

# The Role of Nutrition in Pressure Ulcer Prevention and Treatment

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Compromised nutritional status such as weight loss, dehydration, low BMI, poor food intake and impaired ability to eat independently are known risk factors for pressure ulcer development. Hypermetabolism triggered by trauma, severe illness, and infection will also contribute to the risk for pressure ulcers. Current research is outlined here that may help you choose nutritional interventions using evidence-based data.



**Albumin and Prealbumin** levels are a poor indicator of visceral protein status, and can be decreased even with adequate protein intake due to infection, stress, surgery, and hydration status. These hepatic proteins correlate more with the severity of an underlying disease rather than nutritional status. Monitoring these low levels will tell you that a person is very ill and therefore at high risk for under-nutrition, protein energy malnutrition and unintended weight loss, which are risk factors for pressure ulcer development.

**Calories:** Adequate calories promote anabolism, nitrogen and collagen synthesis, and healing. Providing sufficient carbohydrate as the primary fuel source is much more efficient than calories from protein or fat. It is critical that we review the type and amount of food/fluid consumed to ensure enough calories are consumed based on estimated needs and we examine the reasons for decreased food intake. Guidelines for calorie intake are 30-35 calories/kg, adjusted based on weight loss, gain or level of obesity.

**Protein** is responsible for the synthesis of enzymes in pressure ulcer healing, cell multiplication and collagen and connective tissue synthesis. Caloric needs must first be met in order to spare protein from being used as an energy source. Studies show that protein requirements for older adults are now 1.0 gram/kg body weight (vs. 0.8g/kg for adults). Recommended protein intake range for healing is 1.2-1.5g/kg. Protein levels as high as 2.0 g/kg may not increase protein synthesis and may contribute to dehydration in the elderly.

**Arginine:** Studies showed that supplemental arginine did not enhance healing.

**Glutamine:** Supplemental glutamine has not been shown to improve wound healing.

**Fluids:** A general guideline for fluid intake is 1ml per calorie consumed. High protein intake requires higher fluid intake. Fluids lost from fever, vomiting, diarrhea, draining wounds and profuse sweating need to be replaced.

**Micronutrients:** There is no research to justify administration of vitamin/mineral supplements that are above the US RDI, but it is essential to meet the minimal RDI. Offer vitamin and mineral supplements when dietary intake is poor or deficiencies are confirmed or suspected.

**Zinc:** No research has demonstrated an effect of zinc supplementation on improved pressure ulcer healing. When clinical signs of zinc deficiency are present, zinc should be supplemented at no more than 40 mg of elemental zinc per day (DRI). It should be stopped once the deficiency is corrected. Higher doses can adversely affect copper status possibly resulting in anemia.

**Vitamin C:** Important for tissue repair and regeneration. Mega doses of vitamin C have not been shown to accelerate wound healing. Vitamin C at physiological doses should be considered when dietary deficiency is diagnosed.

Please visit the National Pressure Ulcer Advisory Panel website [www.npuap.org](http://www.npuap.org) for more information.



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