

## OSTEOPOROSIS

### PROTECTING AND STRENGTHENING BONES NATURALLY

**I**t should come as no surprise that as the population gets increasingly older and life expectancy continues to increase, age-related diseases such as osteoporosis will impact more individuals. Reduced bone mineral density and resulting fractures is not inevitable, however. Diet and lifestyle factors, as well as numerous specific natural agents have tremendous impacts on preserving bone mass, preventing fractures, and even building bone mass. This review will outline strategies for preventing and treating osteoporosis using these factors.

Osteoporosis is a systemic skeletal disease involving decreased bone mass, weakened bone tissue and eventually leads to increased risk of bone fractures. Disease severity is defined by the World Health Organization (WHO) by an individual's bone mineral density (BMD) compared to mean peak young-adult BMD. Bone mass which is less than 1 standard deviation (SD) from the mean is considered osteopenia, while BMD less than 2.5 SD from the mean is diagnostic for osteoporosis. It should be noted that this diagnosis implies the bone is normal in every other respect, unlike osteomalacia, a metabolic disorder resulting in faulty mineral deposition in bone.

#### Osteoporosis Risk Factors

Osteoporosis is more than simply a disease of aging. While it is true that the prevalence of this condition is age-dependent, other factors such as peak bone mass while young (see below), nutrition, exercise and hormonal status (for women) play a significant role in determining an individual's risk for osteoporosis.

Genetic factors also play a role and it is known that Caucasian women have an increased risk compared to African American (typically higher BMD) and Asian women (typically lower BMD). Endogenous hormone profile, as well as age of menopause will affect risk for

osteoporosis in all women. In some studies oral contraceptive use had slight adverse effects on bone mineral density. Certain other drugs, especially the use of glucocorticoids, often lead to a reduction in BMD and increased risk of fractures. Additionally, high alcohol intake, smoking and "thin body type" are all linked to increased risk for osteoporosis (16,17).

The onset of menopause is typically seen as leading factor in a rapid decline of bone mineral density (see Figure 1). This is seen in nearly all women and magnifies the importance of peak bone mass prior to this decline. For a complete discussion of menopause and natural treatments please see *The Standard* Volume 4 No. 1.

#### Peak Bone Mass

"Osteoporosis is a paediatric disease" - so said Charles Dent over thirty years ago, and to a great extent he was right (1,2). A high peak bone mass (PBM) may be one of the most important factors in maintaining strong bones in ones elderly years (See Figure 1). Reaching sufficient peak bone mass is accomplished in the first few decades of life and is influenced by genetics (some say 75%) and by many modifiable factors; the two most studied are diet (especially calcium and