



Medtronic deep brain stimulation (DBS)  
for pediatric dystonia

# Empower your child to move with confidence

Because every child deserves to  
learn, play, and grow

**The only  
DBS system in the U.S.  
shown to be safe and  
effective for treating dystonia  
symptoms in children age 12  
years and older with primary  
generalized dystonia.**



# Help get them back to what they love

For someone living with dystonia, everyday activities like eating, sleeping, talking, and walking can feel like daily battles.<sup>1</sup> For a child, the impact of dystonia can touch every part of their world, including school, hobbies, and friendships.

## But there is hope.

The Medtronic deep brain stimulation (DBS) system is the only DBS system in the U.S. shown to be safe and effective for treating dystonia symptoms in children age 12 years and older.

As many as

# 250,000

people in the United States, including adults and children, have dystonia.<sup>2</sup>



“At 12, dystonia took away my quality of life. For seven years, simple tasks like walking, talking, and brushing my hair were my biggest battles. Since DBS surgery, I can now live my life without struggling every day just to move. I am so grateful to the Medtronic DBS system as it has given me a second chance at life.”

—Caroline,  
receiving Medtronic DBS for dystonia

*Caroline's story is based on her individual experience. Not all patients will experience similar results.*

# Improving movement, restoring independence

Dystonia is characterized by sustained or intermittent abnormal, patterned, repetitive movements or postures, often worsened by voluntary actions.<sup>3</sup>

**Medtronic DBS for dystonia shows improvement in:**

## Motor symptoms

71%

average improvement in motor scores at 1 to 5 year follow up compared to baseline in 143 pediatric patients with primary generalized dystonia (as measured by BFMDRS).<sup>1</sup>

**The Burke-Fahn-Marsden Dystonia Rating Scale (BFMDRS) is a clinical measure used to assess how dystonia impacts movement and daily activities.<sup>1</sup> It has two parts:**



A motor section scoring severity and distribution duration of dystonia across different body parts in nine regions (eyes, mouth, speech/swallowing, neck, trunk, right/left arms, right/left legs).



A functional or disability section evaluating the impact of dystonia on a patient's daily activities like speech, handwriting, feeding, eating, drinking, hygiene, dressing, and walking.

## Daily activities

Improvement in daily activities for children 12 years and older as evidenced by a

>60%

improvement in disability scores at 1 year compared to baseline (n=41)<sup>4,5</sup>

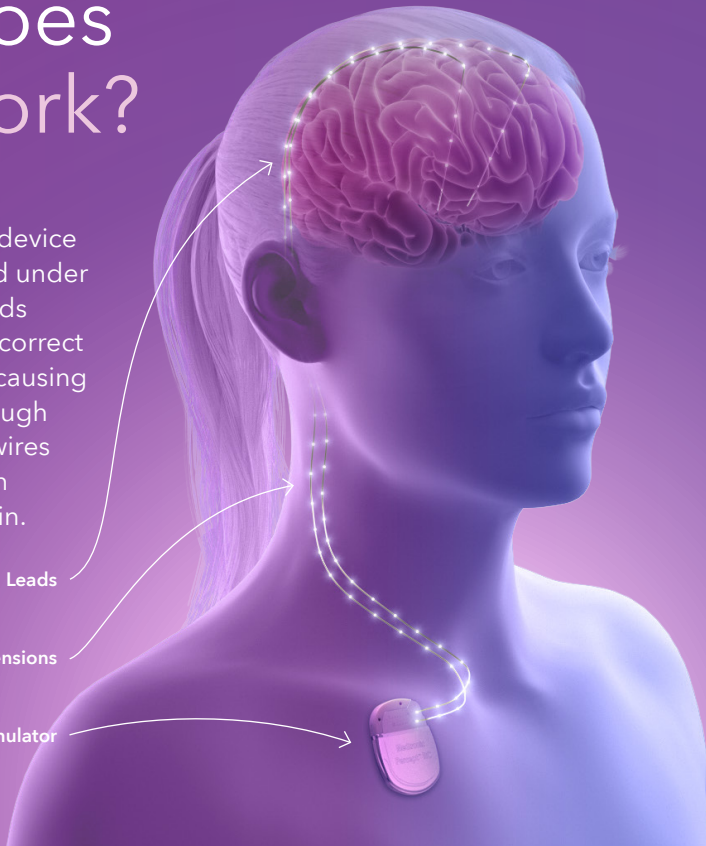


DBS therapy may help your child manage some of the symptoms of dystonia, including involuntary movements, but it is not a cure. Potential risks related to the device, therapy, or surgery can include implant site pain, tingling sensations, ineffective stimulation, and implant site infection.

## How does DBS work?

A small pacemaker-like device (neurostimulator) placed under the skin in the chest sends electrical stimulation to correct abnormal brain activity causing dystonic symptoms through extensions to very thin wires (leads) that are placed in specific areas of the brain.

Leads  
Extensions  
Neurostimulator



## Who is a candidate?

To understand if DBS is right for your child, see a neurologist who is experienced with DBS. Usually, these doctors are movement disorder specialists.

DBS may be right for someone who:

- Has chronic dystonia
- Has been unable to successfully manage their symptoms with oral and/or injectable medications
- Has primary generalized dystonia and is age 12 and older

Always talk with your child's doctor about diagnosis and treatment information.

## Talking to a doctor about DBS

Whether you and your child see a general neurologist or movement disorder specialist, be honest about your child's symptoms and how their current treatment is working. Ask about other options you could try and don't hesitate to get different opinions.

### Here are a few questions to help prepare for your appointment:

- How severe do my child's symptoms need to be before we think about DBS therapy as an option?
- How does DBS compare to other treatment options?
- If we wait, will DBS therapy always be an option for my child?
- What happens during the implant procedure?
- What is the recovery process like?
- How does the stimulation get adjusted?
- How often will we need to return for follow-up visits?
- For how long will DBS therapy help alleviate symptoms?
- What are the risks?

# Why Medtronic DBS for dystonia?

Medtronic has been serving people living with dystonia for more than 20 years.†

## Our commitment to you

As the originator and world leader in DBS for over 30 years, we are proud to have served over 200,000<sup>6</sup> people living with various conditions with our life-changing therapy.

/// DBS is very life-changing for patients and for their family. ///

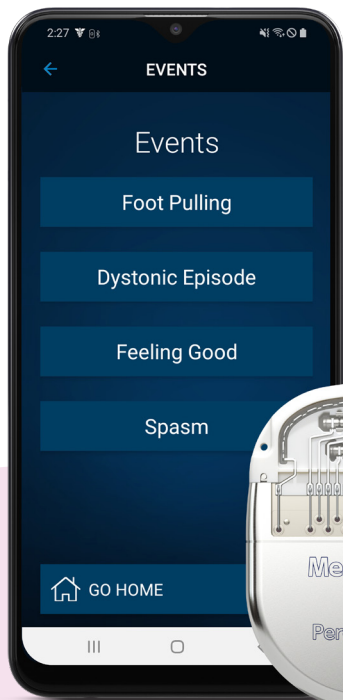
– DBS Neurosurgeon

† FDA approved for safety and probable benefit in 2003; FDA approved for safety and effectiveness in 2025.



# Medtronic DBS offers:

Patient programmer



**Sensing technology**<sup>†</sup> that enables clinicians to **personalize and adapt therapy** to your individual needs.



**Designed small for comfort** with the **smallest, thinnest rechargeable** DBS neurostimulator available<sup>‡</sup>.



**Continuous symptom relief**  
**Medtronic DBS works 24/7**, ensuring symptom control even while you sleep.



**Reversible and adjustable**  
Medtronic DBS therapy **can be adjusted to your needs**.



**Battery power**  
**Choice** of recharge-free (PC) battery or rechargeable (RC) battery with 15-year service life.



Percept™ PC and Percept™ RC neurostimulators

## We offer the only DBS system for dystonia in the U.S. that is:

- FDA approved for safety and effectiveness
- FDA approved to treat dystonia symptoms in adults and children age 12 years and older.

<sup>†</sup> The sensing feature of the Percept™ PC system and Percept™ RC system is intended for use in patients receiving DBS where chronically recorded bioelectric data may provide useful, objective information regarding patient clinical status. Signal may not be present or measurable in all patients treated for dystonia.

<sup>‡</sup> Percept™ RC as compared to Boston Scientific Vercise Genus™ R16 (MP92328632-10 REV A), accessed February 24, 2026, and Abbott Liberta RC™ IPG (ARTEN600340313 B), accessed February 24, 2026.

## MRI access

While DBS itself does not cause your child to need an MRI, there are many reasons they may need MRI access in the future. For example, MRI scans are used to evaluate, diagnose, or treat diseases and sports injuries without surgery.

Medtronic offers the world's first full-body MRI capable DBS device portfolio<sup>§,7</sup>, including:

- Access to 1.5T and 3T MRI scans for when you need high-quality imaging<sup>§</sup>
- Ability for DBS therapy to remain on (in bipolar mode) during an MRI scan<sup>§</sup>

<sup>§</sup> Medtronic DBS Systems are MR Conditional. Refer to product labeling for full list of conditions. <https://manuals.medtronic.com/manuals/mri/region>.





**The only DBS system in the U.S.** shown to be safe and effective for treating dystonia symptoms in children age 12 years and older with primary generalized dystonia.

**Possible side effects** with DBS therapy for dystonia might include:

- Status dystonicus
- Risk of depression, suicidal ideations, and suicide
- Rebound effect: an abrupt cessation of stimulation may cause a return of disease symptoms and in some cases with a greater intensity than prior to implant
- Pediatric patients may have increased risk of infections and device-related complications.

Always talk to your child's doctor about the benefits and risks of DBS therapy.



# A journey with dystonia

**Your child is not alone, and  
every experience is different.**



Diagnosis and  
initial treatment



Deciding if  
DBS is right



DBS procedure  
and management

## Meet Sara

Sara enjoys playing soccer, painting, and choreographing dances with her friends. When Sara began having difficulty with her hobbies and in school, her journey with dystonia began.

*Actual patient not pictured.*

# Sara's journey with dystonia

*Patient experiences and results may vary.  
Always be sure to talk to your physician about  
the risks and benefits of Medtronic DBS.*



## Diagnosis and initial treatment

- ✓ **Finding the right specialist:** Dystonia can often be misdiagnosed, and finding the right specialist can be a lengthy process. It is important for Sara and her family to get in touch with a movement disorder specialist.  
**Treatment trials:** In consultation with her doctor and her family, Sara tries medications and injections. She receives rehabilitative treatment from occupational and physical therapists to manage her symptoms. While Sara finds some relief in a multi-treatment approach, she seeks additional treatment options in hopes of more impact.



## Deciding if DBS is right

- ✓ **Advanced treatment options:** Sara and her family consider further treatments with her specialist, and DBS is recommended.
- ✓ **Consideration:** Sara speaks with patient ambassadors who have dystonia and who have undergone DBS.
- ✓ **Decision to get DBS:** After her pre-operative assessment, Sara learns she is a candidate for DBS therapy for dystonia and, along with her doctor and her family, decides to move forward.



## DBS procedure and management

- ✓ **Implant procedure:** Sara undergoes DBS surgery to place thin leads in the target area of the brain and implant a small device under the skin in her chest or abdomen.
- ✓ **Initial programming:** Sara begins seeing a healthcare professional who starts programming her device to establish safe and comfortable settings.
- ✓ **Programming adjustments:** It takes time for Sara to feel symptom relief and every patient responds differently. In consultation with Sara and her family, Sara's doctor may adjust her device over time to ensure optimized symptom relief as her symptoms change.

**Sara is responding to her DBS therapy.  
She notices quality of life improvements  
and is regaining her independence.**



*Actual patient  
not pictured.*

# Discussion guide for young patients

Living with dystonia is a journey. It is important for you to feel empowered and informed about your care options along the way.

## These questions could help start a conversation with your doctor:

- How will DBS affect me as I continue to grow?
- Will I need to shave my head for surgery?
- How much time will I miss from school for surgery and recovery?
- Will I still need to take medication after DBS?
- Will I be able to play sports, swim, or do physical activities after DBS?
- Will the device be visible under my skin, and will people notice the wires or battery?
- Will I need more surgeries in the future?
- Are there other teens who have experienced DBS that I can talk to?
- How do I explain DBS to my friends if they ask?

# Discover a path to symptom improvement

Talk to your child's neurologist or movement disorder specialist to learn if your child may be a candidate for Medtronic DBS therapy for dystonia.

Discover more at  
[medtronic.com/dystonia](https://www.medtronic.com/dystonia)



## References

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4. Coubes P, et al. Electrical stimulation of the globus pallidus internus in patients with primary generalized dystonia: long-term results. *J Neurosurg*. 2004;101(2):189-194.
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7. MRI guidelines for Medtronic deep brain stimulation systems 37601, 37602, 37603, 37612, B35200, B35300 - M056974C001 rev A. See Medtronic manual library: <https://manuals.medtronic.com/manuals/mri/region>.

## Brief Statement: Medtronic DBS Therapy for Dystonia

**Patients should always discuss the potential risks and benefits with a physician.**

**Medtronic DBS Therapy for Dystonia:** Medtronic DBS Therapy for Dystonia is indicated for bilateral stimulation of the internal globus pallidus (GPi) as an aid in the management of chronic, intractable (oral and/or injectable medication refractory) primary dystonia, including:

- generalized dystonia, segmental dystonia of the head and neck, and cervical dystonia (torticollis) in adult patients.
- generalized dystonia in pediatric patients twelve years of age or above.

Placing the DBS system requires brain surgery, which can have serious and sometimes fatal complications including bleeding inside the brain, stroke, seizures, and infection. Once implanted, infection may occur, parts may wear through your skin, and the lead and/or extension connector may move. Medtronic DBS Therapy could stop suddenly because of mechanical or electrical problems. Any of these situations may require additional surgery or cause symptoms to return, worsen or become life-threatening, as with status dystonicus, which requires immediate medical treatment. Pediatric patients may have increased risk of infections, device-related complications, revisions, and explants compared to adults. Medtronic DBS Therapy may cause new or worsening neurological or psychiatric symptoms.

In patients receiving Medtronic DBS Therapy for Dystonia, depression, suicidal thoughts, and suicide have been reported, although no direct cause-and-effect relationship has been established.

This therapy is not for everyone. Implantation of a DBS system is contraindicated (not allowed) for patients who will be exposed to diathermy (deep heat treatment) or transcranial magnetic stimulation. Magnetic Resonance Imaging (MRI) should only be performed as described in the product labeling. The DBS system may interact with other medical devices and other sources of electromagnetic interference which may result in serious patient injury or death, system damage or changes to the neurostimulator or to stimulation. The impact of DBS on overall brain development and behavioral changes in pediatric patients is unknown.

A prescription is required. Not everyone who receives DBS Therapy will receive the same results.

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