

# Immunosuppressive Therapy

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## What is immunosuppressive therapy?

If your pet has been diagnosed with an immune-mediated disease, your veterinarian has likely discussed immunosuppressive therapy with you. Immune-mediated diseases include immune-mediated hemolytic anemia (IMHA), immune-mediated thrombocytopenia (ITP), immune-mediated polyarthritis (IMPA) and inflammatory bowel disease (IBD), among others. Immune-mediated diseases occur when the immune system, which is designed to kill germs, inappropriately attacks the body's own cells or tissues. Immunosuppressive therapy involves using a combination of medications to control and suppress this inappropriate immune response.

## What medications are involved?

### STEROIDS

**Prednisone:** Prednisone (or prednisolone) is a mainstay of treatment for most immune-mediated diseases. Prednisone works by blocking a wide range of immune responses. Prednisone is associated with a wide variety of side effects, which can be found on the summary medication table later in this handout. The most common side effects are more annoying than dangerous.



### OTHER IMMUNOSUPPRESSIVE MEDICATIONS

Other medications are often used in combination with steroids. They work to modify the immune system in different ways and sometimes allow a lower dose of steroid to be used. This is especially important if the side effects of steroids become too severe.

**Azathioprine:** This drug is given once a day to start, but dosing can often be tapered to every other day or even a few times a week. It takes weeks to start working and can reduce bone marrow cell production.

**Cyclosporine:** This drug acts rapidly and doesn't suppress cell production in the marrow. We will often measure the concentration of the drug in the blood to be sure the dose is correct.

**Leflunomide:** This drug starts to work in a few weeks and has relatively few side effects. It is usually given once daily at first.

**Methotrexate:** Used in humans for rheumatoid arthritis, this drug is also used for IMPA in dogs. It is usually given once or twice a week, and it takes a few weeks to show any benefits.

**Mycophenolate:** This drug is given once or twice daily to start, and it begins to work in days.

## Medication Summary

Medication	Time to onset	Cost	Common side effects	Less common side effects
Azathioprine	Weeks	\$\$	Bone marrow suppression, vomiting, diarrhea	Poor hair growth, liver toxicity
Cyclosporine	Days	\$\$\$	Diarrhea, vomiting, anorexia	Gingival hyperplasia, shedding
Leflunomide	Weeks	\$\$\$	Generally well tolerated	GI upset, anemia
Methotrexate	Weeks	\$\$\$	Diarrhea, vomiting, anorexia	GI ulcers, liver toxicity, kidney toxicity
Mycophenolate	Days	\$\$	Diarrhea, vomiting, anorexia	Bone marrow suppression
Prednisone	Days	\$	Increased drinking, urination, panting, weight gain	GI ulcers, muscle weakness, ligament tears, behavioral changes

## What do I need to watch for?

In addition to the side effects listed in the table above, immunosuppressive medications can make your pet more susceptible to infection. This can manifest as a skin infection (itching, red skin), a urinary tract infection (frequent urination or straining to urinate) or overall lethargy and depression. It is important to let your veterinarian know immediately if you notice any worrisome new signs of illness.

It is also important to follow up with any re-checks your veterinarian has scheduled. These are necessary to ensure the immune system is under control and to facilitate tapering (reduction) of the doses of your pet's medications. If medications are tapered too early, your pet's immune disease could become unregulated, and it may be harder to regain control over the disease a second time.



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