

Assessment of Nutrition in the Elderly

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Malnutrition in Elderly

■ **Prevalence^{1'2'3:}**

1. 5-10% of Community-dwelling,
2. 30-60% in acutely hospitalized or institutionalized elderly persons.

¹McGee M, Nutrition in the elderly, J Clin Gastroenterology, 2000, 30: 347-378.

²Keller HH, Malnutrition in institutionalized elderly, How and Why, JAGS, 1993,41: 1212-1218.

³Silver AJ, Nutritional status in an academic nursing home, JAGS, 1998, 36: 487-491

Malnutrition in Elderly

■ Multiple risk factors^{4,5} :

1. **Social:** poverty, lack of socialization, lack of help with meals
2. **Mechanical:** poor oral health status, eyesight, motor coordination, taste
3. **Psychological:** Depression, Dementia, Anorexia Nervosa, Late-life Paranoia
4. **Chronic Medical:** CHF, COPD, ESRD, PD, CVA, Cancer, Infection, Metabolic,...etc
5. **Medications:** Anticholinergics, Digoxin, Theophylline, Narcotics, ...ect

⁴Wilson MM. Prevalence and causes of undernutrition in medical outpatients, AJM, 1998,104, 56-63

⁵Morly JE. Causes of weight loss in a community nursing home, JAGS, 1994, 42, 583-585

Malnutrition in Elderly

■ Negative outcomes^{6,7}:

1. Loss of muscle mass and function, orthostasis, falls and fractures, delirium, pressure ulcers, infections, and functional decline.
2. Increased: rate of hospitalization, length of hospital stay, hospital costs, and mortality.

⁶Chima CS. Relationship of nutritional status to length of stay, hospital costs, and discharge status of patients hospitalized in the medical service, JADA, 1997, 97 (9), 975-978.

⁷Bickford GR. Nutritional assessment outcomes, A strategy to improve health care, CLMA, 1999, 11/12, 357-364

Assessment of Nutrition in the Elderly

■ Conventional Methods:

- Cumbersome and expensive

1. Anthropometrics

- Weight
- Body Mass Index
- Mid-arm or calf circumference
- Triceps skin fold

2. Nutritional Intake

3. Laboratory

- S. Albumin, Prealbumin
- Cholesterol, Lymphocytes
- Transferrin, TBG, RBG

■ Screening Tools:

- Rapid and inexpensive

1- Nutritional Risk Index

2- Nutritional Risk Score

3- Nutritional Screening Initiative

4- Nutrition Risk Assessment Scale

5- Prognostic Nutritional Index

6- Subjective Global Assessment

7- Mini Nutritional Assessment

8- MEALS-ON-WHEELS

9- SCALES

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■ Anthropometrics:

1. Body mass index (BMI) = weight in kg/height in m²
 - > Risk threshold for low BMI = 21 kg/m²
2. Weight loss of 5% in 1 month or 10% in 6 months is a useful indicator of nutritional risk and morbidity and is predictive of:
 - > Functional limitations
 - > Health care charges
 - > Need for hospitalization
3. Mid-arm circumference (< 21 cm), Calf circumference (< 31 cm), Triceps skinfold thickness (< 10%)

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■ Nutritional intake:

- Inadequate nutritional intake: Average intake of food groups, nutrients, or energy 25% to 50% below a threshold level of the RDA
- Intake of <75% of food provided should trigger nutritional assessment in nursing homes

■ Laboratory tests:

1. Albumin:

- Low serum Albumin (<3.5 g/dL) is a risk indicator for morbidity and mortality
- Lacks sensitivity and specificity as a nutritional indicator
- A marker for injury, disease, or inflammation

2. Prealbumin: may better reflect short-term changes in protein status (shorter half-life) but has the same limitations as albumin

3. Other: Hb (< 12 g/dl), Lymphocytes (< 1,500/cm³), Cholesterol (< 160 mg/dl), Transferrin

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■ Screening tools^{8,9,10}:

- Simple, rapid, and inexpensive
- Can be used for early detection of malnutrition in community-dwelling, hospitalized, or nursing home elderly patients

	NRS [13]	NSI [14,15]	NRI [12]	PNI [17]	SGA [18,19]	MNA [3-5]	NuRAS [16]
Sensitivity (%)		36	46	93	82	96	
Specificity (%)		85	85	44	72	98	
Cost	+	+	+	+++	++	+	+
Time	Quick	Quick	Quick	Slow	Intermediate*	Quick	Quick
Type of elderly	At home	At home	At home	Ill	Ill	All	At home
Detects malnutrition?	Yes	Yes	Yes	No	No	Yes	Yes
Diagnoses malnutrition?	No	No	No	Yes	Yes	Yes	No
Nutritional follow up	No	No	No	No	No	Yes	No

Data from Lauque and Vellas [21]. *Patient needs to be undressed. +, Cheap; ++, fairly expensive due to the requirement for a health care professional; +++, expensive due to laboratory investigations. MNA, Mini Nutritional Assessment; NRI, Nutrition Risk Index; NRS, Nutrition Risk Score; NSI, Nutrition Screening Initiative; NuRAS, Nutrition Risk Assessment Scale; PNI, Prognostic Nutritional Index; SGA, Subjective Global Assessment.

⁸Bruno V, Nutrition assessment in the elderly, Current Opinion in Clin Nutr and Metab Care, 2001, 4, 5-8

⁹Guigoz Y, Assessing the Nutr Status of the Elderly, Nutr Rev, 1996,54, S59-S65

¹⁰Konrup, Nut Risk Scr, Clin Nutr, 2003, 22, 321-336

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■ Conclusion:

1. Malnutrition in older persons is common and is associated with poor clinical outcomes
2. Screening for malnutrition in elderly is essential and help for early detection and intervention
3. Nutrition screening tools are available and can easily be used by health professionals