

Treating Tourette's Syndrome without Drugs

Behavior intervention therapy can work as well as medication, without the risk of side effects

By [Douglas Woods](#) on June 5, 2018

It often starts with a simple, subtle behavior like a rapid eye blink. Sometimes it's a nose-scrunch or a sniff that is confused with a lingering cold or an allergy. Often, these habits go away on their own, but in about 1 percent of children (boys more so than girls), these blinks, twitches, and coughs become the persistent tic disorder known as Tourette syndrome (TS), a misunderstood and stigmatizing neurological condition.

Media portrayals of TS often overemphasize the rare (fewer than 15 percent of cases) symptoms, in which people with TS shout obscene words—a symptom known as coprolalia—but most patients have a wide range of movements and sounds, ranging from simple tics to more complex ones that often look intentional but are not. Hidden beneath the tics, people with TS often experience "premonitory urges"—unpleasant sensations that build until the tic occurs. Ticking brings a brief sense of relief, but the urges soon return.

We know that TS is a genetically-based neurological disorder that is strongly influenced by a person's surroundings. The disorder stems from a problem within the basal ganglia, a series of structures in the brain that are responsible for selecting and inhibiting our movements. When neurons fire, signaling us to move, the basal ganglia serves as a filter, allowing some of these signals to pass through and become movements. Other movement signals that are not needed in a particular situation are held back.

Some research suggests the basal ganglia may be slightly smaller in people with tics, and one of the major neurotransmitters in the basal ganglia, dopamine, is believed to be overactive in those with TS. These problems result in small movements or strings of small movements being allowed to slip through accidentally.

Although many children with tics may grow out of them, some need help, particularly when the tics have a negative impact. When treatment is necessary, doctors historically have turned to medication as a first-line treatment. Indeed, some medications can effectively manage tics. Unfortunately, they may also come with undesirable side effects such as fatigue, weight gain or cognitive dulling.

But there are alternatives, including Comprehensive Behavioral Intervention for Tics (CBIT). Developed over the past 45 years by a host of behavioral science researchers, and supported by a growing body of research, CBIT builds on our understanding of neuroplasticity, the brain's ability to grow new neural pathways through learning and practice. In CBIT, patients learn a variety of tic-management activities.

First, patients are taught to counter the established urge-tic-relief cycle by working with therapists to increase awareness of their tics. Patients also learn to practice a competing behavior (e.g., gently tensing the neck while lowering the chin slightly, in order to combat a neck-jerking tic) that prevents the tic and allows urges to pass naturally. With repeated practice, urges may decline, and the patient learns that when the urge arises, giving in isn't the only way to make it go away.

Second, therapists help patients and their families recognize the day to day situations that trigger tics, and identify reactions in the environment (e.g., parents reacting strongly to tics when they happen) that can make tics worse. After these triggers and reactions have been identified, the families are given specific ways in which the child's environment could be structured to reduce the tics.

For example, if it is determined that a child's tics are exacerbated by unpredictable environments and made worse by peers who tease, a therapist may try to bring more predictability and structure to the child's environment while working with the school to encourage peers to ignore the child's tics. Third, therapists educate patients and their families about tics and teach relaxation skills, which make the tics easier to control.

CBIT typically is delivered in an average of eight 60–90 minute sessions, although some individuals need more sessions, and some need fewer. The evidence strongly supports the therapy's effectiveness. In a [2010 article](#) published in the *Journal of the American Medical Association*, John Piacentini at UCLA and his colleagues showed that CBIT was more effective than a supportive therapy that did not teach specific tic-management skills for a large group of children with TS. More than half of the CBIT recipients received significant benefits from the treatment, and those who got better continued to show improvement up to six months later.

Furthermore, in 2011, my colleagues and I [published a study](#) in the *Journal of Child Neurology*, showing that in those children whose tics improved from CBIT, their behavior problems, including anxiety and disruptions, were lower six months later. Another [study](#), published in 2012 in the *Archives of General Psychiatry* by Sabine Wilhelm of Harvard and Massachusetts General Hospital and her colleagues, showed that CBIT also works in adults with TS.

Results from this study showed that self-esteem improved significantly in those receiving CBIT. More recently, a 2018 *Frontiers in Psychiatry* [paper](#), authored by Renato Rizzo of Università degli Studi di Catania and colleagues showed that behavior therapy for tics was as effective as neuroleptic medication in treating people with tics.

You can find a trained CBIT provider by contacting the [Tourette Association of America](#) or by asking a local Tourette syndrome specialist.

The views expressed are those of the author(s) and are not necessarily those of Scientific American.

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