

## Steroids

### What are steroids?

#### Naturally occurring steroids

Steroids are hormonal substances naturally produced in the body by the adrenal glands. Steroids influence many body systems including metabolism, musculoskeletal and blood systems and help manage inflammatory, allergic and normal immune responses.

#### Man-made (synthetic) steroids

Steroids as medication, such as dexamethasone and prednisolone belong to a group of drugs called 'corticosteroids' and are commonly used to treat a range of medical conditions including myeloma.

### How do steroids work?

Steroids (dexamethasone and prednisolone) are the basis of most treatment regimens. They can be used on their own but more commonly are used in combination with other drugs used to treat myeloma.

Steroids are able to:

- Actively kill myeloma cells.
- Help other anti myeloma therapies be more effective.
- Reduce inflammation and bone pain often associated with myeloma bone disease
- Help reduce symptoms of nausea associated with chemotherapy.
- Manage hypersensitivity (allergic) reactions to medications or to blood products given.

During the course of the disease, people are likely to receive multiple courses of steroids.

### How are steroids taken?

Steroids can be taken either in tablet form or intravenously (into the vein – IV). Tablets should be taken with food or milk to help protect the lining of the stomach from irritation.

As the doses used in myeloma are often high, several tablets may have to be taken at once. The doses and length of treatment with steroids will vary between individuals and different treatment schedules.

### What is the difference between different types of steroids used in myeloma?

Dexamethasone is very effective at killing myeloma cells when used in high doses. The side effects associated with high dose dexamethasone can be difficult to tolerate for some people and it may be necessary for the dose to be adjusted to a level that is better tolerated.

Prednisolone is also effective at killing myeloma cells and the side effects associated with prednisolone are generally less severe in most people. Prednisolone can be more easily tolerated, particularly in the frail or elderly.

### What are the potential side effects of steroids?

It is often perceived that steroids are less toxic than the other drugs used to treat myeloma. Anecdotally though, steroid-associated side effects can be more troubling than those of many other anti-myeloma drugs.

The severity and type of side effects can vary between individuals. The number of side effects often increases with higher doses, extended treatment periods and increased age.

It is important to remember that side effects, if any, are temporary, and can often be prevented or managed and should resolve when the steroids are stopped.



## More common side effects

Side effects	Suggested management
<b>Stomach pain</b> <ul style="list-style-type: none"> <li>• Indigestion</li> <li>• Heart burn</li> </ul>	<ul style="list-style-type: none"> <li>• Take steroids with or after food / milk</li> <li>• May require antacids or other medication to help prevent stomach irritation</li> </ul>
<b>Increased blood sugars</b>	<ul style="list-style-type: none"> <li>• May require more frequent blood sugar monitoring if diabetic</li> <li>• Modify diet to avoid unnecessary added sugar</li> <li>• Dose adjustments may be required if high sugar levels are a problem</li> </ul>
<b>Increased risk of infection</b> <ul style="list-style-type: none"> <li>• Can suppress immune system, particularly in high doses or long term use</li> </ul>	<ul style="list-style-type: none"> <li>• Be aware of signs and symptoms of infection such as temperature &gt;38°C, productive cough, area of swelling or inflammation</li> <li>• Report symptoms of infection to the medical team the day they occur</li> </ul>
<b>Mood changes</b> <ul style="list-style-type: none"> <li>• Mood swings</li> <li>• Personality changes</li> <li>• Anxiety</li> <li>• Irritability/anger</li> <li>• Difficulty concentrating</li> <li>• Tearfulness</li> </ul>	<ul style="list-style-type: none"> <li>• Can be more apparent when taking high doses and alternating between periods on and off steroids (pulse dosing)</li> <li>• If severe / intolerable – may require dose reduction or change in scheduling</li> <li>• Some find keeping physically active helps ‘work off’ the extra energy caused by steroids</li> <li>• Engage clinical psychology for coping strategies</li> </ul>
<b>Energy changes</b> <ul style="list-style-type: none"> <li>• Hyperactivity</li> <li>• Insomnia</li> <li>• Let down effect (withdrawal effect – feeling low in mood and energy on days following steroids)</li> </ul>	<ul style="list-style-type: none"> <li>• Take in the morning to help reduce impact on sleep</li> <li>• If hyperactivity has a delayed onset, take at night to allow for sleep before the effects ‘kick in’</li> <li>• Medication may help to promote sleep, ask the doctor</li> <li>• Learning to ‘pace’ &amp; ‘plan’ around expected effects, can help</li> <li>• May require dose reduction if difficult to tolerate</li> <li>• May require tapering of steroid dose if experiencing severe ‘let down effect’</li> </ul>
<b>Muscle weakness</b>	<ul style="list-style-type: none"> <li>• Maintain physical activity and exercise as tolerated to avoid compounding the problem</li> <li>• Seek help from a physiotherapist or exercise physiologist if unsure about exercise</li> </ul>
<b>Increased appetite</b>	<ul style="list-style-type: none"> <li>• If occurs, try adopting healthy snacking to avoid weight gain</li> </ul>
<b>Fluid retention</b> <ul style="list-style-type: none"> <li>• Swollen feet, lower limbs or around the abdomen</li> </ul>	<ul style="list-style-type: none"> <li>• Elevate lower limbs when at rest</li> <li>• Maintain physical activity and exercise to help minimise fluid retention</li> <li>• May require diuretics to help reduce severity</li> </ul>
<b>Blurred vision</b>	<ul style="list-style-type: none"> <li>• If occurs, often associated with the days of taking steroid</li> </ul>
<b>Flushing and sweating</b>	<ul style="list-style-type: none"> <li>• If occurs, often associated with the days of taking steroid</li> </ul>
<b>Muscle cramps</b>	<ul style="list-style-type: none"> <li>• Gentle stretching</li> <li>• Massage</li> <li>• Drink plenty of fluids</li> <li>• Ask the doctor about electrolyte replacement tablets</li> </ul>
<b>Fatigue</b>	<ul style="list-style-type: none"> <li>• Regular exercise</li> <li>• Ensure adequate diet and fluids</li> <li>• Rest when necessary</li> </ul>

## Less common side effects

Cataract formation, changes affecting hair, changes in taste, hiccups, thin, fragile or easily bruised skin, changes in sexual function, moon face appearance, decrease in bone strength (osteopenia or osteoporosis), death of bone tissue (avascular necrosis), delayed or impaired wound healing.

## What reduces the side effects?

Being aware of the range of side effects helps better cope with any symptoms. Side effects often follow a very predictable pattern. Identifying these early and managing them appropriately can contribute to more successful treatment and improved quality of life. Remember that any side effects are temporary and can often be prevented or managed. They should resolve when the steroids are stopped.

## Practical Strategies

- Learning the rhythm of side effects over a treatment cycle or period of time can be helped by keeping a side effect / symptom journal
- Skin can become thin and tear easily. Take care to avoid scratches or cuts, particularly around pets or in the garden. Due to the increased risk of infection, be sure to clean and cover any cuts should they occur
- Adapt lifestyle and activities around the steroid schedule. Note times of increased energy or positive mood and periods of low energy
- Some people may require a calmativ or sleeping tablet. Discuss the options with a doctor
- Inform family/friends of the steroid therapy so they are aware of potential mood and energy changes
- If mood or energy changes are intolerable and impact on ability to function, inform the doctor so the dose or schedule can be appropriately adjusted
- Beyondblue have a range of information resources for managing insomnia and mood changes [www.beyondblue.org.au](http://www.beyondblue.org.au)

The goal of treatment is to seek a balance between the benefits of the steroids against the myeloma, and the ability to tolerate any side effects. It is important to inform the doctor if side effects are unexpected or troubling as doses and schedules can be adjusted to help minimise effects.

**For further information please contact our Myeloma Support Nurses on our toll free Support Line:**

**1800 MYELOMA (1800 693 566)**  
**or visit our website: [www.myeloma.org.au](http://www.myeloma.org.au)**