



# BONE GROWTH

**B**ones are amazing structures. Far from being hard, brittle and lifeless – they are a dynamic living tissue which serves a multitude of purposes. Bones are continually remodelling, are involved in blood-cell production and act as a mineral store for the body as a whole.

**T**he strength and quality of bones is determined early in life and their mass does not increase much after the first two decades <sup>(1)</sup>. It is no exaggeration to say that bone growth in children has a lasting impact on quality of life in later years.

**I**nfant bones are extremely soft and flexible because they are composed largely of cartilage. Throughout childhood and into adolescence bones are growing and hardening <sup>(2)</sup>. Peak bone mass occurs during the mid-twenties for most people and bones do not grow in length or density beyond thirty <sup>(3)</sup>. Nonetheless bone repair and remodelling are life-long processes.

**O**steoporosis is a progressive disease characterised by a loss of bone mass and quality, resulting in an increased risk of fractures. Medical opinion is that apart from the genetic influence, Osteoporosis is largely preventable. Diet, lifestyle and environment are the most important variable factors. Consequently, it is now identified as a disease that can begin in childhood with less than optimal bone growth <sup>(3)</sup>.

**B**ones have a high mineral content which makes them solid and durable. Minerals such as calcium, phosphorous, sodium, magnesium and carbonate are predominant. Bones are also flexible because of the collagen (a structural protein), content.

**F**or optimum bone health, there is no substitute for exercise and eating plenty of fresh fruits and vegetables. In addition, foods that are high in protein and rich in calcium <sup>(4)</sup> are necessary to ensure strong bones. All vitamins, but especially vitamin D are essential for healthy bone growth.

**N**atural health supplements provide nutrients that assist in optimum bone growth and maintenance. Colostrum and Goat Milk supplements are a source of protein and minerals. Marine Collagen and Shark Cartilage provide some of the building blocks of bone. Deer Velvet is prized for its ability to strengthen bones, primarily by influencing the production of cells responsible for repairing and remodelling.

**Deep Blue Health products which can improve bone growth are;**

**Colostrum** - a nutritious dairy product for healthy growth and development.

**Deer Velvet** - a potent health remedy providing minerals and collagen for strong bones.

**Flaxseed Oil** - rich in Omega 3 and Omega 6, these plant based oils improve bone and joint health.

**Goat Milk** - low in calories and rich in calcium and protein, ideal for people adverse to dairy.

**Green Lipped Mussel** - rich in vitamins, minerals, Omega3 and glycosaminoglycans which work together to reduce inflammation and improve bone growth.

**Marine Collagen** - rich in proteins which make up fibrous tissues in bones.

**Omega 3** - helps to keep cartilage healthy, reduces inflammation and nourishes connective tissue.

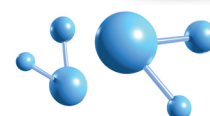
**Shark Cartilage** - used to relieve the pain of arthritis and improve bone integrity.

**Shark Squalene** - rich in vitamin A and vitamin D to support healthy bone development.



References:

1. <http://www.unu.edu/unupress/food2/uid06e/uid06e0u.htm> - Cell biology of bones
2. <http://www.bbc.co.uk/science/humanbody/body/factfiles/bonegrowth/femur.shtml> - Bone growth
3. [http://www.niams.nih.gov/Health\\_Info/Bone/Osteoporosis/osteoporosis\\_hoh.asp](http://www.niams.nih.gov/Health_Info/Bone/Osteoporosis/osteoporosis_hoh.asp) - Osteoporosis
4. <http://www.cdc.gov/nutrition/everyone/basics/vitamins/calcium.html> - Calcium & Bone health



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