there is IUE to alcohol. Infants exposed to alcohol can be born with depleted dopamine receptors. When dopamine receptors are depleted, the ability to habituate to stimulation is compromised. This is an important factor in FASD children's vulnerability to overstimulation. However, dopamine levels themselves are often normal with FASD vs. genetically low dopamine with AD/HD. If stimulants are prescribed, given normal dopamine levels, excessive dopamine can result. This will produce behavioral deterioration instead of improvement.

**COMMON INFANT & PRESCHOOL SYMPTOMS:** Infancy- arching of back, poor sleep / wake cycle, adapting to stimuli, muscles rigid or limp, head banging, rocking, prolonged agitation, difficult to soothe. Preschool / toddlerhood: hyperactivity, poor eye-hand coordination, poor balance / gait, fine and gross motor problems, slow language development.

**DEVELOPMENTAL TIMELINE:** Children with FASD manifest an array of strengths and delays which can differ significantly between individuals. The strengths can obscure the delays, leading others to develop unrealistic expectations of an FASD individual. Below are listed the average developmental ages, in different skill areas, of an eighteen year old with FASD.

- Receptive language- 6.
- Emotional regulation- 6.
- Social skills- 7.
- Time and money management- 8.
- Personal care skills- 11.
- Reading skills- 16.
- Physical maturity- 18.
- Expressive language- 20.

**ADULTHOOD:** If adults with FASD often reach financial independence, they often do not do so until around thirty. Maintaining employment is typically a challenge and ongoing coaching / mentoring is an essential resource. Money management skills are generally insufficient to the task as FASD adults tend to be overly generous. As parents, they can be quite affectionate, but lack the judgment to provide the necessary structure for their children. Too often, women with FASD give birth to children with FASD. As with employment, ongoing mentoring is critical.

**PREVALENCE STATISTICS:** 9.1 per 1000 live births are diagnosed with some form of ARND. Of this 9.1, only about 1.5 have the full Fetal Alcohol Syndrome. The rest appear physically normal, but carry concealed neurological damage. However, this 9.1 figure represents only a fraction of those children affected by FASD (Chudley et. al. 2005).

20-25% of infants in the United States are exposed to alcohol in utero. 25-30% of these children have been exposed to sufficient alcohol in utero to alter brain functioning in some way. This translates to 75 per 1,000 live births vs. 9.1). 75% of children in the Child Welfare System have had intrauterine exposure sufficient to alter brain functioning (Dr. Ira Chasnoff- University of Chicago. 2011).

The individual profile of the woman most likely to use alcohol in pregnancy is: white, middle class, private health insurance, living in a wine producing region.

### **STATISTICS**

- 44% of children with FASD are in the mentally retarded range (mean IQ = 66). FASD is the leading cause of mental retardation in the United States, outpacing the second cause, Down's Syndrome, 2:1.
- 30% of FASD children live with one or both birth parents and another 10% live with some other family member. 30% are in the foster care system. 25% are in adoptive homes. 5% are in some form of institutional care. Those raised in foster and adoptive homes have fewer social problems compared to those who remain within the biological family system.
- 90% have mental health problems of varying kinds.
- 70 % have experienced physical or sexual abuse or both (increases the likelihood of inappropriate sexual behavior by a factor of 4).
- 60 % have been suspended, expelled, or dropped out of school.
- 45% have had difficulties with inappropriate sexual behavior.
- 50% have had some form of legal involvement.

- 50% above age 12 have either experienced inpatient psychiatric or substance abuse treatment or legal incarceration.
- 30% above age 12 develop alcohol or drug problems.
- 20% above age 21 achieve full self-sufficiency as adults.
- 40% of mothers with FASD drink during at least one of their pregnancies.

**SCHOOL:** In the preschool and primary elementary grades, academic concerns predominate. Achievement is marked by lapses in learning; and material once learned, can disappear only to reappear unpredictably at a later time. While attributing poor performance to lack of effort has some surface appeal, it fundamentally misses the point. By later elementary grades or middle school, behavioral concerns usually trump academic problems and partly as a result of increasing academic frustration. It is not uncommon for children with FASD to reach an academic ceiling of achievement somewhere between seventh and ninth grades.

**Special Education Statistics K-12**

States with no idea of the extent of FASD in the state:	24
States with no mechanism for identifying FASD:	31
States that recognize FASD as an educational disability:	0
States which list FASD on IEP's:	0
States with any kind of specific programming for FASD:	3
States that provide no inservice training in FASD:	35

**Relationships with teachers have more impact on drug and alcohol use than DARE or any other program**

**PEER RELATIONSHIPS:** FASD children are generally able to initially make friends easily. Their difficulty lies in keeping them due to making repeated social mistakes, not realizing it, and therefore not seeking to make amends.

**INTERNATIONAL:** Germany has the highest national average per capita intake of alcohol of any country for which statistics are known. In excess of 1% of infants are born to alcoholic mothers. These infants do not find their way into the U.S. because Germany is an insignificant source of international adoptions. Russia, on the other hand, has been a leading source of international adoptee, and Russia has the highest rate of alcoholism of countries for which the statistic exists. Alcoholism is the most frequent reason for removal of children from their mothers in Russia, and hence Russian adoptees are at greater risk of having FASD.

**COMPONENTS OF FASD**

**STIMULUS FILTERS:** FASD impairs the capacity to filter out incoming stimulation. This, combined with a reduced capacity to process stimulation, leaves FASD children very vulnerable to states of stimulus overload. Turning away of the face or the entire body or backing up / moving away are all common signals of approaching overstimulation. In school, FASD children may yell out in class, not to be disruptive, but in an attempt to regulate environmental noise. They should be understood as such and not misinterpreted as defiance or oppositionalism. Stimulus overload reliably spawns emotional escalation and behavioral deterioration and reinforces the fragmentation of the child's nervous system. In children 0-3 it is sensory processing deficits that are the most reliable indicator.

Because this looks just like Sensory Integration Disorder, it is diagnosed as such, and the FASD is missed. Infants tend towards gaze avoidance as the human face can be too overwhelming (attachment implications). The signs of infant overload are yawning, sneezing, hiccupping, face blanching, and then crying.

**BEHAVIORAL OUTBURSTS:** Along with their multiple vulnerabilities to overload, children with FASD commonly have very low resiliency in the face of stress, creating a state of double jeopardy. They are more easily stressed, and when stressed, are less resilient in its face. Thus, behavioral outbursts can be frequent. The most common triggers to such outbursts are: too much environmental stimulation, too little environmental structure, insufficient attention from others, too much verbal input from adults, unrealistic environmental demands, too many choices, and internal confusion in the face of novelty. The behavioral outbursts of children with FASD are both controlling and self-protective. Outbursts are, in a way, a very basic form of emotional regulation. Their message to the world is fundamentally, “back off” so that the child avoids becoming overwhelmed. Unlike Attachment Disorder, it is not necessarily emotional closeness that is feared, but nervous system overload. The goal here is to maintain some degree of internal organization. Also Unlike attachment disordered children, children with FASD frequently feel and express remorse after they have settled from an outburst. Such outbursts are best viewed as indicators of the limits of the child’s functioning at that point in time, limits that the adults need to learn to work within. While is certainly true that FASD children can be oppositional, the majority of their behavior problems are matters of compromised ability rather than outright defiance. Unfortunately, the distinction between compromised neurology vs. noncompliant behavior is rarely made.

**ATTENTION:** FASD typically compromises both the maintaining and shifting of attention. The resulting distractibility leads to FASD generally being misdiagnosed as “simply” AD/HD. The distractibility of FASD is primarily visual in nature, meaning that whatever crosses the child’s field of vision momentarily commands the child’s attention. This reflects the FASD bias towards visual input. This tendency can be succinctly communicated to FASD children as, “Your brain follows your eyes”. As a whole, cognitive functioning deteriorates extremely rapidly under stress. Executive dysfunction is the most consistent deficit across the entire FASD spectrum.

**SELF REGULATION:** The self regulatory skills of children with FASD are typically weak. Once aroused, their emotions can intensify rapidly to the point of global disorganization. The weak behavioral regulation of FASD children manifests primarily as hyperactivity and impulsivity, which usually leads to FASD being misdiagnosed as AD/HD. Their impulsivity converges with their preference for visual input to create a tendency towards mimicry in FASD children. Mimicry refers to imitating the behavior of others right after observing it, simply because it seems like a “fun” thing to do (“See, then do.”). The social consequences can be painful. The swamping of their regulatory abilities can easily produce a behavioral outburst. Their weak self-regulation interferes with developing attachments, and this is why, almost by definition, FASD children have some degree of attachment difficulties.

**LANGUAGE PROCESSING:** FASD commonly causes deficits in language processing. Receptive language is often more severely affected than expressive language. This is because the encoding of verbal material into memory is erratic with FASD. On the other hand, the expressive language of FASD children is often quite age appropriate. This can mislead others into overestimating the

child's true overall language processing and cognitive skills. The danger here is twofold: 1) the FASD child's weaker receptive skills get overtaxed by adults offering more verbal input than the child can truly handle, and 2) the adults incorrectly believe the child understood more than is really the case. This can lead to a language-induced overload with consequences similar to that of stimulus overload.

**VISUOSPATIAL PROCESSING:** Children with FASD have weaknesses in their perception of spatial relationships between objects. Thus, they have difficulty organizing space and are prone to misplacing objects or inaccurately remembering their location.

**TEMPORAL PERCEPTION:** Typically there is a lack of a continuous sense of time that runs from the past, through the present, and out into the future. Instead, time is experienced as a series of disconnected moments; and hence, children with FASD mostly live in the present moment. They tend not to think either about the past or the future. This has a number of ripple effects. Learning from experience usually does not occur because there is no reference to the past. Possible future consequences are not invoked to guide behavior in the present. Connections that must be made across time, such as triggers > feelings > behaviors > consequences, go unmade. The connection of their behavior to its impacts on others goes unrecognized (others' frustration with them is often mystifying as a result). Cause and effect reasoning founders as this requires connecting the cause, through intervening time, to the subsequent effect. This undercuts motivation as the FASD child doesn't see how her efforts will yield later results. In addition, self-monitoring skills are generally minimal because this necessitates attending to one's behavior over time. These ripple effects combine to produce a common pattern with FASD children, of repeating the same mistakes over time.

**MOTIVATION:** Children with FASD tend to be motivated to do well and to please adults. When such motivation is not in evidence, there are generally two causes. The first is repeated frustration with their functional weaknesses. The second is tasks whose rewards are too far out in the future to seem real to the FASD child. In the absence of immediate results, FASD children are apt to see no reason for effort. They don't link effort now with any result in the future. References to the child not "performing to their potential" should be avoided at all costs. Contrary to mythology, this does nothing to stimulate motivation; but in fact, has the opposite effect of oppressing motivation. Invoking "potential" can stimulate frustration and anger, undercut self-esteem, and damage attachment.

**MEMORY / INTEGRATION / GENERALIZATION:** It has been said that FASD children wake up into a new world every day. This is a product of the FASD fragmentation of the perception of time, of thinking, of encoding information, of retrieving information that has been encoded, memory as a whole. Sometimes there are problems with storage, meaning that incoming information is encoded in some erratic manner. Sometimes there are problems with retrieval, meaning that the children cannot find information they have internalized or they find it one day only to lose it the next and then rediscover it two days after that. Sometimes there are problems with application, meaning that information that has been stored and then retrieved, is not properly applied in the moment. The fragmented thinking that results with FASD blocks generalization because generalization requires the making of connections between variables (time, person, place, situation, etc.). The net result is that learning tends to get stored as applying only to the immediate situation in which the it occurred

(state dependent learning). What occurs in therapy may not leave the office. Behavioral discussions at home disappear when the child arrives at school. Social skills in the context of interacting with one peer may not be applied to any other peers. This can practically destroy problem solving.

**EGOCENTRISM:** FASD brings with it a very egocentric stance in the world. This is not emotionally-based self-centeredness. The egocentrism of FASD is an aspect of thinking and perception itself, more like the egocentrism of preschool children. Children with FASD often don't even realize there is a "bigger picture alternative" to their egocentrism. Self-centeredness is simply "the way things are". This egocentrism introduces fantasy elements into thinking beyond what is typical for a child of the age. Fantasy is not recognized as fantasy however, so reality testing suffers as a result. Egocentrism also leads to a generalized obliviousness to the impact of their behavior on others, often with negative consequences for relationships. FASD children also lack an understanding of others' motives which sets them up to be fairly easily victimized.

**LITERAL THINKING:** FASD imparts a very literal bias to the thinking process. Abstract and higher level conceptual thinking is usually limited. Symbolic language, such as metaphors, are typically lost on the FASD child. There is absolutely no awareness of the cognitive limits on the child's part. Obviously, this can create a lot of social difficulties that are both mystifying and painful to the FASD child. Weakened higher level thinking skills sabotage FASD children's attempts to proactively organize their environment and to interpret the meaning of overall situations.

**RIGID THINKING / MOMENTUM:** Once they settle on an idea or plan of action, children with FASD wed themselves to it. They are apt to be highly resistant to any alternative information. This characteristic undercuts effective problem-solving and can make novelty, transitions, changes in routine, or surprises, anxiety provoking to the point that a behavioral meltdown ensues. The rigidity of FASD thinking can also make having too many choices problematic. FASD children also have a tendency to operate on the basis of momentum, meaning they keep doing what they are doing. This can look very much like rigidity, but is different. When running on momentum, FASD children can often be distracted out of it. Intentional distraction tends to be ineffective when they are fixated on a rigid position.

**BOUNDARIES:** Children with FASD frequently have a limited concept of interpersonal boundaries. They invade others' personal space with no sense that they have caused an affront. They can be physically intrusive with others' bodies, again with no awareness of their social blunder. They usually have trouble with the concept of personal ownership of things and so they appropriate others' things without asking. They may take things outright, more as an impulsive "crime of opportunity", and not understand it as theft. As FASD children mature into the prepubescent and pubescent years, their lack of boundaries leads them into sexual transgressions that they do not initially see as inappropriate. They are also all too willing to allow others sexual liberties with them.

**LYING:** FASD children do consciously lie for self-serving reasons as do all children (and adults for that matter). However, much of what looks like "lying" really emerges out of their various cognitive weaknesses and the inaccuracies these weaknesses introduce into perception and reporting of events.

**PERSONAL RESPONSIBILITY:** A sense of personal responsibility is minimal to absent in children with FASD. This, like egocentrism, is more a product of their cognitive *workings rather than* a rejection of responsibility that they realize they should have though this does occur at times as well.

Predictably, this manifests as a blaming of external factors. This blaming hides a destructive underlying sense in FASD children that they can't effectively influence events in the world. In conversation, it is helpful to keep the focus on FASD children as they will diligently work to deflect it elsewhere. The simplest method is to "U-turn" the child's externalizing comment (example: "You always punish me because you like my sister better." Response- "How did you come up with that idea?")

## **FASD AND ATTACHMENT DISORDER (AD)**

**ATTACHMENT:** If a baby is born with FASD, some degree of AD is a near certainty because FASD typically impairs one or more of the neurological systems that are necessary for the development of attachment bonds. AD is thus secondary to the primary, and preceding, FASD. The FASD must be addressed first or its effects will continue to undermine efforts to work on the attachment difficulties. Nonetheless, FASD children can typically attach to some degree, depending upon their pattern of neurological vulnerabilities. What they typically cannot do is sustain the attachment over time. Emotional connections get temporarily undone during periods of overload, but can be repaired after the outburst has passed. What parents need to avoid is being a frequent source of overload, for FASD children are susceptible to viewing those who provoke states of overload as persecutors. This has obvious troubling implications for attachment going forward.

### **FASD & AD: DIFFERENCES:**

- AD are not so susceptible to sensory overload
- AD- better expressive and receptive language processing and are not as vulnerable to language overload from verbal input
- AD can think more conceptually and are not so literal in their thinking
- AD are less motivated to achieve or please others.
- AD- More pervasive lack of remorse
- AD- memory is generally better
- AD- visuospatial processing / organization better

## **TREATMENT / MANAGEMENT**

**PSYCHOPHARMACOLOGY:** FASD children often have highly idiosyncratic responses to psychoactive medicines. Therefore, the use of medications must be very closely monitored. Children with FASD have a higher rate of adverse reactions. Dosages often require individual adjustment across a wider than normal range, both up and down. Expect a longer than usual period of trial and error with different medicines and different dosages to get the optimal response. Reliable communication between home, school, and physician is essential in sorting this out.

**BUFFERED ENVIRONMENT:** Due to FASD children's multiple pathways to overstimulation and their low stress resiliency, prevention of states of overload is the key component to working successfully with them. Without prevention, "overloaded" becomes the default condition of life. More frequent experiences of being in a calm state aids the nervous system in learning to be in a relaxed state.



States of calm are also essential for the child to get a glimmer of the difference between feeling “calm” and feeling “overloaded”. Buffering the environment is the key to creating more experience of “calm”. Most simply put, buffering the environment means removing reducing as many environmental sources of overstimulation as possible. This can involve any of a number of things: reducing light levels, lowering noise levels, restricting access to electronics, keeping the number of choices limited, avoiding multistep directions, avoiding surprises or sudden changes in routine, avoiding inducing language overload, , and maintaining sufficient structure are all examples. Larger tasks should be divided into manageable segments that are not overwhelming. Overall, this requires determining the sources of overload for an individual child, as there is a lot of individual variation, and then systematically reducing or eliminating as many as possible.

ORGANIZATION: Related to the concept of a buffered environment is the intentional structuring of the environment to support the FASD child’s neural organization. Pictures or colors or other visual symbols can be used to define the purpose of particular locations (play vs. work spaces for example) and can also be used to illustrate schedules (a picture / symbol for each activity). It can be helpful to outline specific spaces (e.g., homework space) with tape. Limiting the number of objects in the environment, as well as items on the wall, in at least the child’s room and the classroom, is advisable. Because FASD children are so focused in the immediate moment, it may also be necessary to remove environmental distractions that undercut better functioning. It is often just not realistic to expect an FASD child to resist a temptation that is physically present.

LANGUAGE: It is critical that the adults interacting with an FASD child, monitor their use of language to prevent overloading the FASD child’s impaired processing capacity. The amount of language at any one time always needs to be limited. The adult’s rate of speech should be slowed down and voice tone should be softened. FASD children are exquisitely sensitive to voice tone. Get to the point without the explanation or parenthetical phrases (sound bytes). In addition to limited amounts of language, adults need to keep their language concrete and grounded in experience- no metaphors, idioms or other symbolic language. The vocabulary should remain basic. Directions should be specific, succinct, behavioral, and generally single-step. Verbal input should also be recursive, meaning that it loops back to the beginning for purposes of repetition which benefits FASD children (example: “Loud noises upset you so that when you hear loud noises, you feel nervous, right?”). It is also wise to avoid the use of too many pronouns, as pronouns have referents and the referents may not be clear to an FASD child. Nouns are generally preferable (above example: “Loud noises upset you so that when you hear them, that’s what you feel, right?”). Even if all of this has been done well, due to FASD children’s receptive language delays, their comprehension of verbal information should almost never be taken for granted. Comprehension checks, in which the child plays back what was heard, are essential. Simply asking the child if she understands is ill advised, as children with FASD often don’t know that they didn’t understand. Adults usually do not do an adequate job of contouring their use of language with FASD children, and end up unintentionally provoking behavioral eruptions.

TEACHING / LEARNING / VERBAL INPUT: Given their neurological weaknesses, FASD children learn best through visual input, observation, hands-on experience, and repetition /practice. This is true whether it be an academic skill, a behavioral skill, a social skill, a hygiene skill, etc. Verbal instruction, by itself, is typically the least effective way to teach children with FASD. *Verbal input* should be supplemented with visual, tactile (hands-on), role playing, and practice. When utilized, verbal input should be recursive, meaning that it loops back to the beginning for purposes of

repetition which benefits FASD children (example: "Loud noises upset you so that when you hear loud noises, you feel nervous, right?"). It is also wise to avoid the use of too many pronouns, as pronouns have referents and the referents may not be clear to an FASD child. Nouns are generally preferable (above example: "Loud noises upset you so that when you hear them, that's what you feel, right?").

**VISUAL PROCESSING / HOMEWORK:** As they can get easily overwhelmed by too much print on a page, FASD children can be helped by limiting their visual field when doing paperwork. This can be done with a solid, pastel color frame (similar to a picture mat) that exposes only the space within the frame. Such a device can prevent visually induced neurological overload.

**STRUCTURE:** FASD children need clear external structure, reliable schedules, and an orderly physical environment, and close supervision to support their optimal functioning. Depending upon the structure, or its absence, the situational environment serves as either a therapeutic tool or a sabotaging influence. Automatic repetition can replace "remembering" in the short term and facilitate memory in the long term. In addition, clearly designed structure, because it comes from outside, can usefully intrude on the egocentrism of the child with FASD and make them more aware of the external world. FASD children generally need greater supervision, beyond what an average same-aged peer might need. Their own ability to police themselves comes slowly and it is very easy to overestimate their ability to do this.

**INTERACTION BOUNDARIES:** In interacting with FASD children, it is critical that the adults stay outside of the child's "force field" so to speak. Without sufficient boundary maintenance, adults tend to get caught up in the FASD child's disorganization, fragmentation, reactivity, impulsivity, and emotional intensity. Now, no one is "holding the center", and things will only deteriorate. The fundamental challenge is for the adult not to take a position diametrically opposed to the child's position. This will produce a stalemate, have NO impact on the child, and facilitate further externalization. "We'll have to agree to disagree", is one way to avoid a stalemate. Responding in a paradoxical fashion that cannot be argued with, is another. A third method is for the adults to strike positions of pretense in which they have no investment (example: "You are always mean to me". Response: "You mean I am mean every single day.")

**EGOCENTRISM:** Children with FASD need to have their perception of the world "stretched" because of the inherent egocentric bias to their thinking. Since their perception has always been this way, FASD children don't know anything else anymore than the sky "knows" anything but blue. They need much overt instruction about expanding the frame of their thinking to realize that other perspectives exist. In line with "Teaching/Learning" above, role playing, props such as dolls or puppets, and drawing can all be used to supplement verbal explanation. This teaching needs to be specific and based on the child's real experience- no hypotheticals or examples drawn from others. *Comprehension* checks should be included. Repetition is to be expected.

**THINKING CONNECTEDLY:** Because of their multiple neurological vulnerabilities, children with FASD tend to perceive the world as a fragmented place in which things are discrete, separate, and random rather than connected. They need ongoing instruction in making connections of all types. FASD children need to be taught, over and over, that behavior is connected to triggers on the front end, to choices and the reasons for making them in the middle, and to outcomes on the back end. The same is true of feelings; they need to learn that feelings are connected to triggers on the front end, to some form of expression (bodily, behavioral, or verbal) in the middle, and to outcomes on

the back end. They need to be taught to make connections across time (before and after: cause and effect), across situations/people/circumstances (generalization), and in social interactions. All of this instruction must be concrete and specific and visual aids can be of great help.

**THINKING REALISTICALLY:** FASD children can easily incorporate fantasy elements into their thinking and into what they say without realizing it. This reflects their weak fantasy / reality boundary. When this occurs, it is important to separate out to the realistic aspects from the fantasy elements so as to sharpen the FASD' child's reality / fantasy distinction.

**SAYING "NO":** When responding negatively to an FASD child's request, a limited no is preferable to an absolute no. An absolute no is simply stating "no" with no indication of when the answer might become a "yes". With FASD children's limited perception of time, this is easily interpreted as "no forever" and a outburst of disappointment and frustration is a probable result. A limited no is in the spirit of "not now" and includes a concrete reference (such as, after the toys are cleaned up) to when the request could be granted. This reference should not be vague, such as "later" or based on a time period like "in an hour". To the FASD child, these are also apt to sound like forever.

**CONSEQUENCES:** Due to the poor temporal perception of FASD children, consequences should be imposed expediently relative to the problematic behavior. A delay weakens, if not obliterates, any possible learning. Should a delay occur, the connection between behavior and consequence should be explicitly laid out for the child. Consequences should also be relatively short-term. Longer term consequences typically lose their efficacy because children with FASD are very skilled at habituating to things not in their immediate environment (out-of-sight / out-of-mind). Repetitive smaller consequences are much more effective than searching for some "nuclear" consequence. The impact really occurs at the moment of consequence imposition when things shift from "having" to "losing". Smaller, more frequent consequences are also more useful since repetition is such a key element for learning for FASD children.

**INCENTIVES:** Like consequences, incentives also should be based on a short term platform. Given their poor temporal perception, FASD children, are likely to see longer term incentives as unattainable or even unreal. Therefore, motivation remains unaffected. If used, longer-term incentives need to be bridged with shorter term incentives that function as incremental steps towards the larger goal.

**SEXUALITY:** Pre-adolescents and adolescents with FASD need repeated concrete instruction regarding people being the owners of their own bodies; and therefore, others don't have the right to "trespass" on the FASD child's body, nor he on theirs. This instruction should begin before any problems have occurred, and this often necessitates discussion in advance of what parents would normally do. The key concept is that the FASD child touches another only with permission- no exceptions. This should be supplemented by defining categories of whom it is fine to touch with permission and whom it is never alright to touch. When this is clear, then basic teaching of private vs. non-private parts should be added. This teaching should be combined with very tight supervision of the FASD adolescent in interpersonal contexts. It can be a risky proposition to leave an FASD adolescent alone with others of the same age or younger, including family members. It may be useful to alert the school, depending upon circumstances.

**RESIDENTIAL TREATMENT:** Sometimes due to behavioral crises, children with FASD should be placed in residential care out of safety considerations. This should not be viewed as the primary mode of treatment, but as an interim support. The stay in residential care should be kept to the minimum needed to stabilize behavior and develop a safety plan at home. FASD children typically do not fare well in conventional RTC's because the level of supervision is often too low while the level of stimulation is too high. A Behavioral Level System, which is the backbone of most standard Residential Treatment Programs, has an ironic impact on FASD children. They may make progress at lower levels where the structure is more intensive. This progress allows them to rise up through the level system, and with that rise, comes an attendant freedom from structure. Eventually, the structure becomes inadequate to support the FASD child's functioning and deterioration ensues. Essentially, success sets up failure. So, the solution is a paradoxical one. The goal should be to discharge the child before she has moved too far up the level system. RTC's need education here as this sounds like nonsense to them. This imposes a necessity to devise a home safety plan in a timely fashion.

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