



# Fetal Alcohol Spectrum Disorder

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## Fetal Alcohol Spectrum Disorder

- "FASD" is an umbrella term describing the **range of effects** that can occur with prenatal exposure to alcohol.
- These effects may include:
  - physical
  - mental
  - behavioral, and/or learning disabilities
  - **possible lifelong implications**

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## FASD

The term FASD is **not intended** for use as a clinical diagnosis & includes:

- Fetal Alcohol Syndrome (FAS)
- Alcohol-Related Neurodevelopmental Disorder (ARND)
- Alcohol-Related Birth Defects (ARBD)

\*\*A fetus' liver is not fully functional so cannot metabolize alcohol.

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**FASD** 

- Primary distinction between FAS and other conditions is the presence of specific **facial features**.
- **Without these facial features, FAS cannot be diagnosed:**
  - Short palpebral fissures (small eye slits)
  - Indistinct philtrum (the groove under the nose)
  - Thin upper lip

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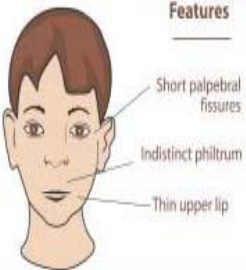
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**FAS** 

**Typical Face**



**Discriminating Features**



- Short palpebral fissures
- Indistinct philtrum
- Thin upper lip

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**FAS** 

- **Additional facial features seen in children with FAS may include:**
  - Epicanthal folds, ptosis (drooping eyelids)
  - Low nasal bridge
  - flat midface
  - minor ear anomalies
  - short nose
  - micrognathia (receding chin or underbite)

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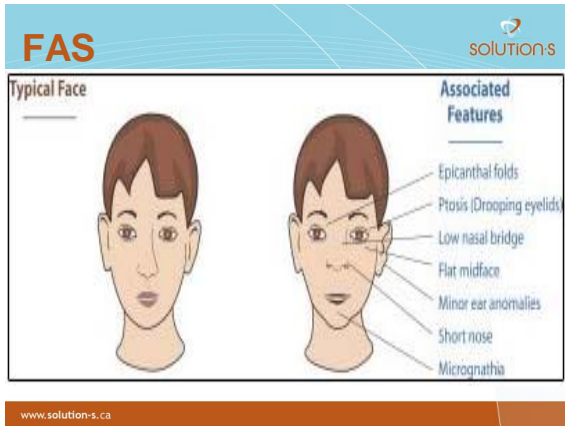
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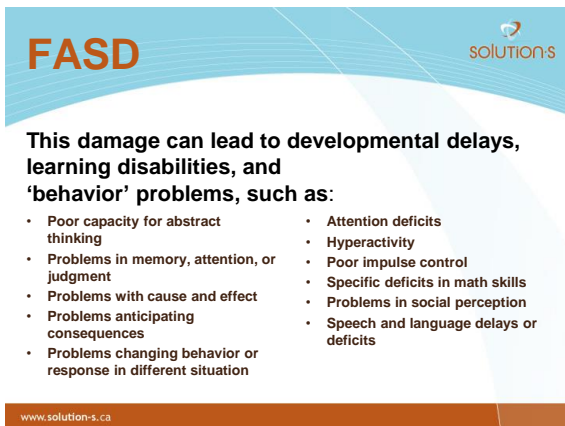
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# ARBD



Types of alcohol-related brain damage (ARBD) include:

- Small head (microcephaly), usually below the 10th percentile.
- Damage to or absence of the corpus callosum.
- Abnormal cysts or cavities in the brain.
- Neurologic problems, such as seizures, tremors, and poor fine motor skills.
- Patterns of dysfunction on psychometric tests.

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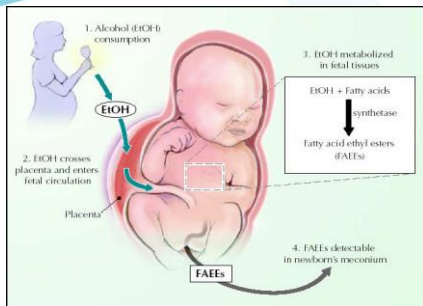
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# FASD



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# ARBD Fetal Circulation



<http://trialexhibitsinc.com/legal-exhibits/maternal-fetal-circulation-p-231.html>

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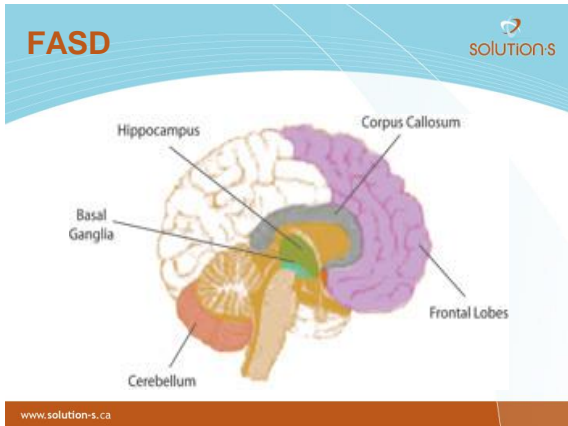
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# FASD

## Brain Structures Most Sensitive to Prenatal Alcohol Exposure

Brain Structure	Function	Prenatal alcohol exposure may result in problems with:
Corpus Callosum	Communicates motor, sensory and cognitive information between the two hemispheres of the brain	Storing and retrieving information, problem solving, attention and verbal memory
Cerebellum	Processes input from other areas of the brain to coordinate motor and cognitive skills	Controlling movements, maintaining balance and fine motor skills

National Organization on Fetal Alcohol Syndrome (NOFAS)  
1.800.690.FAS or visit www.nofas.org

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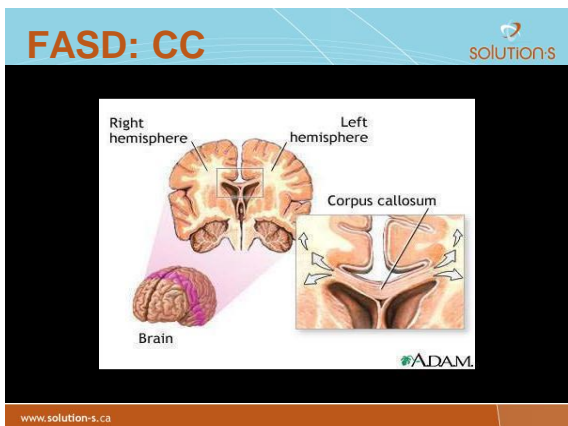
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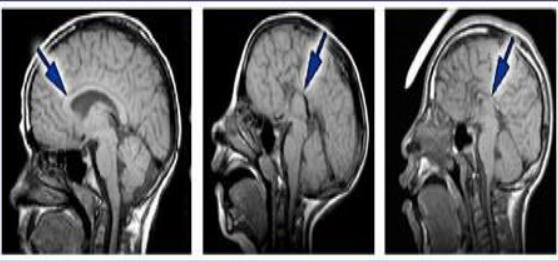
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### MRI brain: Control & Adolescent w/ FASD



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### FASD: CC

#### Corpus Callosum

- Connects the two hemispheres of the brain.
- Allows left and right sides to communicate.
- Prenatal alcohol exposure can cause abnormalities such as thinning or complete absence of the corpus callosum.
- These abnormalities have been linked to **deficits in attention, intellectual function, reading, learning, verbal memory, executive function, and psychosocial functioning.**

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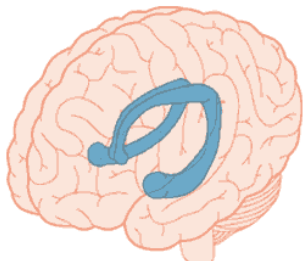
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### FASD



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# FASD



## Hippocampus

- Involved in memory
- A mood control center
- But its precise function is uncertain
- Alcohol can change the fibers and cause cell reduction
- Some persons with prenatal alcohol exposure have deficits in spatial memory
- Damage can affect the ability to respond appropriately to emotions

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# FASD



## Basal Ganglia

- Nerve cell clusters involved in motor abilities and cognitive functions.
- Heavy prenatal alcohol exposure can reduce basal ganglia volume.
- This can affect skills related to perception and the ability to inhibit inappropriate behavior

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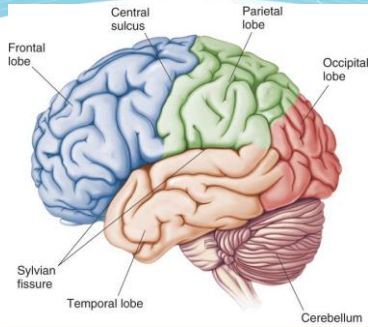
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## FASD



### Cerebellum

- Involved in both motor and cognitive skills.
- Tends to be smaller in people with an FASD.
- Damage to the cerebellum can cause learning deficits and problems with motor skills such as balance and coordination.

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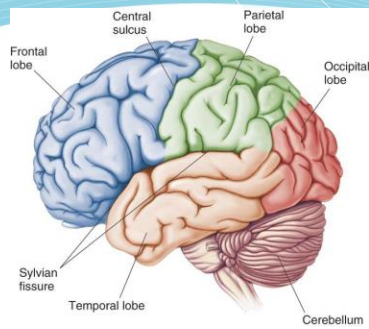
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## FASD



### Frontal lobes

- Control executive functions, planning and problem solving.
- Control impulses and judgment.
- Frontal lobes can be smaller in teenagers and young adults prenatally exposed to alcohol.
- Poor impulse control and self-monitoring.
- Might engage in risky or illegal activity to fit in with peers.

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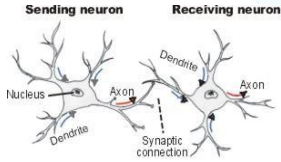
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## FASD: Brain & spinal cord- CNS

- One of the first systems to form after conception and continues developing after birth.



Prenatal exposure to alcohol significantly disrupts many neurotransmitter systems.

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## FASD: Brain & spinal cord- CNS

- One of the first systems to form after conception and continues developing after birth.
- **Neurotransmitters:**
  - Chemical messengers communication nerve cells in the brain Prenatal exposure to alcohol significantly disrupts many neurotransmitter systems.

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## FASD: Brain & spinal cord- CNS

### Neurotransmitters:

- **Serotonin:** plays a role in regulating mood, aggression, sexual activity, sleep, and sensitivity to pain
- **Dopamine:** regulates motor function, pleasure and reward, and attention.

FASD: reduced levels of these.....

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### Adolescent Development Issues in FASD

The following table outlines some of the more common developmental delays and deficits experienced by individuals with an FASD through the adolescent years (ages 12-21), and useful treatment approaches. This table is based on an expert clinical consensus.

	Normal Development	FASD	Intervention
Age Range: 12-21	Ability to evaluate own behavior in relationship to the future	Lack of connection between thoughts, feelings, and actions	Repeated skills training with role-playing and videotaping; videotaping of person's behavior
	Understanding consequences of behavior		
	Importance of peer group	Difficulty resisting negative peer influences	Connect person with pro-social peers, mentors, and coaches
	Development of intimate relationships	Difficulty with accurately interpreting social cues (e.g., words, actions, nonverbal cues)	Social skills training; repeated discussions of sexuality and intimacy as appropriate

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## FASD



### Organ and Skeletal Damage

- Low birth weight.
- Failure to gain weight over time, not due to malnutrition.
- Disproportionately low weight to height.
- Low length/height or weight in first year of life, especially below the 10th percentile.

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## FASD: Skeletal Abnormalities



- Curvature of the spine
- Underdeveloped nails
- Fused bones in forearms, fingers, toes, hands, bent fingers, shortened fifth digits
- Permanent bending of one or more finger joints
- Sunken chest or protrusion of the chest over the sternum
- Fusion of any two neck vertebrae
- Failure of one side of a vertebra to form normally

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# FASD



## Heart Defects

- Atrial septal defect (failure of the wall between the right and left atria to close completely)
- Ventricular septal defect (a hole in the wall between the lower chambers)
- Abnormal great vessels
- Tetralogy of Fallot, a group of four heart defects involving the ventricles and arteries

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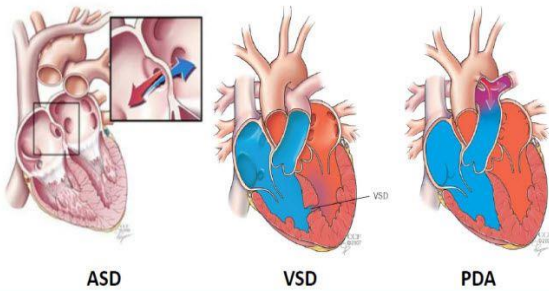
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Medscape

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# FASD



## Craniofacial Anomalies

- Discriminating features include short palpebral fissures, indistinct philtrum, and thin upper lip
- Cleft palate
- Small eye openings
- Thin upper lip
- Smooth philtrum (the groove under the nose)
- Flat midface
- Pointed chin

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**FASD** SOLUTIONS

**Typical Face**



**Discriminating Features**

- Short palpebral fissures
- Indistinct philtrum
- Thin upper lip



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**FASD** SOLUTIONS

**Kidney and Other Internal Organ Problems**

- Defective kidney function
- Abnormal growth or underdeveloped kidneys
- Horseshoe kidneys
- Ureteral duplications
- Cysts caused by obstructed urine flow

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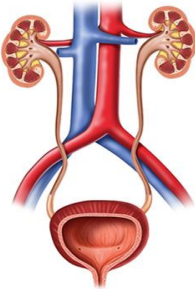
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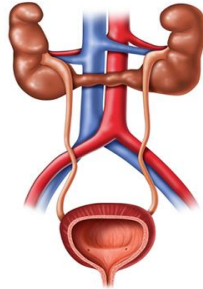
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**Normal System**



**Horseshoe Kidney**



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## FASD



### Respiratory Dysfunction

- Inhibited cell growth, resulting in underdeveloped lungs
- Tendency to get lung disease
- More frequent and severe lower respiratory infections in children

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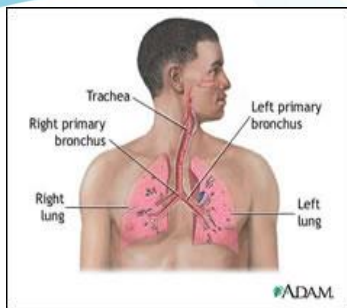
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## FASD



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## FASD



### Vision and Hearing Problems

- Misalignment of the eyes
- Retinal vessel anomalies
- Lens flaws
- Cornea deformities
- Refractive problems
- Hearing loss
- Auditory processing problems

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**FASD** SOLUTIONS

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**FASD** SOLUTIONS

**Co-occurring morbidity**

- Attention-deficit/hyperactivity disorder
- Oppositional defiant disorder
- Conduct disorder
- Reactive attachment disorder
- Schizophrenia
- Depression
- Bipolar disorder
- Substance use disorders
- Posttraumatic stress disorder

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**PRIMARY DISABILITIES** SOLUTIONS

Primary disabilities are linked to behaviours such as:

Impulsive actions	Resistant to change	Poor judgment
Makes same errors again	Does not "learn a lesson"	Poor memory
Talks "a blue streak"	Doesn't understand	Misses spoken words
Money and time problems	Future planning poor	Cannot generalize
Slow thinker	Confabulates stories	Dismaturity

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# SECONDARY DISABILITIES

Secondary disabilities could include but are not limited to:

Poor social relationships	Irritability, fatigue	Resistance
Sexual inappropriateness	Addiction issues	Anger, aggressiveness
Mental health issues	Other psychiatric diagnoses	Recidivism
Self-destructiveness	Suicidal tendencies	

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Secondary FASD Behaviour	Justice Implications
Inappropriate humour, a clown	Laughing in court, appears disrespectful
Isolated, few friends	No support in life, sad
Pseudo-sophisticated, trying to look OK	May "lie" to look "cool"; it's better to look cool than appear to be stupid
Irritable, resistant, fatigued, argumentative	May appear to be withdrawn or argues about everything
Anxious, fearful, overwhelmed	Courtroom is a scary, over-stimulating place
Historical failure, poor self esteem	Victim, defeatist "I can't"
Unrealistic goals	"I can pay it all back by Friday."
Isolated, teased, bullied	Is victimized and/or fights back at school
Anger, aggression, outbursts	Family, street, and school violence, rage
School failure, expulsion, running away	Grade 9/10 dropout, AWOL from school, group home or treatment
Sexually inappropriate, coupled with dysmaturity	Victim of sexual abuse, promiscuity, prostitution, sexual acting out
Addictions – alcohol, drugs	Self-medicates with drugs, alcohol
Trouble with the law, recidivism	Back repeatedly for same crimes; often no escalation in crime
Depressed, self destructive, suicidal	Extreme sadness, can't get up in the morning, failure to appear, suicide attempts – needs protection
Other mental health issues – May have one or more co-occurring (psychiatric) disorders such as depression, (R)AD, OCD, ODD, CD, BPD, SIDs, ADHD*	"Alphabet soup" of diagnoses often mask the real problem, which is the brain damage of FASD.(Kathryn Page, 2002:6)

Equation: the greater the number of diagnoses, the greater the likelihood of underlying brain dysfunction (Malbin – February 26, 2006 review of chart via e-mail)

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# FASD

- If an FASD is not recognized, misdiagnoses are common.
- This problem often occurs with adolescents and adults.

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## FASD



Diagnosing and treating FASD can be difficult.

**Barriers to diagnosis include:**

1. Lack of a physical test
2. Few practitioners qualified to diagnose
3. Problems getting birth mother's history of alcohol use
4. No behavioral phenotype
5. Reluctance to inform parents of a stigmatizing disability or to label a child
6. Reluctance to diagnose if no services are available
7. Facial features are harder to recognize in adolescents and adults

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## FASD



- Many variables are considered in the diagnosis of FASD.
- Only specialists trained in dysmorphology and neurodevelopmental assessment and who understand the effects of prenatal alcohol exposure are qualified to diagnose FAS.
- They will also be able to recognize alternative syndromes and other neurodevelopmental conditions.

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## FASD: General Approaches



**Safety considerations & risks:**

- Suicide & violence
- Victimization
- Adequate housing & food
- Accidents & injury d/t impulsivity, impaired brain functions (**memory, attention, emotional & sensory regulation**) & peer pressures
- Taking Rx as per schedule
- ETOH & recreational drug use & driving
- Repeated involvement w/ legal system!

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## FASD: General Approaches

- Share rules often
- Role-plays
- Holistic approach
- Use MULTIPLE & multisensory approaches to learning: visual, auditory & drawing/art
- Consider sensory issues!
- NAVIGATOR!

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## Navigator

- Presence of another responsible person (parent, teacher, job coach, sibling) who can mentor, assist, guide, supervise, and/or support the affected person to maximize success (which may need to be redefined as the avoidance of addiction, arrest, unwanted pregnancy, homelessness, or accidental death).
- Can be someone w/ whom they “check in” on a regular basis, or vice versa. Or the navigator may play a more constant advocacy role, and may share the role with others (family, etc.).
- (“Seeing eye dog”, “external brain”)

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## Fetal Alcohol Spectrum Disorder

- Home, school, and work environment
- Safe, stable, and structured home
- Daily routines and structured activities with predictable choices, consequences, and transitions
- Consistent and supportive environment with realistic goals and expectations and responsibility for achievable tasks
- Appropriate educational placement
- Flexible environments with limited stimulation

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# FASD



- Skill Development
- Simple, concrete instructions
- Use of clear, concrete, and immediate consequences for behavior
- Multisensory teaching techniques (visual, auditory, experiential)
- Training to recognize distress and ask for help
- Training in anger management, social skills, relaxation, and other life skills, adapted for individuals with an FASD

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# FASD



When creating strategies it is important to:

- Use teachable moments rather than punishment
- REMAIN CALM
- Look at the individual's unusual behavior and find the individual's "logic" behind the behavior

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# Tx Tips from B.C.



Treatment Planning	<ul style="list-style-type: none"> <li>• If medication is used, simplify medication schedules and provide support.</li> <li>• Avoid using students as therapists.             <ul style="list-style-type: none"> <li>• May reinforce loss issues related to childhood/youth.</li> <li>• May not be skilled with FASD.</li> </ul> </li> <li>• Reassess concepts of dependency and enabling.</li> <li>• Use reminders.             <ul style="list-style-type: none"> <li>• Use texting to provide reminders and stay connected.</li> </ul> </li> <li>• Find something that the person likes to do and does well (that is safe and legal) and arrange to have the person do that regardless of behavior.</li> <li>• Create "chill-out" spaces in each setting.</li> <li>• Be creative about finding ways for the individual to succeed.             <ul style="list-style-type: none"> <li>• Establish achievable, short-term goals.</li> <li>• Reconsider zero-tolerance policies.</li> </ul> </li> <li>• Be consistent in appointment days and times.             <ul style="list-style-type: none"> <li>• Consider shorter, more frequent meetings or sessions.</li> <li>• Arrange for someone to get the person to appointments for at least 6 months.</li> <li>• Have the meetings on the same days each week.</li> <li>• Discuss each meeting with the person.</li> <li>• Use open meeting times, if necessary.</li> </ul> </li> </ul>
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## Tx Tips from B.C.



Assisting Navigation and Success	<ul style="list-style-type: none"> <li>• Have pictures of the counselors on their office doors.</li> <li>• Identify possible buddies (e.g., family, friends, church or other organizations) to ensure the client gets to appointments, etc.</li> <li>• Identify persons who are appropriate supports for the client, as well as persons who are not helpful.</li> <li>• Program important numbers and reminders into their cell phone for them.</li> </ul>
Language	<ul style="list-style-type: none"> <li>• Do not use metaphors or similes.</li> <li>• Do not use idiomatic expressions and proverbs.                             <ul style="list-style-type: none"> <li>• "A day late and a dollar short."</li> <li>• "People in glass houses shouldn't throw stones."</li> </ul> </li> <li>• Don't use sarcasm, and be careful about joking with the person.</li> </ul>

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## FASD



### "Eight Magic Keys" strategies:

- Concrete
- Consistency
- Repetition
- Routine
- Simplicity
- Specific
- Structure
- Supervision

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## Communication strategies



- Match your language to person's level
- Eye contact & repetition as needed
- 10 words or less, KISS principle
- Allow time to process & respond
- State directions in positive terms (what they CAN do rather than what they cannot do).
- Exaggerate body/ facial expressions

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## STRENGTHS-BASED APPROACH



Behaviors are d/t brain damage, not intentional!

DO NOT:

- Punish but rather change the environment or the expectations
- Try to change their symptoms, rather change your reactions
- Carry over negatives from the previous day
- Use treats/punishments for good/bad behavior

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## Environmental Adjustments



- Consider sensory hyper/hypo-reactivity (sight, smell, sound, touch)
- Pale, soft colors
- Less is more: eliminate clutter
- Reduce smells/sounds (tennis balls on chairs)
- Consider sensory integration issues: look for the trigger/cause of behavior
- Structure & supervision are key

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## Questions?

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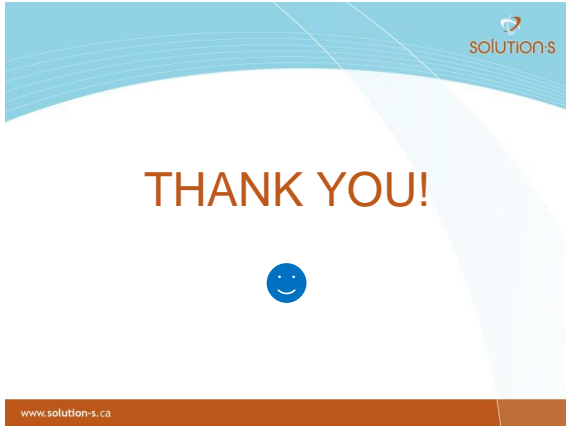
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**THANK YOU!**



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