

LUPRON

FDA HAS APPROVED THIS INJECTION FOR THE TREATMENT OF CHILDREN WITH CENTRAL PRECOCIOUS PUBERTY

Lupron Depot - Ped can cause:

- + Rash/urticaria (hives)/photosensitivity
- + Localized reactions at injection site including induration and abscess
- + Hypotension
- + Decreased WBC (white blood cells)
- + Peripheral neuropathy
- + Convulsion
- + **Spinal fracture/paralysis**
- + Tenosynovitis-like symptoms (inflammation of the membrane surrounding tendons)
- + Prostate pain
- + Pituitary apoplexy (sudden headache, vomiting, visual changes, ophthalmoplegia, altered mental status, and sometimes **cardiovascular collapse**. Immediate medical attention has been required)
- + Symptoms consistent with **fibromyalgia** (e.g., joint and muscle pain, headaches, sleep disorders, gastrointestinal distress, and shortness of breath) have been reported individually and collectively

- + **Pulmonary embolism** (blockage of an artery in the lungs by a substance that has moved from elsewhere in the body through the bloodstream)
- + Hepatic (liver) dysfunction
- + Hair growth
- + **Hearing disorder**
- + Hard nodule in throat
- + Weight gain
- + Increased uric acid
- + **Respiratory disorders**
- + Decreased bone density

See other LUPRON INJECTION and LUPRON DEPOT package inserts for adverse events reported in other patient populations.

- + Mood swings
- + Depression
- + **Suicidal ideation and attempt**
- + Myocardial infarction (**heart attack**)
- + Interstitial lung disease
- + Serious drug-induced liver injury
- + **Diabetes**

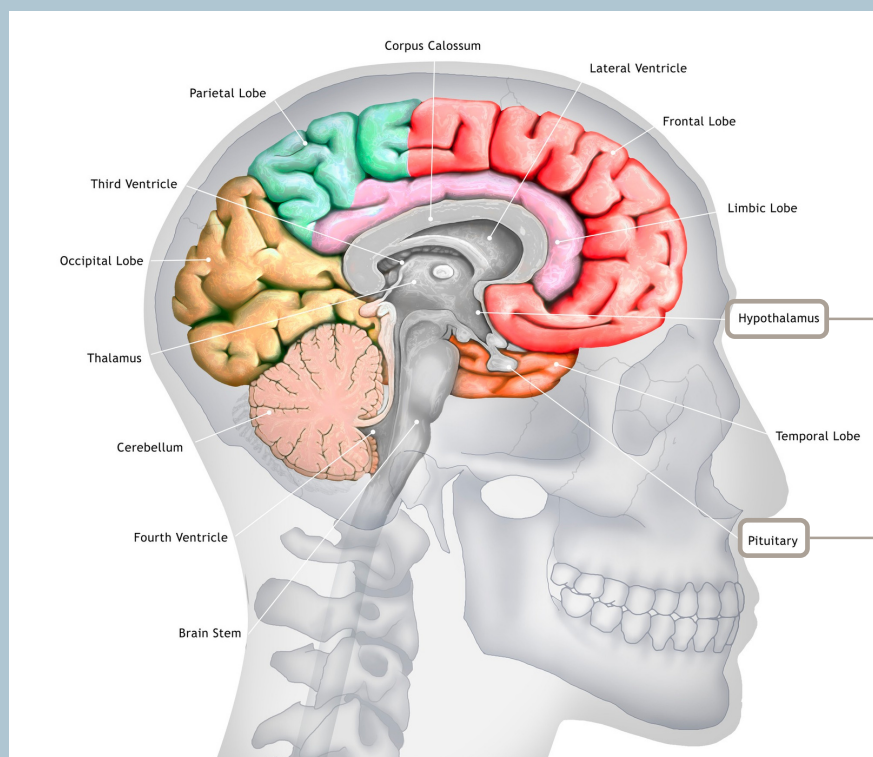
LUPRON DEPOT

SOURCES FROM FDA + ABBOTT LABORATORIES

WHAT IS LUPRON?

ACCORDING TO THE MANUFACTURER:

Leuprolide acetate, a GnRH agonist, acts as a potent inhibitor of gonadotropin secretion when given continuously and in therapeutic doses. Animal and human studies indicate that following an initial stimulation of gonadotropins, chronic administration of leuprolide acetate results in suppression of ovarian and testicular steroidogenesis. This effect is reversible upon discontinuation of drug therapy.



WHAT DOES THAT MEAN?

The hypothalamus (a part of your brain) releases a naturally-occurring hormone called "gonadatropin."

Gonadatropin controls the release of hormones from the pituitary gland (FSH/LH). These hormones help produce estrogen and progesterone.

Gonadotropin releasing hormone agonists (GnRH), or Lupron, stimulates the pituitary gland to surge these hormones causing the body to turn off natural hormone production.

MONITORING

ACCORDING TO THE MANUFACTURER:

LUPRON DEPOT-PED must be administered under the supervision of a physician.

The dose of LUPRON DEPOT-PED must be individualized for each child. The dose is based on a mg/kg ratio of drug to body weight. Younger children require higher doses on a mg/kg ratio.

For each dosage form, after 1-2 months of initiating therapy or changing doses, the child must be monitored with a GnRH stimulation test, sex steroids, and Tanner staging to confirm downregulation.

Measurements of bone age for advancement should be monitored every 6-12 months. The dose should be titrated upward until no progression of the condition is noted either clinically and/or by laboratory parameters.

The following physiologic effects have been noted with the chronic administration of leuprolide acetate in this patient population.

1. **Skeletal Growth.** A measurable increase in body length can be noted since the epiphyseal plates will not close prematurely.
2. **Organ Growth.** Reproductive organs will return to a prepubertal state.
3. **Menses.** Menses, if present, will cease.

Discontinuation of LUPRON DEPOT-PED should be considered before age 11 for females and age 12 for males.

THERE IS NO DATA ON HOW LUPRON INTERACTS WITH OTHER DRUGS

No pharmacokinetic-based drug-drug interaction studies have been conducted with leuprolide acetate. However, because leuprolide acetate is a peptide that is primarily degraded by peptidase and the drug is only about 46% bound to plasma proteins, drug interactions would not be expected to occur.

FERTILITY

ACCORDING TO THE MANUFACTURER:

Administration of leuprolide acetate in therapeutic doses results in suppression of the pituitary-gonadal system. Normal function is usually restored within 4 to 12 weeks after treatment is discontinued.

HOWEVER, THE MANUFACTURER ALSO STATES:

Although no clinical studies have been completed in children to assess the full reversibility of fertility suppression, animal studies (prepubertal and adult rats and monkeys) with leuprolide acetate and other GnRH analogs have shown functional recovery. However, following a study with leuprolide acetate, immature male rats demonstrated tubular degeneration in the testes even after a recovery period. In spite of the failure to recover histologically, the treated males proved to be as fertile as the controls. Also, no histologic changes were observed in the female rats following the same protocol. In both sexes, the offspring of the treated animals appeared normal. The effect of the treatment of the parents on the reproductive performance of the F1 generation was not tested. The clinical significance of these findings is unknown.

"THE CLINICAL SIGNIFICANCE OF THESE FINDINGS IS UNKNOWN."

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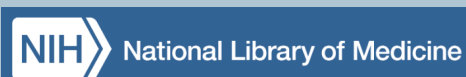
A pharmacokinetic study of leuprolide acetate in children has not been performed.

PHARMACOKINETICS IS THE STUDY OF HOW AN ORGANISM AFFECTS A DRUG.

HOW CAN PARENTS KNOW THIS PRODUCT IS SAFE CONCERNING FERTILITY IF IT HASN'T BEEN STUDIED IN HUMAN CHILDREN?

DECREASED WHITE BLOOD CELLS

WHAT DO WHITE BLOOD CELLS DO IN THE BODY?



A white blood count measures the number of white cells in your blood. White blood cells are part of the immune system. They help your body fight off infections and other diseases.

When you get sick, your body makes more white blood cells to fight the **bacteria**, **viruses**, or other foreign substances causing your illness. This increases your white blood count.

Other diseases can cause your body to make fewer white blood cells than you need. This lowers your white blood count. Diseases that can lower your white blood count include some types of **cancer** and **HIV/AIDS**, a viral disease that attacks white blood cells. Certain medicines, including **chemotherapy**, may also lower the number of your white blood cells.

Disorders related to having a low white blood count include:

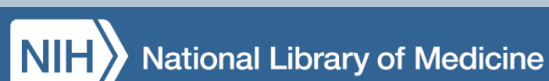
<https://medlineplus.gov/lab-tests/white-blood-count-wbc/>

- Diseases of the immune system, such as HIV/AIDS
- **Lymphoma**, a cancer of the bone marrow
- Diseases of the **liver** or **spleen**

A low white blood count may mean you have one of the following conditions:

- **Bone marrow damage**. This may be caused by infection, disease, or treatments such as chemotherapy.
- Cancers that affect the bone marrow
- An autoimmune disorder, such as **lupus** (or SLE)
- HIV/AIDS

TENOSYNOVITIS-LIKE SYMPTOMS

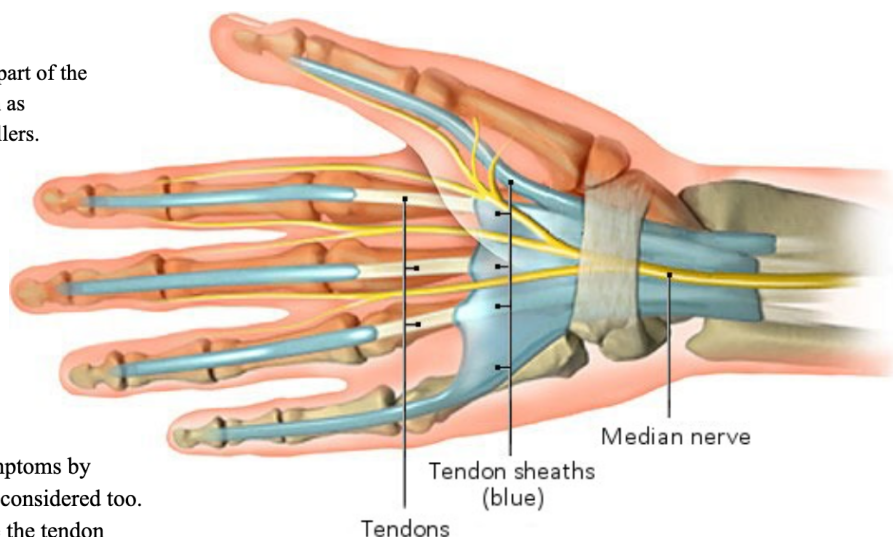


Heavily used areas of tendons are covered by a protective tendon sheath. If a tendon sheath becomes inflamed, it is known as tenosynovitis.

Tenosynovitis typically causes pain, particularly during movement. The inflamed area may also be swollen and sensitive to pressure. After some time, tenosynovitis might hurt without movement, too – for instance, at night.

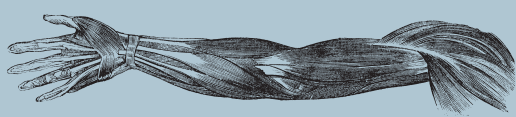
The painful inflammation sometimes causes the tendon sheath tissue to become stuck together in places. The tendon can then no longer slide through the sheath smoothly. Instead, movements are accompanied by a noticeable rubbing, grating or grinding feeling.

Wearing special braces or plaster casts can help keep the affected part of the body still. Other things that can help include physiotherapy – such as stretching exercises and massages – and anti-inflammatory painkillers.



Hand with tendons and tendon sheaths (palm of the hand)

If these treatments don't help, doctors can try to relieve the symptoms by injecting a local anesthetic and a steroid. Surgery is sometimes considered too. This involves removing or cutting the obstructing tissue to give the tendon more room to move again.



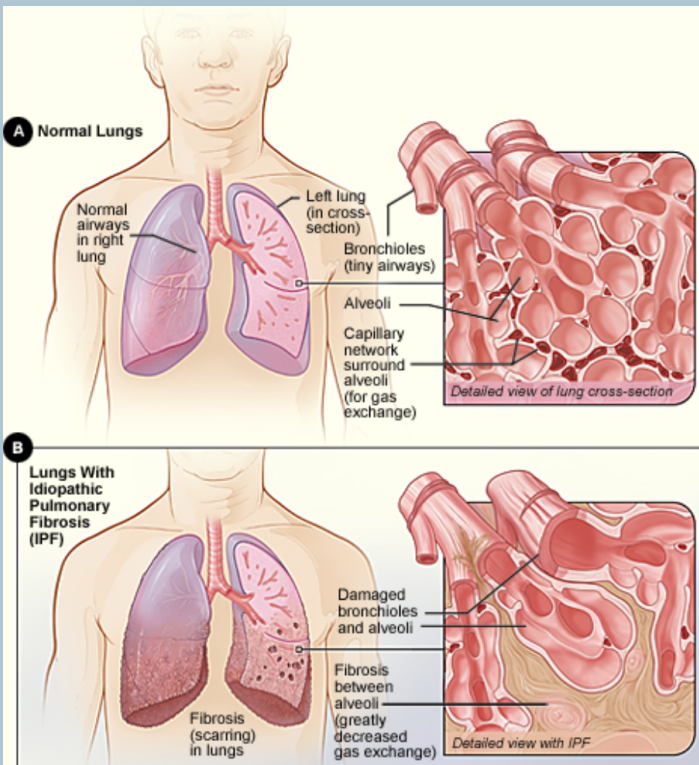
<https://www.ncbi.nlm.nih.gov/books/NBK525764/>

INTERSTITIAL LUNG DISEASE



Interstitial lung diseases (ILDs) are a group of several disorders that can cause scarring in your lungs. The scar tissue in your lungs affects your lungs' ability to carry oxygen and can make it harder for you to breathe normally.

In ILDs, scarring damages tissues in or around the lungs' air sacs, or alveoli, and airways. The [lung interstitium](#)¹ is the space between the air sacs and the small blood vessels that surround the air sacs. It contains connective tissue. When you breathe, [oxygen](#)¹ from the air passes through your air sacs and lung interstitium and into your blood. At the same time, [carbon dioxide](#)¹ moves from your blood through the lung interstitium and into your air sacs.



If you have an ILD, your lung interstitium becomes thick and stiff. This makes it harder for oxygen to move out of the lungs and into the bloodstream and for carbon dioxide to move out of the bloodstream and into the lungs.

<https://www.nhlbi.nih.gov/health/interstitial-lung-diseases>

TREATMENT OPTIONS



For those interstitial lung disorders with known causes, avoidance of irritant is essential. General supportive measures will include smoking cessation, pulmonary rehabilitation which can help improve functionality, and good pulmonary hygiene. Supplemental oxygen is necessary for those who demonstrate hypoxemia (SaO2 less than 88). With progressive disease despite the elimination of offending agent, corticosteroids are desirable. Patients with bronchiolitis obliterans organizing pneumonia (BOOP) or hypersensitivity pneumonitis (HP) have rapid, dramatic improvement with corticosteroids. For cases that do not respond to corticosteroids, immunosuppressant therapy is an investigational therapy.

<https://www.ncbi.nlm.nih.gov/books/NBK541084/>

DIABETES



Diabetes is a chronic (long-lasting) health condition that affects how your body turns food into energy.



Your body breaks down most of the food you eat into sugar (glucose) and releases it into your bloodstream. When your blood sugar goes up, it signals your pancreas to release insulin. Insulin acts like a key to let the blood sugar into your body's cells for use as energy.

With diabetes, your body doesn't make enough insulin or can't use it as well as it should. When there isn't enough insulin or cells [stop responding to insulin](#), too much blood sugar stays in your bloodstream. Over time, that can cause serious health problems, such as [heart disease](#), [vision loss](#), and [kidney disease](#).

<https://www.cdc.gov/diabetes/basics/diabetes.html>

Diabetes Symptoms

- Urinate (pee) a lot, often at night
- Are very thirsty
- Have blurry vision
- Have numb or tingling hands or feet
- Feel very tired
- Have very dry skin

- Lose weight without trying
- Are very hungry
- Have sores that heal slowly
- Have more infections than usual

People who have [type 1 diabetes](#) may also have nausea, vomiting, or stomach pains. Type 1 diabetes symptoms can develop in just a few weeks or months and can be severe.

<https://www.cdc.gov/diabetes/basics/symptoms.html>

PULMONARY EMBOLISM



National Library of Medicine

<https://medlineplus.gov/pulmonaryembolism.html>

A pulmonary embolism (PE) is a sudden blockage in a lung artery. It usually happens when a **blood clot** breaks loose and travels through the bloodstream to the lungs. PE is a serious condition that can cause:

- Permanent damage to the lungs
- Low oxygen levels in your blood
- Damage to other organs in your body from not getting enough oxygen

PE can be life-threatening, especially if a clot is large, or if there are many clots.

Half the people who have pulmonary embolism have no symptoms. If you do have symptoms, they can include shortness of breath, chest pain or coughing up blood. Symptoms of a blood clot include warmth, swelling, pain, tenderness and redness of the leg.

If you have PE, you need medical treatment right away. The goal of treatment is to break up clots and help keep other clots from forming. Treatment options include medicines and procedures.

Anticoagulants, or **blood thinners**

Thrombolytics are medicines to dissolve blood clots.

Catheter-assisted thrombus removal

A vena cava filter

