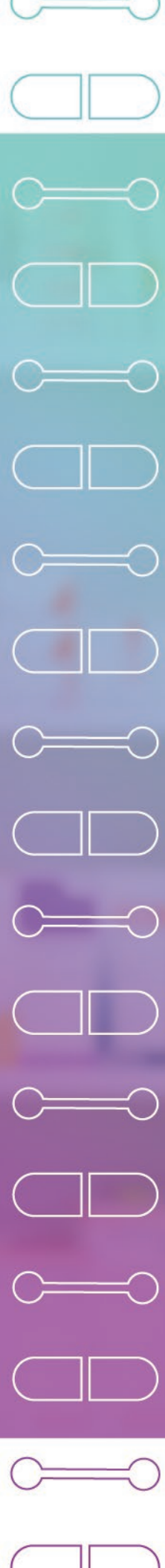
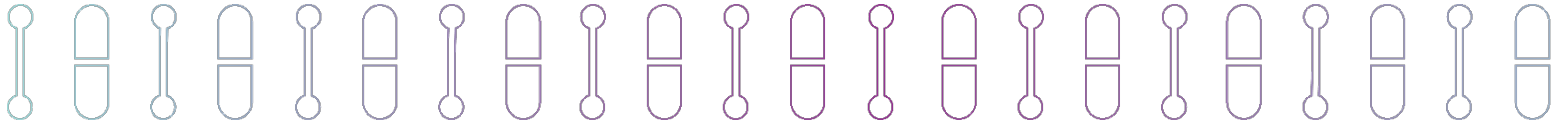




Your Guide to Growth Hormone Deficiency





PROGRAM OVERVIEW

Maxor Specialty Pharmacy’s Disease Management Programs offer a unique approach to disease management. Each Clinical Track includes information from disease overview to therapeutic outcome management and provides continuous, coordinated, and patient centered care plans carefully designated to fit your specific needs.

As part of the program, you will additionally have access to:

- Patient education materials providing disease specific information stressing the importance of medication compliance, ongoing physician follow up, scheduled lab work adherence, etc.
- Ongoing patient communication with documented patient feedback.
- Proactive refill calls to assist with medication adherence.
- Monitoring of timely and appropriate prescription refills to avoid product waste or misuse and convenient ordering capabilities.
- Free delivery of medications to your home or other preferred location.
- Clinical pharmacist availability 24/7/365.
- Screening and education for drug/drug, drug/food, drug/lab, and drug/disease interactions as well as adverse drug reactions.
- Side effect management.

Through ongoing patient communication, education in lifestyle changes, clinical interventions, focused compliance efforts, market trend expertise, cost saving pharmacy practices, and outcome evaluation measures, our Clinical Track Programs are dedicated to meeting your needs. You can access your patient portal at Maxor.com or call us at 866-629-6779 for more information.

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UNDERSTANDING GROWTH HORMONE DEFICIENCY

Growth Hormone Deficiency and Maxor's Role

Growth hormone deficiency (GHD) is a rare condition in which the body does not make enough growth hormone (GH). Approximately one in 4,000 to 10,000 children have growth hormone deficiency that can be caused by a genetic mutation or acquired after birth.¹⁻²

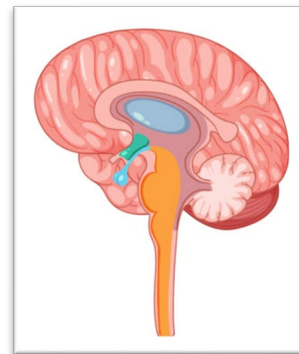
Our goal at Maxor Specialty Pharmacy is to provide you the tools and resources you need from initial diagnosis and onward. We aim to provide consistent support and navigation throughout the seasons of life. Understanding you or your family member's diagnosis is the first step in taking control of your health. This program will provide key information about Growth Hormone Deficiency and ongoing initiatives to help get you started on your journey.

What is Growth Hormone Deficiency?

Growth Hormone Deficiency (GHD) is a rare health condition caused by inadequate amounts of growth hormone produced from the pituitary gland. Typically, growth hormone deficiency occurs in childhood, due to genetic mutations that cause suppression in pituitary gland development or dysregulation of growth hormone production. Adult-onset growth hormone deficiency is often acquired, a result of brain tumors, autoimmune disorders, or physical head trauma.

What causes Growth Hormone Deficiency?

Growth hormones are produced and released by the pituitary gland. The pituitary gland is a small gland located at the base of the brain. The pituitary gland produces growth hormone and stimulates the growth of bones, muscles, and organs in the body. When there is a problem with the pituitary gland, such as a small or missing gland that leads to less growth hormone being produced. The extent of growth hormone deficiency can vary from mild to severe.



How is Growth Hormone Deficiency diagnosed?

A physical exam and measurement of height, weight, and limb length are often the first steps to diagnosis. If growth hormone deficiency is suspected, there are other testing tools that can be used to confirm diagnosis. Some of diagnostic tests include:

- Growth hormone serum test
- Growth Hormone suppression or stimulation test
- Insulin-like growth factor-1 test (IGF-1)
- Imaging tests (x-ray or MRI of the brain or bones)

Through testing, doctors can determine if the deficiency was present at birth or brought on by a secondary cause (e.g., injury or a tumor).

What does Growth Hormone Deficiency look like?

The most common symptoms of growth hormone deficiency include slow growth, short stature, absent or delayed sexual development during puberty, poor nail growth, and high-pitched voice. As people get older, there is a decrease in the amount of GH that is secreted by the pituitary gland. Symptoms of GH deficiency in adults include fatigue, decreased strength and weakness, weight gain, and depression. Additional symptoms include low blood glucose, increased risk for fractures, fatigue, and increased body fat distribution around the waist.

Complications of Growth Hormone Deficiency

Early diagnosis and treatment may lead to a greater chance for children to attain a normal adult growth height. If left untreated, growth hormone deficiency may lead to:

- Abnormally short stature
- Low bone density, and an increased risk of bone fractures
- Irregular metabolism, abnormal cholesterol, blood sugar, and/or blood pressure
- Chronic fatigue and decreased energy level
- Increased cardiovascular risk factors such as heart attack, heart failure, irregular heartbeats, and embolisms.

GROWTH HORMONE DEFICIENCY TREATMENTS

At Maxor, our aim is to provide you with goals that can be implemented to optimize you or your loved one's treatment plan.

The 3 Goals of Growth Hormone Deficiency Treatment

The primary goals of treating growth hormone deficiency disorders are to:

1. Replenish the lack of growth hormones
2. Obtain Normal or Near Adult Height and Restore Normal Metabolism
3. Improve quality of life

Goal 1: Replenish the lack of growth hormones

Children with growth hormone deficiency may receive injectable synthetic human growth hormone through a specialty pharmacy. These injectable medications are administered subcutaneously, by the patient or caregiver at home. The dosage starts low and slowly increases to the highest tolerated and optimal dose, based on weight. Most formulations require the patient to inject daily, however next-generation therapies allow for once-weekly injections to improve adherence and convenience. Children usually discontinue therapy when reaching adulthood.

FDA-approved treatments for growth hormone deficiency and other related disorders include but are not limited to:

- Nutropin
- Humatrope
- Genotropin
- Norditropin
- Omnitrope
- Skytrofa
- Sogroya
- Ngenla

Growth hormone is given by injection once daily into the subcutaneous (fatty) tissues. Older children can often learn how to give the injection to themselves, but need to be supervised by a caregiver to make sure they are giving the correct dose and that they are giving their shot every day. Appropriate injection sites include the back of the arms, upper outer thighs, abdomen or buttocks. Side effects are usually minor but may include redness at the injection site, headaches, and muscle or joint pain.

Goal 2: Obtain Normal or Near Adult Height and Restore Normal Metabolism

The primary goals of treatment are to increase growth in children and to increase energy and muscle mass and balance mood in adults. Synthetic growth hormones have been used successfully in both

children and adults to treat GH deficiency. It may take between 3 to 6 months to see some growth progress after initiating the growth hormone treatment. Indicators that growth hormone is working include:

- Increased appetite
- Increased shoe size needed
- Increase in lean body mass

Duration of treatment with growth hormone often varies and can be a long-term commitment. Growth hormone medications are often stopped when your child has reached:

- Full adult height
- Full bone maturation
- Grown less than 2 centimeters in the last year

Goal 3: Improve Quality of Life

Improving quality of life is Maxor Specialty Pharmacy's primary goal for all patients. Strategies to achieve treatment goals include:

- Adhere to prescribed therapy
- Keep appointments, and follow-up with physician
- Report side effects or unmanaged symptoms to your pharmacist, or healthcare team
- Avoid cigarette smoke, heavy alcohol consumption, and recreational drug use
- Exercise regularly to promote healthy lifestyle
- Eat a balanced, nutritional diet

Maxor Specialty has a well-trained staff of clinical pharmacists and support personnel that will work hard for you, the patient, and your caregiver to help you achieve the best possible outcomes from the prescribed Growth Hormone treatment plan. The staff at Maxor Specialty will provide important information related to your disease, will help coordinate a teaching visit for instructions on giving your injections, will discuss the side effects related to your treatment, provide possible solutions to help manage the side effects and work towards keeping you feeling your best during the treatment. They will also remind you about refills, monitor your adherence to the treatment plan, offer encouragement to you and your caregiver and answer your questions related to your treatment as well. The members of the Maxor Specialty staff are your partners in your treatment and are there to help meet your needs and goals.

References

1. Endocrine Society. "Growth Hormone Deficiency | Endocrine Society." Endocrine.org, Endocrine Society, 27 November 2023, <https://www.endocrine.org/patient-engagement/endocrine-library/growth-hormone-deficiency>. Accessed February 12, 2024.
2. National Organization for Rare Disorders. Growth Hormone Deficiency. <https://rarediseases.org/rare-diseases/growth-hormone-deficiency/>. Accessed February 12, 2024.
3. Children's Hospital of Pittsburgh of UPMC. Growth Hormone Treatment. <https://www.chp.edu/our-services/endocrinology/resources/endocrinology-patient-procedures/growth-hormone-treatment>. Accessed February 12, 2024

RESOURCES

Maxor Specialty Pharmacy

<https://www.maxor.com/maxor-specialty/>

Our Maxor Specialty Pharmacy website provides patient resources and quick access to your specialty pharmacy account.

National Organization for Rare Disorders (NORD): Growth Hormone Deficiency

<https://rarediseases.org/rare-diseases/growth-hormone-deficiency/>

NORD provides educational information, clinical trials and studies, and programs and resources for patients.

Boston Children's Hospital: Growth Hormone Deficiency

<https://www.childrenshospital.org/conditions/growth-hormone-deficiency>

Provides information on growth hormone deficiency, normal growth definition, and questions to ask your doctor.