



Prednisone and other corticosteroids

Weigh the benefits and risks of corticosteroids, such as prednisone, when choosing a medication.

By Mayo Clinic Staff

Corticosteroid drugs — including cortisone, hydrocortisone and prednisone — are useful in treating many conditions, such as rashes, lupus and asthma. But these drugs also carry a risk of serious side effects. Working with your doctor, you can take steps to reduce these side effects so that the benefits of corticosteroid treatment outweigh the risks.

Corticosteroids mimic the effects of hormones your body produces naturally in your adrenal glands, which sit on top of your kidneys. When prescribed in doses that exceed your body's usual levels, corticosteroids suppress inflammation. This can reduce the signs and symptoms of inflammatory conditions, such as arthritis and asthma.

Corticosteroids also suppress your immune system, which can help control conditions in which your immune system mistakenly attacks its own tissues.

Corticosteroid drugs are used to treat rheumatoid arthritis, lupus, asthma, allergies and many other conditions. They also treat Addison's disease, a condition where the adrenal glands aren't able to produce even the minimum amount of corticosteroid that the body needs. And these drugs also help suppress the immune system in order to prevent organ rejection in transplant recipients.

You can take corticosteroids:

- **By mouth.** Tablets, capsules or syrups help treat the inflammation and pain associated with certain chronic conditions, such as rheumatoid arthritis and lupus.
- **By inhaler and intranasal spray.** These forms help control inflammation associated with asthma and nasal allergies.
- **Topically.** Creams and ointments can help heal many skin conditions.
- **By injection.** This form is often used to treat muscle and joint signs and symptoms, such as the pain and inflammation of tendinitis.

Corticosteroids carry a risk of side effects, some of which can cause serious health problems.

Side effects of oral corticosteroids

Because oral corticosteroids affect your entire body instead of just a particular area, this route of administration is the most likely to cause significant side effects. Side effects depend on the dose of medication you receive and may include:

- Elevated pressure in the eyes (glaucoma)
- Fluid retention, causing swelling in your lower legs
- High blood pressure
- Problems with mood, memory, behavior and other psychological effects
- Weight gain, with fat deposits in your abdomen, face and the back of your neck

When taking oral corticosteroids longer term, you may experience:

- Clouding of the lens in one or both eyes (cataracts)
- High blood sugar, which can trigger or worsen diabetes
- Increased risk of infections
- Thinning bones (osteoporosis) and fractures
- Suppressed adrenal gland hormone production
- Thin skin, bruising and slower wound healing

Side effects of inhaled corticosteroids

When using inhaled corticosteroids, some of the drug may deposit in your mouth and throat instead of making it to your lungs. This can cause:

- Fungal infection in the mouth (oral thrush)
- Hoarseness

If you gargle and rinse your mouth with water — don't swallow — after each puff on your corticosteroid inhaler, you may be able to avoid mouth and throat irritation. Some researchers have speculated that inhaled corticosteroid drugs may slow growth rates in children who use them for asthma.

Side effects of topical corticosteroids

Topical corticosteroids can lead to thin skin, red skin lesions and acne.

Side effects of injected corticosteroids

Injected corticosteroids can cause temporary side effects near the site of the injection. These may include skin thinning, loss of color in the skin, facial flushing, insomnia and high blood sugar. Doctors usually limit corticosteroid injections to three or four a year, depending on each patient's situation.

To get the most benefit from corticosteroid medications with the least amount of risk:

- **Try lower doses or intermittent dosing.** Newer forms of corticosteroids come in varying strengths and lengths of action. Ask your doctor about using low-dose, short-term medications

- **Switch to nonoral forms of corticosteroids.** Inhaled corticosteroids for asthma, for example, reach lung surfaces directly, reducing the rest of your body's exposure to them and leading to fewer side effects.
- **Make healthy choices during therapy.** When you're taking corticosteroid medications for a long time, talk with your doctor about ways to minimize side effects. Eat a healthy diet and participate in activities that help you maintain a healthy weight and strengthen bones and muscles.
- **Take care when discontinuing therapy.** If you take oral corticosteroids for a long time, your adrenal glands may produce less of their natural steroid hormones. To give your adrenal glands time to recover this function, your doctor may reduce your dosage gradually. If the dosage is reduced too quickly, you may experience fatigue, body aches and lightheadedness.
- **Wear a medical alert bracelet.** This or similar identification is recommended if you've been using corticosteroids for a long time.
- **Get regular checkups.** If you're taking long-term corticosteroid therapy, see your doctor regularly to check for side effects.

Corticosteroids may cause a range of side effects. But they may also relieve the inflammation, pain and discomfort of many different diseases and conditions. If you work with your doctor to make choices that minimize side effects, you may achieve significant benefits with a reduced risk of such problems.

References

1. Bologna JL, et al. Drug reactions. In: *Dermatology Essentials*. Philadelphia, Pa.: Saunders Elsevier; 2014. <http://www.clinicalkey.com>. Accessed Oct. 6, 2015.
2. Adkinson NF, et al. Glucocorticosteroids. In: *Middleton's Allergy: Principles and Practice*. 8th ed. Philadelphia, Pa.: Saunders Elsevier; 2014.
3. Nieman LK. Pharmacologic use of glucocorticoids. www.uptodate.com/home. Accessed Oct. 6, 2015.
4. Firestein GS, et al. Glucocorticoid therapy. In: *Kelley's Textbook of Rheumatology*. 9th ed. Philadelphia, Pa.: Saunders Elsevier; 2013.
5. Brunton LL, et al. Adrenocortical steroids. In: *Goodman & Gilman's the Pharmacological Basis of Therapeutics*. 12th ed. New York, N.Y.: The McGraw-Hill Companies; 2011.
6. Jameson JL, et al. Glucocorticoid therapy. In: *Endocrinology: Adult and Pediatric*. 7th ed. Philadelphia, Pa.: Saunders Elsevier; 2016.
7. AskMayoExpert. Glucocorticoid therapy. Rochester, Minn.: Mayo Foundation for Medical Education and Research; 2015.
8. AskMayoExpert. Corticosteroid injections. Rochester, Minn.: Mayo Foundation for Medical Education and Research; 2014.
9. Judd LL, et al. Adverse consequences of glucocorticoid medication: Psychological, cognitive and behavioral effects. *American Journal of Psychiatry*. 2014;171:1045.

11. Glucocorticosteroid-induced osteoporosis. American College of Rheumatology. http://www.rheumatology.org/practice/clinical/patients/diseases_and_conditions/gi-osteoporosis.asp. Accessed May 1, 2015.
12. Colditz GA. Healthy diet in adults. www.uptodate.com/home. Accessed Oct. 12, 2015.
13. Wyand CM, et al. Giant-cell arteritis and polymyalgia rheumatica. *New England Journal of Medicine*. 2014;371:50.
14. Joint injections (joint aspirations). American College of Rheumatology. <http://www.rheumatology.org>. Accessed Oct. 6, 2015.
15. Dorland's Illustrated Medical Dictionary. 32nd ed. Philadelphia, Pa.: W.B. Saunders; 2011. <http://dorlands.com/index.jsp>. Accessed Oct. 12, 2015.

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