

## **Nutritional problems**

***Age-related diseases***

***Functional impairments***

***Drug-induced nutritional  
deficiencies***

## Malnutrition

### > *Deficiencies*

**Protein-energy**

**Vitamins**

**Fibre**

**Water**

### > *Excesses*

**Obesity**

**Hypervitaminosis**

## **Undernutrition**

### ***Categories***

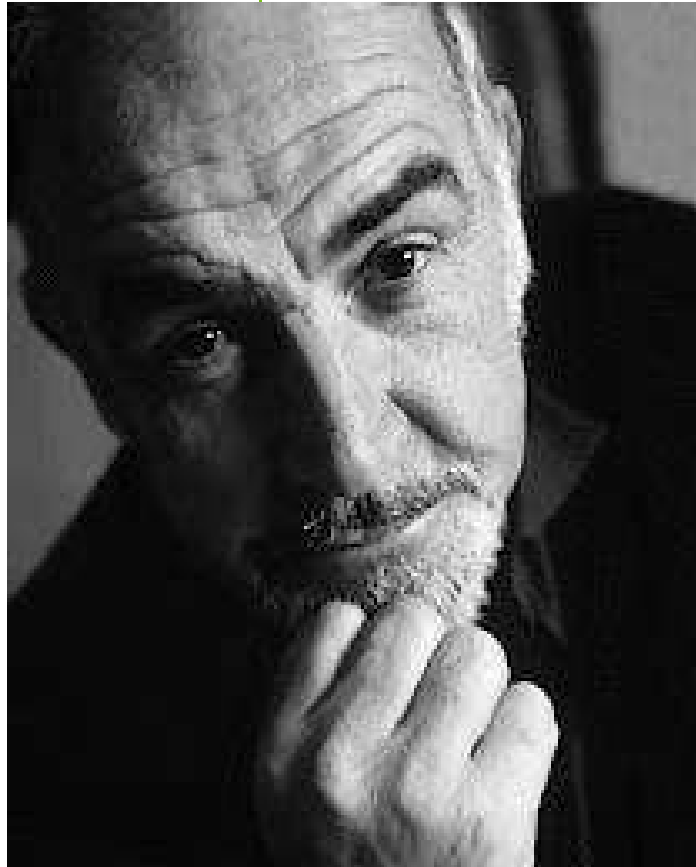
- > Community dwelling
- > Hospitalized
- > Institutionalized (nursing home)

***Burden of acute and chronic  
disease differs → Oncology  
Nutritional requirements vary***



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65 +



## **Aging = Loss**

***Muscle mass***

***Muscle strength***

***Bone mass***

***Hormone production***

## ***Co-occurrence suggests***

- > common risk factors
- > overlap in pathophysiology

## **Weight loss is common**

### ***Poor outcome***

#### ***BMI < 22***

- > higher 1-yr mortality
- > poorer functional status

#### ***BMI < 20.5 in men > 75 y***

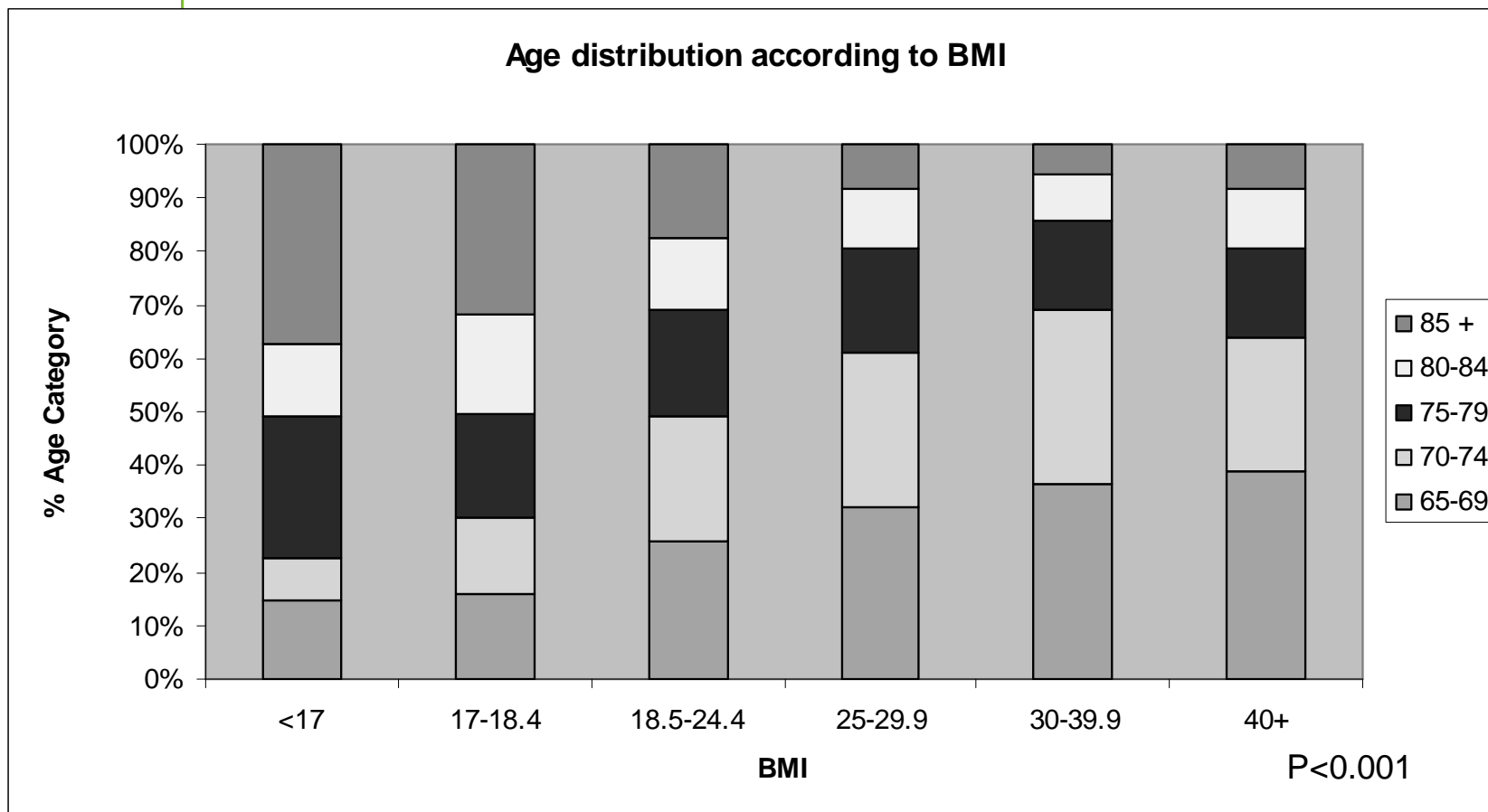
- > 20% higher mortality

#### ***BMI < 18.5 in women > 75 y***

- > 40% higher mortality.

### ***Key factor is recent weight loss***

## Age distribution in BMI class



## Age-related loss of muscle mass

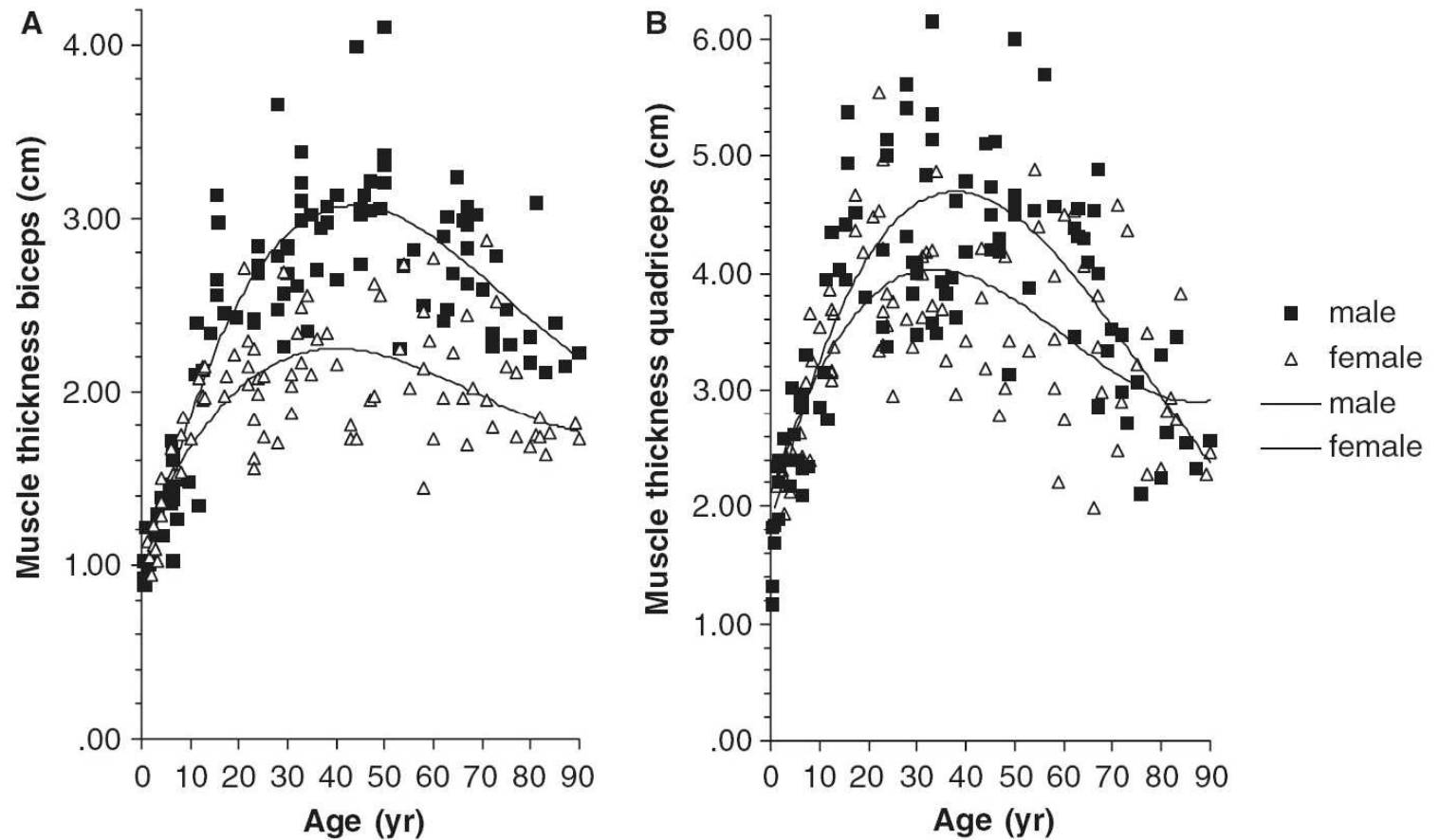
### *is clinically important*

- > diminished strength and exercise capacity
- > decline in function

**65% of older men and women cannot lift  
10 pounds using their arms**



## Age-related loss of muscle mass





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THEN



"I'll be back!"

NOW



"Oh, my back!"

## **Causes of skeletal muscle loss**

***Voluntary***

***Involuntary***

## **Causes of skeletal muscle loss**

### ***Starvation***

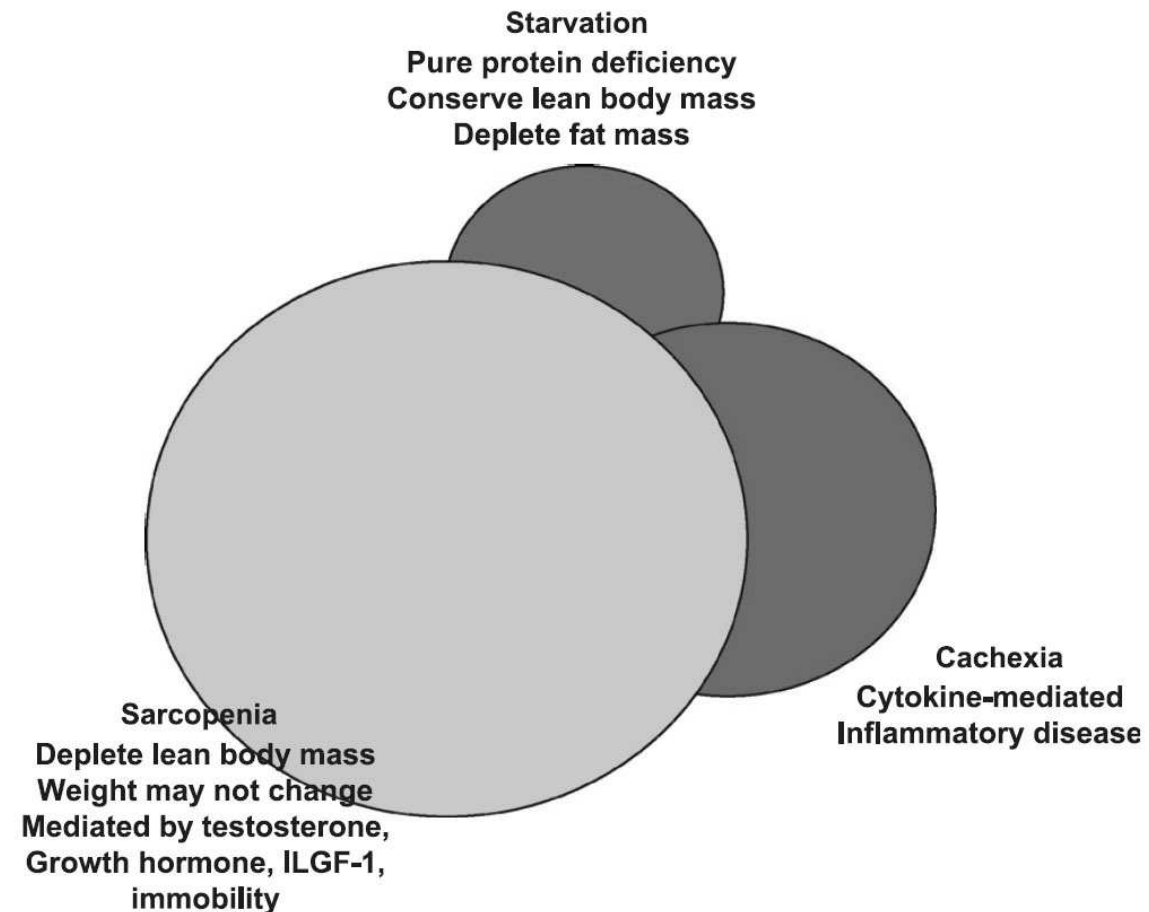
- > pure protein-energy deficiency
- > reversed by replenishment of nutrients

### ***Cachexia***

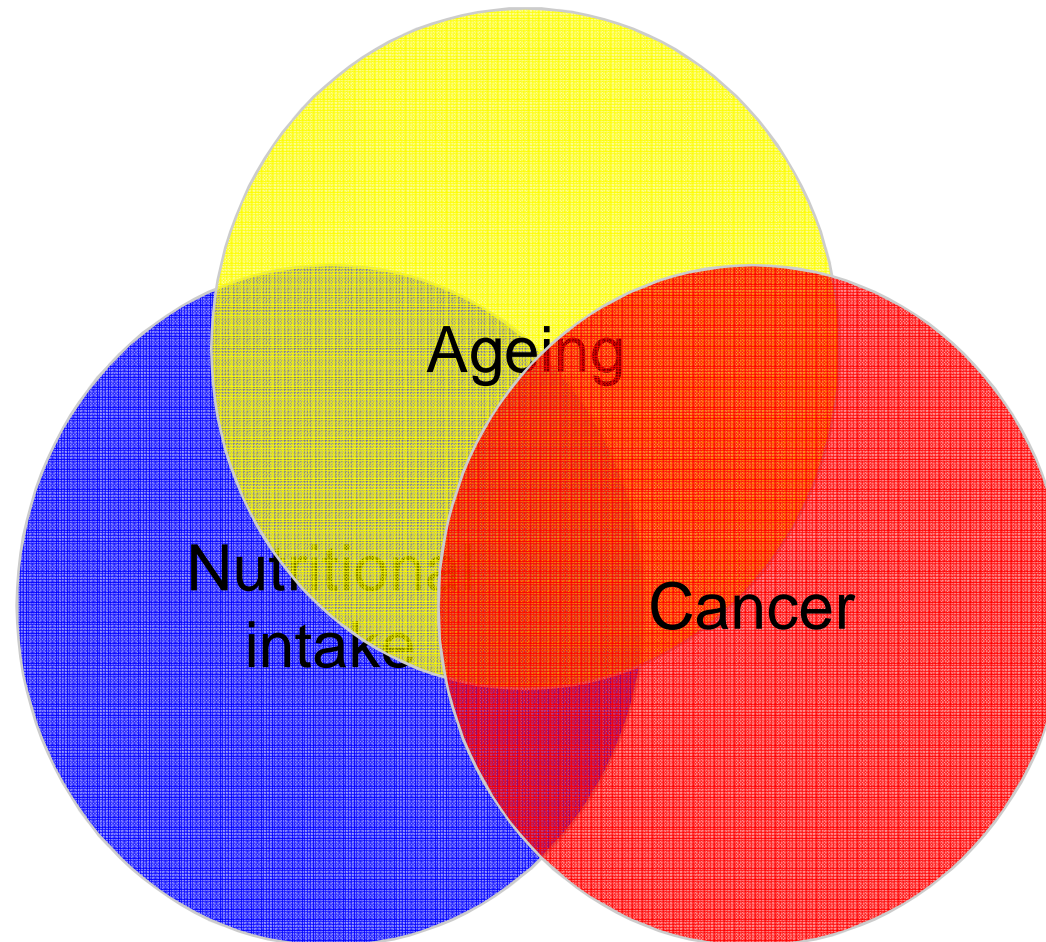
- > severe wasting
- > accompanying disease states

### ***Sarcopenia***

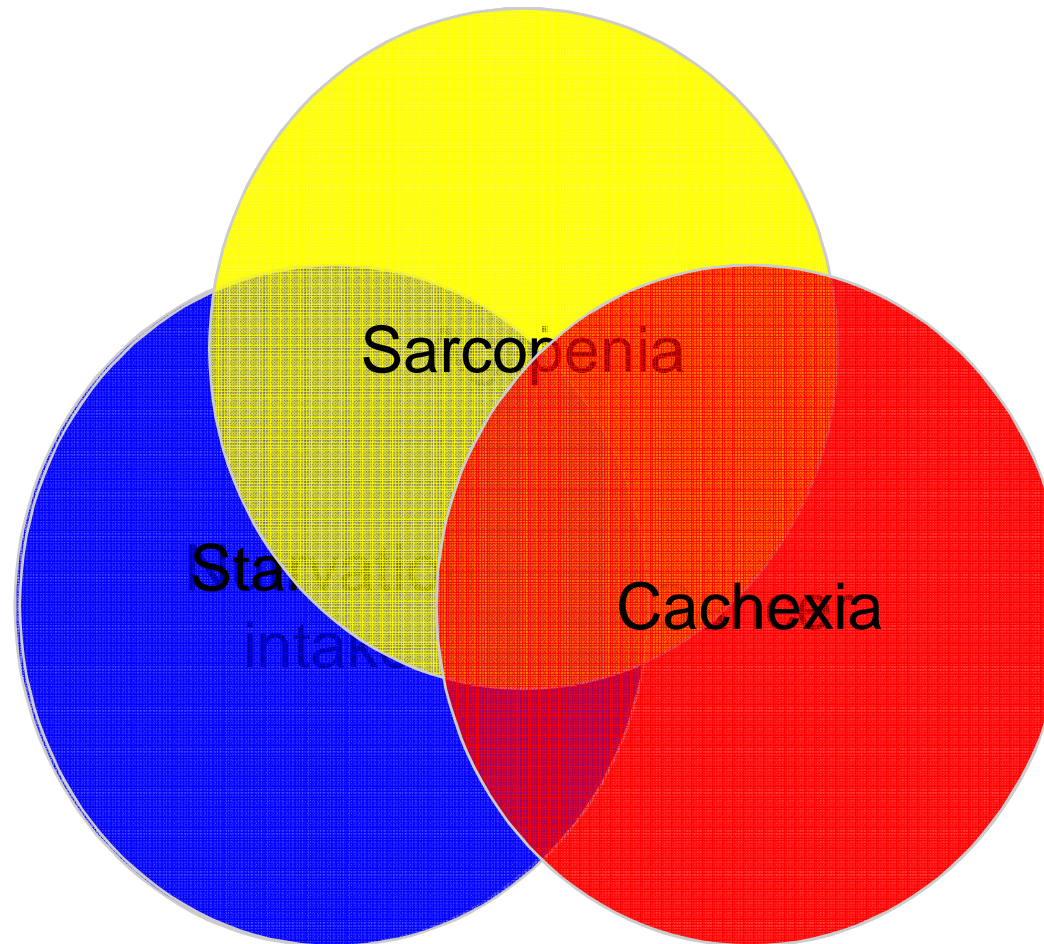
- > age-related decline in muscle mass



## In the Geriatric Oncology patient



## In the Geriatric Oncology patient



## **Nutritional Assessment**

- **to identify patients at risk**
- **to identify patients who could benefit from an intervention**
- **prognosis**
- **to evaluate the intervention**

**Screening should *increase alertness***



## Assessment

### Risk

- > General

**SNAQ: Short Nutritional Assessment**

**NRS: Nutritional Risk Score**

- > Geriatrics

**NSI: Nutrition Screening Initiative**

**MUST: Malnutrition Universal Screening Tool**

**MNA: Mini Nutritional Assessment**

### Actual nutritional status

### Pathology

- > Swallowing disorders

## SNAQ

**Did you lose weight unintentionally?**

**>6 kg in the past 6 months** **3**

**>3 kg in the past months** **2**

**Did you experience a decreased appetite  
over the past month?** **1**

**Did you use supplemental drinks or tube  
feeding over the past month?** **1**

well-nourished **1**

moderately malnourished **2**

severely malnourished **3**

## NRS

Impaired nutritional status

Severity of disease ( $\approx$  stress metabolism)

Absent Score 0	Normal nutritional status	Absent Score 0	Normal nutritional requirements
Mild Score 1	Wt loss > 5% in 3 months Or Food intake below 50–75% of normal requirement in preceding week	Mild Score 1	Hip fracture Chronic patients, in particular with acute complications: cirrhosis (11), COPD (12) <i>Chronic hemodialysis, diabetes, oncology</i>
Moderate Score 2	Wt loss > 5% in 2 months Or BMI 18.5 – 20.5+ impaired general condition Or Food intake 25–50% of normal requirement in preceding week	Moderate Score 2	Major abdominal surgery (13–15). Stroke (16) <i>Severe pneumonia, hematologic malignancy</i>
Severe Score 3	Wt loss > 5% in 1 month ( $\approx$ >15% in 3 months (17)) Or BMI < 18.5+ impaired general condition (17) Or Food intake 0–25% of normal requirement in preceding week in preceding week.	Severe Score 3	Head injury (18, 19) Bone marrow transplantation (20) <i>Intensive care patients (APACHE 10)</i>

Score:

Total score:

Calculate the total score:

1. Find score (0–3) for Impaired nutritional status (only one: choose the variable with highest score) and Severity of disease ( $\approx$  stress metabolism, i.e. increase in nutritional requirements).
2. Add the two scores ( $\Rightarrow$  total score)
3. If age  $\geq$  70 years: add 1 to the total score to correct for frailty of elderly
4. If age-corrected total  $\geq$  5: start nutritional support

## NSI

	YES
I have an illness or condition that made me change the kind and/or amount of food I eat.	2
I eat fewer than 2 meals per day.	3
I eat few fruits or vegetables, or milk products.	2
I have 3 or more drinks of beer, liquor or wine almost every day.	2
I have tooth or mouth problems that make it hard for me to eat.	2
I don't always have enough money to buy the food I need.	4
I eat alone most of the time.	1
I take 3 or more different prescribed or over-the-counter drugs a day	1
Without wanting to, I have lost or gained 10 pounds in the last 6 months.	2
I am not always physically able to shop, cook, and/or feed myself.	2
Total	

Total The Nutritional Score. If It's

0-2	Good! Recheck nutritional score in 6 months
3-5	You are at moderate nutritional risk. Recheck nutritional score in 3 months.
6 or more	You are at high nutritional risk. Talk with your physician or dietitian.

**Step 1**  
BMI score

+

**Step 2**  
Weight loss score

+

**Step 3**  
Acute disease effect score

BMI kg/m <sup>2</sup>	Score
>20(>30 Obese)	= 0
18.5-20	= 1
<18.5	= 2

Unplanned weight loss in past 3-6 months	
%	Score
<5	= 0
5-10	= 1
>10	= 2

If patient is acutely ill **and** there has been or is likely to be no nutritional intake for >5 days  
**Score 2**

*If unable to obtain height and weight, see reverse for alternative measurements and use of subjective criteria*

**Step 4**

**Overall risk of malnutrition**

Add Scores together to calculate overall risk of malnutrition  
 Score 0 Low Risk    Score 1 Medium Risk    Score 2 or more High Risk

## **MNA**

- **Antropometric measurements**
- **Global evaluation**
- **Diet**
- **Subjective assessment**

## **MNA**

### **Screening**

> 6 items

> If positive (11 points or below): go to

### **Assessment**

## TOTAL SCORE (max. 30 points)

Score	Risk
$\geq 24$	None
$17 \leq \text{score} < 24$	At risk of malnutrition
$< 17$	Malnourished



## **Problems in Geriatric patients**

**Validation of instruments  
not in older people (SNAQ)  
age as riskfactor (NRS)**

## **Problems in Geriatric patients**

### **Validation of instruments**

#### **Anthropometry**

- > Bedridden patients
- > Mobility problems
- > Body length is not constant



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## BMI?

Age	75	31
Weight	56	56
Length	132	157
BMI	32.1	22.7

BMI is doubtful  
parameter in older  
people



## **Problems in Geriatric patients**

### **Validation of instruments**

### **Anthropometry**

### **Social and psychic factors**

- > Subjective impression
- > Dementia - depression

## Conclusion

- **Nutritional assessment should be part of routine evaluation of the geriatric oncology patient**
- **Nutritional assessment should be framed in a larger CGA (comprehensive geriatric assessment) addressing several functional domains**

## Conclusion

- **Difference should be made between assessment of risk and actual nutritional status**
- **Body weight assessment with specific attention to unintended weight loss is essential**
- **BMI should be interpreted with caution (overestimation due to shorter body length)**

## Conclusion

**Increased alertness**



**Subjective global assessment**



**Willingness for early intervention**

