# Tics and Tourette Syndrome:
## Treatment using Comprehensive Behavioral Intervention for Tics (CBIT)

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Thursday, May 13, 2021

ROGERS Behavioral Health

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## Quick overview of logistics

Our speaker will give a 75-minute presentation.

Following the presentation, there will be a dedicated time to answer your questions.

- Please use the **Q&A feature**, located in the toolbar at the bottom of your screen, to send your question to the moderator.
- The moderator will review all questions submitted and select the most appropriate ones to ask the presenter.


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## Disclosures

**Martin E. Franklin, PhD,** has declared that he does not, nor does his family have, any financial relationship in any amount occurring in the last 12 months with a commercial interest whose products or services are discussed in the presentation. The presenter has declared that he does not have any relevant non-financial relationships. Additionally, all planners involved do not have any financial relationships.

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## Learning objectives

Upon completion of the instructional program, participants should be able to:

1. Identify the three core behavioral interventions in CBIT and how best to sequence these interventions as part of a behavioral approach to treatment.
2. Discern the four clinical implications of the outcome literature for clinical practice.

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## What we'll cover in this webinar

**Phenomenology of chronic tic disorders and Tourette Syndrome**
(Definitions; Common clinic features; Behavioral theory and application in treatment; Controversies in the field)

**Comprehensive Behavioral Intervention for Tics (CBIT)**
(Overarching description; Awareness training; Habit reversal training; Function-based interventions; Add-ons)

**Treatment outcomes**
(Review of evidence base for chronic tic disorder treatments; Review of CBIT evidence base; Moderators and mediators of CBIT outcomes; Implications for clinical practice with chronic tic disorders)

**Moderated Q&A**

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## Phenomenology of chronic tic disorders and Tourette Syndrome

Q&A Please use the Q&A feature to send your questions to the moderator.

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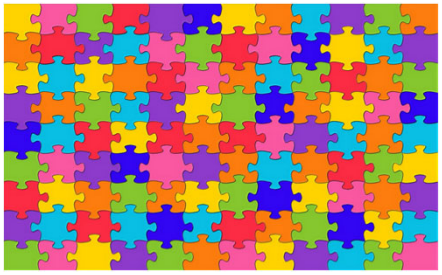
## Tourette Syndrome (TS) is a puzzling condition on several fronts…



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## TS phenomenology: What is it?


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## TS phenomenology: What is it?

- 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%)
  - Panic Disorder (> 10%)
  - Simple Phobia (> 20%)
  - OCD (> 30%)
- Major Depression (> 40%)
- ADHD (> 50-90%)
- Learning Disability (> 50%)

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## TS and chronic tic disorders

- 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…

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## Common features of tics

- Simple or complex
- Wax and 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

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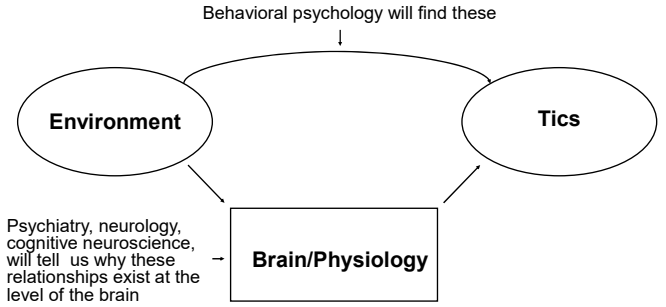
## Behavioral model of tics

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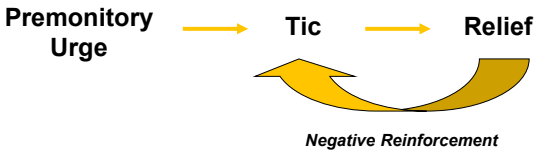
## Negative reinforcement hypothesis of tic maintenance




Tics can be maintained by elimination of premonitory urge.

Biological processes underlying the urge and its reduction are not well understood.

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## 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

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## Consequence events that may impact tics

**Tics can be made *more* frequent by…**

- Social reactions
- 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

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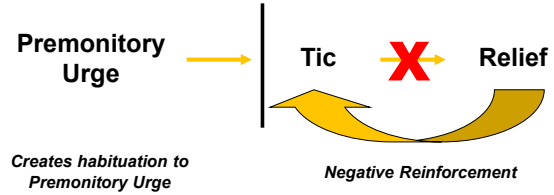
## Changing internal contingencies

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## Obsessive-compulsive cycle

**Obsessions**
Repetitive negative, images or impulses

→

**Distress**
Anxiety, fear, disgust or shame

↓

**Compulsions**
Repetitive thoughts images or actions

←

**Relief**
Distress subsides temporarily

*Negative Reinforcement*

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## Sounds familiar… So why wasn't TS moved in DSM-5?

"A camel is a horse designed by committee."

~ Sir Alec Issigonis

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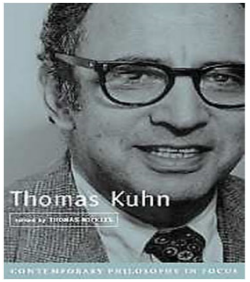
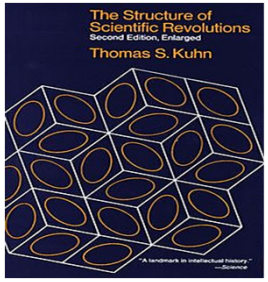
## Science is influenced by the subjective…

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## Comprehensive Behavioral Intervention for Tics (CBIT)

Q&A

**Please use the Q&A feature to send your questions to the moderator.**

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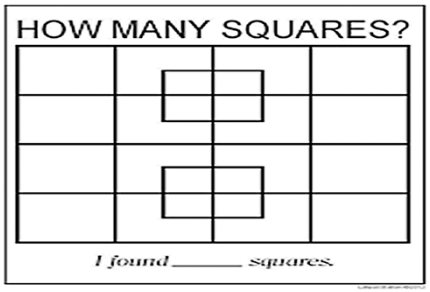
## CBIT treatment implementation

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## Habit reversal: Awareness training

**Purpose**

- Help client discriminate episodes of behavior

**Three techniques**

1. Response description
2. Early warning
3. Response detection

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## Awareness training steps

- Rationale
- Describe tic and warning signs
- Acknowledge therapist-simulated tics
- Acknowledge self-tics

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## Habit reversal: Competing response

**Purpose**

- Replace target with incompatible behavior

**Engage in competing response for 1 minute when….**

- Target behavior occurs
- “Warning sign” occurs

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## Competing response training steps

- Introduce competing response (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

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## 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

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## 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**

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## Social support steps

- **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**

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## School-based interventions

- Consider psychoeducation for classroom if a child/adolescent with tics is in class
- Consider testing environment modification
- Signal for use of CR, reinforcement for effort
- Creation of a "tic neutral" environment
- Address teasing if present

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## Habit reversal training add-ons

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

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## The role of development

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## Common features of tics

- Simple or complex
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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

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## Treatment outcomes

Please use the Q&A feature to send your questions to the moderator.

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## Treatment efficacy: What does the literature tell us?

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## Treatment efficacy

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

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

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## Empirical support for HRT with tic disorders

**Transient/chronic tics**

- Effective in reducing or eliminating motor tics in adults and children (Azrin & Nunn, 1973)

**Tourettes 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, 2012)
- More effective than supportive psychotherapy in kids (Piacentini et al., 2010)

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## Comprehensive Behavioral Intervention for Tics Study (CBITS)

**Two parallel studies comparing behavior therapy to ST**

- ***Child study:*** 120 children (ages 9-17) with TS/CTD
- ***Adult study:*** 120 children and adults (ages 16+) with TS/CTD

**8 session treatments over 10 weeks**

**Comprehensive multimodal assessment at BL, 5 weeks, 10 weeks (post treatment), 3-month follow-up, 6-month follow-up**

**Participating sites (40 at each of 3 sites)**

- ***Child study***: UCLA; Johns Hopkins University; University of Wisconsin – Milwaukee
- ***Adult study:*** Mass General Hospital/Harvard ; Yale Child Study Center; U of Texas Health Sciences Center

Funded by NIMH through two different mechanisms (R01 to TSA; Child study, and Collaborative R01s to Yale, Harvard, and UTHSC)

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## Study treatments

**CBIT components**

- Psychoeducation
- Habit reversal therapy
- Functional intervention
- Reward system
- Relaxation training

**Psychoed/Support components**

- Phenomenology of TS
- Prevalence of TS
- Natural history of TS
- Common comorbidities
- Causes of TS
- Psychosocial impairments
- Nonspecific support

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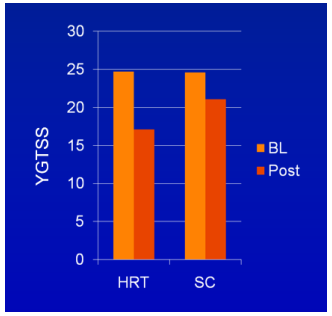
## CBITS results

- More children in the treatment group were rated as improved/very much improved on CGI.
- Gains were maintained for at least 6 months.

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## *HRT and ACT for chronic tic disorders*
***(TSA-sponsored)***

- 7 participants ages 14 – 25 (3 @ Penn, 4 @ Duke) received standard HRT treatment for tics
- Data from this phase used to inform HRT+ACT manual
- HRT+ACT provided to 6 additional participants (3 per site)
- ACT did not appear to enhance HRT outcomes, perhaps because of a floor effect in HRT

(Franklin et al., 2011)

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## *CBIT: Moderators and predictors of response*

**Trial design:**
Comprehensive Behavioral Intervention for Tics (CBIT) vs. Psychoeducation & Supportive Counseling (PSC), separate adult and child studies

**Moderators:**
Predict response to specific TX

**Predictors:**
Predict response regardless of TX received

**Moderators and predictors may unearth mediators:**
"Every moderator is a proxy for a mediator you have not discovered yet" ~ Steve Hollon

(Sukhodolsky et al., 2017)

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## *CBIT moderators*

- Medication status predicted response to PSC (those already on MED did better in PSC than those not on MED)
- CBIT was efficacious regardless of MED status
- ADHD, OCD, and anxiety disorder did not moderate CBIT response: CBIT is a robust treatment that is efficacious across a wide variety of patient subgroups

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## *CBIT predictors*

**Positive**

- Greater tic severity
- Higher treatment expectancy

**Negative**

- Presence of comorbid anxiety disorders
- Greater urge severity

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## Treatment selection

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

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## Time for questions and answers…


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## Where to get additional information…

Tourette Association of America

tourette.org

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## Thank you…

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