



Healing Protocol

1. **Myers Plus** (*Sodium Ascorbate 2812.5 mg/Pyridoxine 102mg/Dexpanthenol 252 mg/Thiamine 100 mg/Riboflavin 5 sodium phosphate 2.5 mg/Niacinamide 100 mg/Hydroxocobalamin 2 mg (20 ml= PER infusion)*)

Vitamin B compounds, such as thiamine, riboflavin, pyridoxine, and cobalamin, serve as critical cofactors in leukocytic generation, anabolic processes of wound healing, and collagen synthesis. Consequently, vitamin B deficiency can result in impaired immune function and, thus, an increased risk of infection. Vitamin C exhibits apparent involvement in collagen synthesis, antioxidant response, and angiogenesis. Research showed that using vitamin C for wound healing as it increases recovery rates and leukocyte ascorbic acid levels.

Recommended dose: Myers Plus–20ml

Osmolarity: 1.388 mosm/ml

2. **Multi Amino Acid 6** (*Multi-Amino Acid-6 = L-Glutamine 150 mg/L-Arginine 250 mg/L-Leucine 75 mg/L-Ornithine 250mg/Glycine 25/Taurine 250 mg per infusion (10 ml = per infusion)*)

During wound healing, proteins are crucial in collagen production. The ramifications of protein deficiency are profound, leading to compromised fibroblast proliferation and angiogenesis, diminishing collagen synthesis and remodeling.

Proteins are vital for post-surgical wound repair, skin integrity preservation, fluid and electrolyte balance, and facilitating immune response activation. Certain amino acids, like arginine and glutamine, are known to enhance wound healing.

Arginine, a precursor to nitric oxide (NO) and proline, is necessary for the inflammatory response, collagen synthesis, and neovascularization, making it a recommended amino acid for accelerating skin wound healing.

The role of glutamine extends to enzymatic, metabolic, antioxidant, and immune responses, offering immunomodulatory and anti-inflammatory effects in wounds. Studies have suggested that metabolic support of catabolic patients with glutamine may improve their condition speeding up their recovery. Glutamine reduces infection risks and inflammatory complications by upregulating the expression of heat-shock proteins.

Glycine also contributes to protein synthesis, wound healing, tissue protection, and immunity.

Glutamine is crucial in nitrogen metabolism and a precursor for arginine.

Recommended dose: Multi amino acid 6 (10 ml per infusion)

Osmolarity: 1.627 mosm/ml

3. **Multi Trace** (*Magnesium Chloride Hexahydrate 400mg/Calcium Chloride 100mg/Zinc Chloride 1 mg/Manganese Chloride 1 mg/Copper 1 mg/Selenium 200 mcg per infusion (5ml = per infusion)*)

Minerals have also been implicated in the wound-healing process, attributing to their roles as essential enzymatic components, metalloenzymes, and antioxidants. Zinc promotes re-epithelialization and generation of new tissues. In inflammation, zinc upregulates the immune response by activating lymphocytes and stimulating antibody production, mitigating the risk of infections. Copper was found to be involved in all stages of the wound-healing process, due to its numerous roles in several cells, via cytokine and growth factor modulation. Magnesium similarly promotes wound healing by reducing serum C-reactive protein (CRP) levels and increasing plasma total antioxidant capacity (TAC) concentration.

Recommended dose: Multi-trace (5ml per infusion)

Osmolarity: 1.676 mosm/ml

4. **Vitamin D3** (*50,000 IU/ml*)

Recommended dose: 1ml by Intramuscular route

Emerging evidence of vitamin D deficiency has underscored its potential implication in the wound-healing process. Vitamin D regulates immune response and receptor production.

Compound name	Volume	Osmolarity (mosm)	
Myers Plus	20 ml	27.76	
Multi amino acid-6	5 ml	8.135	
Multi trace mineral	5 ml	8.38	
Fluid- Normal saline	500 ml	155	
Final Osmolarity per liter		378	

*****Recommended to add Vitamin D3 by intramuscular route. Do not mix vitamin D into the same bag with other nutrients due to compatibility*****

Ref:

Impact of nutrition on skin wound healing and aesthetic outcomes: A comprehensive narrative review

Source:

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC10874171/>