DIFFERENT OBESITY™

Acquired Hypothalamic Obesity



Her soccer dreams didn't change. **Her brain did.**

Not all obesity is the same. Issues with weight, hunger, and fatigue after a brain tumor or brain injury could be a sign of a distinct form of obesity called **acquired hypothalamic obesity**, or acquired HO.

Actor portrayal

Rhythm® PHARMACEUTICALS

What is acquired HO?

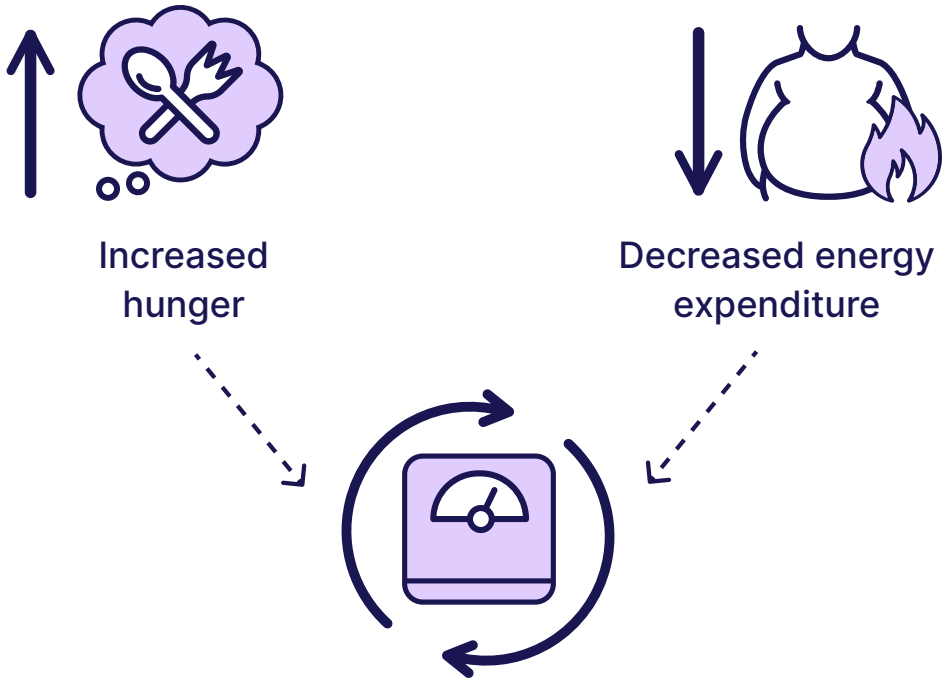


Acquired hypothalamic obesity (acquired HO) is a specific medical condition that can happen when the hypothalamus—a key control center in the brain—is injured

Unlike in general obesity, two unique factors can contribute to weight gain in acquired HO:

- **Decreased energy expenditure**, which is when the body uses fewer calories than it should each day; you can also think of this as having a slower metabolism
- Increased hunger or hunger that can be constant and hard to control, which is called **hyperphagia** (pronounced hi-per-FAY-juh)

Unique challenges of acquired HO



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What is acquired HO?



What symptoms are associated with acquired HO?

Weight Gain

- Begins after injury
- Occurs even when limiting food or calorie intake
- Is sustained over time

Increased Hunger

- Increased hunger or hyperphagia (constant, hard-to-control hunger)
- New or unusual food-seeking behaviors

Fatigue

- Doing less physical activity
- Feeling excessively tired



Symptoms differ from person to person. Hunger, fatigue, and other symptoms can be more or less severe depending on how much and what part of the hypothalamus is injured.

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Learn more about hyperphagia and the symptoms of acquired HO at **HO.DifferentObesity.com**

What makes acquired HO different?



Hyperphagia is a distinctive symptom of acquired HO



Most people with acquired HO experience some level of increased hunger, and around 70% experience hyperphagia. **People with hyperphagia often describe it as feeling different from anything they have ever felt.**

Before acquired HO

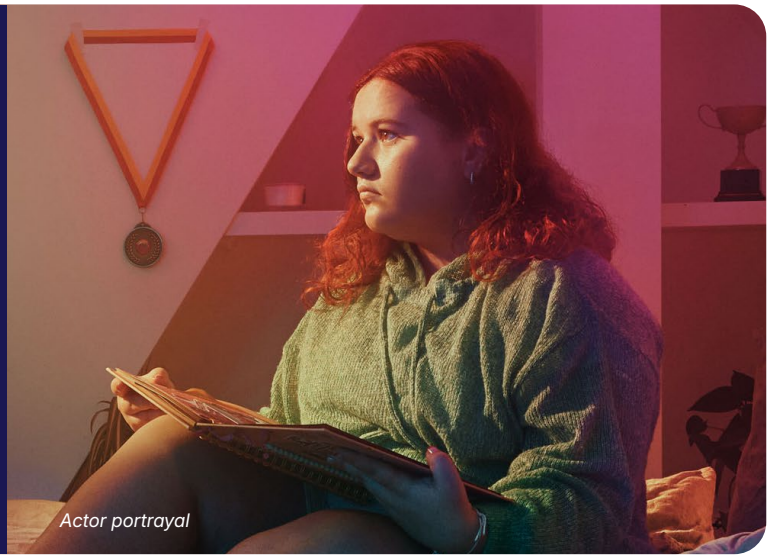
- Feeling hungry between meals
- Having cravings and increased appetite from time to time
- Eating past fullness only at big occasions like Thanksgiving

VS

With acquired HO

- Feeling hungry all the time
- Having continual thoughts about food
- Eating throughout any given day because you never feel full
- Eating to feel less hungry, but never achieving a feeling of fullness

Some people may not notice a change in hunger or may learn to cope with the behaviors and emotions brought on by increased hunger over time.


Actor portrayal

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What makes acquired HO different?

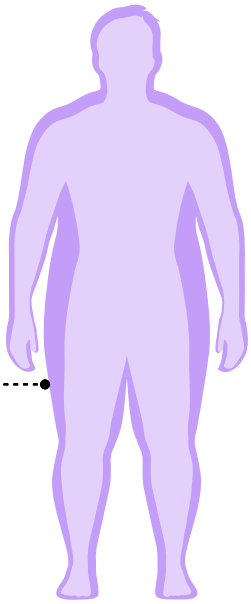


Why diet and exercise aren't enough

With acquired HO, the number of calories your body uses (your energy expenditure) can decrease.

This decrease in energy expenditure is not something you can control. It is related to essential bodily functions like breathing and pumping blood.

The impact of decreased energy expenditure in acquired HO

Before acquired HO	With acquired HO
BRAIN TELLS BODY: USE **ALL** of your consumed daily calories	BRAIN TELLS BODY: USE **FEWER** than all of your daily calories
	Unused calories are **stored as fat** 
STABLE WEIGHT	WEIGHT GAIN

Even if you eat less food, a slower metabolism can still cause you to gain weight. Some people with increased hunger or hyperphagia are able to limit the amount of food they eat despite how hungry they feel. However, this does not always lead to weight loss.

With acquired HO, you can eat the same amount of food as you did before—or even less—and still gain weight.

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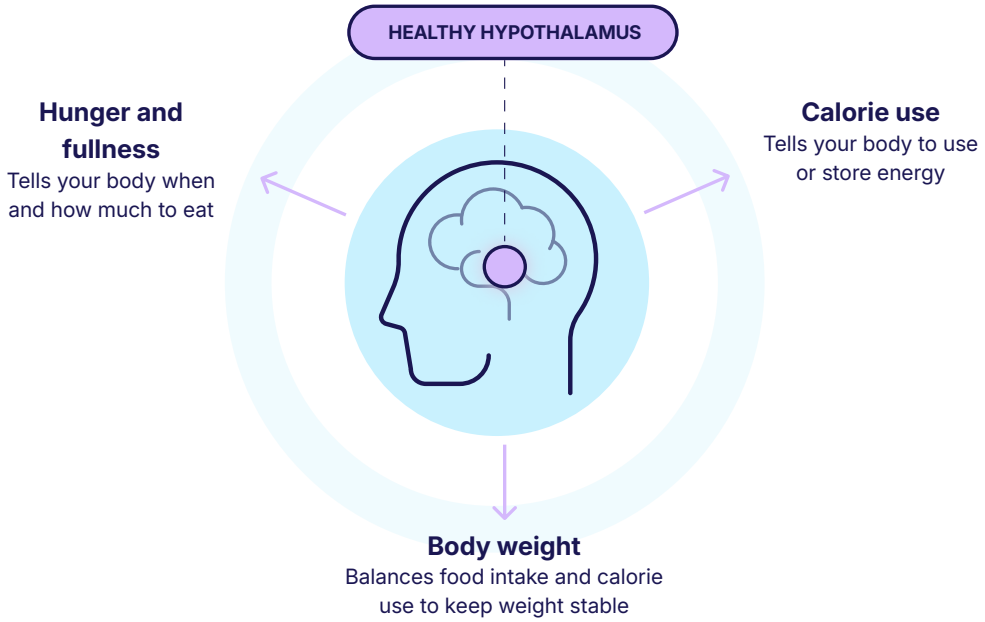
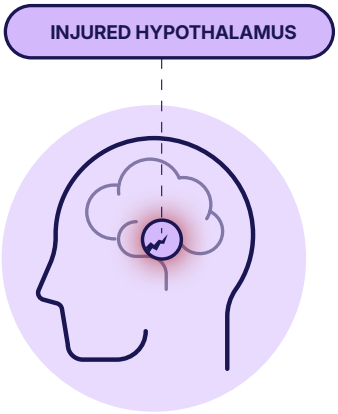
What are the causes of acquired HO?



Acquired HO happens when specific messages between the body and the brain stop working





Any injury to the hypothalamus can cause acquired HO. Most often, the injury is related to a brain tumor like craniopharyngioma or its treatment. Traumatic brain injury, stroke, and other neurological conditions can also affect the hypothalamus and cause acquired HO.

The hypothalamus sends and receives signals using different pathways in the brain. A key pathway for signals about hunger, fullness, and calorie use is called the **MC4R pathway** (or the melanocortin-4 receptor pathway).

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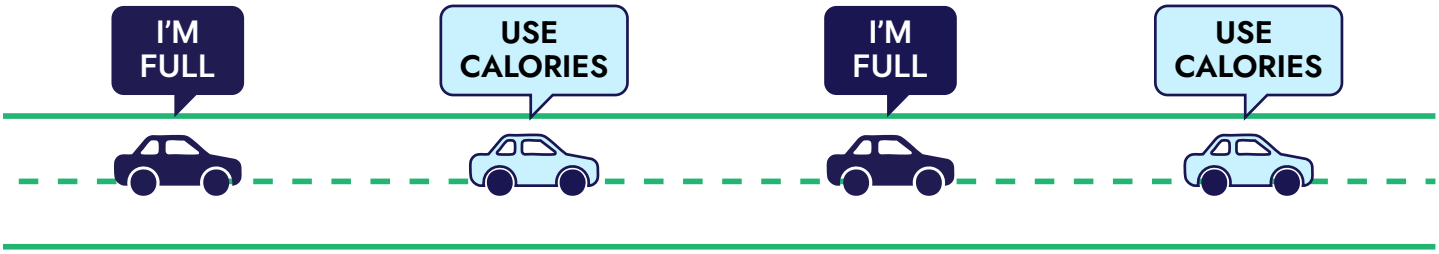
What are the causes of acquired HO?

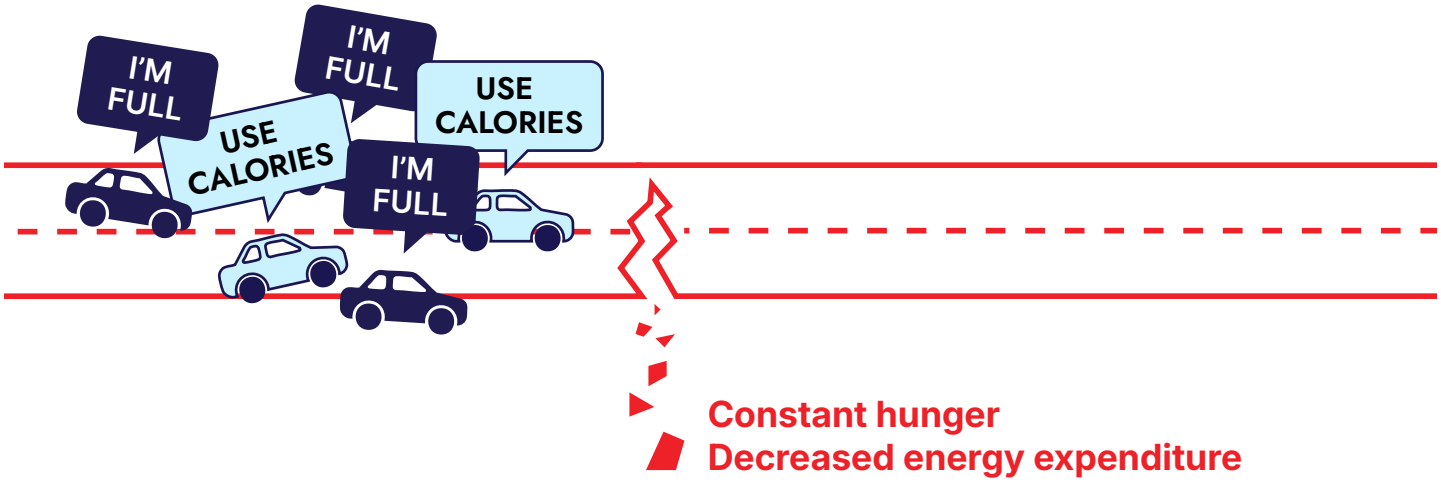


Like cars on a highway, messages in the body travel along the MC4R pathway



When the MC4R pathway is working, messages about fullness and calorie use reach their destination. These messages help the brain know how to regulate body weight.

With acquired HO, the MC4R pathway is damaged



A damaged MC4R pathway means messages about fullness and calorie use don't get through. Without these messages, **the brain thinks the body's not getting enough food** and keeps telling the body to eat food and store calories.

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Acquired HO can impact many aspects of your life



There's more to acquired HO than just weight gain

Living with acquired HO can make day-to-day life emotionally and socially challenging. Acquired HO may also lead to an increased risk of various health problems over time.

Emotional burden

- Frustration with difficulty losing weight
- Poor body image
- Fewer positive social interactions
- Negative impact on mental health

Potential long-term risks

- Diabetes
- High blood pressure
- Heart disease
- Liver disease

Acquired HO is a distinct and diagnosable medical condition. Changes in weight or hunger associated with acquired HO are not something you caused.



"I went into surgery, and I came out, and it was like I was turned into a different person...mentally and physically."

-Brain tumor survivor living with acquired HO

Actor portrayals

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Acquired HO can impact many aspects of your life



Your doctor can help provide answers

Keep an open dialogue

After a brain tumor or brain injury, open communication with your doctor about symptoms you or your child experiences is important. **The sooner acquired HO is identified, the sooner you and your doctor can take steps to manage it.**

If you recently experienced a brain tumor or brain injury

Your doctor will want to know as soon as you start to experience weight gain or noticeable changes in hunger after injury. These could be early signs of acquired HO.

Starting the conversation early can help you and your doctor create a management plan that's suited for you.

If it has been years since your brain tumor or brain injury

Sustained weight gain or constant hunger are important to discuss, even if you've found ways to manage these challenges. They could be signs of acquired HO that haven't been linked to the brain injury as the cause.

Identifying the underlying cause now can help you and your doctor approach your symptoms together.

What should I tell my doctor? Tell your doctor when any changes started and how they've affected your life or the life of your child. This will help your doctor better understand your experience.


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Acquired Hypothalamic Obesity

Doctor Discussion Guide for Caregivers of Children

Make the most of your conversation with your child's doctor about acquired hypothalamic obesity (HO)

If your child is struggling with sustained weight gain, constant hunger, and fatigue after an injury to the hypothalamus, it could be acquired HO

Acquired hypothalamic obesity, or acquired HO, is caused by injury to the hypothalamus, a key control center in the brain. Causes of this injury can include brain tumors or their treatment, traumatic brain injury, stroke, and other neurological conditions.

A key sign of acquired HO is sustained weight gain, even with diet and exercise. However, there's more to acquired HO than just weight gain. Living with acquired HO can make day-to-day life emotionally and socially challenging and may also lead to an increased risk of various health problems over time.

Acquired HO is a distinct and diagnosable medical condition that is a result of an injury to the hypothalamus—not something you or your child caused

Be your child's voice

It's important to have an open and honest conversation with your child's doctor to get a diagnosis sooner rather than later. The more you share about the symptoms your child is experiencing after a brain tumor or brain injury and the impact on their daily life, the more your care team can help.

Even if it has been years since your child had a brain tumor or brain injury, identifying the underlying cause of your child's obesity can help you and the doctor approach their symptoms together

Visit HO.DifferentObesity.com for more information

Download a discussion guide to help prepare for your next appointment at **HO.DifferentObesity.com**.

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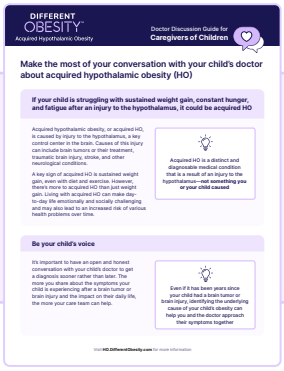
Helpful resources to support your journey



Resources for navigating acquired HO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A key sign of acquired HO is sustained weight gain despite diet and exercise. However, there's more to acquired HO than just weight gain. Living with acquired HO can make day-to-day life emotionally and socially challenging and may also lead to an increased risk of various health problems over time.

Acquired HO is a distinct and diagnosable medical condition that is a result of an injury to the hypothalamus—**not something you or your child caused**

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Visit **HO.DifferentObesity.com** for more information

Doctor Discussion Guide

Prepare for a conversation with your doctor to help them better understand the symptoms you or your loved one may be experiencing.


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Hyperphagia Checklist for Caregivers of Children

Recognize a different type of hunger

Learn about the signs of constant, hard-to-control hunger in your child

Hunger is a natural and important feeling, but not all hunger is the same. Constant, hard-to-control hunger that does not go away is called **hyperphagia** (pronounced hi-per-FAY-uh).

Hyperphagia and sustained weight gain can be unique symptoms of acquired hypothalamic obesity (HO), a specific medical condition that can occur after part of the brain is injured. Not everyone with acquired HO experiences hyperphagia, but those who do often describe it as feeling different from anything they have ever felt.

Hunger before acquired HO		Hunger with acquired HO
• Feeling hungry between meals • Having cravings and increased appetite from time to time • Eating past fullness at big occasions like Thanksgiving	VS	• Feeling hungry all the time • Having continual thoughts about food • Eating throughout any given day because you never feel full • Eating to feel less hungry, but never achieving a feeling of fullness

Experiences with hyperphagia can vary. Hyperphagia can range from mild to severe, and children may handle hyperphagia differently from adults. With time, individuals may learn to cope with behaviors and emotions brought on by hyperphagia, but the feeling of hard-to-control hunger does not go away.

If you've noticed weight gain or increased hunger after your child's brain tumor or brain injury, don't wait to discuss these changes with their doctor. The sooner acquired HO is identified, the sooner you and your child's doctor can take steps to manage it.

Visit **HO.DifferentObesity.com** for more information on acquired HO

Hyperphagia Resource

Track symptoms of constant, hard-to-control hunger to share with your healthcare team.

Get connected at **HO.DifferentObesity.com** or scan QR code to access helpful resources.

DIFFERENT OBESITY™

Helpful resources to support your journey




Actor portrayals

Rhythm InTune

Connect with one-on-one educational support

If acquired HO affects you or a loved one, Rhythm InTune can help. Your Rhythm InTune Patient Education Manager (PEM) can provide educational support and resources to help you better understand acquired HO and connect with others facing similar challenges.*

Access educational resources

Connect with a community

Rhythm InTune Sign-up

Connect with a Patient Education Manager for one-on-one educational support.

*Patient Education Managers are employees of Rhythm Pharmaceuticals and do not provide medical care or advice. We encourage you to always speak to your healthcare providers regarding your medical care.

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Actor portrayals

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