

DIETARY ADVICE-- POST FRACTURE/TRAUMA

Bone is a highly vascular organ and a dynamic tissue which is remodeled constantly throughout life. A bone fracture is a medical condition in which there is a break in the continuity of the bone. A bone fracture can be the result of high force impact or stress, or trivial injury as a result of certain medical conditions that weaken the bones, such as osteoporosis, bone cancer, or osteogenesis imperfecta, etc. A bone fracture can be a defining moment in anybody's life - the break itself is an isolated incident, while the healing process can take weeks, months, or even years depending on the injury.

Food is one factor that can affect how quickly a broken bone heals. A well-considered diet followed prior to injury means you will have a quicker recovery time than someone who begins the diet after the break occurs. The area where the break occurs, as well as your overall health, will also impact your recovery time. Bone development continues throughout adulthood for repair of fractures and for remodeling to meet changing lifestyles. Nutrition is one of many elements that influence bone strength. Good nutrition lays a firm foundation for a healthy body and strong bones. Dietary intake also plays a significant role in protecting the skeleton by maintaining healthy tissues to cushion the force of a fall.

Each stage of the fracture healing process brings with it increased nutritional demands. For starters, the whole process requires a great deal of energy—which is generally supplied through the intake of calories in food. Next, healing requires the synthesis of new proteins, which is dependent upon an ample supply of dietary proteins. An adequate blood supply is also mandatory for fracture healing, so anything that diminishes blood flow (such as smoking) should be discouraged.

Calcium

Calcium is one of the main bone-forming minerals and an appropriate supply to bone is essential at all stages of life. Calcium plays a fundamental role in bone health and has recently received significant attention in terms of public health policies to ensure its adequate intake. Since calcium is the primary mineral in the composition of human bone, it comes as little surprise that it plays the central role in recovery from bone fractures or other bone injuries. **Eating a calcium-rich diet helps speed the healing process. Foods high in calcium include dairy products such as milk, cheese and yogurt; almonds; green leafy vegetables, pulses, soy products; and cruciferous vegetables, including broccoli, kale, collard and mustard and turnip greens.**

Vitamin D

Vitamin D plays an important role in drawing calcium from your blood into the bones. Without adequate doses of vitamin D, dietary calcium can have difficulty finding its way into the bones that need the mineral to heal. The sunshine vitamin can be acquired through exposure to unfiltered sunlight. However few people get enough of this vitamin from the sun and need to eat foods rich in D or take supplemental doses. **Food sources of vitamin D include oily fish, such as mackerel, salmon, sardines and tuna; egg yolks; dairy products, including fortified milk. Increasing your vitamin D, also balances your phosphate and calcium ratio in your bones. A 10 – 30 minutes exposure of sun on a daily basis without sunscreen can help the body to synthesize sufficient amounts of Vitamin D.**

Vitamin K

This vitamin plays a key role in **strengthening osteocalcin**, a protein component of bone, without increasing the mineral density of bone. This process, known as carboxylation of osteocalcin, significantly reduces the risk of fracture and speeds healing in the event of bone injury. This **vitamin is abundantly found in green leafy vegetables, Brussels sprouts, broccoli, cauliflower, fish, liver, meat, eggs and cereals, is 90 micrograms for women and 120 micrograms per men.**

Other Nutrients

- Other nutrients critical to bone health and healing include **boron** and **silica**, both of which help to increase the uptake of calcium from the blood. Additional bone-healthy nutrients include the amino acid lysine, which also promotes the absorption of calcium.
- **Vitamin C**, a key player in the production of collagen is essential to bone healing. Good sources of **Vitamin C include Lemon, Oranges, Mausami, Papaya, Tomato, Guava, Raw amla juice to name a few.**
- Just like certain foods promote bone healing, some hinder it. These foods, known as bone robbers, hinder your body's ability to absorb calcium and vitamins. In some cases, they may cause your body to pull nutrients from the bones.
- Foods to avoid include foods high in sugar or salt, red meat, alcohol and caffeine.

- It is best to **abstain from alcohol** while healing a broken bone. To heal properly, bone cells must first form a ‘matrix,’ which later hardens or ossifies into bone. Alcohol consumption changes the makeup of this matrix by hindering the formation of osteoblasts and decreasing their ability to respond to signals that normally trigger bone formation after a fracture.
- Patients, who **smoke, have a much longer average time to healing** and a much higher risk of developing a nonunion (non-healing of the bone). Smoking alters the blood flow to bone, and it is that blood flow that delivers the necessary nutrients and cells to allow the bone to heal.
- **Coffee, colas, and other caffeinated drinks increase the rate of calcium loss through the urine.**
- **Salt:** High salt intakes affect calcium metabolism and is, therefore, it is recommended to avoid foods with a high salt content e.g. salted chips, packet soups, Pickles, Processed and packaged foods, Ketchups, sauces etc.

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