



Glucocorticoid-Induced Osteoporosis

WHAT IS GLUCOCORTICOID-INDUCED OSTEOPOROSIS?

Glucocorticoid-induced osteoporosis (GIO) is a condition in which people who take medicines called glucocorticoids develop osteoporosis—weakening of the bones. Osteoporosis increases the risk of broken bones (fractures).

Glucocorticoids are synthetic (manufactured) hormones also known as steroids. They include medicines such as prednisone, cortisone, hydrocortisone, and dexamethasone.

Common conditions treated with glucocorticoids include

- Rheumatoid arthritis or lupus
- Asthma or chronic obstructive pulmonary disease (COPD)
- Inflammatory bowel disease
- Psoriasis or other skin diseases
- Organ transplant (to reduce the risk of rejection)

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.

DID YOU KNOW?

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

WHAT CAUSES GIO?

Normally, your body continuously removes old bone and replaces it with new bone. However, glucocorticoids can increase the breakdown of bone and decrease the formation of new bone. This can cause your bones to weaken. Weak bones can break easily when you have a minor fall (called a 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.

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 as long as 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.

WHO IS MOST AT RISK FOR GIO?

Some people who take glucocorticoids are at greater risk for GIO:

- Women who have gone through menopause
- Men age 50 or older
- Those who have had previous fractures
- People who have other risk factors for osteoporosis, including those who
 - Don't get enough calcium and vitamin D
 - Smoke cigarettes
 - Drink three or more alcoholic beverages per day
 - Have a family history of osteoporosis

HOW WILL YOU KNOW WHETHER YOUR BONES ARE WEAK?

A bone mineral density test (also called a DXA test) 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.

HOW CAN YOU REDUCE YOUR RISK OF GIO?

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

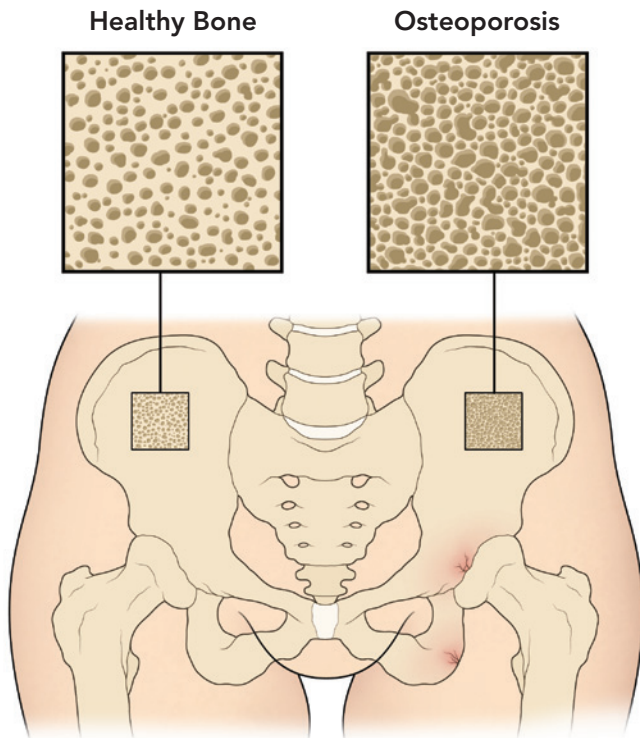
- Do weight-bearing exercise such as walking, running, or dancing
- Quit smoking if you smoke
- Limit yourself to no more than two alcoholic beverages each day

Experts also suggest taking calcium and vitamin D supplements, even if you're taking glucocorticoids for less than 3 months. Your doctor can tell you how much to take. Your doctor also may check your risk of falling and provide advice about how to prevent falls. People who are especially at risk for osteoporosis will need medicine.

WHO WILL NEED MEDICINE TO PROTECT THEIR BONES?

Your doctor will review your medical history, current condition, and glucocorticoid dose to determine your risk. Experts recommend bone-protective medicine for certain groups who are taking glucocorticoids for at least 3 months:

- Women who have gone through menopause
- Men age 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
- Premenopausal women and men under the age of 50 who have had fragility fractures in the past

WHICH TYPES OF MEDICINES HELP PROTECT BONES?

Two 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 helps the body build new bone and makes bones stronger. It also lowers the risk of fractures.

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 to ask your doctor

- 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?

RESOURCES

- Find-an-Endocrinologist: www.hormone.org or call 1-800-HORMONE (1-800-467-6663)
- Hormone Health Network information on osteoporosis: www.hormone.org/Osteoporosis/index.cfm
- National Institutes of Health (NIH) Osteoporosis and Related Bone Diseases National Resource Center: www.niams.nih.gov/Health_Info/Bone/Osteoporosis/overview.asp
- Mayo Clinic: www.mayoclinic.com/health/osteoporosis/DS00128
- The National Osteoporosis Foundation: www.nof.org

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The Hormone Health Network offers free, online resources based on the most advanced clinical and scientific knowledge from The Endocrine Society (www.endo-society.org). The Network's goal is to move patients from educated to engaged, from informed to active partners in their health care. This fact sheet is also available in Spanish at www.hormone.org/Spanish.

Glucocorticoid-Induced Osteoporosis Fact Sheet



www.hormone.org