

# Neuro Developmental Conditions

## All Things ADHD Series Medication

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# Outline

- 1) Video: 'What does it feel like to have ADHD?'
- 2) Causes of ADHD
- 3) The Brain and ADHD
- 4) ADHD- the controversies around diagnosis?
- 5) Treatment of ADHD – drug and non-drug treatments
- 6) Video: 'Does medication turn me into a different person?'
- 7) Health monitoring and managing side effects of medication

# What is it like to have ADHD?

VOICES study [www.adhdvoices.com](http://www.adhdvoices.com)

VOICES written report [www.adhdvoices.com/adhdreport](http://www.adhdvoices.com/adhdreport) is:  
Singh, I. (2012). *VOICES Study, Final Report*. London, UK.

The full film's reference:

*ADHD and Me*. (2012) VOICES Study animated film, London, UK. [www.adhdvoices.com](http://www.adhdvoices.com)

## What causes ADHD

- Highly heritable (70-80%)
- Also associated with environmental factors:
  - Low birth weight / prematurity
  - Prenatal substance and alcohol abuse



## The Brain and ADHD

- Possibly reduced Dopamine receptor density
- Brain maturity is about 2 years behind
- Right inferior prefrontal cortex important for impulse control, attention and concentration.



Nakao et al. Am J Psych. 2011; Rubia et al, NeuroImage 2019

## Why the controversy around ADHD diagnosis

- ADHD prevalence (how often it is diagnosed) varies
  - By country (USA, 8.8%; UK, 1.9%)
  - How many children on medication ( USA 6%, UK 1%)
- Different diagnostic criteria (DSM 5 and ICD10)

## Why the controversy around ADHD diagnosis (2)

- **Influence of Industry:** direct to consumer advertising US, funding of patients groups and online forums
- **Zone of ambiguity around diagnosis:** judgment is influenced by cultural expectations of child behaviour

## Treatment (NICE ADHD Guidelines 2019)

- **Mild to moderate ADHD:** parenting and behavioral strategies
- **Severe ADHD:** medication alongside parenting and behavioural strategies

[www.nice.org.uk/guidance/ng87](http://www.nice.org.uk/guidance/ng87)

## What helps a child with ADHD?

- Parent Support
- Classroom interventions
- Dietary interventions
- Medication

## Parenting Support

1. Focuses on helping parents understand their child's difficulties in relation to ADHD
2. Does not improve core symptoms of ADHD such as inattention, distractibility and hyperactivity, and helps the parent support their child with these difficulties
3. Improves the parent-child relationship, and helps the child feel more understood

## Classroom interventions


- Improve knowledge and attitudes of teacher
- Reduce distraction in classrooms
- Physical activity very important
  - use of movement breaks, fiddle toy
- Break down tasks
- Sit near teacher
- Focus on positive behaviour, ignore negative behaviour

## ADHD and diet

- Focus on a *balanced diet*
- If specific foods or drinks are suspected to influence hyperactivity, *keep a diary* of food intake and behaviour
  - Management of elimination diet needs to be done with dietitian
- For children and young people with ADHD:
  - Elimination of artificial coloring and additives is *not advised*
  - Fatty acid supplementation is *not recommended*



## Evidence base: Medication

- Medication treats core symptoms of ADHD 
- Not many studies looking at long term outcomes
- Does not work for everyone

[www.nimh.nih.gov/funding/clinical-research/practical/mta/the-multimodal-treatment-of-attention-deficit-hyperactivity-disorder-study-mta-questions-and-answers.shtml](http://www.nimh.nih.gov/funding/clinical-research/practical/mta/the-multimodal-treatment-of-attention-deficit-hyperactivity-disorder-study-mta-questions-and-answers.shtml)

## Will medication turn me into a different person?

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**ADHD**  
**AND ME**

Does Medication turn me into  
a different PERSON?

## Common ADHD medication

- **Short acting stimulants**

- Work immediately, for around 4 hours
- Examples: Ritalin, Methylphenidate, Medikinet, Dexamphetamine

- **Longer acting stimulants:**

- Work immediately, for about a day
- Examples: Medikinet XL, Concerta XL, Lisdexamphetamine

**Atomoxetine** is also commonly prescribed, but has a different mechanism of action, and takes up to 6 weeks to have an effect.

## Side effects of medication (1) Cortese 2013

### Head

- Headache – *common at beginning of treatment*
- Nervousness - *common, dose will need reducing if child becomes anxious*
- Trouble sleeping: *adjust dose (paradoxically can also help with sleep)*
- Tics: *'naturally wax and wane'- sometimes increase due to meds (monitor/switch medication)*
- Seizures: *very rare (discontinue immediately)*

### Heart

- Bloodpressure and pulse: *gives slight increase, need baseline and monitor after dose increase and every 6 months*
- Children with a congenital heart defect, a history of cardiac symptoms (e.g., fainting on exercise, palpitations), who have a murmur or a positive family history of sudden death below the age of 40 years a cardiology opinion before starting medication

## Side effects (2)

### Stomach

- Nausea: *very common, transient*
- Appetite suppressant with weight loss: *take with or after food rather than before meals; high calorie & additional snacks, switch medication*
- Liver damage (*Atomoxetine, very rare and idiosyncratic*)

### Growth

- Reduced 1cm/year for 1<sup>st</sup> 3 years-*consider a break in drug treatment over the school holidays to allow "catch-up" growth*

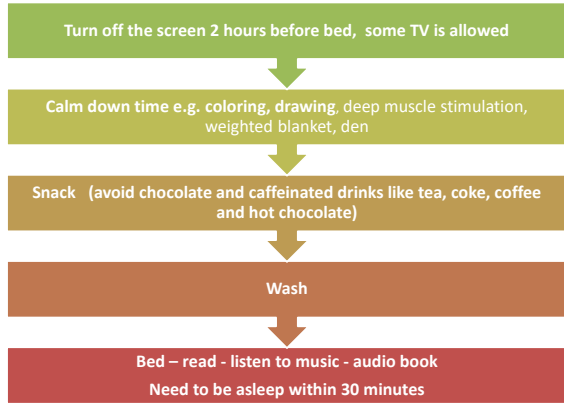
### Other side effects

- Hearing voices, suicidal thoughts: *Very rare, stop or switch meds*
- Erectile and ejaculatory dysfunction and period pain: *can happen on Atomoxetine*
- Misuse: *short acting methylphenidate has 'street value'– consider a longer acting medication if risk of selling on street*

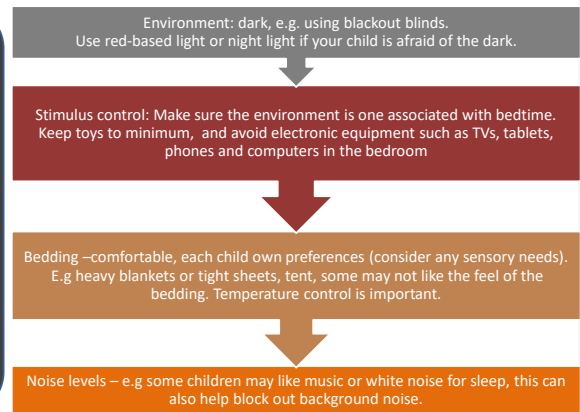
### 4 signs medication may need adjusting

1. Medication not providing adequate cover
2. Child is very agitated when coming off medication
3. Child's appetite/growth affected
4. Sleep affected

### Supporting a healthy sleep routine



### Creating a good sleeping environment



# Thank you

## References:

- NICE. 2018. Attention Deficit and Hyperactivity Disorder: Diagnosis and Management. Accessed on 04.01.2019. <https://www.nice.org.uk/guidance/ng87/chapter/Recommendations#medication>
- Verkuyl N.E., Perkins M, Fazel M, Clinical Review: Childhood ADHD. *BMJ May 2015*. <http://www.bmj.com/content/350/bmj.h2168>
- <https://cerebra.org.uk/download/sleep-tips/>
- <http://www.adhdvoices.com/>

  
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