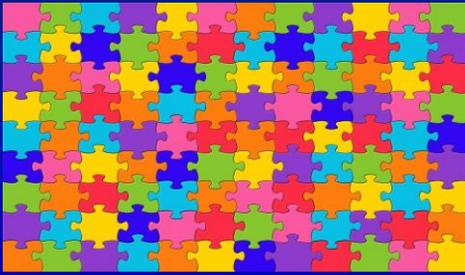


The Tourette Syndrome Puzzle: How the Pieces Fit Together

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A Puzzling Condition on Several Fronts...



Phenomenology: What Is It?



Tourette's Syndrome: What Is It?

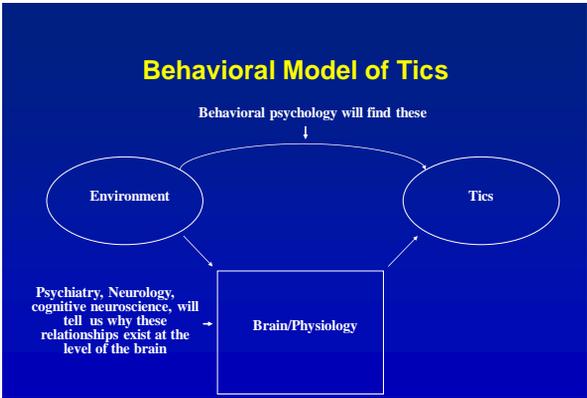
- Tourette's Syndrome (TS) involves motor and vocal tics
- More common in males
- Majority age out, but few reliable predictors of who will and who won't
- Comorbid Conditions
 - Anxiety Disorders (> 40%)
 - Obsessive-Compulsive Disorder (> 30%)
 - Panic Disorder (> 10%)
 - Simple Phobia (> 20%)
 - Major Depression (> 40%)
 - ADHD (> 50-90%)
 - Learning Disability (> 50%)

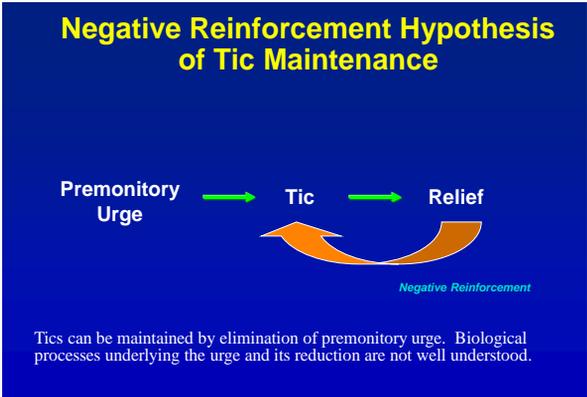
Tourette's Syndrome & Chronic Tics:

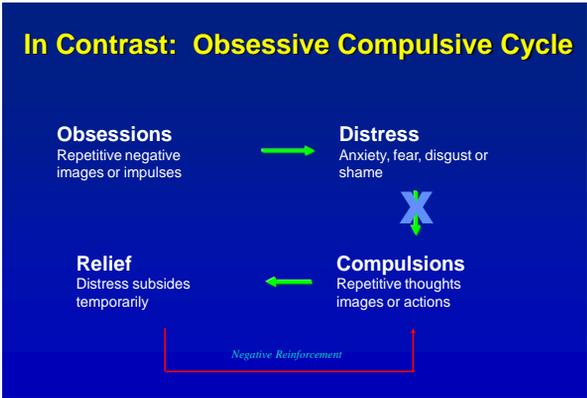
- Neurobiological origins (basal ganglia)
- Genetic contribution
- Environmental influences
- If it's biological in nature, is it immutable?
- If it's biological in nature, are biological treatments necessary?
- The analogy of diabetes...

Common Features of Tics

- Simple or complex
- Wax & wane
- Occur in bouts of bouts of bouts
- Topography changes
- Motor tics typically develop from head down
- Often follow a developmental pattern
- Usually preceded by premonitory urge







Cross Cutting Underlying Factors

- Repetitive behaviors
- Affective states
- Response inhibition deficits
- Behavioral addiction model (short-term rewards that engender persistent behavior despite knowledge of adverse consequences)
- Implications for framing grants in accordance with NIMH's RDOC framework

What Environment-Tic Relationships do Behavior Therapists Look For?

- Events in the world that push and pull tics
- Antecedents
- Consequences
- Antecedents & Consequences can be internal (events in your body) or external (events outside your body)
- By understanding how the environment impacts tics, the environment can be modified in a targeted way to promote tic reduction

Consequence Events That May Impact Tics

- Tics can be made more frequent by...
 - Social reactions (e.g., Watson & Sterling, 1998)
 - Parental attention or comfort
 - Peer attention
 - Escape from an aversive situation
 - Reduction of premonitory urge as a result of a tic
- Tics can be made less frequent by...
 - Reinforcing suppression of tics
 - Potential reinforcers for suppression could include
 - Avoidance of teasing
 - Being able to participate in a social activity or sport
 - Avoidance of embarrassment

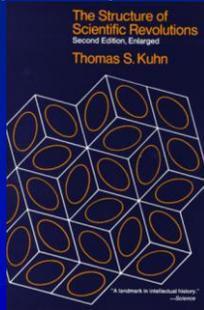
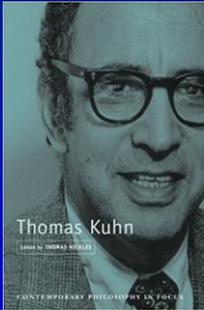
**Sounds Familiar...
So Why Wasn't TS Moved in DSM V?**



"A camel is a horse designed by committee."

Sir Alec Issigonis

Science is Influenced by the Subjective...



**Treatment Efficacy:
What Does the Literature Tell Us?**



Treatment Efficacy (Whittington et al., J Clin Psychol & Psychiatry, 2016)

- Oral alpha agonists (guanfacine, clonidine)
- Atypical neuroleptics
- Behavioral treatments including habit reversal training
- No scientific evidence support physical or dietary Tx
- Great heterogeneity w/ respect to Tx response
- No studies of relative vs. combined Tx for MEDS vs. CBIT

Empirical Support for Habit Reversal with Tic Disorders

- Transient/chronic tics
 - Effective in reducing or eliminating motor tics in adults and children (Azrin & Nunn, 1973)
- Tourette's Syndrome
 - More effective than relaxation training or self-monitoring (Peterson & Azrin, 1992)
 - More effective than wait-list control (Azrin & Peterson, 1990)
 - More effective than supportive psychotherapy in adults (Wilhelm et al., 2003)
 - More effective than supportive psychotherapy in kids (Piacentini et al., 2010)

Moderators/Predictors of Treatment Response

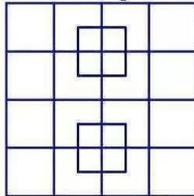
- X
- Y
- Z

Treatment Selection

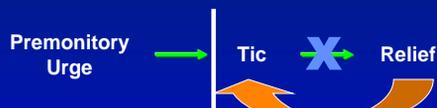
- Availability of expertise
- Developmental level
- Case complexity
- Patient and family preference

CBIT Treatment Implementation

How many squares are in this picture?



Changing Internal Contingencies



Creates habituation to Premonitory Urge

Negative Reinforcement

Habit Reversal: Awareness Training

- Purpose
 - Help client discriminate episodes of behavior
- Three techniques
 - Response Description
 - Early Warning
 - Response Detection
- Necessary level of awareness is unclear

Steps of Awareness Training

- Rationale
- Describe Tic and Warning Signs
- Acknowledge therapist simulated tics
- Acknowledge self-tics

Habit Reversal: Competing Response

- Purpose
 - Replace target with incompatible behavior
- Engage in CR for 1 minute when....
 - Target behavior occurs
 - "Warning sign" occurs
- Necessary level of compliance/competence is unclear

Steps of CR Training

- Introduce CR
- Choose CR
 - Incompatible w/ tic
 - Mutual decision b/w patient and therapist
- Therapist simulates correct implementation of CR
- Client is taught to do CR and practices in session

CR Caveats

- CR need not be physically incompatible to be effective, but it makes more intuitive sense to start with an incompatible response
- CR must be done contingent on tic or warning sign to be effective
- CR is held for 1 minute or until the premonitory urge goes away (whichever is longer)
- CR tends to fade as the tic fades

Habit Reversal: Social Support

- Purpose
 - Reinforce and prompt use of competing response
- Significant others prompt use of CR
- Significant others praise correct use of CR
- Necessity of social support is unclear, but believed to be necessary with children.

Steps of Social Support

- Identify support person
 - Parent, teacher, housemate, older sibling
- Training the reminding of client
 - To be done in an encouraging tone, not a punitive tone
- Praising the praising of client
 - Praise use of exercises, not reduction of tic
- **CREATION OF A 'TIC NEUTRAL' ENVIRONMENT**

Add-ons to HRT

- Relaxation training
- Function-based interventions
- Token Economy
- School Assistance
- Self-monitoring is usually added as a way to assess progress

The Role of Development



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Influence of Development on CBIT

- Awareness of tic phenomenology
- Awareness of responses to tics in environment
- Readiness for behavior change
- Family response to tics

Any Questions?