METABOLE

- Therapeutic Nutrition
- Natural Healing

Advanced Calcium Formulation

with Essential Minerals & Hydrolyzed Collagen

bone
noun \bəʊn\
the dense, semirigid, porous, calcified connective tissue forming the major portion of the skeleton of most vertebrates. It consists of a dense organic matrix and an inorganic, mineral component

(The Free Dictionary)

Bone is a specialized connective tissue that consists of bone cells, an extracellular (=outside the cell) protein matrix and minerals. Approximately 90% of the protein matrix consists of collagen fibers which are manufactured and maintained by the bone cells. Bone matrix, unlike other connective tissue, has the unique ability to form stable crystalline structures with the mineral component of bone, which contributes to structural integrity and stability.

Collagen fibers are arranged in a complex 3 dimensional framework that provides strength and toughness to bone that is able to resist tensile, shear and compression forces, and provides the support structure to which minerals can adhere and crystallize. Minerals make up approximately 60% of bone mass and are mainly involved in determining bone stiffness

In women bone mass begins to decline after the approximate age of 35 years and continues rapidly until menopause is reached. After menopause bone loss still occurs but at a much slower rate. Osteoporosis and the development of fractures in bone is closely correlated with the loss of bone mass. Fracture risk is also associated with the breakdown of the protein matrix of bone, where poor cross-linking of collagen fibers may play a role in bone fragility.

Preventing osteoporosis and the formation of bone fractures must therefore address not only adequate mineralization to restore bone mass and prevent the loss of the protein matrix, but also ensure the optimal functioning of bone cells involved in the repair process.

Metabole Advanced Calcium Formulation provides a whole range of nutrients that may prevent bone loss and help to heal bone fractures.

The formula provides calcium, magnesium and manganese that are essential for the mineralization of bone and also form part of the enzyme systems involved in metabolic processes. It also includes Vitamin D which is required for the intestinal absorption of calcium which is especially important in cases where dietary intake and exposure to sunlight are inadequate - in the elderly for example.

Boron has been added to the formula because of its importance in vitamin D metabolism, where it plays an important role in enzyme catalyzed hydroxylation reactions. Zinc further enhances the biochemical reactions of vitamin D and has also been found to be essential for normal bone formation.

Hydrolyzed collagen predominantly provides glycine, proline and hydroxyproline residues which are the major structural amino acids of collagen, and has been included in the formula to maintain the integrity of the protein matrix. Vitamin C, vitamin B6, copper and silicon play a role in maintaining the protein matrix of bone, being involved in different enzyme systems that are responsible for the cross linking and stabilization of collagen fibers. Other nutrients play a supportive role.

In summary, the Metabole Advanced Calcium Formulation can do the following for the consumer:

- Restores the mineralization of bone by providing the necessary minerals.
- Maintains the integrity of the protein matrix of bone by providing an potent source of hydrolyzed collagen
- Provides nutrients that help to absorb calcium from the digestive tract
- Provides all co-enzymes to ensure enzyme systems function optimally
- Provides phytosugars that facilitate communication between cells and therefore enhances the biochemical reactions that take place

No added preservatives, colorants, flavorants, sugar, salt or dairy products; contains only nutrients