



PATIENT RESOURCES

Glucocorticoid-Induced Osteoporosis

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Glucocorticoid-Induced Osteoporosis (GIO) is a condition in which people who take medicines called glucocorticoids develop osteoporosis, which means weakening of the bones. **Osteoporosis** increases the risk of breaking bones (fractures), even in low-impact situations (for example, a simple fall from stair height), where otherwise a normal bone would not have broken.

Glucocorticoids can be taken as a pill (by mouth), an injection under the skin or in a vein, a nasal spray or inhaler, or even as a skin ointment or cream.

Glucocorticoids given by mouth, by vein, or by skin injection are most likely to cause osteoporosis.

Endocrine Connection

Glucocorticoids are synthetic (manufactured) hormones, and also known as steroids. However, they are different from 'anabolic' steroids, which include muscle-building male hormones like testosterone. Examples of glucocorticoid-containing medicines include prednisone, cortisone, hydrocortisone, and dexamethasone.

Common conditions treated with glucocorticoids are:

- › Rheumatoid arthritis, lupus, and other 'auto-immune' joint diseases
- › Asthma and chronic obstructive pulmonary disease (COPD)
- › Inflammatory bowel disease
- › Psoriasis and other skin diseases
- › After transplants to reduce the risk of rejection of donor organs

› Diagnosis and Prevention

A bone density test (also known as a DXA Scan) measures the strength of your bones. This simple, painless test uses low-dose x-rays to help predict your chances of having a fracture. Your doctor also may check your spine for fractures using x-rays or an MRI (magnetic resonance imaging) test.

Glucocorticoids start to weaken your bones during the first 3 months of use. The rate of bone loss is greatest within the first 6 months of treatment but continues if you take glucocorticoids. The higher your dose, the greater your risk of GIO. But even low doses can cause GIO over time. Therefore, experts recommend that doctors prescribe the smallest possible dose for the shortest period of time.

► **Symptoms and Risk Factors**

Normally, our body continuously removes old bone and replaces it with new bone. Glucocorticoids increase the breakdown of bone and decrease the formation of new bone. This causes bones to weaken. Weak bones tend to break easily when you have a minor fall. This is referred to as a low-trauma or 'fragility' fracture.

Some people break bones for no reason at all. Bone fractures can be serious and painful. They can affect your ability to move, walk, and care for yourself. Your doctor will review your medical history, current medical conditions, and glucocorticoid dose to determine your risk.

Specific groups of people who take glucocorticoids are at a particularly greater risk for GIO:

- › Women after menopause
- › Men 50 or older
- › Those who have had previous low-trauma fractures

Other risk factors for osteoporosis include:

- › Inadequate calcium and vitamin D intake
- › Cigarette Smoking
- › Three or more alcoholic beverages per day
- › Family history of osteoporosis

Experts recommend considering bone-protective medicine for certain groups who are taking glucocorticoids for at least 3 months:

- › Women after menopause
- › Men 50 or older

The following groups also might need medicine to protect their bones:

- › Men and women at high risk for osteoporosis, even if they are taking glucocorticoids for less than 3 months
- › Pre-menopausal women, and men under the age of 50, who have had fragility fractures in the past

► **Treatment and Therapies**

If you'll be taking glucocorticoids for 3 months or longer, you can lower your risk of GIO by following these steps:

- › Do weight-bearing exercise such as walking, running, or dancing
- › If you smoke, quit
- › Limit alcoholic beverages to no more than two per day

Even if you're taking glucocorticoids for less than 3 months, experts also suggest taking calcium (1000-1200 mg daily) through supplements if dietary

intake is insufficient, and adequate amounts of vitamin D (1000-2000 IU or more daily) through supplements if target blood levels are not attained. Your doctor can advise exactly how much to take. Your doctor also may check your risk of falling and provide advice about how to prevent falls. People who are at an elevated risk of osteoporosis will need medicine.

Three types of medicines are available. Your doctor will prescribe the type of medicine that's best for you.

- › Bisphosphonates keep bones strong by slowing the breakdown of bone. They lower the risk of fractures of the hips and spine.
- › Teriparatide & Abaloparatide help the body build new bone and makes bones stronger. It also lowers the risk of fractures significantly. Denosumab slows down bone breakdown while increasing bone mass.
- › Romosozumab builds new bone, as well as decreases bone loss.

Ask your doctor if you need a DXA test, and how much calcium and vitamin D you should take. If you need medicine to protect your bones, talk with your doctor about how long you should take it, what side effects you might have, and any other questions that concern you.

› **Questions For Your Healthcare Provider**

- › Am I at risk for osteoporosis?
- › Do I need medicines for osteoporosis? What type of medicine do I need?
- › How often should I have a bone density test?
- › Should I take calcium and vitamin D supplements? How much do I need?
- › How long will I need to take glucocorticoid medicines?
- › Should I see an endocrinologist?