

Nutrition in the Geriatric Trauma patient

Geriatric patients are particularly vulnerable to malnutrition. Lean body mass and basal metabolic rate decline with age, energy requirement per kg of body weight is also reduced. More than other adults, patients over the age of 65 are at nutritional risk because of the greater burden of comorbid illnesses coupled with common physiological changes due to aging. Acute traumatic injuries in the older adult frequently increase the risk of malnutrition during hospitalization due to immobility, acute pain, dysphagia, difficulty chewing based on injury pattern, cognitive changes, and orthotic devices.

In addition to pre-existing malnutrition, hospitalized patients often develop further nutritional problems during their hospital stay. Nausea, vomiting, “nothing by mouth” orders, medication side-effects, difficulty with vision and opening containers, the placement of food out of patients' reach, limited access to snacks, and ethnic or religious food preferences may all contribute to low nutritional intake in hospital ([Milne et al 2005](#)).

All trauma patients should be screened for pre-existing malnutrition with a nutrition consult to all positive screens. For geriatric trauma patients meeting any of the following criteria consider a nutrition consult:

1. Major fractures including hip, femur, pelvis, and humerus.
2. Multiple fractures
3. Cervical spine fractures in which c-collar is expected for ≥ 6 weeks
4. Facial fractures
5. Body mass index (BMI) < 20 or > 30
6. Stage II or greater pressure ulcer
7. Extensive soft tissue injury/wounds
8. Swallow evaluation with change from baseline diet
9. NPO > 3 days
10. Poor appetite 5 or more days of hospital stay

Obtain accurate height and weight on admission and at regular intervals

There are several effective and easy-to-use screening tools which assess for malnutrition in elderly patients. The most extensively validated tool is the Mini Nutritional Assessment (MNA), which provides an accurate assessment of elderly patients from a variety of domiciliary settings.

Mini Nutrition Assessment – Short Form (MNA-SF)

- **A. Has food intake declined over the past three months due to loss of appetite, digestive problems, chewing or swallowing difficulties?**
 - 0 _ severe loss of appetite
 - 1 _ moderate loss of appetite
 - 2 _ no loss of appetite
- **B. Weight loss during last three months**
 - 0 _ weight loss greater than 3 kg (6.6 lbs)
 - 1 _ does not know
 - 2 _ weight loss between 1 and 3 kg (2.2 and 6.6 lbs)
 - 3 _ no weight loss
- **C. Mobility**
 - 0 _ bed or chair bound
 - 1 _ able to get out of bed/chair but does not go out
 - 2 _ goes out
- **D. Has suffered psychological stress or acute disease in the past three months**
 - 0 _ yes
 - 2 _ no
- **E. Neuropsychological problems**
 - 0 _ severe dementia or depression
 - 1 _ mild dementia
 - 2 _ no psychological problems
- **F. Body Mass Index (BMI) (weight in kg)/(height in m)²**
 - 0 _ BMI less than 19
 - 1 _ BMI 19 to less than 21
 - 2 _ BMI 21 to less than 23
 - 3 _ BMI 23 or greater
- **Screening score (subtotal max. 14 points)**
 - *12 points or greater:* Normal – no need for further assessment
 - *11 points or below:* Possible malnutrition – continue assessment
 - **Note:** If greater specificity is desired consider 10 points or below as possible malnutrition.
 - Alternative height calculations using knee to heel measurements: with knee at 90° angle (foot flexed or flat on floor or bed board), measure from bottom of heel to top of knee.
 - Men _ (2.02 _ knee height, cm) (0.04 _ age) 64.19
 - Women _ (1.83 _ knee height, cm) (0.24 _ age) 84.88
 - Body weight calculations in amputees:

- For amputations, increase weight by the percentage below for contribution of individual body parts to obtain the weight to use to determine BMI. Single below knee 6.0% Single at knee 9.0% Single above knee 15.0% Single arm 6.5% Single arm below elbow 3.6%
- Source: [Rubenstein et al \(2001\)](#); [Ranhoff et al \(2005\)](#).

TQIP:

Screening for severe nutritional risk:

- BMI < 18.5 kg/m²
 - Serum albumin < 3.0 g/dL (no evidence of hepatic or renal dysfunction)
 - Unintentional weight loss > 10%-15% within 6 months.
- If yes to any of the above criterion, then the patient is at severe nutritional risk and should, if feasible, undergo a full nutritional assessment by a dietician to design a perioperative nutritional plan to address deficits.

Aspen guidelines for Parenteral and enteral nutrition

- Multivitamin supplements are highly recommended for older patients, especially in seniors whose daily caloric intake is less than 1500 kcal/day.
 - Advise patients about nutrient-dense food choices when appropriate.
 - Investigate body weight losses of 4% or more.
 - Nutritional supplements are recommended for at-risk elderly hip fracture patients. Also consider supplements for frail seniors with other fractures.
 - Calcium and vitamin D supplementation have been shown to reduce hip fracture rates and are recommended for patients over 65 years of age.
 - Advise patients on the merits of whole grains, fruits, and vegetables.
 - In hospitalized patients, maintain a high index of suspicion for pre-existing nutritional deficiencies. Utilize the services of a registered dietician.
 - Consider referrals to other health professionals for nutritional advice such as dietitians, speech and language pathologists, homecare or visiting nurse services, or other specialized geriatric services available in the community.
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- Milne AC, Potter J, Avenell A. Protein and energy supplementation in elderly people at risk from malnutrition. *Cochrane Database Syst Rev.* 2005;(2) CD003288. [[PubMed](#)]
 - Rubenstein LZ, Harker JO, Salvà A, et al. Screening for undernutrition in geriatric practice: developing the short-form mini-nutritional assessment (MNA-SF) *J Gerontol A Bio Sci Med Sci.* 2001;56A:M366–72. [[PubMed](#)]
 - Ranhoff AH, Gjøen AU, Mowé M. Screening for malnutrition in elderly acute medical patients: the usefulness of MNA-SF. *J Nutr Health Aging.* 2005;9:221–5. [[PubMed](#)]
 - ACS TQIP Geriatric Trauma Management Guidelines