Tics, Stims, Compulsions and Obsessions: What is the Diagnosis?

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What is it?

- Habit: a routine or behavior regularly repeated. Does not need to interfere with life or cause self injury
- Mannerism: repetitive or distinctive behavior trait


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Repetitive Behaviors in ASD

- Obsessions
- Compulsions
- Tics
- Stereotypies
- Body focused repetitive behaviors
- Over valued ideas

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Tics

- A sudden, repetitive, nonrhythmic motor movement or vocalization involving discrete muscle groups
  - Simple or complex
  - Central or peripheral
  - Rostral or caudal
- Suppressible yet irresistible
- May be hard to distinguish from compulsions

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Tics: DSM 5

- Tourette's Disorder
  - Multiple motor and one or more vocal tics
  - Wax and wane but have persisted for more than a year
  - Onset before the age of 18
  - Not substance induced

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Tics: DSM 5

- Persistent motor or vocal tic
  - Single or multiple motor or vocal tics but not both
  - Wax and wane but have persisted for more than a year
  - Onset before the age of 18
  - Not substance induced
- Provisional tic disorder if not present for a year

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Tics

- Most often start as motor then vocal
- Most often are simple and then complex
- Most often are rostral then caudal
- Most often central and then peripheral

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Tics

- Most tics improve with age, even with a diagnosis of Tourette's
- Most tics are mild in nature
- Coprolalia is rare
- Severe tics can cause pain and significant physical discomfort: joint pain, headaches, neck pain

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Tics

- http://www.youtube.com/watch?v=l7jqm4hM2CM

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Epidemiology of Tics

- More common in males
- Up to 20% of school aged children may have tics at some point
  - More conservative data suggest about 10% of boys and 5% of girls
  - Eye blinking and head tics were the most common
- Prevalence of Tourette's is about 1/100

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Should I Treat a Tic?

- Treatment should be considered only if there is impairment from the tic
  - May be emotional
    - Bullying
  - Verbal tics may be impairing to others
    - School impact

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Treatment of Tics

Alpha 2 adrenergic agonists	•Clonidine and guanfacine
Antipsychotics	•Older agents •Pimozide and haloperidol •Newer agents •Risperidone, aripiprazole
Accepted alternatives	•Clonazepam, botulinum injections, topiramate, levetiracetam

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Treatment of Tics

- Awaad et al
  - Movement Disorders, Feb 2005
  - 66 school aged children with tics or Tourette's
  - Open label trial of Keppra
    - Started at 250 mg daily and titrated to 1000-2000 mg daily
    - All patients had a decrease in tics
    - 43 patients had additional behavioral improvement

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Treatment of Tics

- Tics in Tourette's Syndrome: New Treatment Options
  - Awaad, J of Clinical Neurology; Aug 2010
- 450 subjects 6-18 years of age with Tourette's
  - 264 subjects on Baclofen 10-80 mg per day
    - 250 had a significant decrease in tics within 1-2 weeks
  - 186 had Botox every 6-9 months
    - 35 had complete control of their motor tics but l less control of their vocal tics. Further control was obtained in 30 more with the addition of low dose baclofen

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Treatment of Tics

- Muller-Vahl et al
  - THC is Effective in the Treatment of Tics
    - Journal of Psychiatry, 2003
  - 24 adult subjects with tics
  - Double blind placebo controlled trial of up to 10 mg THC per day
  - Results suggest a trend towards a significant improvement in the THC group

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Tics and Stimulants

- The presence of tics does not preclude the use of stimulant medications
- Only about one third of kids with pre-existing tics will have a worsening of tics when stimulants are started
  - Two thirds will have no change or improve
  - Improvement is thought to be due to decreased stress when behavior have improved on stimulants

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Habit Reversal

- Nonpharmacological management
- Very effective
- Is easier to implement for tics with a clear premonition or urge
- Treat should start with an obvious, easily noticed tic to help the child gain skills and confidence

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Clinical Recommendations for ADHD with Tics

- Treating with stimulants is acceptable
  - If tics increase but are not clinically significant no change is needed
  - If tic increase is significant but there is good benefit for ADHD from stimulants then consider adding alpha 2 medications
    - This may help BOTH tics and ADHD
    - Or consider stopping the stimulant and just use a nonstimulant for the ADHD such as atomoxetine or an alpha 2 agent
  - Consider carefully before adding antipsychotic for tics caused or worsened by stimulants

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Tics and ASD

Rate of tics in persons with ASD ranges from about 20-30% depending on the study and measurement tool used

Rate of ASD in persons with Tourette's has been as high as 20 percent in some studies

Some studies have found that ASD persons with tics have higher cognitive skills than ASD persons without tics

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Stereotypies

- A repetitive or ritualistic movement, posture, or utterance
  - Involves rigidity and invariance and tends to be inappropriate
  - Generally thought to lack purpose
- Commonly seen in persons with developmental disabilities
  - Hand flapping, body rocking, toe walking, spinning objects, sniffing, immediate and delayed echolalia, running objects across one's peripheral vision

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Stereotypies

Frequently associated with autism spectrum disorders but not unique to this population

Very common in children and adults with a variety of developmental differences

May be seen in otherwise typical children and adults

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Epidemiology

- Studies suggest 20-30% of typical children and two thirds of normal infants have some type of stereotypy or habit
  - Nail biting and thumb sucking are the most common followed by nose picking, breath holding, bruxism, head banging

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Stereotypic Movement Disorder

- Repetitive , seemingly driven and apparently purposeless motor behavior
- Interferes with normal function and may cause self injury
- Onset in early development

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Neurobiology of Stereotypies

- Movements have emerged with injuries to the putamen, orbitofrontal cortex and thalamus
- In children with severe complex motor stereotypies MRI studies show decrease volume of caudate nuclei and frontal white matter
- Administering dopamine to rodents can produce repetitive motor behaviors

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Neurobiology of Stereotypies

- Studies suggest a genetic component
  - About 15% of normally children with a stereotypy have an affected first degree relative
  - MECP2 gene on chromosome X is associated with increased stereotypies

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Stereotypies

- http://www.youtube.com/watch?v=nvkCpOBtn2M
- http://www.youtube.com/watch?v=T2vZrqWhRHA

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Classification of Stereotypies

Primary: have no precipitating cause

Common	Atypical
•For example, rocking, finger drumming, head banging	•Head nodding •Complex motor such as hand flapping

Secondary: implies the presence of additional neurologic or behavioral diagnoses such as autism

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Treatment of Stereotypies

Very limited data

Habit reversal and differential reinforcement of preferred behaviors may be effective

Medications are not generally useful and there are no studies suggesting the use of medications for childhood stereotypies

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Comorbid tics and stereotypies: a systematic literature review.

- Cavanna et al; Neurological Sciences March 2023
  - 253 articles, 6 studies met qualifications for inclusion, 231 subjects, 8-13 years old. All included were typically developing
  - 23% had comorbid tics and stereotypies
  - 65% males
  - 38% ADHD
  - 8% of persons with Tourette's also had stereotypies

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Tics Versus Stereotypies

- Tics
  - Wax and wane
  - Centrally located more often
  - Premonitory urges
  - Worsened with anxiety
- Stereotypies
  - Tend to be more complex and rhythmic and involve limbs and trunk
  - Triggered by excitement
  - Earlier onset than tics

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Stereotypies in Autism

- Often called "stimming"
- May occur when tense or anxious but may also occur when happy
- May help to organize thoughts and feelings
- Some propose that repetitive motor behaviors in autism regulate and counter- balance irregularities in other systems such as sensory processing

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What About Compulsions?

- Repetitive behavior done in response to a feeling, thought, or urge
- Key symptom in OCD but may exist in other disorders such as compulsive shopping, gambling, sexual behavior, etc.

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Compulsion or Tic

- At times compulsions are hard to differentiate from complex motor tics
  - Repetitive touching, tapping
- Differentiation may impact treatment choices
  - SSRI's versus a medication for tics

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Compulsions in Autism

- Essentially all person with autism have some degree of repetitive thoughts and behaviors
- Compulsions and obsessions in OCD are recognized as ego dystonic
- A person with autism will typically enjoy there repetitive behaviors
- About 17% of persons with ASD have true comorbid OCD

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Treatment of Compulsions in Autism

- True OCD in ASD can be treated with SSRI's
- Repetitive behaviors in ASD typically do not respond as well (or at all) to medications
  - Yu et al; BMC Psychiatry 2020;20:121
    - 14 randomized controlled studies, 552 subjects
    - No difference found with fluvoxamine, risperidone, citalopram, oxytocin, N-acetylcysteine, buspirone

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Obsessions in Autism

- A key feature of ASD is restricted range of interests
  - These are most often pleasurable and enjoyable and may be "odd"
- Obsessions are often unpleasant and are unwanted and intrusive

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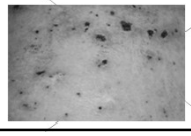
Body Focused Repetitive Behaviors

- Collection of motoric acts that can become ingrained, habitual, and functionally impairing
- Usually related to excessive grooming and skin
- DSM 5 recognizes hair pulling and skin picking



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Epidemiology

- Most start between the ages of 11-13 years old
- Females more then males
- Hair pulling and skin picking are the most common BFRB
- Associated with a higher rate of mood and anxiety disorders but may exist entirely on their own

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Treatment of BFRB

- Many studies of medications
- Virtually every medication class has been used to treat this group of disorders
- Behaviorally strategies are the mainstay of therapy, especially for children
  - Habit reversal
  - Environmental changes
  - Barriers

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Medications for BFRB

- Consider the presence of comorbidities and treat them first
  - For example, use an SSRI to treat depression or anxiety but do not expect if will help hair pulling or skin picking
  - Treatment of the underlying disorder allows the patient to better focus on behavioral strategies for the habit

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Medications for BFRB

- In children behaviors may be worse at times of boredom or passivity including when they are lying in bed to fall asleep
  - Treating sleep issues may indirectly decrease habit by shortening the time they lay in bed
    - Consider clonidine, trazodone, mirtazipine

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Medications for BFRB

- Numerous different approaches to medications
  - Obsessive/Compulsive
    - Use SSRI's
  - Pleasure seeking
    - Consider antipsychotics
  - Addictive
    - Naltrexone
  - Tic like
    - Alpha 2 agents or antipsychotics

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Medications in BFRB

- **An Open-Label Pilot Study of Naltrexone in Childhood-Onset Trichotillomania** Avinash De Sousa. Journal of Child and Adolescent Psychopharmacology. February 2008, 18(1): 30-33.
  - !4 children with a mean age of 9 years
  - Treated with naltrexone 25-100 mg per day, mean dose of 66 mg
  - 11 of 14 showed a positive response

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Medications for BFRB

- N-Acetylcysteine in the Treatment Of Trichotillomania
  - Grant et al, Archives of General Psychiatry, July 2009
  - Double blind placebo controlled 12 week study with 50 adult hair pullers
  - 56% were improved or much improved with NAC
  - 16% improvement in the placebo group
  - Nausea, headache and abdominal pain were the most common side effects

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What is NAC?

NAC is a natural sulfur-containing amino acid that is a breakdown product of the amino acid L-cysteine

It is in turn broken down by the body and converted to a powerful antioxidant known as glutathione.

Antioxidants can repair oxidative stress.

Oxidative stress occurs when cell metabolism produces an increased level of free radicals

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How to Use NAC

Start with 600 mg daily for 1-2 weeks

Increase every 2 weeks by 600 mg

For example 600 mg bid
Then 600/1200
Then 1200 bid

Max dose recommendations vary but usually between 2400-3000 mg daily

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Medications for BFRB

- Two case reports of topiramate for skin picking
  - Both patients had ASD, ages 15 and 16
  - Chronic skin picking
  - Failed multiple other medication trials
  - Topiramate titrated to 200 mg daily for 12 weeks
  - Some positive benefit, but in one patient symptoms returned to baseline after using meds for a while

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Medications with BFRB

- Some medication cause BFRB like symptoms
  - SSRI's are know to increase bruxism as well as in some cases habits such hair pulling and skin picking
    - Bruxism may be treated with buspirone
  - Stimulants can not only cause tics but also increase hair pulling and skin picking

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Summary

- Persons with ASD are likely to have a variety of repetitive behaviors associated with their autism
- ASD can also be associated with an increase in tics, OCD, and BFRB
- Distinguishing the differences between these behaviors can help guide treatment and prognosis

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