## 2. Why Do Bones Become Weak & Osteoporosis Occurs?

The new bone formation and old bone destruction occur in the body simultaneously, as outlined above. The strong bones at young age ensure strong bones later in life. A variety of factors contribute to excessive and premature bone thinning:

a). **Female Gender-** Female hormones are protective, and postmenopausal women have a higher risk of Osteoporosis. Risk increases after the age of 65 years. Early menopause before 45 years and removal of ovaries increases the risk of Osteoporosis.

b). **Older age**—Osteoporosis is more common in females over the age of 65 years and males over the age of 70 years

c). **Deficiency of Vitamin D**--Calcium absorption from the digestive tract requires vitamin D, and its lack decreases calcium absorption.

d). A slender body with less muscle mass and fat –People with weak muscles and less body fat are at a higher risk for Osteoporosis. Healthy fat mass (not overweight and obesity) in females is protective of Osteoporosis because fatty tissue produces female hormone estrogen.

e). Lack of exercise and insufficient muscle mass- When muscles contract, muscle blood vessels pump the blood and nutrition to the bones. Active, strong muscles build strong bones. Lack of exercise and activity (sedentary lifestyle) is a major cause of bone thinning among city dwellers.

f). **Excessive salt intake**—When the kidneys get rid of excess salt, calcium accompanies the salt in the urine. So a diet rich in salt causes bone thinning from excess calcium loss.

g). **Coffee, Tea, and soda drinks**—Excess of these drinks increases calcium excretion in the urine. Dark brown cola drinks are specifically bad for the bones because they are highly acidic from the added phosphoric acid. The acidic foods and beverages cause bone thinning (see below).

h). **Excess of acidic foods in the diet**- Meat, dairy, sugar, and refined carbohydrates (milled wheat flour and maida) create an acidic residue in the body. The body composition is alkaline, so it balances itself with alkali when there is more acidic

residue. The readily available alkali in the body is calcium carbonate in the bones. More acidic the food, the more the calcium is drawn out from the bones, increasing bone thinning risk.

i). Acid reflux medications—Stomach acidity or Acid reflux disease has become an epidemic amongst city dwellers because of factory foods, stale preprepared foods, and eating late. Doctors commonly treat it with drugs that lower stomach acidity. Stomach acidity is essential to calcium absorption. The widely prescribed acid reflux drugs such as Prilosec, Protonix, Nexium, etc., interfere with calcium absorption and weaken the bones.

k). Excess of Cortisol hormone and Thyroid hormone- Excess of these hormones causes bone thinning. The level of cortisol hormone rises with lack of sleep and emotional stress. Taking cortisone as medication (in rheumatoid arthritis, asthma) causes bone thinning. Thyroid replacement hormone can also lead to bone thinning.

Amongst all the reasons listed above, the six most significant reasons for the modern epidemic of excessive and premature bone thinning are:

- Inadequate dietary intake of calcium (natural plant foods are rich in calcium and refined factory foods deficient in calcium)
- Inactive lifestyle
- Too much salt in the diet
- Excessive consumption of acidic foods, coffee,tea, and soda drinks
- Use of acid reflux medications
- Vitamin D deficiency --From lack of sun exposure (indoor lifestyle)