What Does Estrogen Have to Do With Osteoporosis?

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Estrogen and Osteoporosis

If you've recently been told that you have osteoporosis, you're not alone – it is an extremely common chronic condition. In fact, it is estimated that 200 million – yes, *million* – women have osteoporosis worldwide. And your chances of developing osteoporosis increase with age. When you're 60, you have a 1 in 10 chance of having osteoporosis, but by the time you're 90, that about two-thirds of women have osteoporosis.

There is a slew of risk factors for the development of osteoporosis.

For example, being prescribed certain medications seem to increase the likelihood of osteoporosis – corticosteroids and proton pump inhibitors. Having a genetic predisposition, a low body weight, weight loss, smoking, and being physically inactive are all other risk factors.

But simply the act of aging may be one of the biggest risk factors – and there's not much we can do to stop that process (and why would we?)

So, what is it about the aging process that seems to increase the likelihood of developing osteoporosis? A little hormone called *estrogen.* Or to put it more bluntly, the lack of the hormone estrogen.

How Does Estrogen Affect Osteoporosis?

If you're reading this, you likely know what osteoporosis is, but if we break down the word literally, it means "porous bone." When you develop osteoporosis, you are at a significantly increased risk for bone fractures due to a loss of bone strength and mass.

Unfortunately for many women, osteoporosis is sometimes not diagnosed until a major fracture occurs, such as in the back or the hips. And Cleveland Clinic notes that once you have sustained one fracture, your risk of another fracture increases.

As we've already discussed, we know that there are specific risk factors for the development of osteoporosis, but we do not know the exact cause. Our bones are continually growing.

According to Cleveland Clinic, "When a bone is weakened by osteoporosis, the 'holes' in the 'sponge' grow larger and more numerous, weakening the inside of the bone. Until about age 30, a person normally builds more bone than he or she loses. After age 35, bone breakdown overtakes bone buildup, which causes a gradual loss of bone mass. Once this loss of bone reaches a certain point, a person has osteoporosis."

There seems to be a distinct relationship between menopause and osteoporosis. Once a woman has reached menopause, her estrogen levels decrease. At this time, bone resorption (or bone breakdown) happens faster than the bone building. And so it seems that once a woman reaches a menopausal age, and estrogen levels begin to

plummet, osteoporosis incidence rates start to creep up.

What Role Does Estrogen Play in Bone Remodeling?

Healthy bones have osteoblasts (which help to build bone) and osteoclasts (which resorb bone). The two of these together maintain bone mass.

Although the actual mechanism is complicated, estrogen plays a significant role in this “dance” between the osteoblasts and osteoclasts. For example, as the bone is a living organism, the osteoblasts continually are building bone. Without the assistance of the osteoclasts to resorb old bone, our bones would get pretty out of hand!

Estrogen has the reputation of being a female hormone, but regardless of our gender, it is partially responsible for this delicate balance of bone building and bone resorption, also called *bone remodeling.*

Should I or Shouldn’t I?: Estrogen Therapy for Osteoporosis

It would stand to reason that hormone replacement therapy (HRT) using estrogen would be a viable treatment for osteoporosis. After all, our bodies did a great job of making bone when our estrogen levels were “normal” – so replacing the estrogen should reduce bone resorption, correct?

Yes – in theory. Physicians prescribe HRT to the following women:

- Postmenopausal who had an early menopause.
- Women with a low bone mass, verified by a bone density test, plus menopausal symptoms.
- Several other risk factors for osteoporosis, such as a petite frame, a family history of osteoporosis, or a medical problem that is complicated by osteoporosis.

However, HRT is not recommended for everyone. It can increase the likelihood of developing certain medical conditions:

- Breast cancer.
- Blood clots.
- Hypertension.
- Gallbladder disease.

If you’ve already had any of these diseases, you should speak with your physician before initiating HRT. There are several other options for the treatment of osteoporosis.

The Bottom Line…

Although a lack of estrogen may not be the entire cause of your osteoporosis, it could certainly play a significant role. There are a lot of other risk factors to consider as well.