

## Fetal Alcohol Spectrum Disorders: Brain, Cognition, and Long-Term Consequences

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AA012419 to Paul Connor

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## True or False

- Most patients with FAS are mentally retarded
- FAS is more severe than FAE
- Children grow out of FAS/FAE
- FAS children can't learn from mistakes
- FAS means children are born drunk
- Children with FAS/FAE can't be treated

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**"Behold, thou shalt conceive  
and bear a son: and now drink  
no wine or strong drinks."**

- JUDGES 13:7

*"Foolish, drunken and harebrained  
women most often bring forth  
children like unto themselves,  
morose and languid."*

- ARISTOTLE

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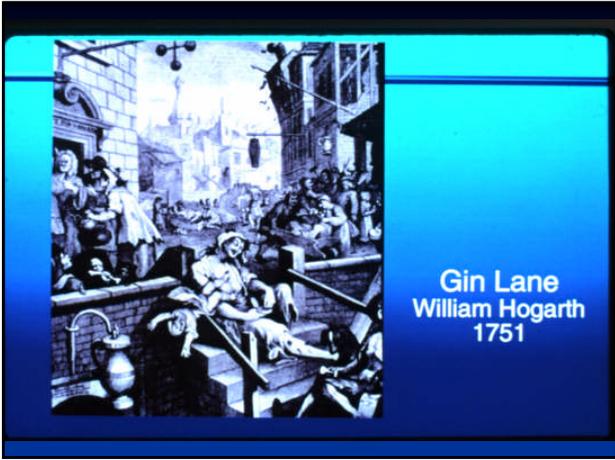
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Gin Lane  
William Hogarth  
1751

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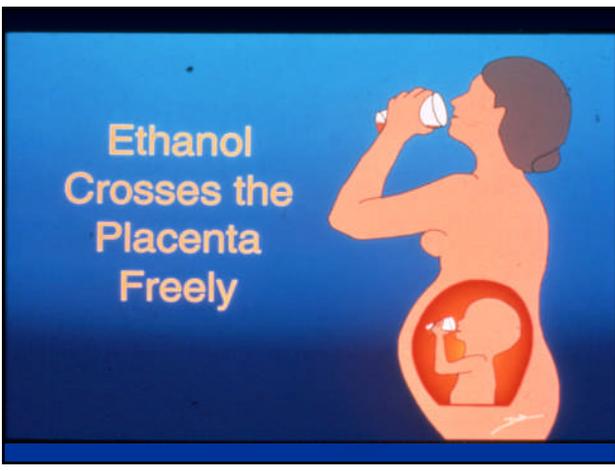
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Ethanol  
Crosses the  
Placenta  
Freely

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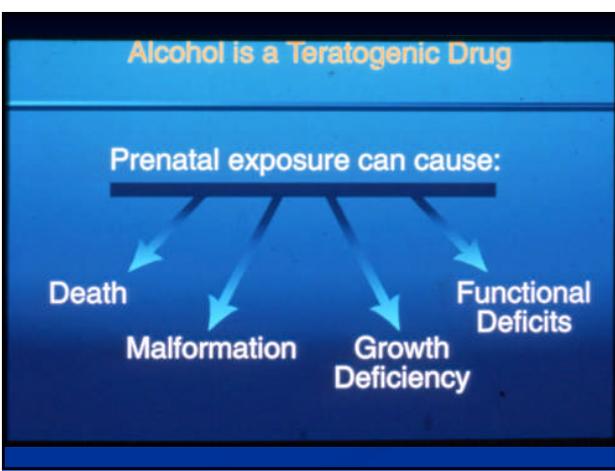
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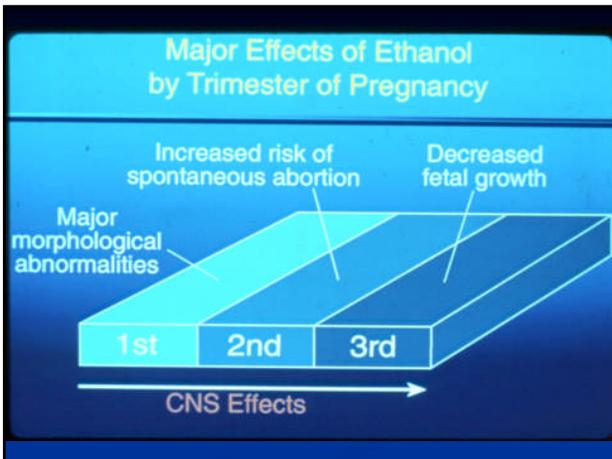
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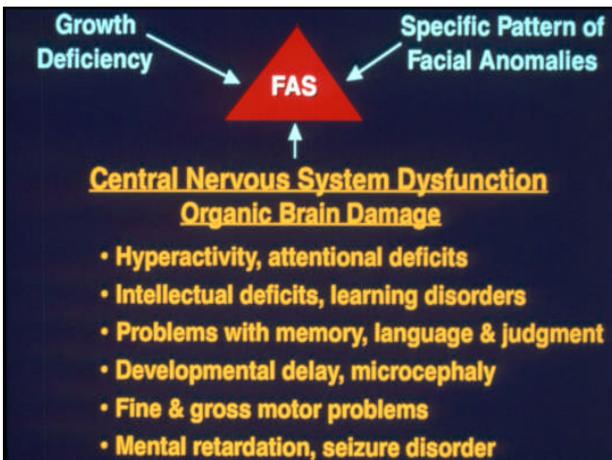
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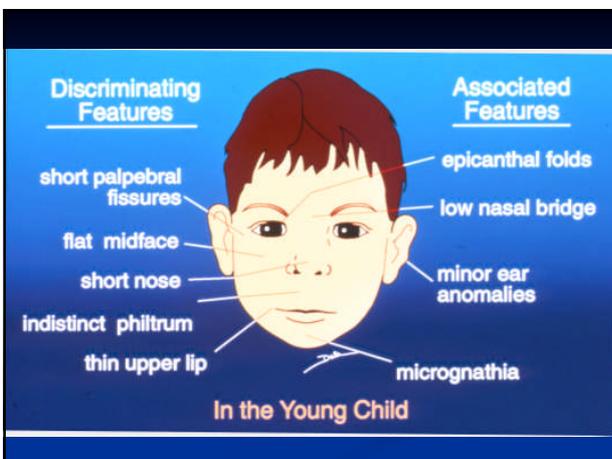
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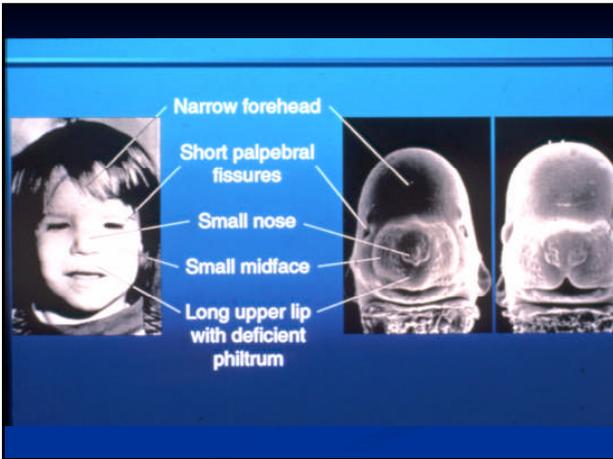
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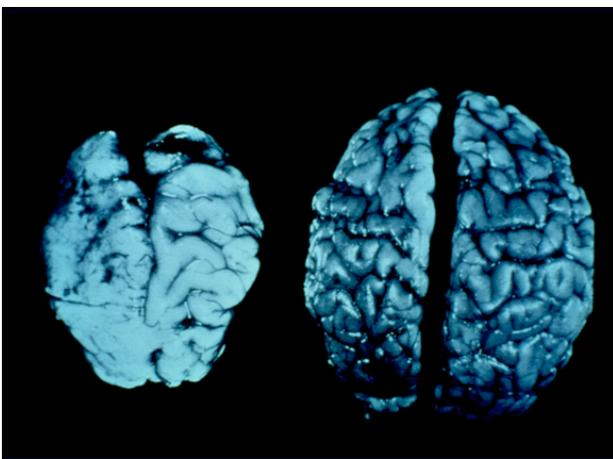
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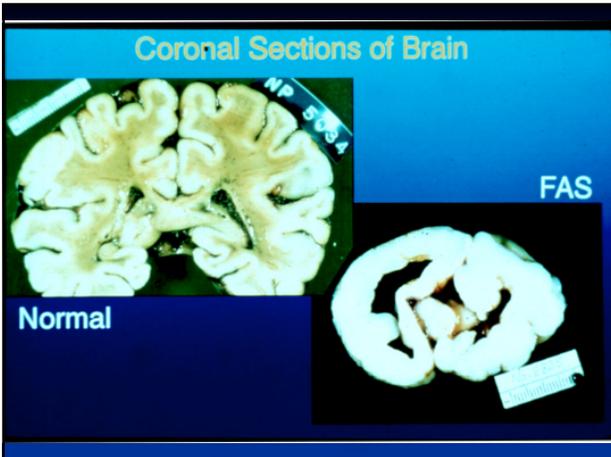
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FETAL ALCOHOL SYNDROME  
IS A  
HIDDEN DISABILITY

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ARND

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**Central Nervous System Dysfunction**  
**Organic Brain Damage**

- Hyperactivity, attentional deficits
- Intellectual deficits, learning disorders
- Problems with memory, language & judgment
- Developmental delay, microcephaly
- Fine & gross motor problems
- Mental retardation, seizure disorder

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## Institute of Medicine

- Category 1: FAS with Confirmed Maternal Alcohol Exposure
  - Same criteria as Jones and Smith, 1973 and Clarren and Smith, 1978
- Category 2: FAS without Confirmed Maternal Alcohol Exposure
  - Same as category 1 but can't confirm alcohol exposure
- Category 3: Partial FAS with Confirmed Maternal Alcohol Exposure
  - Some facial features with either growth deficiency or CNS
- Category 4: Alcohol-Related Birth Defects (ARBD)
  - Other physical anomalies
- Category 5: Alcohol-Related Neurodevelopmental Disorder (ARND)
  - No physical manifestations but with CNS

Stratton, et al., 1996

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## 4-Digit Diagnostic Code

### 4-point Likert Scale

- Growth
- Face
- Brain
- Prenatal Alcohol Exposure

4-4-4-4 = FAS

1-1-4-4 = Static Encephalopathy (alcohol exposed)

Astley & Clarren, 2000

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## CDC Guidelines

- Functional Deficits
  - IQ 2 SD below average
  - Deficits 1 SD below average in at least 3 domains
    - Cognitive or developmental deficits
    - Executive functioning deficits
    - Motor functioning delays
    - Problems with attention or hyperactivity
    - Social skills
    - Other, such as sensory problems, pragmatic language problems, memory deficits, etc.

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## Definitions Primary & Secondary Disabilities

Primary Disabilities: Those disabilities that are a direct result of brain damage from prenatal alcohol exposure (i.e. memory, attention, intellectual, problem solving disturbances etc.)

Secondary Disabilities: Those disabilities that a person is not born with but develops as a result of the primary disabilities (i.e. mental health problems, disrupted school experience, trouble with the law, etc.)

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## Primary Disabilities: The Effects of Prenatal Alcohol Exposure on the Brain and Cognition

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## Neuroimaging Studies

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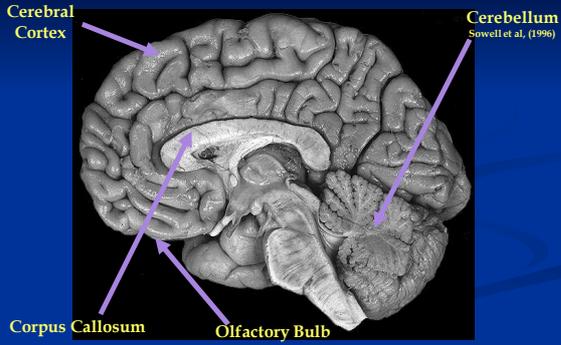
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### Regions of the Brain Affected by Prenatal Alcohol



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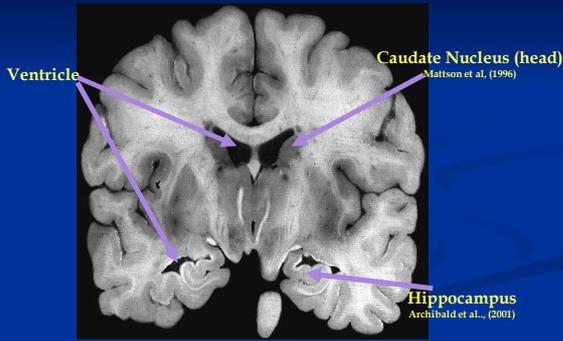
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### Regions of the Brain Affected by Prenatal Alcohol



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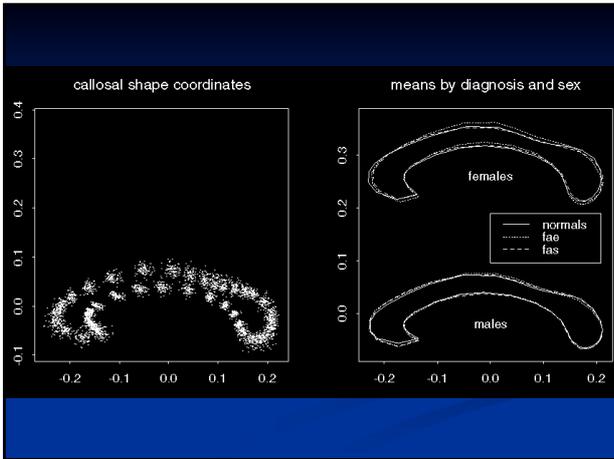
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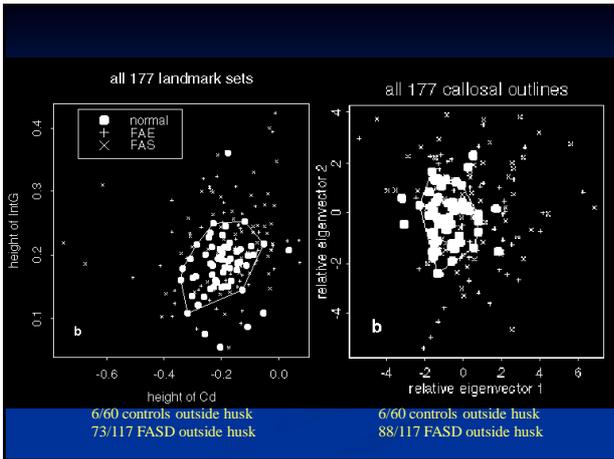
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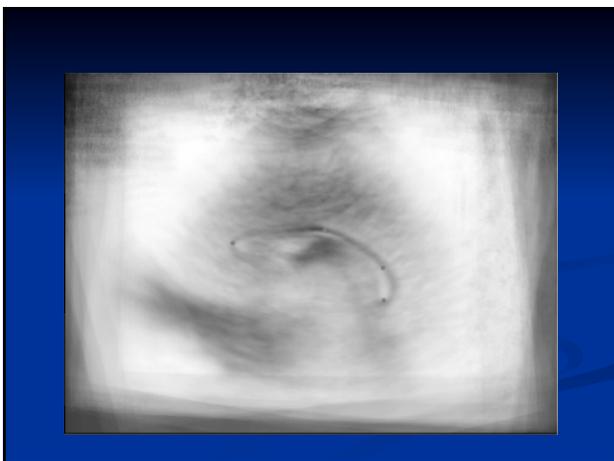
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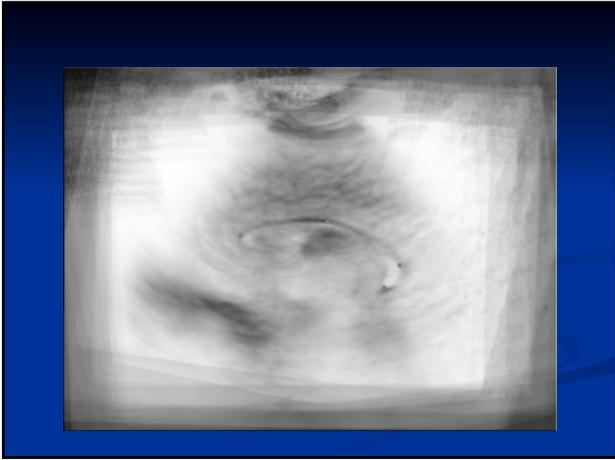
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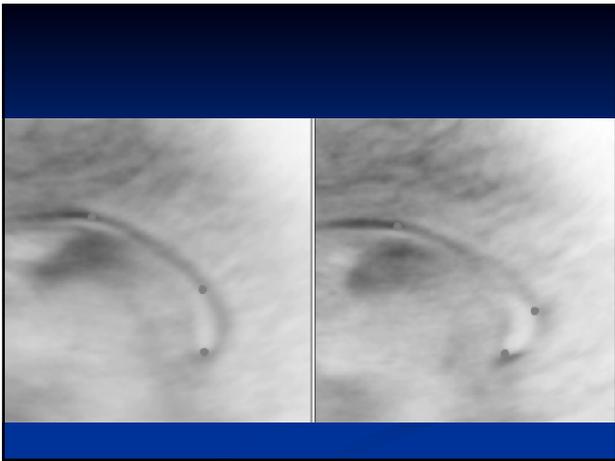
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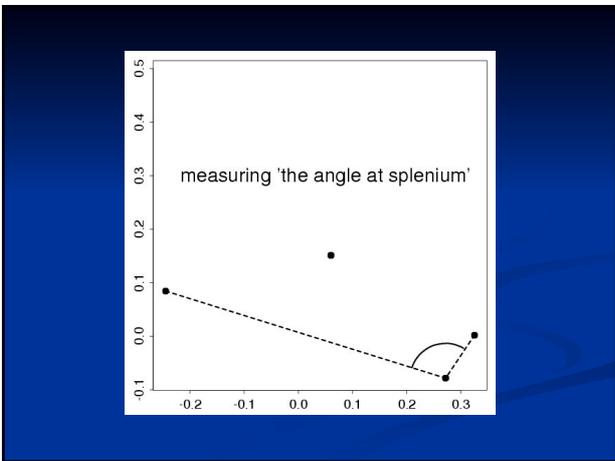
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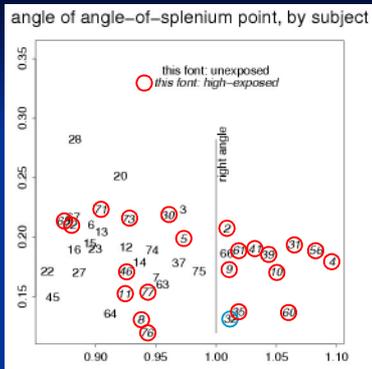
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## Neuropsychological Studies

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## Neuropsychological Outcomes of FAS/FAE

- Intelligence
- Achievement
- Motor Skill
- Attention
- Learning/Memory
- Adaptive Functioning
- Executive Function
  - Problem Solving
  - Concept Formation
  - Fluency
  - Working Memory

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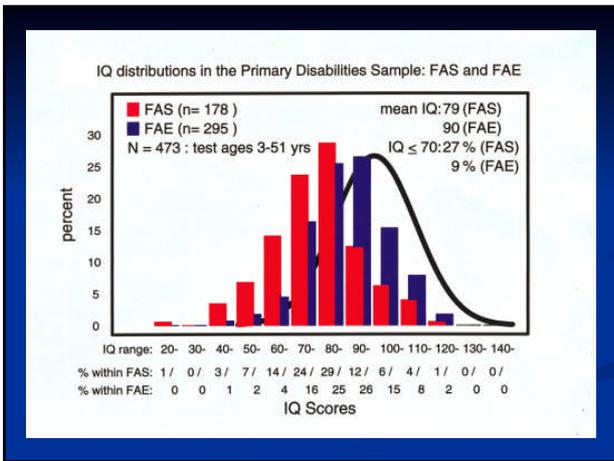
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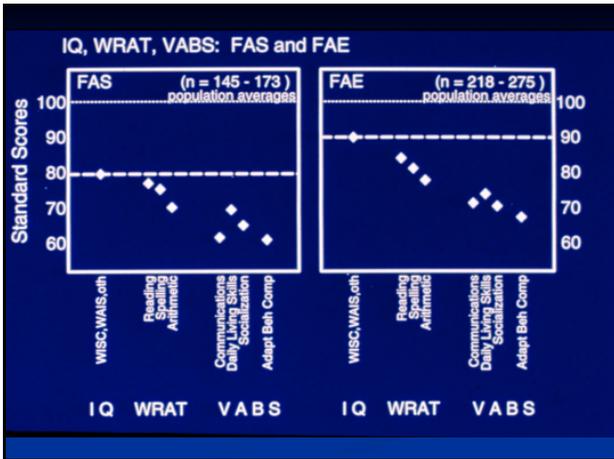
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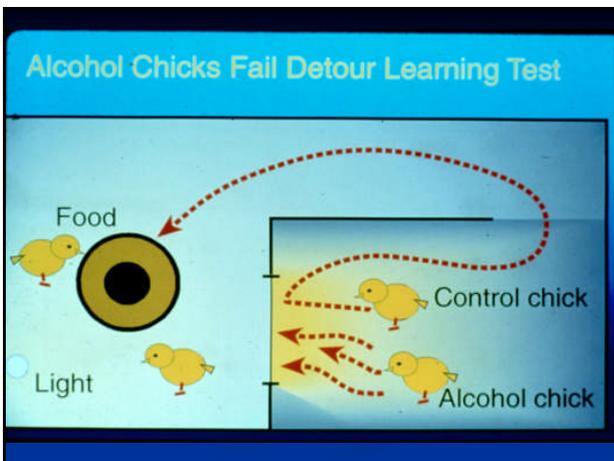
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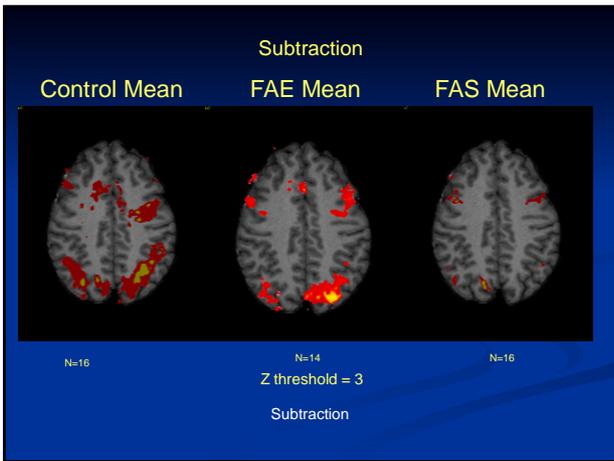
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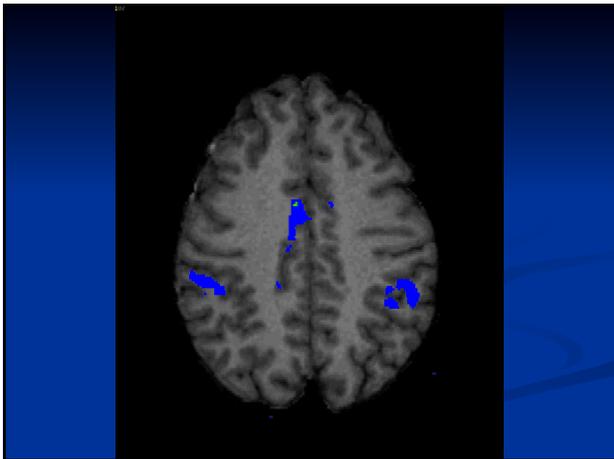
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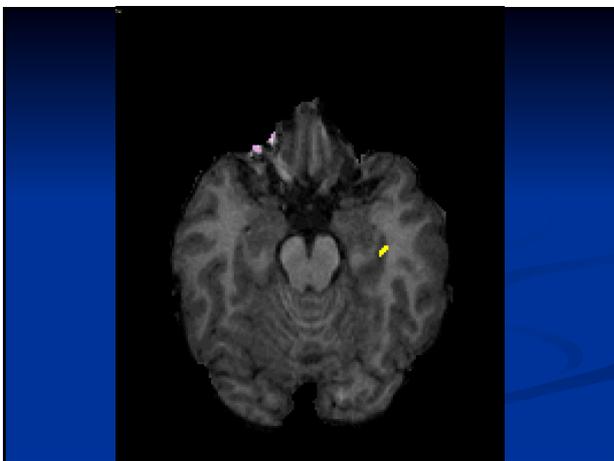
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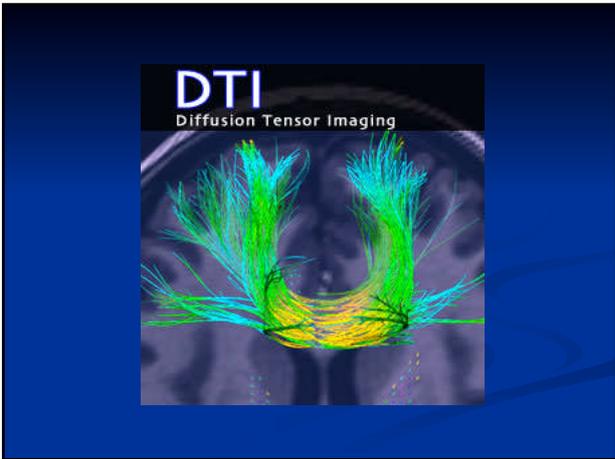
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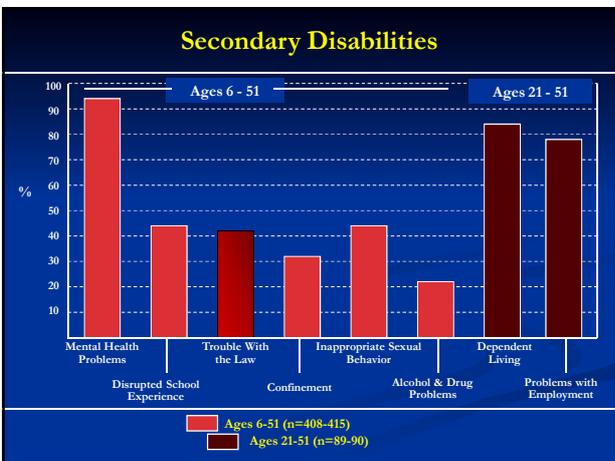
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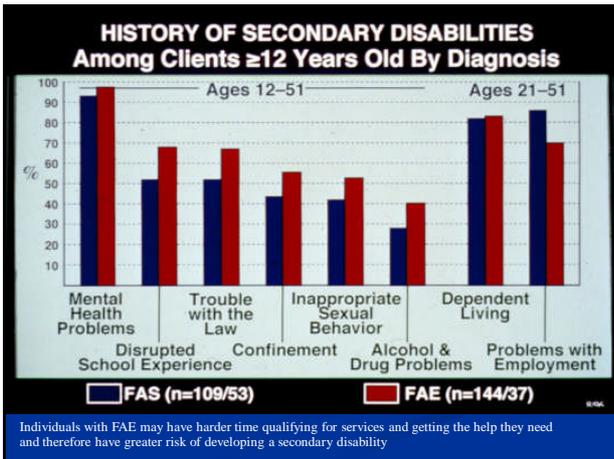
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**Only 7 of 90 adults with a  
FASD  
were able to live  
independently  
and without major  
employment problems**

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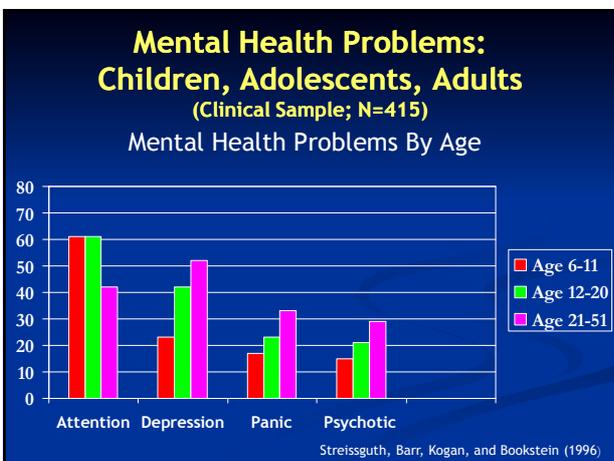
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## Interventions

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## Surgeon General 2005

- For these reasons:
  - A pregnant woman should not drink alcohol during pregnancy.
  - A pregnant woman who has already consumed alcohol during her pregnancy should stop in order to minimize further risk.
  - A woman who is considering becoming pregnant should abstain from alcohol.
  - Recognizing that nearly half of all births in the United States are unplanned, women of child-bearing age should consult their physician and take steps to reduce the possibility of prenatal alcohol exposure.
  - Health professionals should inquire routinely about alcohol consumption by women of child-bearing age, inform them of the risks of alcohol consumption during pregnancy, and advise them not to drink alcoholic beverages during pregnancy.

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## WARNING

FROM THE LIQUOR CONTROL BOARD



**Avoid alcohol during pregnancy.**

Alcohol use during pregnancy may cause birth defects such as Fetal Alcohol Syndrome.

For more information call 1-800-662-9111  
Washington State Substance Abuse Coalition

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## Parent-Child Assistance Program (PCAP)

An intensive, 3-year home visitation intervention  
for high-risk  
alcohol and/or drug abusing mothers

### **WHEN CASE MANAGEMENT ISN'T ENOUGH**

<http://depts.washington.edu/fadu/>  
Seattle (206) 543-7155

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## Limited Intervention Research

- Little systematic research on effective interventions with individuals with FASD
- Therefore, have to rely on
  - Clinical data from professionals, teachers, and parents who have seen positive changes using an intervention
  - Practices shown to be effective with other disorders being adapted for those with FASD

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## FASD Intervention and Management

- Multi-systemic (health care; mental health; school; social services; vocational training agency; family; church)
- Multi-modal (individual therapy; family therapy; medication; vocational training/job coaching; support groups)
- Individualized (based on comprehensive assessment)
- Family-based
- Life-span perspective

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## Vocational

- Specialized job training
- Sheltered employment
- Long-term job coaching/training
- Special focus on social aspects of work (getting along with co-workers; inappropriate vs. appropriate behavior at work)

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## Financial

- Guardianship of funds may be required or a protective payee
- Individual should have been raised with the idea that he/she will need help managing money
- Monitoring finances to ensure the individual is living within means and not being financially victimized
- SSI

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## Housing

- Residential placement may be necessary
- In-home support for those able to live independently
- Ongoing supervision and monitoring to ensure safety

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## Physical Health

- Regular primary health care
- Specialty care if there are alcohol-related birth defects affecting kidney, liver or heart
- Ongoing education regarding appropriate birth control
  - Focus on the more reliable methods of birth control (e.g., IUD)

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## Social

- Social and friendship skills
- Recreational activities that provide safe social contacts and friendships
- Ongoing education regarding appropriate sexual behavior and how to protect against victimization
- Monitoring of social relationships and structuring of leisure time

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## Mental Health

- Psychotherapy (adapted) can be very helpful
- Adapt therapy to cognitive deficits of individuals with FASD (i.e., multi-sensory vs. only auditory-verbal)
- Focus on concrete issues (eg., anger management; social skills; coping with depression)

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## Strategies When Treating Patients with FASD

- Help client identify physical releases to use when escalating emotions become overwhelming
- Be alert for changes/transitions—monitor more carefully, do advance problem-solving
- Adapt cognitive-behavioral therapy techniques

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## Mental Health

- Need to address the emotional pain of being different, having a disability
- Refer to support group for individuals with FASD
- Carefully monitor suicidal ideation because individuals with FASD @ risk for suicide

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## Psychiatric Medication

- Medication management is complex
  - *organic brain damage (structural and/or neurochemical)*
  - *alcohol-related birth defects affecting metabolism of medication*
  - *presence of multiple co-morbid conditions*
- Risk of overmedication & negative side effects
- Control symptoms & allow individual to participate in interventions

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## Family Support

- Family support groups
- Family therapy
- Respite care to prevent burnout and compassion fatigue

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## Parenting

- Parenting is a complex task requiring executive functioning skills
- Individuals with FASD can parent but face multiple challenges
- Will probably require support to be successful

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## Shameless Plug

- Adult Neuropsychological Assessment Service
  - Individuals with known or suspected prenatal alcohol exposure
  - Broad range of skills based on 30+ years of research on FASD
- Contact Paul Connor 206-940-1106
  - [www.connornp.com](http://www.connornp.com)
  - See me after the talk for cards
- Forensic Assessment of FASD
  - [www.FASDExperts.com](http://www.FASDExperts.com)
  - Contact Natalie Novick Brown 425-275-1238

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