[Template:Distinguish](/wiki/Template:Distinguish" \o "Template:Distinguish) [Template:Use dmy dates](/wiki/Template:Use_dmy_dates) [Template:Infobox drug](/wiki/Template:Infobox_drug) [thumb|](/wiki/File:Periportal_hepatosteatosis_intermed_mag.jpg)[Micrograph](/wiki/Micrograph) of [fatty liver](/wiki/Fatty_liver), as may be seen due to long-term prednisone use. [Trichrome stain](/wiki/Trichrome_stain).

**Prednisone** is a synthetic [corticosteroid](/wiki/Corticosteroid) drug that is particularly effective as an [immunosuppressant drug](/wiki/Immunosuppressive_drug). It is used to treat certain [inflammatory](/wiki/Inflammation) diseases (such as moderate [allergic](/wiki/Allergy) reactions), some [autoimmune diseases](/wiki/Autoimmune_disease), and (at higher doses) some types of [cancer](/wiki/Cancer), but it has significant [adverse effects](/wiki/Adverse_effect).

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## Medical uses[[edit](/index.php?title=(none)&action=edit&section=1)]

Prednisone is used, at a usual adult dosage of 5–60 mg/day, for many different indications including: [asthma](/wiki/Asthma), [COPD](/wiki/COPD), [CIDP](/wiki/CIDP), [rheumatic disorders](/wiki/Rheumatic_disorders), [allergic](/wiki/Allergic) disorders, [ulcerative colitis](/wiki/Ulcerative_colitis) and [Crohn's disease](/wiki/Crohn's_disease), [adrenocortical insufficiency](/wiki/Adrenocortical_insufficiency), [hypercalcemia](/wiki/Hypercalcemia) due to cancer, [thyroiditis](/wiki/Thyroiditis), [laryngitis](/wiki/Laryngitis), severe [tuberculosis](/wiki/Tuberculosis), [urticaria](/wiki/Urticaria) (hives), [lipid pneumonitis](/wiki/Lipid_pneumonitis), [pericarditis](/wiki/Pericarditis), [multiple sclerosis](/wiki/Multiple_sclerosis), [nephrotic syndrome](/wiki/Nephrotic_syndrome), to relieve the effects of [shingles](/wiki/Shingles), [lupus](/wiki/Lupus), [myasthenia gravis](/wiki/Myasthenia_gravis), [poison oak](/wiki/Poison_oak) exposure, [Meniere's disease](/wiki/Meniere's_disease), and as part of a drug regimen to prevent rejection after [organ transplant](/wiki/Organ_transplant).<ref name=AHFS>[Template:Cite web](/wiki/Template:Cite_web)</ref>

Prednisone has also been used in the treatment of [migraine](/wiki/Migraine) headaches and [cluster headaches](/wiki/Cluster_headache) and for severe [aphthous ulcer](/wiki/Aphthous_ulcer). Prednisone is used as an [antitumor drug](/wiki/Antitumor_drug).[[1]](#cite_note-1) It is important in the treatment of [acute lymphoblastic leukemia](/wiki/Acute_lymphoblastic_leukemia), [non-Hodgkin lymphomas](/wiki/Non-Hodgkin_lymphoma), [Hodgkin's lymphoma](/wiki/Hodgkin's_lymphoma), [multiple myeloma](/wiki/Multiple_myeloma), and other hormone-sensitive tumors, in combination with other anticancer drugs.

Prednisone is also used for the treatment of the [Herxheimer reaction](/wiki/Herxheimer_reaction), which is common during the treatment of [syphilis](/wiki/Syphilis). Prednisone is also used to delay the onset of symptoms of [Duchenne muscular dystrophy](/wiki/Duchenne_muscular_dystrophy) and [uveitis](/wiki/Uveitis). The mechanism for the delay of symptoms is unknown. Because it suppresses the [adrenal glands](/wiki/Adrenal_glands), it is the primary treatment for [autoimmune disease](/wiki/Autoimmune_disease), such as [autoimmune hepatitis](/wiki/Autoimmune_hepatitis).[[2]](#cite_note-2)[[3]](#cite_note-3) It is also sometimes used in the treatment of [congenital adrenal hyperplasia](/wiki/Congenital_adrenal_hyperplasia). Prednisone is also used to treat [sarcoidosis](/wiki/Sarcoidosis). Prednisone can be used in the treatment of decompensated [heart failure](/wiki/Heart_failure) to potentiate renal responsiveness to diuretics, especially in [heart failure](/wiki/Heart_failure) patients with refractory diuretic resistance with large dose of loop diuretics.[[4]](#cite_note-4)[[5]](#cite_note-5)[[6]](#cite_note-6)[[7]](#cite_note-7)[[8]](#cite_note-8)[[9]](#cite_note-9) In terms of the mechanism of action for this purpose: prednisone, a [glucocorticoid](/wiki/Glucocorticoid), can improve renal responsiveness to atrial [natriuretic](/wiki/Natriuresis) peptide by increasing the density of natriuretic peptide receptor type A in the renal inner medullary collecting duct, inducing a potent diuresis.[[10]](#cite_note-10)

## Side effects[[edit](/index.php?title=(none)&action=edit&section=2)]

Short-term side effects, as with all glucocorticoids, include high blood [glucose](/wiki/Glucose) levels (especially in patients with [diabetes mellitus](/wiki/Diabetes_mellitus) or on other medications that increase blood glucose, such as [tacrolimus](/wiki/Tacrolimus)) and [mineralocorticoid](/wiki/Mineralocorticoid) effects such as fluid retention.[[11]](#cite_note-11) The mineralocorticoid effects of prednisone are minor, which is why it is not used in the management of adrenal insufficiency, unless a more potent mineralocorticoid is administered concomitantly.

It can also cause [depression](/wiki/Depression_(mood)) or depressive symptoms and [anxiety](/wiki/Anxiety) in some individuals.[[12]](#cite_note-12)[[13]](#cite_note-13) Long-term side effects include [Cushing's syndrome](/wiki/Cushing's_syndrome), [steroid dementia syndrome](/wiki/Steroid_dementia_syndrome),[[14]](#cite_note-14) truncal weight gain, [osteoporosis](/wiki/Osteoporosis), [glaucoma](/wiki/Glaucoma) and [cataracts](/wiki/Cataracts), type II diabetes mellitus, and [depression](/wiki/Depression_(mood)) upon dose reduction or cessation.[Template:Citation needed](/wiki/Template:Citation_needed)

### Major[[edit](/index.php?title=(none)&action=edit&section=3)]

* Increased blood sugar for diabetics
* Difficulty controlling emotion
* Difficulty in maintaining train of thought
* [Weight gain](/wiki/Weight_gain)
* Immunosuppression
* [Facial swelling](/wiki/Moon_face). Severe.
* [Depression](/wiki/Depression_(mood)), [mania](/wiki/Mania), [psychosis](/wiki/Psychosis), or other psychiatric symptoms
* Unusual [fatigue](/wiki/Fatigue_(physical)) or [weakness](/wiki/Weakness)
* [Mental confusion](/wiki/Mental_confusion) / indecisiveness
* Memory and attention dysfunction ([Steroid dementia syndrome](/wiki/Steroid_dementia_syndrome))
* [Blurred vision](/wiki/Blurred_vision)
* [Abdominal pain](/wiki/Abdominal_pain)
* [Peptic ulcer](/wiki/Peptic_ulcer)
* Painful [hips](/wiki/Hip_(anatomy)) or [shoulders](/wiki/Shoulders)
* [Steroid-induced osteoporosis](/wiki/Steroid-induced_osteoporosis)
* [Stretch marks](/wiki/Stretch_marks)
* [Osteonecrosis](/wiki/Osteonecrosis) – same as avascular necrosis
* Insomnia
* Severe [joint pain](/wiki/Joint_pain)
* [Cataracts](/wiki/Cataracts) or [glaucoma](/wiki/Glaucoma)
* [Anxiety](/wiki/Anxiety)
* [Black stool](/wiki/Melena)
* [Stomach pain](/wiki/Abdominal_pain) or [bloating](/wiki/Bloating)
* Severe [swelling](/wiki/Swelling_(medical))
* [Mouth sores](/wiki/Mouth_sores) or [dry mouth](/wiki/Dry_mouth)
* [Avascular necrosis](/wiki/Avascular_necrosis)
* [Hepatic steatosis](/wiki/Hepatic_steatosis)

[[15]](#cite_note-15)

### Minor[[edit](/index.php?title=(none)&action=edit&section=4)]

* [Nervousness](/wiki/Anxiety)
* [Acne](/wiki/Acne_vulgaris)
* [Skin rash](/wiki/Skin_rash)
* [Appetite](/wiki/Appetite) gain
* [Hyperactivity](/wiki/Hyperactivity)
* Increased [thirst](/wiki/Thirst)
* [Frequent urination](/wiki/Frequent_urination)
* [Diarrhea](/wiki/Diarrhea)
* Reduced [intestinal flora](/wiki/Intestinal_flora)
* Leg pain/cramps
* Sensitive teeth

[[15]](#cite_note-15)

### Dependency[[edit](/index.php?title=(none)&action=edit&section=5)]

[Adrenal](/wiki/Adrenal_gland) suppression will begin to occur if prednisone is taken for longer than seven days. Eventually, this may cause the body to temporarily lose the ability to manufacture natural corticosteroids (especially cortisol), which results in dependence on prednisone. For this reason, prednisone should not be abruptly stopped if taken for more than seven days; instead, the dosage should be gradually reduced. This weaning process may be over a few days, if the course of prednisone was short, but may take weeks or months [Template:Citation needed](/wiki/Template:Citation_needed) if the patient had been on long-term treatment. Abrupt withdrawal may lead to an [Addison crisis](/wiki/Addison's_disease#Addisonian_crisis). For those on chronic therapy, alternate-day dosing may preserve adrenal function and thereby reduce side effects.[[16]](#cite_note-16) Glucocorticoids act to inhibit feedback of both the [hypothalamus](/wiki/Hypothalamus), decreasing [corticotropin-releasing hormone](/wiki/Corticotropin-releasing_hormone) [CRH], and [corticotrophs](/wiki/Corticotrophs) in the [anterior pituitary](/wiki/Anterior_pituitary) gland, decreasing the amount of [adrenocorticotropic hormone](/wiki/Adrenocorticotropic_hormone) [ACTH]. For this reason, glucocorticoid analogue drugs such as prednisone down-regulate the natural synthesis of glucocorticoids. This mechanism leads to dependence in a short time and can be dangerous if medications are withdrawn too quickly. The body must have time to begin synthesis of CRH and ACTH and for the adrenal glands to begin functioning normally again.

### Withdrawal[[edit](/index.php?title=(none)&action=edit&section=6)]

The magnitude and speed of dose reduction in corticosteroid withdrawal should be determined on a case-by-case basis, taking into consideration the underlying condition being treated, and individual patient factors such as the likelihood of relapse and the duration of corticosteroid treatment. Gradual withdrawal of systemic corticosteroids should be considered in those whose disease is unlikely to relapse and have:

* received more than 40 mg prednisolone (or equivalent) daily for more than 1 week
* been given repeat doses in the evening;
* received more than 3 weeks' treatment
* recently received repeated courses (particularly if taken for longer than 3 weeks)
* taken a short course within 1 year of stopping long-term therapy
* other possible causes of adrenal suppression

Systemic corticosteroids may be stopped abruptly in those whose disease is unlikely to relapse and who have received treatment for 3 weeks or less and who are not included in the patient groups described above.

During corticosteroid withdrawal, the dose may be reduced rapidly down to physiological doses (equivalent to prednisolone 7.5 mg daily) and then reduced more slowly. Assessment of the disease may be needed during withdrawal to ensure that relapse does not occur.[[17]](#cite_note-17)