

## OSTEOPOROSIS

Bone is a dynamic tissue which adapts to load variations. This adjustment occurs through continuous structural remodeling. Your skeleton replaces itself every seven to ten years. In women, the skeleton reaches its maximum strength and density by your mid-twenties. You need to look after your bones now if you want strong, healthy bones in later life.

Healthy bones are crucial to you as a dancer and to your long-term career. Your bones are a living tissue that you need to take care of for life. As strong as steel, and light enough to dance with, bone is brilliantly engineered scaffolding which supports the body against the forces of gravity and resists the pull of muscles to allow movement. Bones consist of connective tissue (collagen), calcium salts and other minerals which form a honeycomb structure.

If the holes in the honeycomb structure of your bones become bigger, the internal architecture changes, becoming fragile and liable to break easily. Your bones become thin and brittle and this is known as osteoporosis, or porous bones.

As a dancer you should not be at risk. Dance training with regular weight bearing exercise (exercise that exerts a loading impact and stretches and contracts the muscles) stimulates bone to strengthen. However, you may be taking your bone health for granted. The combination of too much exercise (weight bearing or not) and too little food causes oestrogen or testosterone levels to drop. Oestrogen (for women) and testosterone (for men) are crucial to the health of your skeleton.

Low oestrogen levels, and possibly testosterone levels, can seriously weaken your skeleton resulting in dangerously thin and brittle bones, even when you're young. Thin, brittle bones are prone to "fragility fractures", where a minor bump or fall can cause a broken bone, and to "stress fractures", caused by repetitive strain on one part of the body. Through low oestrogen and testosterone levels, your bones can be weakened for life.

Women with low oestrogen are most at risk. Your best guide to low oestrogen levels in your body is when your periods stop. Your periods can stop as a consequence of intense training coupled with a diet low in energy. No periods for six months or a delay in the start\_of menstruation (later than 16 years old) could result in low bone density and increased risk of fracture. Without periods the bones will lose density and the bones of a woman in her twenties can become as weak as those of a 70 year-old.

If you don't have periods for three months or more, seek medical advice from a GP or family planning clinic. You may have a medical problem other than just your weight.

### **How do I know if I've got osteoporosis?**

Osteoporosis is hidden until your first fracture. These fragility fractures can occur with very little force, perhaps as you land from a jump or even as you bend down to pick something up. These fractures can result in debilitating and potentially deforming injuries.



## **How to prevent weak bones?**

You need to take care of yourself now. Bones need food, exercise and healthy hormone levels. You need to balance your training, diet and body weight for maximum bone health.

### **Calcium**

Vital for muscle contraction, nerve transmission and blood clotting, calcium also gives bones their strength. If you eat insufficient calcium for these other functions, the body steals from your bones. This can lead to osteoporosis. Osteoporosis does affect men, but women are at greater risk, especially if they are very thin, smoke, drink too much caffeine and eat insufficient calcium.

The best defense against osteoporosis is to combine a good calcium intake with a healthy lifestyle and weight bearing exercise, which stimulates bone formation.

Sources: Milk and dairy produce (low-fat versions contain just as much), sardines and canned salmon, (as long as you eat the bones), tofu, green leafy vegetables, and beans. Children need 800 to 1200 mg a day, adolescents and adults need 1200 to 1500 mg a day.

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