



# *Advanced Collagen Formulation*

with MSM and Biotin

## **collagen**

*noun* \ˈkɒl.ə.dʒən\

the principal protein of the skin, tendons, cartilage, bone, and connective tissue. Collagen is an essential part of the framework of the design of our various body tissues.

(Medical Definition of Collagen)

The human body essentially consists of four basic tissue types: epithelial, muscle, nerve and connective tissue. Of these connective tissue is the most abundant and widely distributed and can be found in every body compartment where it surrounds and binds to different body components, and provides support and stability to body organs.

Connective tissue consists of a loose network of cells surrounded by an extra cellular matrix of macromolecules such as proteoglycans, glycoproteins and collagen. Specialized cells within the matrix synthesize collagen and other matrix components and include fibrocytes (tendons and ligaments), chondrocytes (cartilage) and osteocytes (bone). Collagen is the most important structure in connective tissue and makes up over 90% of the matrix components. Other cells in the matrix are transient in nature and include growth factors and signaling molecules (cytokines), as well as immune system cells such as leucocytes and macrophages.

Collagen production within specialized cells starts with the synthesis of a single protein strand (alpha strand) consisting of amino acids including glycine, proline and hydroxyproline. Three of these single alpha strands combine to form a triple helix structure called procollagen which leaves the cell and enters the extracellular matrix. In the matrix procollagen self assembles into parallel strands to form fibrils (small fibers) that are enzymatically cross-linked to form thick collagen fibers.

So far 28 different types of collagen fibers have been described that have specific functions in different parts of the body. Of these the most important are Type I collagen (bones, tendons, skin); Type II collagen (cartilage, intervertebral discs); Type III collagen (skin, blood vessels); Type V (bone, skin, hair) and Type XI collagen (cartilage, intervertebral discs).

Collagen production tends to decrease as we age, which can lead to a weaker and more fragile bone structure, reduced mobility/flexibility caused by cartilage deterioration and hardening of tendons, the thinning and loss of hair, and the reduction in skin elasticity that can lead to sagging skin and wrinkles

Metabole Advanced Collagen Formulation provides the following nutrients that can help to restore collagen to more youthful levels: hydrolyzed collagen that is readily broken down in the digestive tract to yield the correct type and balance of amino acids required for endogenous collagen synthesis, and co-factors such as vitamin C, vitamin B6, copper and zinc that are required to synthesize procollagen in connective tissue cells, and to cross-link collagen fibrils in the extra cellular matrix. In addition the formula provides minerals and trace elements needed for the formation of bone, skin and hair. Other nutrients play a supportive role

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

- Maintains the integrity of the bone protein matrix resulting in a stronger and more resilient skeletal structure
- enhances the regeneration of articular cartilage and intervertebral discs thereby reducing back pain and leading to pain free joints
- Restores skin volume and elasticity which helps to reduce wrinkles and skin blemishes resulting in a more youthful looking appearance
- Promotes hair growth and structure leading to thicker and more lustrous hair
- Supports nail infrastructure, thereby reducing nail brittleness and leading to stronger and healthier nails
- Promotes the entrapment and storage of growth factors and cytokines which play an important role in wound healing and tissue repair
- Provides phyto sugars which help communication between cells and enhances the biochemical processes involved

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