ADHD and FAS/ FASD

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Overview

Overview FASD
ADHD/ FASD
Management approaches
Very brief overview FASD
Just in case people not sure!
1. Fetal Alcohol Syndrome: Confirmed alcohol exposure:
   • Alcohol Exposure
     • Facial pattern of Short palpebral fissures ≤ 10 percentile, Thin upper lip vermillion, Smooth philtrum
     • Evidence of pre/postnatal growth retardation
     • Evidence of Neurocognitive deficits

2. Fetal Alcohol Syndrome: No confirmed alcohol exposure
   • As above but no alcohol exposure found

3. Partial Fetal Alcohol Syndrome: Confirmed Alcohol Exposure
   • Not all of the above features are present but neurocognitive and some facial features needed

4. Alcohol Related Birth Defect (ARBD)
   • Confirmed maternal alcohol consumption as well as some but not all of the facial features are present however the behavioural features or structural abnormalities are more pronounced.

5. Alcohol Related Neurodevelopmental Disorder (ARND)
   • Confirmed maternal alcohol consumption with the absence of growth retardation or facial features and with the neurocognitive features being prominent.

6. Fetal Alcohol Spectrum Disorders
   • Umbrella term. Not a diagnostic term

Other Terms to be discussed later
Comparison: Child with FAS and mouse fetus with fetal alcohol exposure

Child with FAS

Small head
Short palpebral fissures
Small nose
Small midface
Long philtrum; Thin upper lip

Mouse fetuses

alcohol-exposed normal

* For a better life
Critical periods and facial features

Normal  Alc–Day 7 Alc–Day 8

Fetus

Neonate

Modified from Sulik et al.

Slides Courtesy of Professor E Riley University of San Diego
Development of the Embryo

Coles, 1994
## Comparison between diagnostic Tools

<table>
<thead>
<tr>
<th></th>
<th>CDC</th>
<th>IOM revised</th>
<th>Canadian</th>
<th>4 Digit</th>
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</thead>
<tbody>
<tr>
<td><strong>Face</strong></td>
<td>10th percentile PFL and rank 4/5 on lip philtrum</td>
<td>10th percentile PFL and rank 4/5 on lip philtrum</td>
<td>3rd percentile PFL and rank 4/5 on lip philtrum</td>
<td>3rd percentile PFL and rank 4/5 on lip philtrum</td>
</tr>
<tr>
<td><strong>Growth</strong></td>
<td>Pre / post natal growth below 10th percentile</td>
<td>Pre / post natal growth below 10th percentile</td>
<td>Pre / post natal growth below 10th percentile</td>
<td>Pre / post natal growth below 10th percentile</td>
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<tr>
<td><strong>Neurological</strong></td>
<td>1 out of several brain parameters including OFC &lt;10 %, CNS deficits</td>
<td>1 out of I brain parameters including OFC &lt;10 %, CNS deficits or abnormal structure</td>
<td>3+ soft hard neurological signs</td>
<td>1 out of several brain parameters including OFC &lt;3 %, CNS deficits</td>
</tr>
<tr>
<td><strong>Alcohol</strong></td>
<td>Confirmed or unknown</td>
<td>Confirmed to be excessive or unknown</td>
<td>Confirmed or unknown</td>
<td>Confirmed or unknown</td>
</tr>
</tbody>
</table>
New proposed Criteria DSM V

- DSM V included FASD for first time
- FAS had been in ICD but not ARND
- Not main category
- Condition for more study

- Neurobehavioural Disorder associated with PAE I (NBD PAE)
- Effectively ARND
- 7 Domains
Characteristic vs. Discriminating symptoms
3 Disorders with overlapping symptoms

C = Characteristic: D = Discriminating

For a better life
Diagnostic pathway: information gathering

- Reliable evidence of alcohol exposure y/n
- Obtain all past records that are allowed
- Have other disorders been excluded y/n
- Clinical genetics for CGH array and/or facial diagnosis
- Insufficiently robust evidence Cannot make diagnosis
- Collate previous Cognitive and educational information
- Enter assessment phase

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Other factors to consider

- **Smoking**
  - Size and brainstem mainly

- **Opiates**
  - Opiate and ACH in Limbic system

- **Cocaine**
  - Frontal dopamine circuits

- **Others**

- **Principle:** Know biological effects and see if they fit but need to rule out
### Overview table: Behnke et al 2013 (Paediatrics)

#### TABLE 2  Summary of Effects of Prenatal Drug Exposure

<table>
<thead>
<tr>
<th></th>
<th>Nicotine</th>
<th>Alcohol</th>
<th>Marijuana</th>
<th>Opiates</th>
<th>Cocaine</th>
<th>Methamphetamine</th>
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<tbody>
<tr>
<td><strong>Short-term effects/birth outcome</strong></td>
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<td></td>
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<tr>
<td>Fetal growth</td>
<td>Effect</td>
<td>Strong effect</td>
<td>No effect</td>
<td>Effect</td>
<td>Effect</td>
<td>Effect</td>
</tr>
<tr>
<td>Anomalies</td>
<td>No consensus on effect</td>
<td>Strong effect</td>
<td>No effect</td>
<td>No effect</td>
<td>No effect</td>
<td>No effect</td>
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<tr>
<td>Withdrawal</td>
<td>No effect</td>
<td>No effect</td>
<td>No effect</td>
<td>Strong effect</td>
<td>No effect</td>
<td>*</td>
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<tr>
<td>Neurobehavior</td>
<td>Effect</td>
<td>Effect</td>
<td>Effect</td>
<td>Effect</td>
<td>Effect</td>
<td>Effect</td>
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<tr>
<td><strong>Long-term effects</strong></td>
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<tr>
<td>Growth</td>
<td>No consensus on effect</td>
<td>Strong effect</td>
<td>No effect</td>
<td>No effect</td>
<td>No consensus on effect</td>
<td>*</td>
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<tr>
<td>Behavior</td>
<td>Effect</td>
<td>Strong effect</td>
<td>Effect</td>
<td>Effect</td>
<td>Effect</td>
<td>Effect</td>
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<tr>
<td>Cognition</td>
<td>Effect</td>
<td>Strong effect</td>
<td>Effect</td>
<td>No consensus on effect</td>
<td>Effect</td>
<td>*</td>
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<tr>
<td>Language</td>
<td>Effect</td>
<td>Effect</td>
<td>No effect</td>
<td>*</td>
<td>Effect</td>
<td>*</td>
</tr>
<tr>
<td>Achievement</td>
<td>Effect</td>
<td>Strong effect</td>
<td>Effect</td>
<td>*</td>
<td>No consensus on effect</td>
<td>*</td>
</tr>
</tbody>
</table>

* Limited or no data available.
Effects of neglect

- Romanian study. Being adopted after 6 months shows developmental delays. Even if some catch up seen not as good as those adopted before 6 months. (Rutter et al 1998)

- Neglect associated with difficulties with behaviour issues, emotional issues, cognitive problems, medical sequelae which remain later in life. (Kauffmann 2009)

Overview Bellis 2005

- Romanian study showed significant neglect
- Tizzard and Hodges 74 and 77 with lesser levels of neglect showed improvement with no significant cognitive deficits
- PTSD common
- Effects on myelination and corpus collsum found but never controlled alcohol.
Neurodevelopmental outcomes by neglect category

<table>
<thead>
<tr>
<th>Condition</th>
<th>No neglect n (%)</th>
<th>Neglect n (%)</th>
<th>Total n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASD or social communication disorder</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>no ASD</td>
<td>14 (45.2)</td>
<td>14 (35.0)</td>
<td>28 (39.4)</td>
</tr>
<tr>
<td>ASD or SCD</td>
<td>17 (54.8)</td>
<td>26 (65.0)</td>
<td>43 (60.6)</td>
</tr>
<tr>
<td>ADHD</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No ADHD</td>
<td>8 (24.2)</td>
<td>10 (23.3)</td>
<td>18 (23.7)</td>
</tr>
<tr>
<td>ADHD</td>
<td>25 (75.8)</td>
<td>33 (76.7)</td>
<td>58 (76.3)</td>
</tr>
</tbody>
</table>

Chi square tests for association between neglect and outcomes: All p>0.05
### Sensory profile by neglect category

<table>
<thead>
<tr>
<th></th>
<th>No neglect n (%)</th>
<th>Neglect n (%)</th>
<th>Total n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Tactile Sensitivity</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>typical</td>
<td>2 (14.3)</td>
<td>5 (50.0)</td>
<td>7 (29.2)</td>
</tr>
<tr>
<td>possible/definite difference</td>
<td>12 (85.7)</td>
<td>5 (50.0)</td>
<td>17 (70.8)</td>
</tr>
<tr>
<td><strong>Taste Smell profile</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Typical</td>
<td>9 (64.3)</td>
<td>9 (90.0)</td>
<td>18 (75.0)</td>
</tr>
<tr>
<td>possible/definite difference</td>
<td>5 (35.7)</td>
<td>1 (10.0)</td>
<td>6 (25.0)</td>
</tr>
<tr>
<td><strong>Movement Sensitivity profile</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Typical</td>
<td>10 (71.4)</td>
<td>8 (80.0)</td>
<td>18 (75.0)</td>
</tr>
<tr>
<td>possible/definite difference</td>
<td>4 (28.6)</td>
<td>2 (20.0)</td>
<td>6 (25.0)</td>
</tr>
<tr>
<td><strong>Under responsive seeks sensation</strong></td>
<td></td>
<td></td>
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<tr>
<td>Typical</td>
<td>3 (21.4)</td>
<td>3 (30.0)</td>
<td>6 (25.0)</td>
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<tr>
<td>possible/definite difference</td>
<td>11 (78.6)</td>
<td>7 (70.0)</td>
<td>18 (75.0)</td>
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<tr>
<td><strong>Auditory Filtering</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Typical</td>
<td>1 (7.1)</td>
<td>2 (20.0)</td>
<td>3 (12.5)</td>
</tr>
<tr>
<td>possible/definite difference</td>
<td>13 (92.9)</td>
<td>8 (80.0)</td>
<td>21 (87.5)</td>
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<tr>
<td><strong>Low energy weak</strong></td>
<td></td>
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<tr>
<td>Typical</td>
<td>6 (42.9)</td>
<td>6 (60.0)</td>
<td>12 (50.0)</td>
</tr>
<tr>
<td>possible/definite difference</td>
<td>8 (57.1)</td>
<td>4 (40.0)</td>
<td>12 (50.0)</td>
</tr>
<tr>
<td><strong>Visual auditory sensitivity</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Typical</td>
<td>2 (14.3)</td>
<td>4 (40.0)</td>
<td>6 (25.0)</td>
</tr>
<tr>
<td>possible/definite difference</td>
<td>8 (57.1)</td>
<td>4 (40.0)</td>
<td>12 (50.0)</td>
</tr>
<tr>
<td><strong>Short Sensory Profile Total</strong></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>typical</td>
<td>1 (7.1)</td>
<td>4 (40.0)</td>
<td>5 (20.8)</td>
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<td>13 (92.9)</td>
<td>6 (60.0)</td>
<td>19 (79.2)</td>
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</tbody>
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Chi square tests for association between neglect and SSP outcomes: All p>0.05
Brief look at impact on brain function

Examples only lots more if we had time
Alcohol induces cell death

Within 8–12 hrs of maternal ethanol treatment, embryos illustrate excessive cell death in the ANR (arrows in d, e, and f).

devloping eye.

Kotch and Sulik Dunty et al,
Critical periods and facial features

Normal  Alc–Day 7  Alc–Day 8

Fetus

Neonate

Modified from Sulik et al.

Slides Courtesy of Professor E Riley University of San Diego
Development of the Embryo

Coles, 1994
Neurotransmitter and receptor imbalance (one pathway only)

- Multiple mouse models have shown neurodegeneration following alcohol exposure and apoptotic effects (Olney 2002)
- Gaba system affected and damaged in mouse models (Isayama 2009)
- Not yet proven and some evidence that mechanisms of damage more than just apoptosis (Sanderson 2008)
- Human studies lacking
CIFASD DTI studies

Fiber tract reconstruction of the corpus callosum

Control

Prenatal ethanol exposure
2. Migration

Note that differentiation is going on as neurons migrate.

For a better life

Courtesy of Diana S. Woodruff-Pak, Ph.D
Alcohol effects migration of cortical neurons

Control

Alcohol

Courtesy of MW Miller
Relationship to ADHD

Much has looked at broad presentation not just diagnosed FAS
Initial thoughts

Observation of overlap
- Attention core symptom (Kopera Frey et al 1997)
- Seen from birth (Streissguth 2007)

Increasing observance of deficits
- Attention and Behaviour: rated more inattentive at school than non exposed (Brown et al 1990)
- Sustained Attention (Boyd et al 1990)
- ADHD and FAE (O’Malley 1994)

Many of the studies small scale and exploratory

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Osterheld and Wilson 1997

- No aetiological relationship: chance alone
- Mothers with ADHD more likely to drink therefore other genetic transmission
- Factors common to both
- Alcohol common factor both FAS and ADHD

At this point still seen as two separate disorders which is in keeping with its understanding at time.
Epidemiology study of externalising behaviours (Onforio 2007)

- Large scale study looking at PAE and those without and symptoms of attention and impulsivity problems and Conduct Disorder
- Large epidemiology study
- AIP thought related to other factors but conduct disorder more likely in this group

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Recent findings

- Children with PAE more likely to clinically screen ADHD (Fryer et al., 2007; Kooistra et al., 2010;)
- Inattention far more likely presentation (Fryer et al 2007)
- Focused attention worse in PAE exposed than non exposed (Matteson 2006)
- Relationship to EF deficits seen several studies (Hermal et al 2007, Matteson et al 2005, Rasmussen and Bizanz 2009)
The greater the demand the more the challenge

- Cognitive flexibility is an issue
- When combined with wider executive deficits leads to problems, e.g. holding and manipulating information
- Also affected by wider ability
Ongoing issue to consider

Are FASD and ADHD/ASD separate conditions

How do they all fit together in a wider neurodevelopmental landscape

How do underlying factors such as brain function influence these factors
Problems with studies and findings

- Measures used not effective at assessing function.
- Numbers small
- Not necessarily representative samples
- FASD vs PAE
- Scientific studies look at single problems not the whole picture
- Known genetic markers ADHD not looked at.
Relationship between disorders

(Chapter 13 FASD Inter professional perspectives Raja Mukherjee)
Top down or bottom up?

Top Down: Phenomenology

Symptoms / Function

Bottom Up: Aetiology
Cluster of Symptoms

Inattention

Hyperactivity

Cognitive flexibility problems

Poor planning

Poor social understanding

Receptive language deficits

Expressive language deficits

Impulsivity

Tics

Working Memory deficits

Poor imagination

Obsessionality

Receptive language deficits

Expressive language deficits

For a better life
Cluster of Symptoms: ADHD

- Inattention
- Hyperactivity
- Impulsivity
- Poor Planning
- Tics
- Cognitive flexibility problems
- Receptive language deficits
- Expressive language deficits
- Poor social understanding
- Poor imagination
- obsessionality
- Working Memory deficits
Cluster of Symptoms: ASD

- Inattention
- Hyperactivity
- Impulsivity
- Obsessionality
- Tics
- Poor Planning
- Cognitive flexibility problems
- Receptive language deficits
- Expressive language deficits
- Poor social understanding
- Poor imagination
- Working Memory deficits

For a better life
Cluster of Symptoms: ASD / ADHD

Inattention
Hyperactivity
Impulsivity

Receptive language deficits
Expressive language deficits
Poor social understanding
Poor imagination

Poor Planning
Cognitive flexibility problems
obsessionality
Tics
Working Memory deficits

For a better life
Cluster of Symptoms: FASD

- Inattention
- Hyperactivity
- Poor social understanding
- Impulsivity
- Obsessionality
- Tics
- Poor Planning
- Receptive language deficits
- Cognitive flexibility problems
- Working Memory deficits
- Poor imagination
- Expressive language deficits
An example of complexity that needs to be understood

Different types of social functioning
In people on the Autistic Spectrum

Fragile X
Runbenstein Taybi
Angelmans

High
Low

Sociability

For a better life  Oliver et al 2012
Type of Social Impairment

:From DISCO scoring

For a better life
An example of complexity that needs to be understood

Different types of social functioning
In people on the Autistic Spectrum

Angelman's
Runbenstein Taybi
Fragile X

High
FASD
Low

For a better life Oliver et al 2012
ADHD

<table>
<thead>
<tr>
<th>DSM IV 314.01 ADHD Combined</th>
<th>DSM IV 314.00 ADHD Inattentive Type</th>
<th>Did not meet criteria</th>
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<tbody>
<tr>
<td>17</td>
<td>30</td>
<td>11</td>
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Single item analysis of ADHD diagnostic criteria: inattentive symptoms

<table>
<thead>
<tr>
<th></th>
<th>Percentage of Group meeting Criteria (n) Total in group (21)</th>
</tr>
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<tbody>
<tr>
<td>Not pay attention</td>
<td>81 (17)</td>
</tr>
<tr>
<td>Fail to stick at task</td>
<td>76.2 (16)</td>
</tr>
<tr>
<td>Not listen when spoken to</td>
<td>81 (17)</td>
</tr>
<tr>
<td>Fail to Finish an instruction</td>
<td>95.2 (20)</td>
</tr>
<tr>
<td>Difficulties planning</td>
<td>90.5 (19)</td>
</tr>
<tr>
<td>Avoid areas find difficult</td>
<td>90.5 (19)</td>
</tr>
<tr>
<td>Loose things needed for task</td>
<td>85.7 (18)</td>
</tr>
<tr>
<td>Easily distracted</td>
<td>100 (21)</td>
</tr>
<tr>
<td>Forgetful</td>
<td>90.5 (19)</td>
</tr>
</tbody>
</table>
## Single item analysis of ADHD diagnostic criteria: Hyperactive impulsive criteria

<table>
<thead>
<tr>
<th>Criterion</th>
<th>Percentage of Group meeting Criteria (n) Total in group (21)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sits fidgeting</td>
<td>85.7 (18)</td>
</tr>
<tr>
<td>Gets up when should sit down</td>
<td>57.1 (12)</td>
</tr>
<tr>
<td>Not stay still / squirm</td>
<td>28.6 (6)</td>
</tr>
<tr>
<td>Cannot be quiet</td>
<td>47.6 (10)</td>
</tr>
<tr>
<td>Driven by a motor</td>
<td>42.9 (9)</td>
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<tr>
<td>Talk excessively</td>
<td>66.7 (14)</td>
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<tr>
<td>Blurt out answers</td>
<td>85.7 (18)</td>
</tr>
<tr>
<td>Difficulties waiting turn</td>
<td>66.7 (14)</td>
</tr>
<tr>
<td>Interrupts others</td>
<td>90.5 (19)</td>
</tr>
<tr>
<td>DBC Parameter</td>
<td>Mean Score</td>
</tr>
<tr>
<td>-------------------------------------------</td>
<td>------------</td>
</tr>
<tr>
<td>Easily Distracted</td>
<td>1.95</td>
</tr>
<tr>
<td>Over excited</td>
<td>1.86</td>
</tr>
<tr>
<td>Impulsive</td>
<td>1.81</td>
</tr>
<tr>
<td>Problems with feelings</td>
<td>1.77</td>
</tr>
<tr>
<td>Poor sense of danger</td>
<td>1.76</td>
</tr>
<tr>
<td>Easily Led</td>
<td>1.75</td>
</tr>
<tr>
<td>Poor attention span</td>
<td>1.71</td>
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<tr>
<td>Temper Tantrums</td>
<td>1.70</td>
</tr>
<tr>
<td>Impatient</td>
<td>1.65</td>
</tr>
<tr>
<td>Irritable</td>
<td>1.61</td>
</tr>
<tr>
<td>Tells Lies</td>
<td>1.52</td>
</tr>
<tr>
<td>Does not mix with own peer group</td>
<td>1.50</td>
</tr>
<tr>
<td>Attention seeking</td>
<td>1.50</td>
</tr>
</tbody>
</table>
Short Sensory profile (W.Dunn)
The problem single clinic pathways: 1/4 missed

**ADHD**
- 73
- 27

**ASD**
- 60
- 40

For a better life
Principles
Assessment and Management

Learning Disabilities Services
For a better life
Stages of Management

Assessment

Short term work

Long term work

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Important issues

- Has to be individualised
- Some similarities between individuals
- Need to understand individual needs first
Behaviour
Behaviour

- Hyperactivity
- Trauma
- Arousal
- Anxiety
- Mental health
- Function
- Psychological (later)
- Medication
Hyperactivity

- True hyperactivity or not
- Need for sensory input
- Bordom?
  - Social communication disorder vs ADHD
- Frontal lobe motor inhibition
- External stimulus can help

<table>
<thead>
<tr>
<th>Behavior</th>
<th>Percentage of Group meeting Criteria (n) Total in group (21)</th>
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</thead>
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</tr>
</tbody>
</table>

For a better life
Arousal

- Combination of factors
  - Cognition
  - Communication
  - Sensory overload
  - Inability to filter information

- Neural networks compensate and cope to point
Results: ‘Opposite’ Condition

<table>
<thead>
<tr>
<th>Controls</th>
<th>ARND</th>
<th>Dys PAE (FAS)</th>
</tr>
</thead>
</table>

Left hand response to Opposite side stimulation (LO)

Significant difference between FAS and Control groups in premotor area

<table>
<thead>
<tr>
<th>Controls</th>
<th>ARND</th>
<th>Dys PAE (FAS)</th>
</tr>
</thead>
</table>

Right hand response to Opposite side stimulation (RO)

Significant difference between FAS and Control groups in primary motor (arrows) and premotor areas
Arousal

Combination of factors
• Cognition
• Communication
• Sensory overload
• Inability to filter information

Over aroused
Lower threshold to anger
Medication for behaviour

- Evidence base limited
- No large scale RCT
- Small scale studies
  - Methylphenidate
  - Methylphenidate vs Dexamphetamine
  - Risperidone + CFT
- Long Vs Short acting
- Side effects
  - Wt Gain
  - irritability
Communication

Learning Disabilities Services

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Communication

- Verbal memory
- Talk out loud
- Receptive language skills
- Non verbal communication
- Social communication issues
How to talk

“We are going out, get your coat”
- Get your coat
- We are going out

Short sentences
Repeat if needed
Pause in between parts
Seek clarification
- Not just do you understand

Will vary between individuals
Better one to one with less external noise

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Social communication

- Challenge to teach individuals
- Social stories from an early age
- Repetition of simple social cues
- Reliance on a few who they trust to check acceptability of social cue
- Childhood friendship training
  - Peer group support
Cognitive

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Psychology

- Cognitive difficulties
- What works for some does not work for all
- Affected by level of IQ, emotional trauma and wider profiles.
- Often the world needs to make reasonable adjustments because individual cannot
Scaffold their disabilities

- Build on skills and give strategies to help difficulties
- Electronic diaries with reminders
  - Might lose them
- Visual reinforcement
- Routines
- Warning and realistic expectations
- Reasonable adjustments

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How the brain organises information: External Support

Executive Control monitors, locates, and plans activities

A: Pedestrian crossing

B: How to cross a road

C: Cars can kill
Routine

- Keep to a routine as far as possible
- Predictable environments
- Do not change without warning
- Refer back to visual reinforcer of routine
- Worst oppositional behaviour often seen in response to change in routine

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Mental health

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Mental health

- Treat the underlying disorder
- Medication same principles as others
- Side effects of medication may need more consideration
- Higher rates of suicide than non-affected
Solution focused approach

Start → Step 1 → Step 2 → Step 3 → Step 4 → Step ... → Goal

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Problem Focused approach

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Passport of Solutions

- Develop solutions for each setting
- As many contexts as possible
- Get the individual used to using them
- Smaller version to carry with them
- Visual reinforcement if needed
Emotion focused Therapies

- Depends on the individual
- Trauma often experienced and may benefit
- Those with poor emotional understanding other approaches may be better
- Works for some

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Sensory processing
Sensory

- Brain struggles with integrating information it is receiving
- Occupational Therapy assessments
- Wide ranging
- Fine motor more issue than gross motor
- Other areas different solutions
Auditory filtering

» Too much noise
» Need quiet environment
» Time out
» Noise reduction headphones
Sensory seeking behaviour

- Sensory input devices
  - Wobble cushion
  - Squeeze balls
- Allow individuals to move around
- Swings and revolving chairs
- Furniture that gives the input needed.
Where can I go for help?
Referral pathways

- Clinical Genetics (diagnosis only)
- FASD Specialist (very few around)
- Paediatrician
- Child psychiatry
- Child Psychology
- Adult Psychiatry
- LD Psychiatry

Often need to specify suspected diagnosis

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