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Tourette and self-regulation

when the mind slows down... so as not to fail

Three lives, a common track

Mateo, 7 years old, is learning to read. Often, her teachers are surprised because, although she knows the words, she is slow to respond. In school tests, his times are longer than those of his peers, but he makes fewer mistakes. His educational psychologist comments: "It's as if he made sure before saying anything."

Lucia, 14, usually sits still for a few seconds before raising her hand in class, even when she knows the answer. At home, his parents notice that he avoids certain tasks that involve pressure. She herself describes: "I need to think about it a lot before I speak or act, because if not, I feel like I'm doing something wrong or weird."

Julián, 40, has learned to cope with his tics at work. He is meticulous, reflective, and says he feels exhausted at the end of the day from "all the mental effort to control himself." He struggles to react quickly in meetings, but he rarely makes mistakes.

All three have something in common: **Tourette's syndrome**. And all, in their own way, have developed a strategy that repeats itself: **respond slower to avoid mistakes, distractions or impulsive reactions**. It's not that they can't respond quickly, it's that, unconsciously, **they have learned to brake to maintain control**.

Tourette's syndrome is a neurodevelopmental disorder characterized by the presence of **multiple motor tics and at least one vocal tic**, lasting more than a year and starting before the age of 18. Tics are usually involuntary, rapid, recurrent, and can vary in intensity, frequency, and location over time. Many children and adults with TS have **comorbidities such as ADHD, obsessive-compulsive disorder, anxiety, or difficulties in emotional self-regulation**.

Although tics are the most visible symptom, in many people what generates the greatest interference is not the tics themselves, but the **constant need to control them**, **hypervigilance in the face of error**, and difficulty **managing impulses or intense emotions**.

What does science tell us about this?

A study from the University of Greifswald **(Eichele, 2009)** showed that children with Tourette's, although they achieve similar levels of accuracy as their peers on cognitive tests, tend to respond more slowly. In addition, after making mistakes, they take more time before the next answer, a phenomenon known as ***post-error slowing*.**

In everyday life, this means that children with Tourette's may seem slow to answer questions in class or do homework, not because of a lack of knowledge or attention, but as **a protective strategy to avoid mistakes or control impulses**. For example, they may take longer to raise their hand to answer or need longer pauses during activities that demand sustained attention, sometimes generating misunderstandings in the classroom or at home if this internal effort is not recognized.

Understanding that **this slowness reflects healthy cognitive adaptation** can help reduce external pressures and foster a more understanding and respectful environment for their actual needs.

Another study by **Jeter et al. (2014**) evaluated adolescents with Tourette's syndrome (TS) using tasks that require inhibitory control and working memory, such as visual tracking exercises (prosaccade, antisaccade, 0-back, and 1-back). The researchers found that teens with moderate tics made more mistakes on simple 0-back tasks and took longer on tasks that involve keeping up fresh information (1-back), compared to neurotypical teens or those with mild TS. This suggests **that the severity of the syndrome is directly associated with a cognitive slowdown.**

In everyday practice, this slowing down means that adolescents with Tourette's may take longer to answer questions in class, even if they know the answer, due to the **internal effort to simultaneously control** a motor tic and keep the information active in memory. In school or psychological evaluations, these pauses can **be misinterpreted as distraction or disinterest** when, in reality, they reflect a great effort of self-regulation. For example, they may momentarily lose focus during visual tasks after containing an eye twitch, requiring more time and emotional energy to reorganize and continue.

Acknowledging this effort and allowing them conscious pauses avoids underestimating their abilities, promoting fairer evaluation and strategies that integrate cognitive (e.g., visual aids) and emotional (validation of effort) support. For families, understanding that "responding slowly" does not reflect laziness but a complex and valuable self-regulation helps to reduce pressure and provide more effective emotional support.

A study published in *Scientific Reports* **(Indrajeet et al., 2022)** revealed that adults with Tourette's have difficulties in reactive inhibition (stopping an unexpected impulse), although they maintain proactive inhibition (anticipating and planning situations). In daily life, this implies that they can handle themselves well if they are prepared (e.g., in scheduled meetings), but they tend to react impulsively to unexpected or emotionally intense events. Julian, for example, may successfully organize a difficult conversation with his partner, but he reacts impulsively to unforeseen criticism. Clinically, it is recommended to strengthen anticipatory planning and train emotional management techniques (mindfulness, emotional flexibility) to improve reactions to unexpected situations, also validating that these difficulties are not lack of will but challenges typical of Tourette's.

A review published in ***Brain Sciences* (2017)** looked at 30 years of research on neuropsychological functioning in people with Tourette's syndrome (TS). Although not all of them have significant cognitive difficulties, these tend to appear mainly associated with comorbidities such as ADHD or OCD and are accentuated in complex or simultaneous tasks.

In everyday practice, this means that an adolescent may perform well on short questions but struggle on tasks that require simultaneous organization, argumentation, or processing. Likewise, adults may perform well in structured activities but feel overwhelmed in demanding social contexts. Therefore, clinically it is essential to evaluate beyond apparent performance, adapt expectations according to the complexity of the context and offer specific strategies to reduce daily emotional and cognitive overload.

A recent meta-analysis **by Schmid et al. (2024),** published in *Neuroscience & Biobehavioral Reviews*, confirmed that children with tic disorders, such as Tourette's, have moderate delays in executive functions compared to neurotypical children. These deficits are smaller than in ADHD, but increase significantly when there are comorbidities or demanding cognitive tasks. In everyday life, this means that a child with Tourette's may function well in structured contexts, but experience blockages or impulsive errors in the face of unexpected changes or quick demands. For example, Sofia can complete planned tasks with guidance, but make mistakes when she needs to reorganize suddenly. Clinically, it is essential to evaluate executive functions even without a comorbid diagnosis, adapt tasks according to the child's real context, and teach strategies to manage frustration and errors with greater emotional flexibility.

Electroencephalography (EEG) studies such as those by **Eichele et al. (2016) and Bellato et al. (2020**) show that children with Tourette's have distinct brain patterns when monitoring errors, revealing greater neurophysiological activation even when their performance appears correct from the outside. On a day-to-day basis, this implies that although children may apparently manage to function well at school or at home, internally they are making an extra effort that can lead to fatigue, irritability or increased tics at the end of the day. For families and therapists, acknowledging this internal exhaustion is crucial: they must not only support self-control, but also offer concrete strategies to help them recover emotionally after daily inhibitory exertion.

Clinical recommendations by life stage

Childhood (like Matthew)

Cognitive

- Respect individual times in schoolwork, promoting precision over speed. Recent studies suggest that children with Tourette's tend to optimize performance through reflective breaks that reduce errors (Eichele, 2009).
- Integrate games that train cognitive flexibility and working memory with structured playful activities such as dynamic puzzles, games with changing rules, or activities based on visual anticipation (Schmid et al., 2024).
- Implement visual and auditory strategies to facilitate planning (pictograms, timelines, visual agendas) that help manage the cognitive load associated with simultaneous inhibition of tics.

Emotional

- Explicitly validate the difficulty associated with the constant effort of self-regulation, recognizing the emotional fatigue that can accompany sustained control during the day (Eichele et al., 2016).
- Teach simple mindful breathing techniques and short breaks to regain emotional energy after cognitively demanding activities.
- Use age-appropriate metaphors to explain how impulse regulation is a special skill, highlighting a child's cognitive and emotional strengths.

Adolescence (as Lucia)

Cognitive

- Explicitly train self-observation and metacognition through cognitive journals or technological applications so that adolescents record moments of excessive inhibition and their consequences.

- Introduce exercises of gradual exposure to performance situations under pressure, combined with breathing techniques and sensory self-regulation to reduce anticipatory anxiety associated with fear of error (Jeter et al., 2014).
- Use visual aids, such as concept maps or organizational schemes, to facilitate rapid retrieval and organization of information when cognitive demand is high.

Emotional

- Create safe spaces in therapy and at home to explore and normalize error, reducing hypersensitivity to social judgment through cognitive restructuring techniques and controlled exposure.
- Encourage emotional expression through art, movement, and music as alternative ways to reduce the internal tension accumulated by the constant need for inhibitory control (Indrajeet et al., 2022).
- Work on the identification and regulation of anger through specific techniques such as mindfulness and role-playing, focusing on developing a better management of impulsive reactions.

Adulthood (like Julian)

Cognitive

- Introduce practical techniques to make excessively rigid cognitive control more flexible, such as delegating tasks, relying on external reminders (agendas, alarms) and establishing routines with conscious breaks during the working day.
- Implement mindfulness-based strategies to reduce hyperconcentration and cognitive fatigue associated with inhibitory overcontrol (Bellato et al., 2020).
- Train adults in psychological acceptance and mindfulness techniques to differentiate situations that truly require proactive inhibition from those in which a more spontaneous response is adaptive.

Emotional

- To therapeutically explore self-demand and internal criticism, helping to transform the relationship with error from a harsh judgment to a more compassionate and realistic perspective.
- Facilitate strategies that help to consciously recognize and manage the interval between emotion and action, using techniques such as "compassionate pause" and practical exercises of emotional regulation.
- Promote social and family spaces where the adult can express themselves with less inhibition and more authenticity, which can be deeply therapeutic and significantly reduce daily emotional exhaustion (Indrajeet et al., 2022).

Reflections for a better clinical and family understanding

Beyond the scientific data, it is crucial to understand that the slowness observed in people with Tourette's does not reflect a lack or deficit, but a constant and complex effort to manage multiple processes simultaneously. This effort, as shown by recent studies, carries a considerable emotional and cognitive load that can lead to burnout.

People like Mateo, Lucía and Julián use slowing down as an adaptive strategy. Recognizing this slowness as a healthy expression of self-control, rather than interpreting it as a limitation, helps to decrease unnecessary external pressures and facilitates the creation of a more understanding and empathetic environment.

From a clinical and family perspective, explicitly validating fatigue derived from the continuous effort to inhibit impulses and control tics is essential to promote effective and sustainable emotional self-regulation. Accompanying them properly involves teaching them not only to manage impulses, but also to offer them practical tools to recover emotionally after periods of intense self-regulation.

In the cases of Mateo, Lucía and Julián, there is no failure, but a particular way of managing their internal world to better adapt to the environment. Understanding that self-regulation in people with Tourette's does not always involve quick responses, but often voluntary pauses, is essential to their well-being.

Finally, recognizing and valuing these experiences allows us to design more empathetic and effective interventions. By understanding and accepting the complexity behind every seemingly simple action, those living with Tourette's can face their day-to-day lives with greater balance and emotional well-being.

The clinic, the school and the family must recognize that, frequently, knowing how to brake is also a sign of cognitive and emotional maturity.

"Control is not always imposed; sometimes, it is learned as the art of holding on in the midst of noise." – Paraphrasing Leckman and Peterson, pioneers in the study of Tourette's Syndrome.

Regulation is not always expressed in speed or immediate efficiency; Sometimes, true self-regulation is reflected in knowing when to brake. Understanding this allows patients, families and professionals to transform perceived slowness into a manifestation of cognitive and emotional maturity.

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ANNEX

The brake and accelerator: a metaphor for working on body and thought in children

Basic metaphor:

"Your brain is like a car. It has a throttle (when you act fast, without thinking much) and a brake (when you stop to make sure or not to make a mistake). People with Tourette's are learning to use both pedals, sometimes they need to brake harder so they don't go off the road, and that's part of their intelligence as well."

This image helps to:

- **Validate adaptive slowness** as functional, not defective.
- Distinguish between acting fast on impulse and acting with awareness.
- Generate common adult-child language for self-regulation ("are you going too fast?" / "do you need to slow down a bit?").

Short story: *Matthew and the invisible car*

Mateo has an invisible car that accompanies him to school every day. That car is not visible, but he knows it is there, right between his chest and his head.

Sometimes, when something really excites him—like telling the answer in class or explaining a picture he made—his car accelerates nonstop. He is going so fast that Matthew cannot see the signs of the way. Words slip through the cracks, he makes mistakes unintentionally, or he says things he didn't mean.

But other times, when he doubts or is afraid of making a mistake, he presses the brakes hard. So, he stays still, very still. He listens to others, but does not dare to speak.

One day, her therapist told her:

—What if you try using both pedals, like the pilots? Not so fast or so slow. Just enough for your path.

From then on, Mateo began to practice. Sometimes he continues to slam on the brakes. Other times, it accelerates unintentionally. But he understands his invisible car better and better. And even if you can't see it… he is learning to drive.

How to use this metaphor in session or at home?

1. With visual materials:D a car with both pedals, adding "engine emotions", traffic signs that represent social rules or thoughts, rest stations (sensory regulation), etc.

2. In times of dysregulation:

Ask him to draw how his car is now. Is it going fast? Stopped? Are you having trouble turning? Do you have too much fuel (emotions)? This projective game can make it easier to verbalize what they cannot say directly.

3. As a code in everyday life:

- "I see that your car is going very fast, do you want us to brake together?"
- "Maybe you're using the brake a lot because you don't want to make a mistake. Shall we try together?"
- "It seems that you are in third, well focused. What a good drive!"

4. In a group or classroom:

It can be adapted for neurodivergent children in inclusive contexts: each one identifies what their "mental vehicle" is like and what they need to better manage it (silence, pauses, clear explanations, humor, etc.).

Variant for adolescents

From the age of 11-12, you can adapt the metaphor:

"Your nervous system has two modes: reaction mode and pause mode. It's not about going slow or fast, but about recognizing what the situation needs. Learning to regulate that speed is a superior skill: not everyone can do it. You're practicing something that many adults don't achieve."

Metaphor for adults: *The car with a sensitive brake*

Narrative version to share in consultation:

Imagine that your mind is like a high-end car, sensitive and powerful. It's not just any car: it's designed to respond quickly... but also to detect risks before others.

For years, that car developed an ultra-sensitive brake. A brake that is activated before speaking in public, before answering an email, before looking at someone who observes you too much.

It's not because you don't know where to go. It's because your system is calibrated to avoid errors, conflicts, or rejections. That brake learned to protect you.

The problem is that, sometimes, that brake is activated too strongly or at unnecessary times. It leaves you in a standstill. You feel like you're overthinking, hesitating too much, falling behind.

You're not broken. You're just overtrained to avoid the mistake.

Today, your job is not to "take the brakes off", but to learn how to dose it. Recognize when you really need to brake... and when you can trust that your driving is enough.

Clinical and Emotional Applications in Adults with TS

1. Explore common cognitive distortions

- "If I make a mistake, I will be judged more than others."
- "If I don't control everything, something bad is going to happen."
- "I have to do everything perfectly to compensate for my tics/urges."

The metaphor allows us to take a step back and work with questions such as:

- "What would you say to someone driving with the parking brake on?"
- "Does your car need so much control on every stage of the day?"
- "What would your ideal co-pilot say to you if he saw you hesitating before you spoke?"

2. Validate overcontrol fatigue:
Many adults with Tourette's arrive at the end of the day exhausted, without knowing why. The constant effort to modulate impulses, avoid visible tics, prevent inappropriate comments or control physical micro-reactions generates a **silent cognitive and emotional load**.

Using this metaphor can open up a space of relief:

"Maybe you're not tired from what you did... but for all that you had to contain."

3. Introduce practices of self-affirmation and conscious pause:

- "On this stage I can release the brake a little bit."
- "I don't need to foresee every bump in the road."
- "My driving doesn't have to look like everyone else's."

🧩 **To close: a summary sentence**

"You're not clumsy. You are a person with a sophisticated control system, who is learning to distinguish when you need to brake... and when you can trust your intuition."