


TS and Related Conditions: Behavioral Approaches to Treatment



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Outline of Talk



- **Rationale for behavior therapy for TS**
 - Behavioral model
- **Behavioral treatments for tics**
 - Function-Based Assessment & Treatment
 - Habit Reversal Training
- **Overview of behavioral treatments for comorbid conditions**

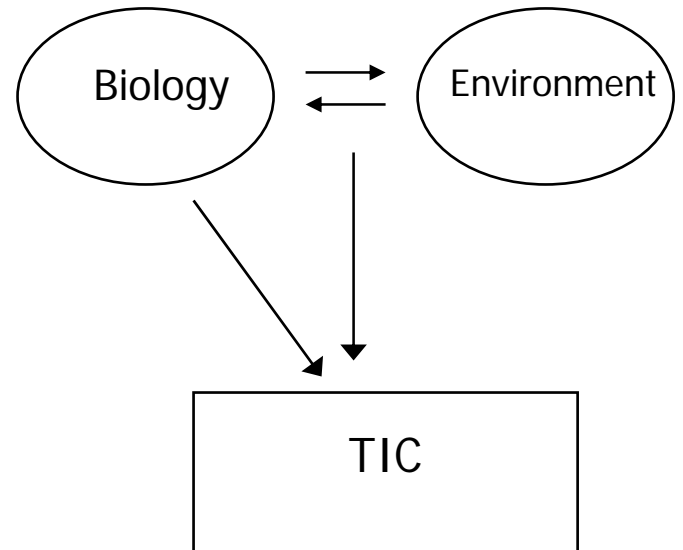
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Behavior Therapy for tics?

- Tics have a biological basis
 - Medication
- Like all behavior, tics occur in a dynamic environment
 - Often, altering the environment can have therapeutic benefit
- Biology & environment interact - both can change
 - Learning



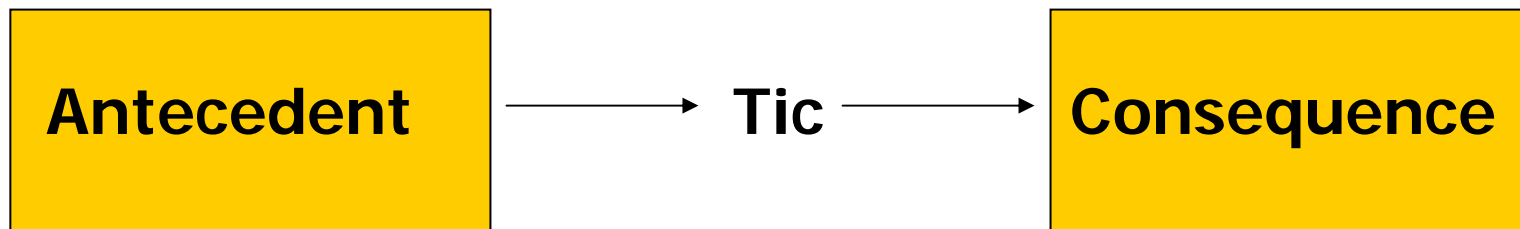
Behavior Therapy for tics!



- The Goal of Behavior Therapy is to identify and change environmental factors in order to manage tics as well as possible given the person's underlying biology
- Treatment combinations: medication + behavior therapy

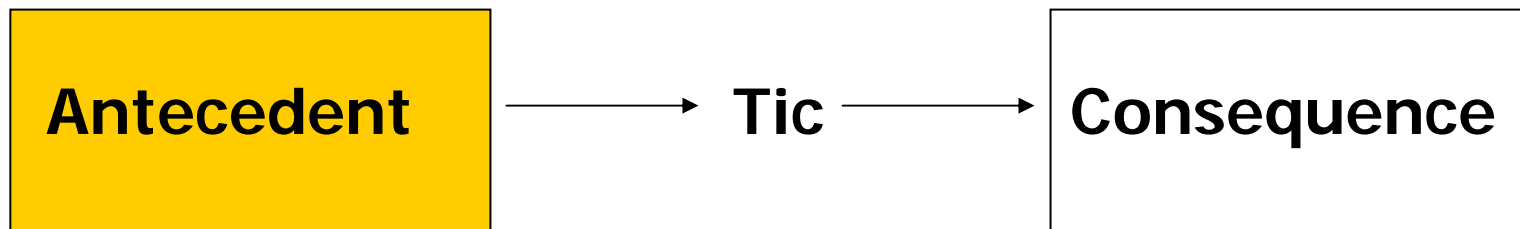
Environmental Events

- Can be internal or external (inside or outside the person)
- Two external environmental events
 - Antecedents (**Triggers**)
 - Events that come before a tic that make tics more/less frequent
 - Consequences
 - Events that come after tics that make tics more or less frequent
- Environmental events are things that happen in everyday life that “push or pull” tics

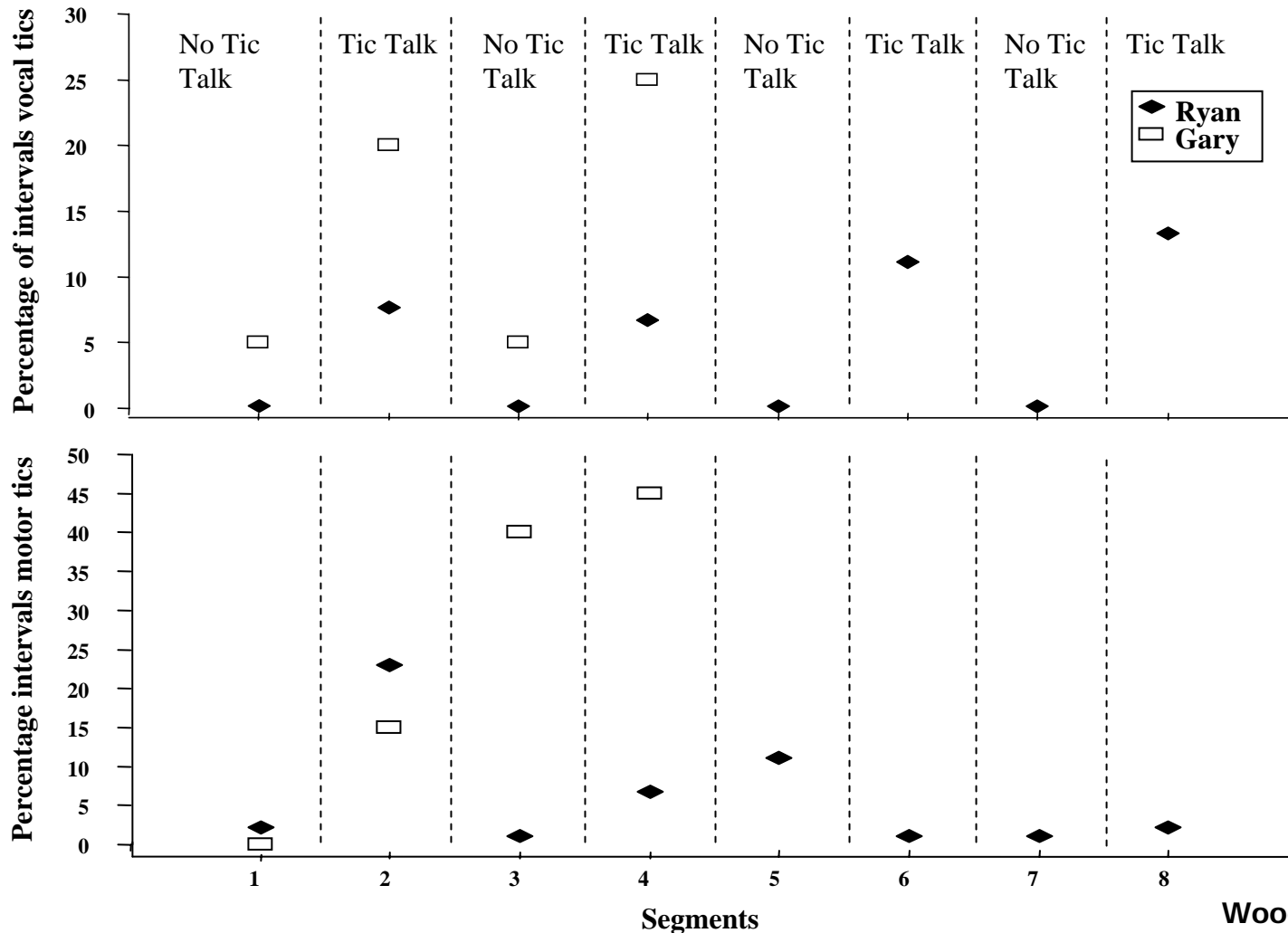


Examples of Antecedents

- Being upset, anxious, or excited (Silva et al., 1995)
- Passive activity, being bored (e.g., watching TV) (Silva et al., 1995)
- Being alone (Silva et al., 1995)
- Social gatherings (Silva et al., 1995)
- Stress/Stressful events (Surwillo et al., 1978)
- Hearing others make sounds similar to the tic (e.g., cough (Commander et al., 1991)
- Talking about tics (Woods et al., 2001)

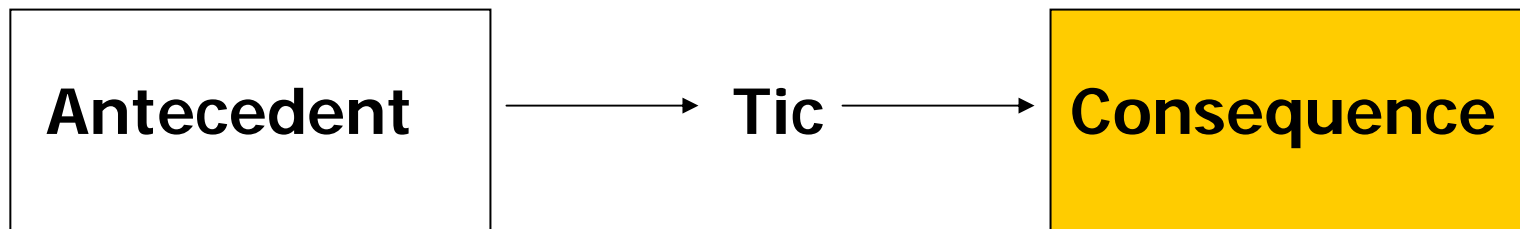


An Example.... *Talking about Tics*



Examples of Consequences

- Most common example: "I tic less in situations where I might get teased"
- Getting out of a task
- Teasing/Reprimands
- Questioning/Attention
 - Some individuals may try avoid negative consequences through suppressing their tics
 - The consequence- NOT THE PERSON- is responsible for increasing/decreasing the tic

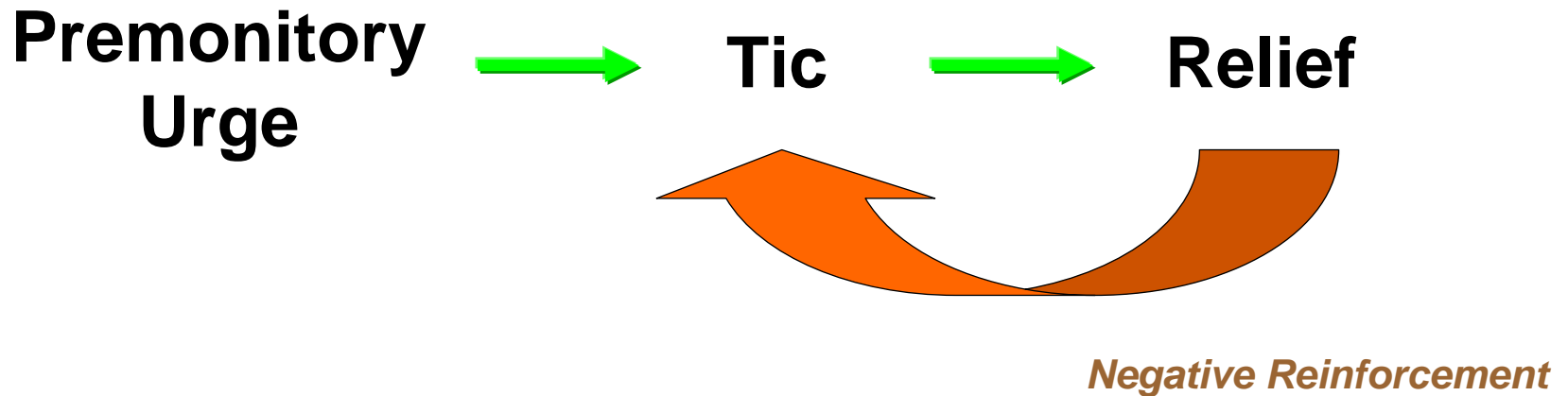


Internal Events



- Tics can also have **internal** antecedents or consequences
- Antecedents
 - “Premonitory urge” is a sensation that precedes tics
 - Described as an unpleasant itch, tension, tingle, pressure
 - Sometimes localized, sometimes general
 - Awareness of premonitions typically begins around age 10
 - Very common: up to 90% of TS individuals describe urges
 - Urges more likely to precede complex tics than simple tics
- Consequences
 - Urge is relieved or reduced by a tic

Tic Cycle



The idea that tics get rid of an unpleasant premonitory urge might help explain how/why they happen. Biological processes underlying the urge and its reduction are not yet understood.

Summary



- Antecedents (Triggers)
 - Can make tics better or worse
 - Not the same for everyone
 - Can be internal (urge) or external (context/setting)
- Consequences
 - Can make tics better or worse
 - Often misunderstood/misused
 - “Is he/she doing it for attention?”---NO
 - “Is attention making it worse?”---Maybe
- Behavior Therapy for tics? ---YES!
 - Antecedents & consequences can often be identified and changed
 - Behavior therapists specialize in untangling complex environment-behavior relationships

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Behavior Therapy for Tics: Function Based Treatments



- Environment-tic relationships are unique to the individual
- Treatment aims to identify and change relevant environmental variables *or* the behavior that occurs in response to those environmental variables
- Treatment must also be unique to the individual
- To develop a useful treatment, both external and internal factors must be addressed
 - How?
 - Do they work?

Function-based assessment & treatment: An example

Example: During an interview with Joe and his parents, it was discovered that Joe has difficulty at school because of a loud vocal tic (a grunt). Joe is especially bothered by the tic because it is especially likely during quiet times (like reading) and one child teases him relentlessly by mimicking him. The tic now seems to get worse in anticipation of quiet times and his teacher frequently allows him to leave the room to get a drink of water (to allow him to “calm down and get it out”). His teacher & parents are concerned because he has to leave the room frequently and is behind in his reading.

Some Relevant Antecedents & Consequences:

- | | |
|-----------------------------------|--------------------------------|
| 1) Quiet times (reading) | Antecedent |
| 2) Mimicked | Antecedent/Consequence (cycle) |
| 3) Anticipation (Anxious?) | Antecedent |
| 4) Specific provoking child | Antecedent |
| 5) Leaves the room during reading | Consequence |

Function-Based Interventions



After specific variables are identified in the functional assessment, interventions are developed to decrease the effect of or contact with that variable

Antecedent/Consequence

Possible Functional Interventions

- | | | |
|--------------------------------|--------|--|
| 1) Quite times (reading class) | —————> | ? |
| 2) Mimicking/provoking child | —————> | Move desk, intervene with other child |
| 3) Anticipation/anxiety | —————> | Relaxation training, move desk |
| 4) Leaves room during reading | —————> | Stay in room, practice other tic management strategies (e.g., relaxation exercises, HRT) |

Note: These interventions are individualized. For example, relaxation training may be countertherapeutic for a person whose tics are worsened by sedentary activities/boredom.

Are function-based treatments effective?



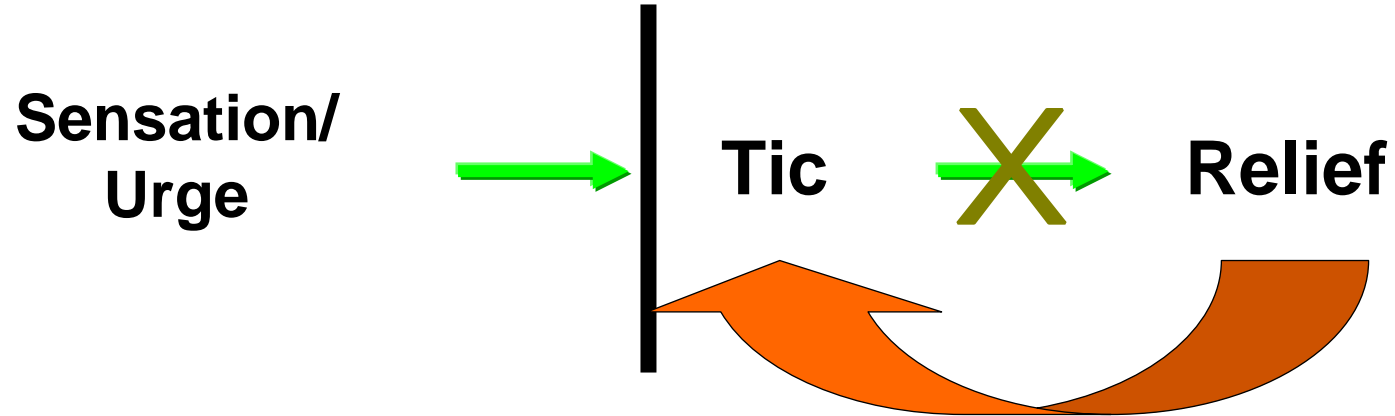
- Yes- Examples
- Limitations of current research
 - Treating everyone the same
 - Big N vs. Small N
 - Rarely used alone
- More research is needed (ongoing)
- Considered by some to be good clinical care
 - Can be complicated & requires a systematic approach

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The "Negative Reinforcement Cycle"

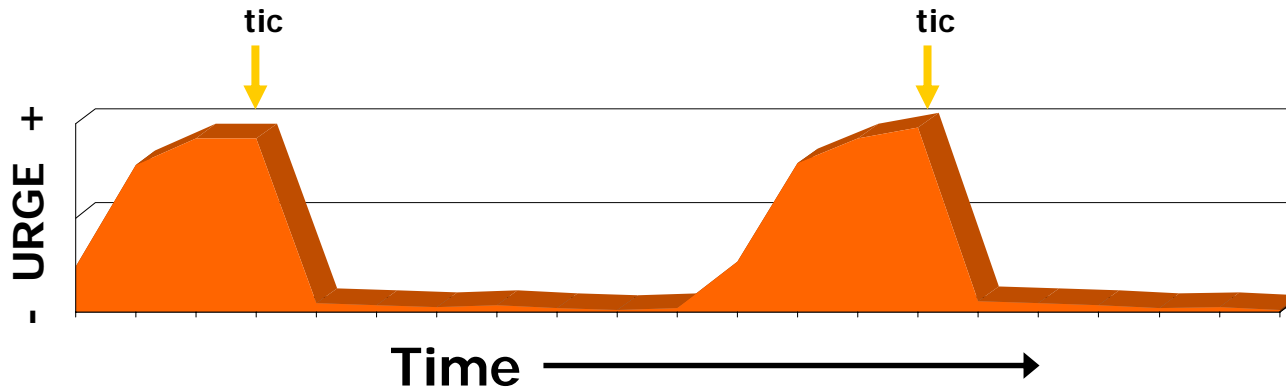


Creates habituation to Premonitory Urge

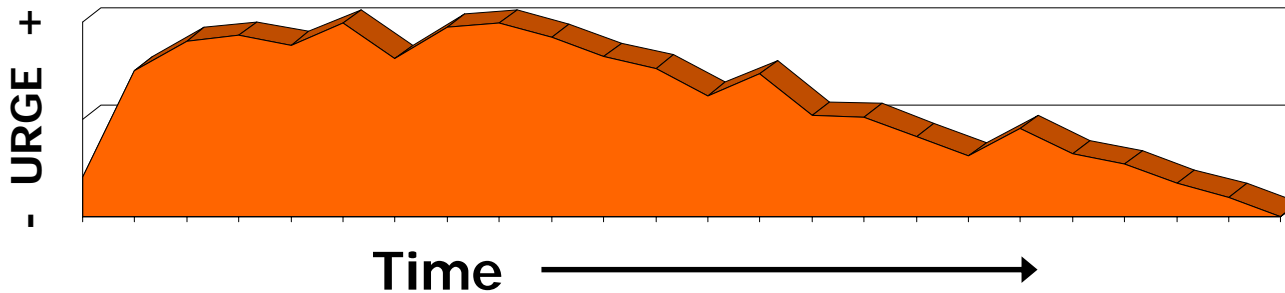
Negative Reinforcement Cycle

Habituation- what is it?

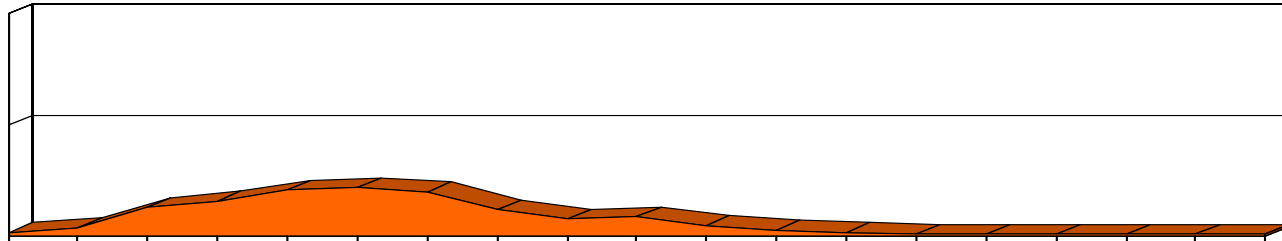
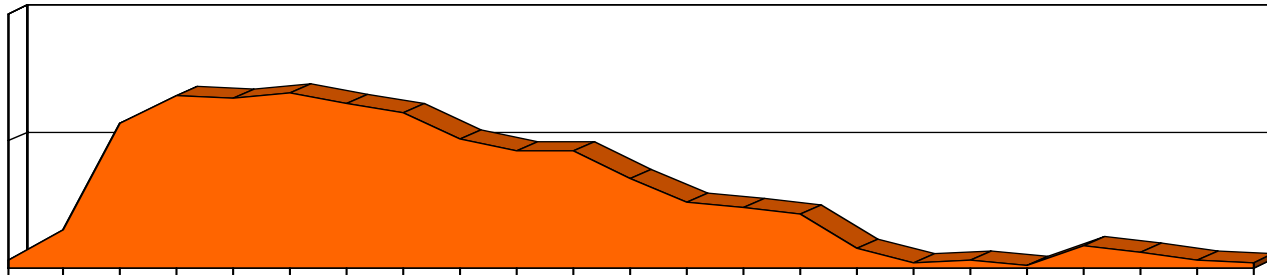
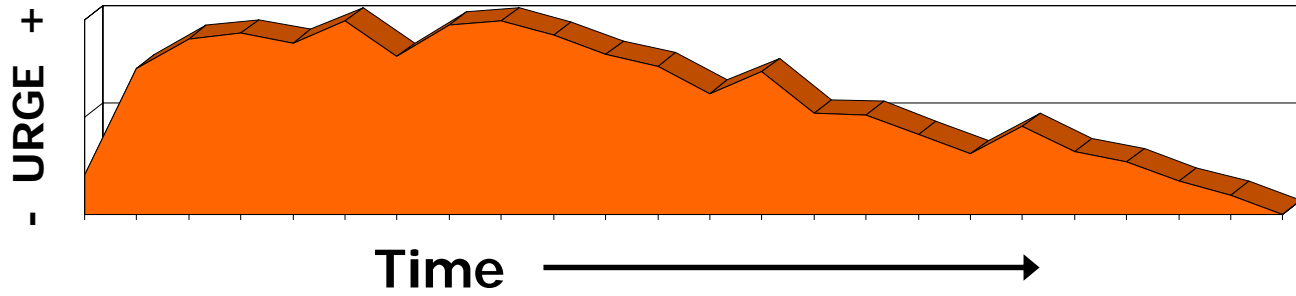
⌘ Negative Reinforcement/urge reduction hypothesis



⌘ Habituation



Habituation to the Urge



Breaking the cycle



How can we break the negative reinforcement cycle?

- Stop the tic and force habituation to the premonitory urge (prevent immediate relief and let it occur naturally)
- Disrupt the cycle once it has already started

Habit Reversal - What Is It?



- Multi-component treatment (Azrin & Nunn, 1973)
- Used to treat tics
- 3 main components
 - Awareness Training
 - Competing Response Training
 - Social Support

Step 1: Awareness Training



- Purpose
 - Help person predict and detect tic warning signs and/or the tic itself
- How it is done. The person...
 - Describes the tic & warning signs
 - Watches someone else do it (recognize it)
 - Practices it (simulate the tic)
 - Catch his/her own
- Necessary level of awareness is unclear

Step 2: Competing Response



- Purpose
 - Replace tic with incompatible/less noticeable movement
- Engage in CR for 1-3 minutes when....
 - “Warning sign” occurs
 - When the tic occurs

Step 3: 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 for adults is unclear, but believed to be important for children
 - Adults often feel the prompts help increase awareness

Step 4: Practice, Practice, Practice



- Focused practice sessions
- With social support
 - Especially for children
- Reward system for practice
 - Especially for children
- Preseason- Regular Season- Playoffs

Habit Reversal: Does it work?



- Transient/chronic tics
 - Effective in reducing or eliminating motor tics in adults and children (Azrin & Nunn, 1973)
- Tourette's Syndrome
 - More effective than nothing (Azrin & Peterson, 1990)
 - More effective than relaxation training or self-monitoring (Peterson & Azrin, 1992)
 - More effective than good supportive care (for adults) Wilhelm et al. (2003)
 - Better than awareness-training alone (for kids) Piacentini et al. (in preparation)
- In general, studies evaluating HRT have shown a 30-80% reduction in tics along with general improvements in functioning after treatment.

Child Behavioral Intervention for Tics Study (CBITS)

120 children (aged 9-17) with TS/CTD (40 at each of 3 sites)

- UCLA
- Johns Hopkins University
- University of Wisconsin - Milwaukee

Three supporting sites

- Mass General Hospital/Harvard
- Yale Child Study Center
- Wilford Hall Medical Center (Texas)

Comparison of two psychosocial treatments

- Comprehensive Behavioral Intervention for TS (CBIT)
- HRT + Function-based Intervention
- Psychoeducation/Supportive Therapy (PST)

Funded by NIMH (R01 70802) through the Tourette Syndrome Association

Adult Behavioral Intervention for Tics Study (ABITS)

120 adults (aged 16-60) with TS/CTD (40 at each of 3 sites)

- Mass General Hospital/Harvard
- Yale Child Study Center
- Wilford Hall Medical Center (Texas)

Three supporting sites

- UCLA
- Johns Hopkins University
- University of Wisconsin- Milwaukee

Comparison of two psychosocial treatments

- Comprehensive Behavioral Intervention for TS (CBIT)
 - HRT + Function-based Intervention
- Psychoeducation/Supportive Therapy (PST)

Funded by NIMH through Collaborative R01s to MGH, Yale, and WHMC

Are there side effects?

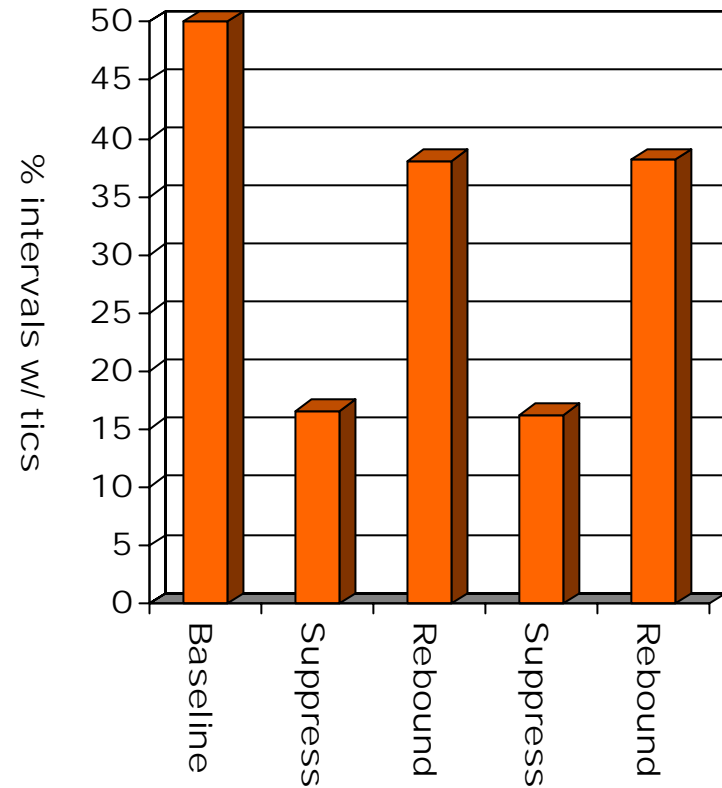


- Do tics get worse after suppression- such as after using the competing response?
- If you make someone more aware of their tics and warning signs, will the tics get worse?
- If one tic is suppressed, will other tics get worse? Will other tics replace the suppressed tic?

Is there a Rebound Effect?

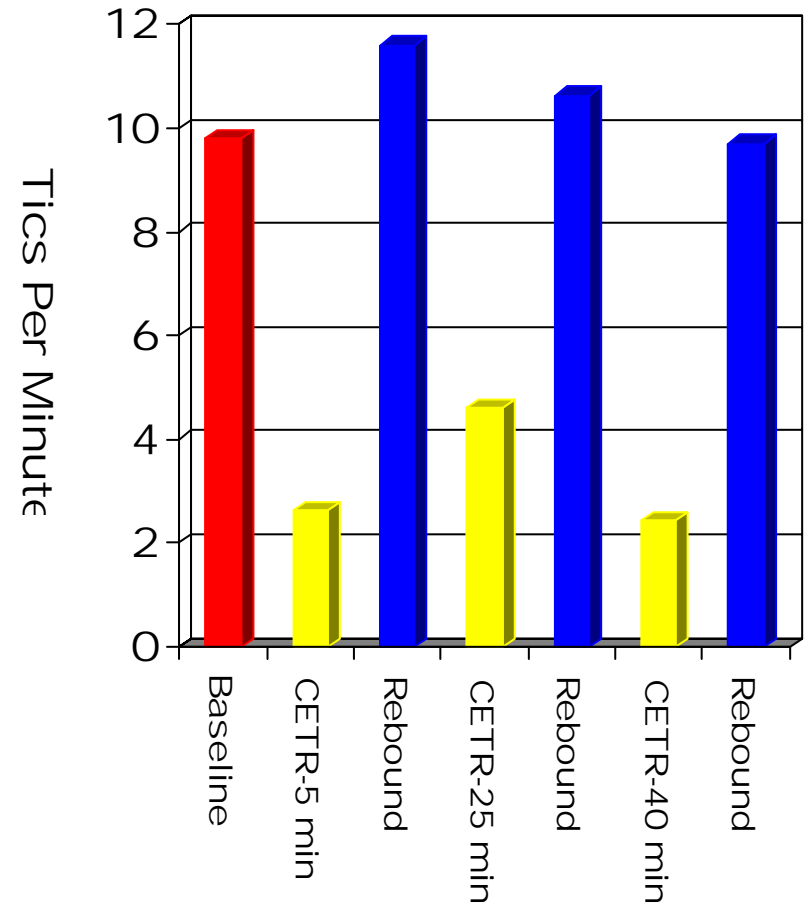
- Does not appear to be a rebound effect at 5 min of suppression, but does a longer suppression yield greater rebound likelihood?

Himle & Woods (2005)



What about longer suppression periods?

- 12 children with TS asked to suppress for 3 different durations (5 min, 25 min, 40 min)
- Suppression altered with 5 min “rebound” phase
- No significant rebound effects for any of the different durations



Comments on other non-drug treatments



- Other treatments you may have heard of:
 - Relaxation training
 - Biofeedback
 - Hypnosis
 - Punishment

- Cognitive-behavior therapy (CBT)
- Exposure (and response prevention)

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Comorbid Conditions

- Table 1. Selected comorbidity rates in TS as reported by the Tourette Syndrome International Database Consortium (Freeman et al. 2000)

Conditions Comorbid with TS	Rate of Comorbidity as cited in Freeman et al. (2000)
TS-Only	12%
+ADHD	60%
+Anger Control Problems/Aggression	37%
+OCD	27%
+Mood Disorder	20%
+Anxiety Disorder (other than OCD)	18%
+Conduct/Oppositional Disorder	15%

Behavioral Approaches to the Management of Comorbid Conditions



- Aspects of behavior therapy (BT):
 - Focused on environment-behavior relationships
 - Goal directed
 - Teach specific skills
 - Active (practice, homework)
 - Ongoing monitoring of progress
 - Therapist as coach
- COMBINATION TREATMENTS: Medication + BT

Behavioral Approaches to the Management of Comorbid Conditions



- Disability Burden: Which symptoms to treat first?
- Clinical Decision Making:
 - Which symptoms are most impairing (currently)?
 - Which symptoms predict disability?
 - Do the symptoms interact (e.g., tics and anxiety)?
 - Will one symptom interfere with the treatment of others?

Anxiety Disorders



- Obsessive-Compulsive Disorder
 - Exposure & Response Prevention
 - Family ERP for children
 - Relaxation Training
- Other anxiety disorders
 - Exposure therapies
 - Relaxation training
 - Family-based anxiety management training

Depression

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- Medication
- Cognitive therapy/Cognitive restructuring
- Behavioral activation

ADHD/Oppositional Behavior



- ADHD
 - Which symptoms to treat?
 - Importance of assessment
 - Medication
 - Contingency Management/function-based approaches (Behavior Modification)
 - Parent Training
 - **Social Skills Training!**
 - Problem Solving Approaches
 - Impulse Control Approaches
 - Cognitive Interventions?
- Explosive Outbursts
 - Anger vs. Aggression
 - Problem solving
 - Group Approaches
 - Impulse control

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