

Nutrition for Healing and Repair

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- Physicians treat pain and inflammation with NSAID's.
- Corticosteroids can result in delayed or absent healing.
- A patient's return to pre-injury status is rarely attained due to this treatment procedure.
- Nutrient intake is a better method for body repair.
- Following an injury one should be taking nutrients in higher doses than normal to provide the body with all the materials needed for building and repairing tissues.

Pain relief and healing are 2 very separate concepts.

- Medications given to eliminate pain may also hinder the body's attempt to heal.
- It is also a mistake to believe there can be recovery without pain or discomfort.
- The ultimate goal is to return the patient to his/hers health status before the trauma or injury occurred.

Stages of Healing:

1. Inflammatory Stage- body's initial response to injury, lasts 7-10 days. The inflammatory response should be looked at as a protective and necessary response to set into motion a chain of events required for the body to heal itself.
2. Repair Stage- 2 days to 6-8 weeks. Characterized by cell growth, production of extracellular matrix (collagen and proteoglycans) and new blood cells.
3. Remolding Stage- 2 weeks to 1-2 years. Characterized by strengthened and improved tissue due to aligning of collagen fibers.

Proteolytic Enzymes:

- Enzymes are proteins that act as a catalyst to induce chemical changes in other substances.
- They are a safe option to reduce inflammation.
- The enzymes destroy or inactivate bradykinins- a chemical messenger that binds to the nerve receptor causing it to fire.
- Reduction of viscosity of extracellular fluid- increased nutrient and waste transport to and from the injured site.
- Activation of endogenous proteases.
- Molecular debridement- removal of proteins and waste, aids in phagocyte function.
- Begin as soon as possible post injury.

Bromelain:

- Given 4x a day for 4 days had great response to healing bruises etc from trials and research done. Pg18
- Also worked for post-surgical patients.
- Best taken on an empty stomach.

Papain:

- Derived from *Carica papaya*, reduced pain, edema and inflammation with no toxic side effects when compared to aspirin in any of the studies.

Vitamins and Minerals for Healing

Adequate vitamin and mineral intake helps to promote new tissue formation, suppress oxidation of tissue, improve wound function and keep the immune system strong

Vitamin A:

- Retinols and carotenoids.
- They have unique antioxidant capabilities
- Support epithelial and bone tissue development.
- Support cell differentiation.
- Stimulate immune response.

Vitamin C:

- For connective tissue activation of alpha ketoglutarate linked hydroxylases.
- The amino acids necessary for proper function of collagens
- Co-factor in the formation of collagen.
- C0-factor for synthesis proteoglycans and other organic compounds of the intracellular matrix of tissues such as bone, skin and connective issue.
- Supports the immune system.
- Direct antioxidant.

B Vitamins:

- B vitamins are bioenergetic, they are involved in many biochemical steps in the breakdown of food into molecules that enter cellular respiration.
- Loss of energy fibroblasts will not be able to proliferate which would inhibit the healing process.
- Aids in the production of ATP, a major source of cellular energy.
- B12- 100-500 mcg.
- B6- 25-100 mg.

Zinc: dose 15-30 mg.

- Zinc is essential for DNA synthesis, cell division and protein synthesis all necessary events for tissue repair.
- Activates zinc metalloenzymes necessary for normal healing response.
- Stabilizes structural conformation of polysomes, which are involved in protein synthesis, collagen synthesis and normal cell growth.
- Component of the key enzymes involved in basic cellular events such as DNA synthesis, RNA synthesis and protein synthesis.

Magnesium: dose 200-400 mg.

- Co-factor for over 300 enzymatic reactions.
- Regulator of cellular energy metabolism.
- Key role I protein synthesis.
- Key role in amino acid metabolism.

Manganese: dose 10-15 mg.

- Required for activating glycosyltransferase enzymes that attach modified sugars to collagen and each other.

- Involved in the activation and stimulation of triple helix formation essential for collagen.
- Necessary for the glycosylation of hydroxyproline residues in the formation of collagen.
- Essential co-factor and catalyst in proteoglycan synthesis.