Tourette Syndrome
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Goals of this presentation

- Provide current information on the epidemiology, genetics, clinical picture, and management of TS including peer support, materials from Tourette Association of America, and strategies used by the for self-empowerment.
What is Tourette Syndrome (TS)?

- Named for Dr. Gilles de la Tourette, a French neurologist who first described the disorder in 1885.
- Neurological disorder characterized by repetitive, stereotyped, involuntary movements and vocalizations called tics.
- Tics are frequent, repetitive and rapid.
- Average onset between the ages of 3 and 9
- Commonly start in the face (eye blink, nose twitch, grimace), and is replaced or joined by tics of the neck, trunk, and limbs

"Tourette Syndrome Fact Sheet", NINDS, Publication date January 2012.
Epidemiology

- TS occurs in people from all ethnic groups.
- Males affected about 3 to 4 times > females
- Approximately 200,000 Americans have the most severe form of TS.
- 1 in 100 exhibit milder and less complex symptoms.
- Most experience their worst tics in early teens; improves in late teens to early adulthood.
- 10-15% have a progressive or disabling course that lasts into adulthood.

"Tourette Syndrome Fact Sheet", NINDS, Publication date January 2012.
Epidemiology

- Worldwide, in all social classes and races.
- Clinical picture is similar, regardless of ethnicity or culture, suggesting common genetics.
- The precise prevalence of TS has been difficult to ascertain. Most have nondisabling symptoms; tics improve or resolve with age, and never seek medical attention.
- Most investigators believe that the estimated prevalence is 0.7-4.2%, based on observation studies in schools. Tics were identified in 26% of students in special education programs, compared with 6% of students in mainstream classrooms.


Co-Morbidities

- TS is often but not always associated with behavior disorders:
  - Attention deficit hyperactivity disorder (ADHD) 70%
  - Obsessive-compulsive disorder (OCD) 30%

Behavior disorders may be the dominate clinical concern
Historical perspective: Stigma

- 1885: Tourette presented 9 cases of childhood-onset tics. Tourette correctly considered this a genetic disorder but the etiology was ascribed to psychogenic causes for nearly a century afterwards.

- 1960s: Neuroleptic medications trialed successfully for tics. Perception changed from psychiatric to neurologic disorder

- Extensive research is ongoing to understand the neurobiology.

- Once viewed as a rare, TS is now understood to be a relatively common and diverse genetic condition.
Lobbying for understanding
Pathophysiology

- Most studies support that TS is an inherited developmental disorder of synaptic neurotransmission.

- Basal ganglia, caudate nucleus and inferior prefrontal cortex, are implicated. MRIs have shown larger dorsolateral prefrontal regions and increased cortical white matter in the right frontal lobe.

- Disinhibition in cortico-striatal-thalamic-cortical loops, with an overly active caudate nucleus, similar to ADHD and OCD, results in an inability to suppress unwanted movements, behaviors, or impulses.

Pathophysiology

- Neuroimaging performed during tics demonstrate multifocal activation within the brain, involving:
  - Medial and lateral premotor cortices
  - Anterior cingulated cortex
  - Dorsolateral-rostral prefrontal cortex
  - Inferior parietal cortex
  - Putamen
  - Caudate nucleus
  - Primary motor cortex
  - Broca area
  - Superior temporal gyrus
  - Insula
  - Claustrum
Pathophysiology

- Abnormal brain circuit activity in sensorimotor, language, and paralimbic regions was synchronous with tic occurrences.

- Multiple neurotransmitters likely involved but agents that act on dopamine receptors control symptoms.

- Functional neuroimaging implicate abnormal dopaminergic systems within the striatum and prefrontal cortex; Patients have increased density of the presynaptic dopamine transporter and of postsynaptic D2 dopamine receptors, suggesting increased uptake and release of dopamine.

- Investigators hypothesize supersensitivity to dopamine may explain why tics are so responsive to the dopamine receptor blockers (neuroleptics).

Advocating for continued NIH support on Capitol Hill: CA Teen Ambassadors visit with Diane Feinstein’s Policy Fellow and Neuroscientist
Genetic aspects of TS

- Evidence suggests it is an inherited developmental condition.
- Advances in understanding of the neurobiology will likely depend on progress in elucidating genetic mechanisms.
- The genes responsible have not been determined.
- Evidence supports an autosomal dominance inheritance pattern.
- Likely a polygenetic condition with variable penetrance.
- Twin studies indicate a greater than 90% concordance.
- Evidence links genetics of tic disorders and OCD.

Volition?

- Although some tics may be partly voluntary, physiologic studies indicate that tics are not mediated via the same motor pathways of willed movements.

- Electrophysiologic data demonstrate the absence of premotor potentials in simple motor tics, suggesting that tics truly are involuntary or occur in response to an external cue.

- Sleep studies provide additional evidence that tics are involuntary.
I HAVE TOURETTE'S
BUT TOURETTE'S
DOESN'T HAVE ME

Dispelling the myth one child at a time.

2006
Emmy Winner
Outstanding Children's Program
First Genome-wide Association Study

- DNA collected from 1,496 people with TS was compared to DNA from 5,249 people without TS.

- The strongest association with TS was for a gene on chromosome 9 that is expressed during development in the cerebellum.

- Other genes of interest included genes located on chromosome 13, previously implicated in TS and OCD. Additional regions located on chromosomes 12, 3, and 7 were identified as being associated with TS.

- To confirm these preliminary findings, 3,000 more DNA samples will be analyzed.

Scharf, J; et. al.; Genome-Wide Association Study of Tourette’s Syndrome; Molecular Psychiatry (2012), 1-8
Autoimmune Theory

- No link found for an immune-mediated pathogenesis similar to pediatric autoimmune neuropsychiatric disorders associated with streptococcal infections (PANDAS).

- Treatments aimed at this pathophysiologic mechanism, such as plasmapheresis, intravenous immunoglobulin, or antibiotics, are not recommended.

Risk factors

- Risk factors for the TS include the following:
  - Male sex
  - Young age
  - Family history of TS
Prognosis

- Symptoms usually reach fullest expression during adolescence, a decade after onset.

- Symptoms will become more unpredictable, sometimes changing markedly from day to day or week to week before leveling off and remission begins.

- Many improve considerably during the late teenage to early adult years.

- Approximately one third of patients experience complete remission, whereas another one third improve to the point that their tics are relatively mild and do not cause impairment.

- Some evidence shows that adolescent tic severity may be of more prognostic value.

- Two thirds of children with TS can anticipate a significant amelioration of their tics or almost complete remission.
Prognosis

- Lifelong remissions are rare.

- Continued presence of such tics is often denied or minimized by these patients but is reported by other family members. At times, tics do not occur in the office and assessment is difficult.

- Approximately one third of patients with TS do not experience a significant decrease as adults.

- For these adults, little data regarding what percentage of patients become worse or remain the same.

- Patients present in their third, fourth, and fifth decades for treatment after self-diagnosis.

- Elderly patients who have never been diagnosed are rare but do present for diagnosis.
History

The specific DSM-5 criteria for Tourette’s disorder are as follows:

- Both multiple motor and 1 or more vocal tics have been present at some time during the illness, though not necessarily concurrently. (A tic is a sudden, rapid, recurrent, nonrhythmic, stereotyped motor movement or vocalization)

- The tics may wax and wane in frequency but have persisted for more than 1 year since first tic onset

- The onset is before age 18 years

- The disturbance is not due to the direct physiologic effects of a substance (eg, cocaine) or a general medical condition (eg, Huntington disease or postviral encephalitis)

History

The specific *DSM-5* criteria for persistent (chronic) motor or vocal tic disorder are as follows:

- Single or multiple motor or vocal tics (eg, sudden, rapid, recurrent, nonrhythmic, stereotyped motor movement or vocalizations), but not both, have been present at some time during the illness

- The tics may wax and wane in frequency but have persisted for more than 1 year since first tic onset

- The onset is before age 18 years

- The disturbance is not due to the direct physiologic effects of a substance (eg, cocaine) or a general medical condition (eg, Huntington disease or postviral encephalitis)

- Criteria have never been met for Tourette’s Disorder

The specific *DSM-5* criteria for provisional tic disorder are as follows:

- Single or multiple motor and/or vocal tics (eg, sudden, rapid, recurrent, nonrhythmic, stereotyped motor movement or vocalizations) are present.
- The tics have been present for less than 1 year since the first tic onset.
- The onset is before age 18 years.
- The disturbance is not due to the direct physiologic effects of a substance (eg, stimulants) or a general medical condition (eg, Huntington disease or postviral encephalitis).
- Criteria have never been met for Tourette’s disorder or persistent (chronic) motor or vocal tic disorder.

Stereotypes

- Despite widespread publicity, stereotypes are uncommon:
  - Coprolalia (the involuntary use of obscene words or socially inappropriate words and phrases)
  - Copropraxia (obscene gestures)
  - Echolalia (echo speech or repeating ones own words)
  - Palilalia (repeating movements of others)
Clinical characteristics of tics

- Tics are diverse
- Distinctive characteristics can help distinguish tics from tremor, chorea, myoclonus, or dystonia.
- Can be suppressed for a period a time and released in a more comfortable environment.
- An emotional release often occurs after the tic or repetitive tics are completed.
- After a period of stress, patients release their tics when they are alone and relaxed.
- Tics are often suggestible, worsened by stress, boredom, and fatigue.
- Between tics, no other abnormal movements occur.
- Suppressibility, the associated emotional urge and relief, and suggestibility help differentiate tics from other hyperkinetic movement disorders.
Classifications of tics

Divided into motor or vocal

Categorized as simple or complex

Simple motor - single muscle or muscle group/ simple, nonpurposeful movements:
- brief jerking movement (clonic tic)
- slow sustained movement or posture (dystonic tic)
- tensing of individual muscle groups (tonic tic)
- Examples include eye blinking, nose sniffing, coughing, neck twitching or jerking, eye rolling, and jerking or postured movements of the extremities.

Complex motor - multiple muscle groups/ appear semipurposeful or behavior-like:
- touching oneself or others
- hitting
- jumping
- shaking
- performing a simulated motor task
- copropraxia and echopraxia (imitating movements of others).
Classifications of tics

- Simple vocal tics are simple vocalizations or sounds:
  - grunting
  - Coughing
  - throat clearing
  - Swallowing
  - Blowing
  - sucking sounds

- Complex vocal tics are words and/or complex phrases.
Premonitory symptoms of tics

- Premonitory feelings or sensations precede tics in more than 80% of patients. These may be localizable sensations or discomforts, including:
  - Burning feeling in the eye before an eye blink
  - Tension or a crick in the neck that is relieved by stretching of the neck or jerking of the head
  - Feeling of tightness or constriction relieved by arm or leg extension
  - Nasal stuffiness before a sniff
  - Dry or sore throat before throat clearing or grunting
  - Itching before a rotatory movement of the scapula
- Rarely, these premonitory feelings, termed in one report as extracorporeal phantom tics, involve sensations in other people and objects and are temporarily relieved by touching or scratching them.
Progression

- Motor tics usually precede vocal tics.
- Head to toe and simple to complex progression.
- Tics wax and wane over time and change in type, frequency, and severity.
- As children get older, they may develop awareness of premonitory urge.
- Tic severity: Peak severity occurs at about age 10-11 years with improvement into adolescence in about half to two thirds of patients (Leckman et al. Pediatrics; 1998; Coffey et al; JNMD. 2004; Bloch et al; 2006)
- Monitoring through critical developmental periods may be all that is necessary in children with mild-moderate tics.
Behavioral symptoms

- The 2 most common associated disorders are OCD and ADHD.
- The symptoms of OCD (as well as ADHD) may be the dominating and debilitating feature of TS in certain patients.
- Questionnaire studies for patients with TS have also demonstrated high rates of mood disorders and anxiety disorders, including panic disorder and simple phobias. Compared with the general population, patients with TS have a higher rate of bipolar disorder.
- Obsessive-compulsive symptoms have an increased prevalence in first-degree relatives with tics.
Behavioral symptoms

- The rates of ADHD in TS have ranged from 40-70%.
- Unlike OCD, a genetic link between ADHD and tics is not as clear.
- Studies have not shown an increased incidence of ADHD in first-degree relatives of individuals with TS.
- The symptoms of ADHD are often recognized before the tics.
- Typically, ADHD is commonly treated with stimulants, which can worsen tics.
- Stimulants do not cause TS, but are more likely to bring out the underlying and often unrecognized tics.
- Symptoms from ADHD may be more limiting than the tics.
Behavioral symptoms

- Other associated disorders pertaining to poor impulse control:
  - Irritability
  - Rage attacks
  - Inappropriate sexual aggressiveness
  - Antisocial behavior

- A rare but very challenging behavior associated with TS is self-mutilating behavior: scratching, biting, cutting, or hitting themselves. Often an irresistible urge arises to perform these behaviors.
Behavioral symptoms

- Specific learning disabilities and subtle neurologic signs are more frequent in TS, further complicating management.
- Although intelligent, patients may have poor academic achievement.
- Slight motor coordination difficulties may preclude them from doing well in athletics.
- Anxiety and mood disorders are more prevalent than in the general population. The genetic association between these mood disorders and tics/TS is not clear.
Social and functional impairment

- Symptoms can lead to significant limitations in normal activities. Individuals who have severe motor tics frequently avoid situations with high social visibility. Stress and anxiety in those situations frequently worsen or accentuate tics.

- Tics can cause significant social embarrassment. Coprolalia (verbalization of inappropriate words or phrases) and copropraxia (making obscene gestures) can cause embarrassment and lead to isolation.

- In school-aged children, these tics can frequently be misinterpreted as rude behavior, leading to disciplinary action.
Social and functional impairment

- Associated behavior disorders of ADHD, OCD, and other disorders, such as impulse control, often cause more morbidity than tics.

- Behavior complications frequently lead to poor academic performance, social isolation, and emotional problems.

- Disorders of attention and concentration may not be just secondary to ADHD; patients frequently have uncontrollable intrusions of thoughts or an obsessive fixation on irrelevant objects.

- Mental and emotional effort used to suppress tics may interfere with attention and concentration in school and work.
Developmental history

- Developmental milestones
- Growth curves

Exclude genetic disorders such as Down syndrome, autistic spectrum disorders, and other developmental and chromosomal disorders.
  - Tics, ADHD, and OCD can be seen in these conditions.
Physical Examination

- Normal neurologic examination
- Normal mental status examination with the exception of the presence of tics, which should be commented on in the mental status section
- Decreased attention may be noted if the patient is distracted by their tics
- Possibly depressed or anxious affect may be noted if comorbid mood or anxiety disorder
- Possible difficulty focusing, distractibility, or increased psychomotor behaviors if ADHD
- Suicide risk screening if at least 2 emergency department visits or 1 hospitalization for TS symptoms: approximately 5% of patients had slightly increased risk
- Tic suppression may prevent tics during medical evaluation; Encourage videotaping at home to aid diagnosis

Physical Examination

- TS is the most common cause of tics, other more progressive neurodegenerative conditions can present with tics: Huntington disease, neuroacanthocytosis, Wilson disease, Hallervorden-Spatz disease, and primary dystonia. A thorough neurologic examination should examine for features suggestive of these conditions.

- Differentiate tic from myoclonus, chorea, tremor, and dystonia.

- The presence of Kayser Fleisher (copper ) rings in the eye is diagnostic of Wilson disease.

- A thorough gait and motor examination should be performed to assess tone and strength.

- Examination of the skin should be performed. Neurocutaneous syndromes such as tuberous sclerosis and neurofibromatosis have been rarely reported to be associated with the presence of tics.
Diagnostic Considerations

- Patients and their families may not alert the practitioner regarding symptoms; Excessive movements may be dismissed as twitchiness or anxiety.

- Potential to misdiagnose tics as chorea or myoclonus, and initiate an unnecessary work up

- Some tics, such as throat clearing, sniffing or cough, may be mistaken for allergies or asthma.

- Other neurologic diagnoses to consider are the following:
  - Tuberous sclerosis
  - Neuroacanthocytosis
  - Dystonia
  - Hallervorden-Spatz disease
  - Neurofibromatosis type 1
  - Chromosomal disorders
  - Sydenham chorea
  - Motor restlessness
  - Akathisia
  - Excessive startle
Differential Diagnoses

- Anxiety Disorders
- ADHD
- Autism
- Cocaine Toxicity
- Huntington Disease
- OCD
- Stimulants
- Wilson Disease
Approach Considerations

• TS is a clinical diagnosis; no specific laboratory or genetic tests exist to help establish the diagnosis.

• Routine community based neuroimaging studies (CT and MRI) are normal in patients with TS. The keys to diagnosis are recognition and an index of suspicion.
Functional Magnetic Resonance Imaging

- Event-related functional MRI studies of patients with tics have indicated that paralimbic and sensory association areas are critically implicated in tic generation, similar to movements triggered internally by unpleasant sensations, as has been shown for pain or itching.
Positron-Emission Tomography

• PET studies have shown increased activity in sensomotor, paralimbic, language, and frontal subcortical regions.

• This activity was event-related to motor and phonic tics, as well as the compulsions to perform these behaviors.
Treatment Considerations

- Management is multifaceted.
- Manage frequent or disabling tics, treat coexisting behavior symptoms, and educate patient and family.
- Patients with mild tics who have made a good adaptation can avoid medications.
- Educate patients, family, peers, and school personnel regarding the nature of TS; restructure school environment and provide supportive counseling. These measures help avoid pharmacotherapy.
  - Information is available through school counselors, psychologists, representatives of local chapters of the Tourette Association of America.
- Consider pharmacologic therapy when tics interfere with social interactions, school performance, or activities of daily living. Goal is not complete elimination but enough control of tics to alleviate social embarrassment or physical discomfort.
- Various therapeutic agents are now available to treat patients with tics, and each medication should be chosen on the basis of expected efficacy and potential adverse effects.
  - Dosages should be titrated slowly to achieve the lowest satisfactory dosage that is sufficient to attain a tolerable level of symptoms.
- Rare hospitalization for comorbid conditions for a threat to themselves or others.
Tourette Syndrome Association, Inc. Presents:
Tourette Syndrome in the Classroom, School and Community

A TWO-PART PRESENTATION

TSA EDUCATION IN-SERVICE
For Teachers, Allied Professionals, Parents/Families, Physicians & The General Public

1. Introduction to Tourette Syndrome - 30 Minutes
2. ADHD and Executive Dysfunction
3. Obsessive Compulsive Disorder (OCD)
4. Factors That May Affect Learning
5. Tips For Effective Presentations on TS

DVD-Rom for PC or MAC
For Professional Use
Not For Sale
(with PDF transcript and PPT)

Tourette Syndrome Association, Inc.
Patient Education

- One of the most important aspects is educating the patient and family members about tic disorders and associated behavioral disturbances.

- In addition to a substantial discussion at diagnosis, educational materials such as those provided by the Tourette Association, are helpful.

- Patient, family, and teacher education and peer support are important resources.
Treatment of Tics

First line:

- Alpha2-adrenergic drugs clonidine and guanfacine are first-line agents in treating mild to moderate tics.
  - Clonidine decreases plasma norepinephrine levels and can reduce symptoms of ADHD.
    - Daily dosage range for clonidine is 0.1-0.3 mg in divided doses.
  - Guanfacine, similar mechanism of action as clonidine but a longer half-life and may treat ADHD symptoms not responsive to clonidine.
    - Daily dosage range is 0.5-3.0 mg in divided doses. Clonazepam and baclofen can be considered first-line alternatives as well.
Treatment of Tics

First or Second line:

- D2 dopamine receptor—blocking medications (neuroleptics) are most effective medications for treating tics, and many experts use neuroleptics as initial agent of choice for that reason. Side effect profile includes extrapyramidal symptoms/tardive dyskinesia, a limitation to using these agents as first-line therapy.

- Haloperidol and pimozide, the 2 most studied, approved for treatment of tics in TS by the FDA. Well-controlled clinical trials indicate that haloperidol has a response 80% for tic suppression.

- Atypical neuroleptics that interact with both serotonin and dopamine receptors, have less extrapyramidal effects, effective in suppressing tics.
  - risperidone, the most studied, efficacy equal to that of clonidine.
  - olanzapine, ziprasidone, and quetiapine promising in small studies.
Aripiprazole is approved by the FDA for pediatric TS. Aripiprazole elicits partial agonistic effect at dopamine D2 and serotonin type 1 (5-HT1A) receptors (thought to help control vocal tics). It also shows antagonist effect at serotonin type 2 (5-HT2A) receptor, which may be helpful in managing some of the comorbidities of TS (e.g., obsessional traits, depression).

Tetrabenazine, a drug that blocks dopamine and depletes catecholamines at presynaptic terminals may be a potent drug in suppressing tics. Low doses of the dopamine agonist ropinirole have been shown to improve tics in small studies.

Botulinum toxin-A has been effective in treating motor and vocal tics in select patients.
Treatment of ADHD

- The most effective medications are central nervous system stimulants.
  - Methylphenidate and dextroamphetamine - first-line agents
    - may increase the frequency and intensity of tics.
    - dopamine-blocking agents can be used concurrently with the CNS stimulants for tic suppression.

- Alpha2-adrenergic blockers may be helpful in controlling tics and treating symptoms of ADHD.
  - clonidine and guanfacine

- Other medications that can be effective worsening tics include bupropion and the tricyclic antidepressants.
Treatment of OCD in Tourette Syndrome

- Selective serotonin reuptake inhibitors (SSRIs) are the most effective treatment of OCD symptoms in TS:
  - fluoxetine, fluvoxamine, paroxetine, sertraline, escitalopram, and citalopram.

- Clomipramine is also effective due to its serotonin reuptake action.

- Augmentation of SSRIs with atypical antipsychotics may be beneficial in patients with TS and OCD that are poorly responsive to treatment with SSRIs.

- Various psychotherapeutic techniques, including assertiveness training, cognitive therapy, and self-monitoring, have been tried in the treatment of patients with TS.

Deep Brain Stimulation

- Surgical approaches for TS have been attempted in patients who are severely disabled and have inadequate responses to other therapies. Deep brain stimulation (DBS) has been suggested as a potential therapy for severe and disabling tics. Controlled trials are underway.
Psychotherapeutic Counseling and Support

- In addition to patient education, other measures should be taken to nurture self-esteem and self-correction. Individual counseling, cognitive and behavioral therapies, and group therapy should be considered.

- Areas of strength should be emphasized: talents and skills, interests, any family or peer supports, and psychological resilience.

- Social skills training can help develop and reinforce more effective methods of communication.

- Parents or other guardians may benefit from parent behavior management and discipline training, recognizing that the underlying purpose of discipline is to instill a sense of self-control and responsibility for one's behavior.
Psychotherapeutic Counseling and Support

- Allowances must be made for uncontrollable tics that result from the disorder.

- Some tics, such as spitting or obscene gestures, may be considered behaviors and have negative social connotations and require special guidance.

- Methods to help deal with tics include nonjudgmental acceptance and working with the patient to adapt or substitute alternative, more appropriate behaviors that satisfy premonitory urges, such as spitting into a handkerchief instead of spitting openly.

- Parenting skills books, workshops, and trained specialists are widely available and emphasize practical methods.

- Parents, spouses, and patients also may benefit from group support and supportive counseling to cope with stress.
WHY DO I ACT THIS WAY?
BECAUSE I CAN’T CONTROL IT.

I have Tourette Syndrome—a medical condition. It causes me to make loud sounds, have twitches and say things I don’t mean. I can’t help it any more than you can stop a sneeze or cough. I’m sorry if it bothers you—it bothers me more.

My condition is covered by The Americans with Disabilities Law.

MEDICAL ID CARD

Name ____________________________

“Tourette Syndrome is a neurological disorder marked by uncontrollable movements of head and body, sounds and words. Over 200,000 people in the United States have it.”

— TSA Medical Advisory Board

Tourette Syndrome Association, Inc.
42-40 Bell Boulevard • Bayside, NY 11361
1-888-486-8738 • http://www.tsa-usa.org
Psychotherapeutic Counseling and Support

- A local TS support group may be of great benefit to patients and family members.
- Individual, group, or family counseling may help in facilitating a healthy adaptation to the disorder.
- Several relaxation or stress management treatment approaches reportedly improve the tics in TS.
- Innovative tools such as a court reporter’s mask to muffle loud vocal tics or dictation software for dysgraphia are some of the useful things parents share at in-person and online support groups.
Consultations

- Treatment of patients with TS should be a collaborative effort. The neurologist, psychiatrist, psychologist, family members, and school professionals all have important roles.
Treatments

COMPREHENSIVE BEHAVIOR INTERVENTION FOR TICS (CBIT)

- A study in 2012 showed that CBIT is effective in treating adults. The study showed that more than 38% of those receiving CBIT showed significant improvement, compared to just 7% who did not receive CBIT treatment. This improvement was sustained at 3- and 6- months after the end of the study. These results support a previous finding that CBIT is an effective therapy for children with tics.

What is CBIT?

CBIT is a non-drug treatment consisting of three important components:

(a) training the patient to be more aware of tics,
(b) training patients to do competing behavior when they feel the urge to tic, and
(c) making changes to day to day activities in ways that can be helpful in reducing tics.
CBIT

- Highly structured therapy in a therapist’s office weekly
- 8 sessions over 10 weeks
- The first step is to teach the patient to become more aware of his or her tics and the urge to tic.
- Next, the patient is taught to perform a specific behavior that makes the tic more difficult to do, as soon as the tic or urge appears.
- This “competing response” helps to reduce or eliminate the tic.

CBIT

- A patient with a frequent throat clearing tic would be taught to engage in slow rhythmic breathing whenever he felt the urge to clear his throat.

- A competing response chosen for a head-shaking tic might be gently tensing the head or neck muscles.

- Consistent and repeated practice of a carefully chosen competing response done at the appropriate time is necessary for the treatment to be effective.

- The final step is functional intervention. The goal is to identify situations that make tics worse and have the patient and family attempt to change them.

- For example, someone whose tics get worse when doing homework or before a presentation at work would be taught to manage their stress before and during these situations.
Public Awareness

- Most people with TS and other tic disorders will lead productive lives. There are no barriers to achievement in their personal and professional lives. Persons with TS can be found in all professions.

- A goal of the Tourette Association is to educate both patients and the public of the many facets of tic disorders.

- Increased public understanding and tolerance of TS symptoms are of paramount importance to people with Tourette Syndrome.
• Tourette Association Teen Ambassadors visiting Congressional offices