



PROGRAMMA SCIENTIFICO

SOCIETÀ MEDICA DI SANTA MARIA NUOVA



Giornate Mediche di Santa Maria Nuova 2015

VII EDIZIONE

L'ECCELLENZA DELLE CURE IN OSPEDALE: Santa Maria Nuova si confronta con la sua storia e con l'Innovazione

2 - 3 Ottobre 2015

Sala Verde - Palazzo Incontri - Banca CR Firenze
Via de' Pucci, 1 - Firenze

II SESSIONE

Approccio diagnostico terapeutico multimarker

Moderatori: A. Lagi; F. Veneziani

- 13,50 Introduzione
F. Veneziani
- 14,00 Marcatori: diagnosi e profilo di rischio
C. Scapellato
- 14,20 La terapia oncologica "mirata"
L. Fioretto
- 14,40 Marker e nutrizione perioperatoria
A. Pinto
- 15,00 Genetica della malattia diabetica
C. Baggione
- 15,20 "Finestra sul cortile di Santa Maria Nuova":
Percorsi endocrinologici nella ASF
C. Pupilli
- 15,35 "Finestra sul cortile di Santa Maria Nuova":
Genetica Medica
E. Pelo

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SAPIENZA
UNIVERSITÀ DI ROMA

Dipartimento di Medicina Sperimentale

Sezione di Fisiopatologia Medica, Scienza dell'Alimentazione ed Endocrinologia



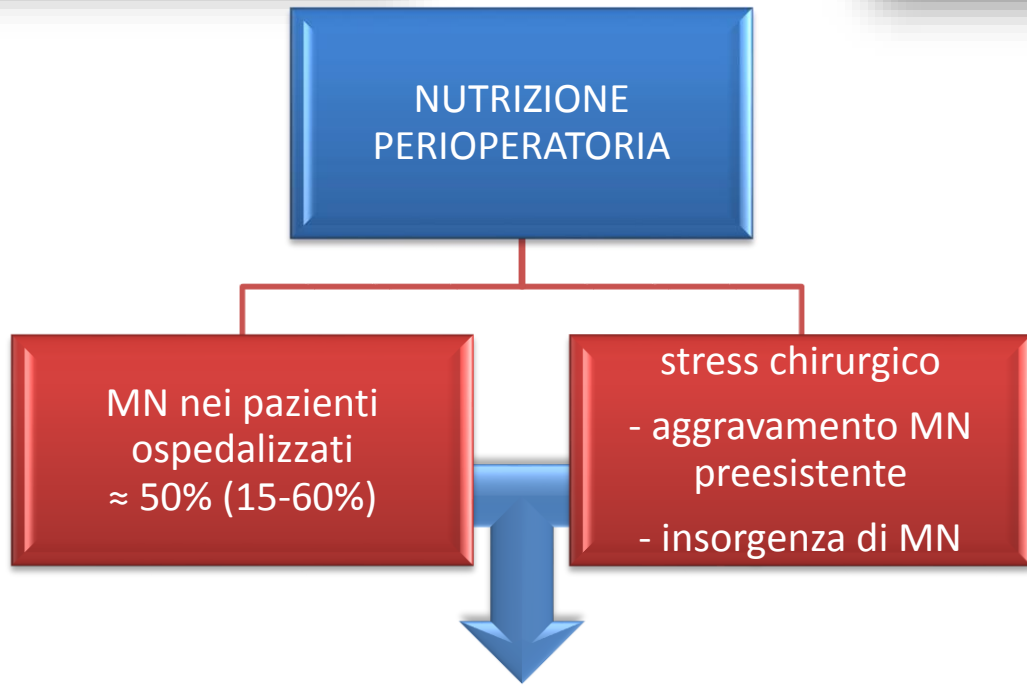
Nutrition Optimization Prior to Surgery

David C. Evans, MD¹; Robert G. Martindale, MD, PhD²; Laszlo N. Kiraly, MD²; and Christopher M. Jones, MD³

Consensus Statement: Academy of Nutrition and Dietetics and American Society for Parenteral and Enteral Nutrition: Characteristics Recommended for the Identification and Documentation of Adult Malnutrition (Undernutrition)

Jane V. White, PhD, RD, FADA¹; Peggy Guenter, PhD, RN²; Gordon Jensen, MD, PhD, FASPN³; Ainsley Malone, MS, RD, CNSC⁴; Marsha Schofield, MS, RD⁵; the Academy Malnutrition Work Group; the A.S.P.E.N. Malnutrition Task Force; and the A.S.P.E.N. Board of Directors

- metabolic perturbations from inflammatory or neoplastic disease,
- altered nutrient utilization secondary to the metabolic state,
- poor access to adequate nutrition, or
- alimentary track dysfunction.



hypermetabolism can last for weeks or months after major surgery or trauma, entailing significant protein losses of lean body mass, primarily from muscle

Nutrition goals

to provide caloric and nitrogenous support for wound healing and to avoid excessive loss of lean body mass;
 modulating inflammation and the immune response,
 optimizing glucose control,
 attenuating the hypermetabolic response to surgery
 providing micro- and macronutrients to optimize healing and recovery.



Nutrition Optimization Prior to Surgery

Nutrition in Clinical Practice
Volume 29 Number 1
February 2014 10-21
American Society
of Parenteral and Enteral Nutrition
10.1177/0885066613517006

David G. Kluge, MD, PhD, and Charles J. Martindale, MD, PhD, MD²

overall mortality

other infectious complications

increased morbidity

surgical site infections

Numerous studies have shown a clear association between malnutrition and poor surgical outcomes

increased hospital stay

central line-associated bloodstream infections

increased intensive care unit (ICU) admissions

delayed wound healing

- ✓ A randomized prospective trial of >1000 patients was assessed using a simple screening tool (Nutrition Risk Score (NRS-2002)). Patients deemed to be at high nutritional risk were randomized to either standard of care or preoperative nutrition intervention. Despite the screening tool, the preoperative nutrition intervention group reported to have decreased morbidity by 50%.
- ✓ According to a review of prospective randomized clinical trials have reported a decrease in complications as well as decreased length of hospital and ICU stay, and a mortality benefit has been shown.





Consensus Statement
 Journal of Parenteral and Enteral Nutrition
 Volume 36 Number 3
 May 2012 275-283
 © 2012 American Society for Parenteral and Enteral Nutrition and the Academy of Nutrition and Dietetics
 DOI: 10.1177/0148607112448285
 http://jpen.sagepub.com
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 http://online.sagepub.com
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In 1996, The Joint Commission mandated that nutrition screening be accomplished within 24 hours of admission.

- 1) valutazione preoperatoria dello stato di nutrizione (markers SdN)
- 2) nutrizione perioperatoria
- 3) monitoraggio (markers SdN)



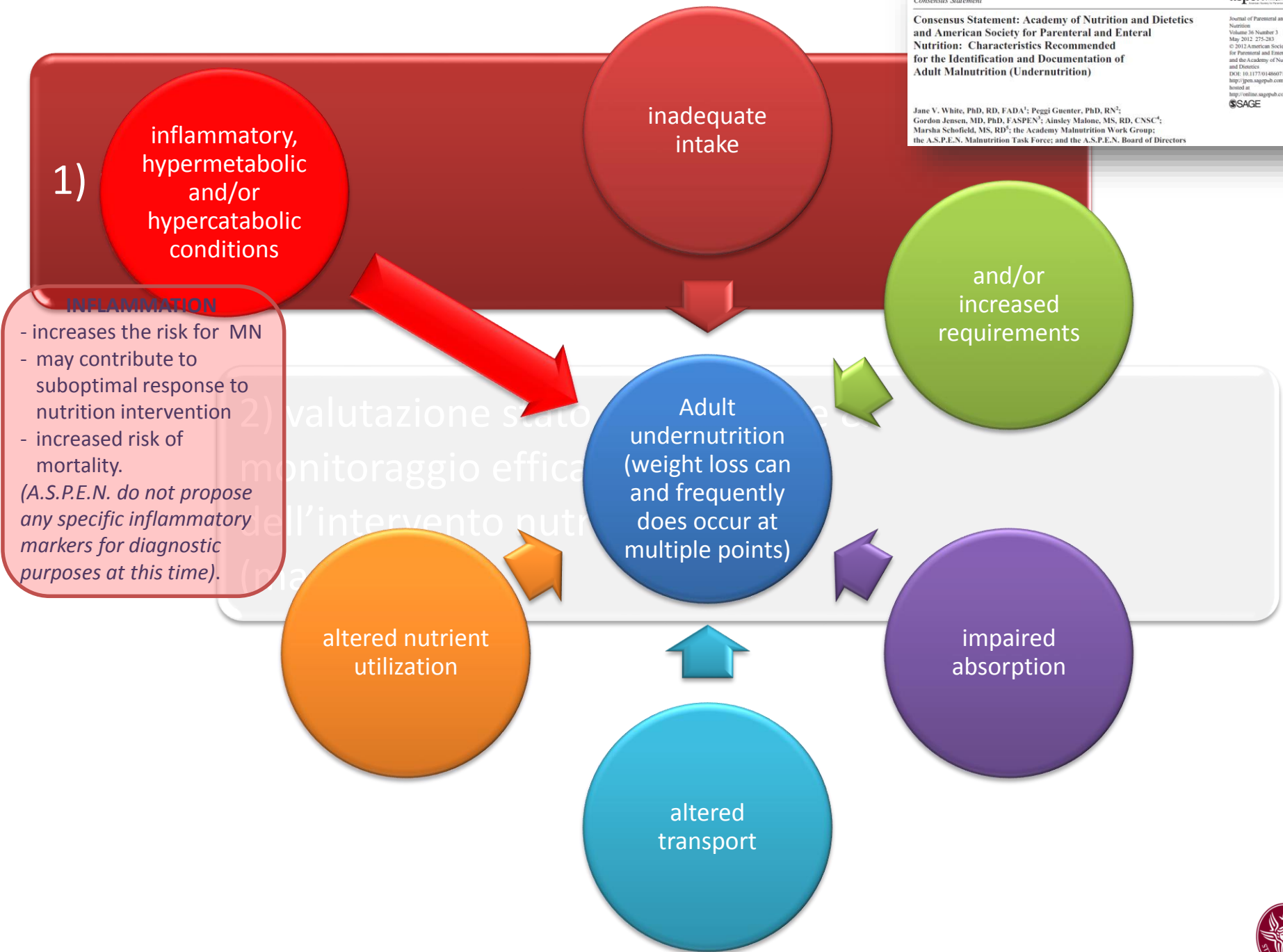
1) malnutrizione



2) valutazione stato di nutrizione &
monitoraggio efficacia
dell'intervento nutrizionale
(markers)

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1) malnutrizione

Clinical Nutrition 34 (2015) 335–340
Contents lists available at ScienceDirect
Clinical Nutrition
journal homepage: <http://www.elsevier.com/locate/clnu>

ELSEVIER

ESPEN endorsed recommendation
Diagnostic criteria for malnutrition – An ESPEN Consensus Statement
T. Cederholm ^{a,*}, I. Bosaeus ^b, R. Barazzoni ^c, J. Bauer ^d, A. Van Gossum ^e, S. Klek ^f,
M. Muscaritoli ^g, I. Nyulasi ^h, J. Ockenga ⁱ, S.M. Schneider ^j, M.A.E. de van der Schueren ^{k,l},
P. Singer ^m

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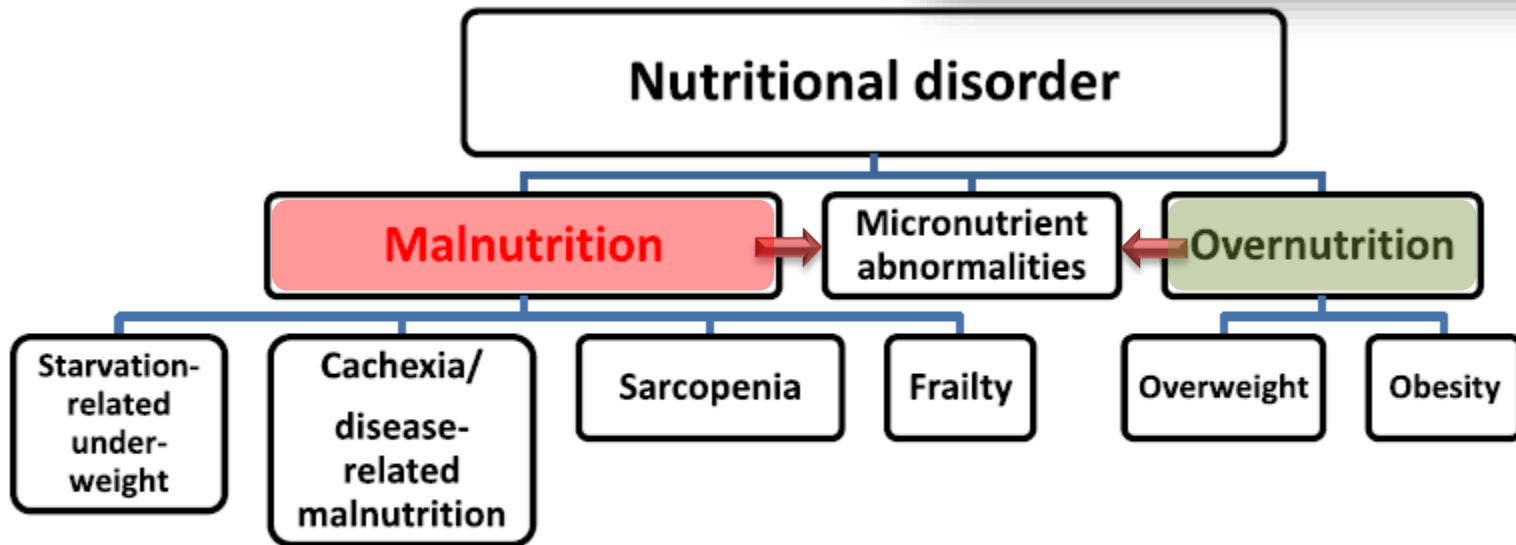


Fig. 3. A conceptual tree of nutritional disorders.

↑ RISCHIO DI COMPLICANZE/MORTALITÀ PERIOPERATORIE



	underlying chronic disease	body weight	body fat	muscle mass	muscle strength	anorexia	metabolic alterations	inflammatory status
pre-cachexia	yes	Unintentional ↓ 5% of usual BW during the last 6 months		(↓)	(↓)	anorexia or anorexia-related symptoms food intake, <70% estimated needs	early metabolic alterations (e.g. IGT, anaemia, related to inflammation or hypoalbuminemia)	chronic or recurrent systemic inflammatory response (↑ CRP)
cachexia	yes	severe ↓	severe ↓	severe ↓; the most clinically relevant feature	severe ↓	may be play a role	impaired CHO, P, FAT; protein catabolism; severe hypoalbuminemia	play a pivotal role
sarcopenia	(no)		(↑ %)	↓	↓		(yes)	(yes)
sarcopenic obesity	(no)	↑	↑	↓	↓		(yes)	(yes)

Cachexia is to be considered the result of the complex interplay between underlying disease, disease-related metabolic alterations and, in some cases, the reduced availability of nutrients (because of reduced intake, impaired absorption and/or increased losses, or a combination of these).

Sarcopenic obesity may be the consequence of insulin resistance, physical inactivity and overfeeding, as it may be frequently observed in aging. An obese patient with underlying disease and unintentional 5% weight loss, may well be pre-cachectic, despite his still elevated BMI value. Diagnosis of precachexia in obese patients may indeed be particularly difficult because an increase in fat mass may obscure a loss of lean body mass. These patients therefore carry the risk of null or delayed appropriate metabolic intervention.

Muscaritoli M, et al. Consensus definition of sarcopenia, cachexia and pre-cachexia: joint document elaborated by Special Interest Groups (SIG) "cachexia-anorexia in chronic wasting diseases" and "nutrition in geriatrics. Clin Nutr 2010;29:154

Cederholm T, et al. Diagnostic criteria for malnutrition - An ESPEN Consensus Statement. Clin Nutr. 2015 Jun;34(3):335-40



REPORT

Sarcopenia: European consensus on definition and diagnosis

Report of the European Working Group on Sarcopenia in Older People

ALFONSO J. CRUZ-JENTOFT¹, JEAN PIERRE BAEYENS², JURGEN M. BAUER³, YVES BOIRIE⁴,
TOMMY CEDERHOLM⁵, FRANCESCO LANDI⁶, FINBARR C. MARTIN⁷, JEAN-PIERRE MICHEL⁸,
YVES ROLLAND⁹, STÉPHANE M. SCHNEIDER¹⁰, EVA TOPINKOVÁ¹¹, MAURITS VANDEWOUDE¹²,
MAURO ZAMBONI¹³

Table 1. Criteria for the diagnosis of sarcopenia

Diagnosis is based on documentation of criterion 1 plus (criterion 2 or criterion 3)

1. Low muscle mass
2. Low muscle strength
3. Low physical performance

Clinical Nutrition xxx (2010) 1–6

Contents lists available at ScienceDirect

Clinical Nutrition

journal homepage: <http://www.elsevier.com/locate/clnu>

Original Article

Consensus definition of sarcopenia, cachexia and pre-cachexia: Joint document elaborated by Special Interest Groups (SIG) “cachexia-anorexia in chronic wasting diseases” and “nutrition in geriatrics”

M. Muscaritoli^{a,*}, S.D. Anker^{b,n}, J. Argilés^{c,n}, Z. Aversa^{a,n}, J.M. Bauer^{d,o}, G. Biolo^{e,n}, Y. Boirie^{f,o},
I. Bosaeus^{g,o}, T. Cederholm^{h,o}, P. Costelli^{i,n}, K.C. Fearon^{l,n}, A. Laviano^{a,n}, M. Maggio^{k,o},
F. Rossi Fanelli^{a,n}, S.M. Schneider^{l,o}, A. Schols^{m,n}, C.C. Sieber^{d,o}

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P. Singer^m

Muscle mass decrease is directly responsible for functional impairment with negative clinical consequences on loss of muscle strength, respiratory function (reduced vital capacity), functional status, disability risk, increased likelihood of falls and loss of autonomy and quality of life.

During a metabolic stress situation muscle protein is rapidly mobilized in order to provide the immune system, liver and gut with amino acids, especially glutamine. The sarcopenic subject has a decreased availability of such protein depotes.





Review

Sarcopenic obesity: A Critical appraisal of the current evidence

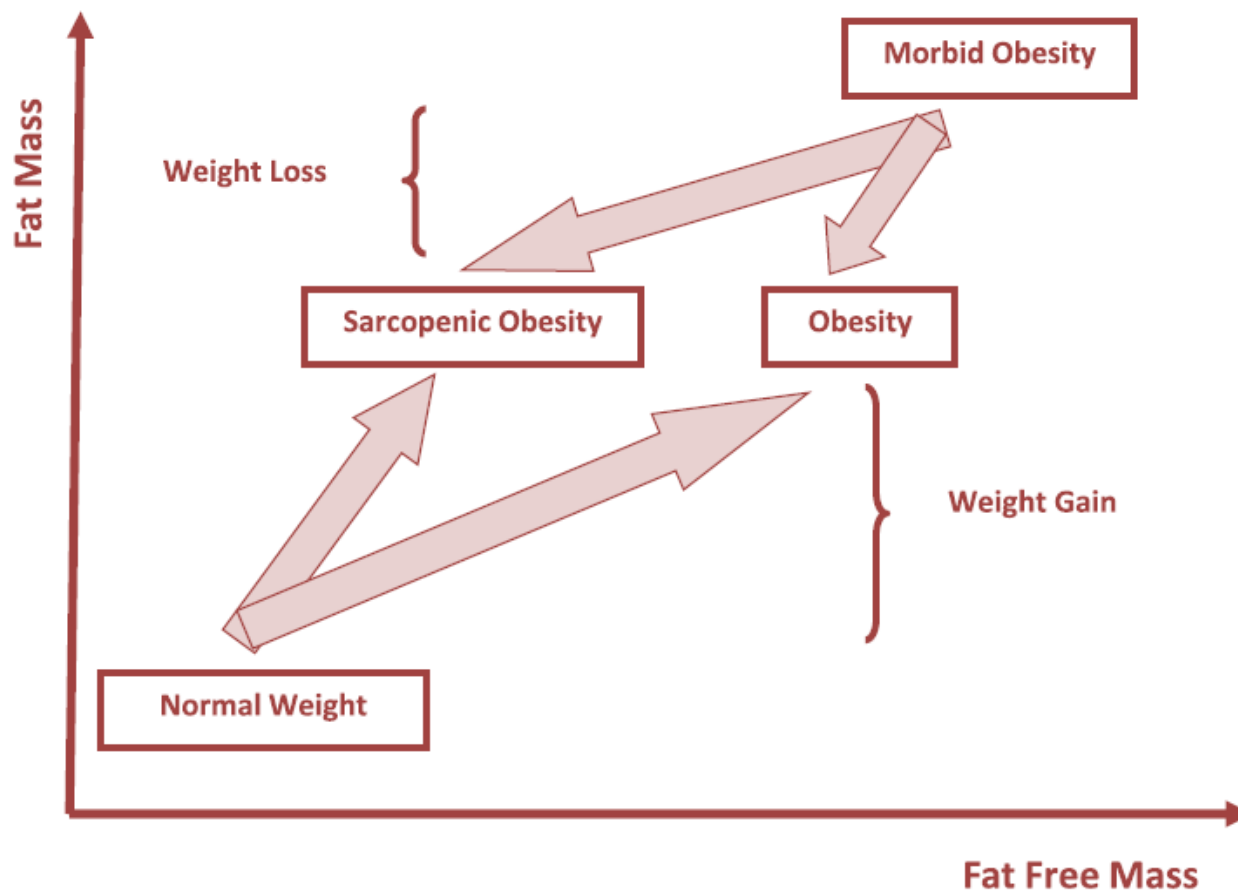
C.M.M. Prado^a, J.C.K. Wells^b, S.R. Smith^c, B.C.M. Stephan^d, M. Siervo^{e,*}

Fig. 1. Hypothetical metabolic scenarios conducive to the onset of the same sarcopenic obese phenotype but derived from two different metabolic trajectories, i.e., weight gain and weight loss.



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Nutrition in Clinical Practice
Volume 29 Number 1
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DOI: 10.1177/0884533613517006
ncj.sagepub.com
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- ✓ Obesity, for example, is categorized as malnutrition of chronic disease with inflammation.
- ✓ It is not uncommon to see sarcopenia in this population group. Sarcopenia is usually associated with the geriatric population, where decreased functional and hormonal imbalances are present, but it is also seen in the obese, who are subject to the same imbalances.
- ✓ **Sarcopenic obesity is common in the bariatric population; this results in a dramatic increase in perioperative morbidity, including an increased need for postoperative ventilator support, increased duration of ICU stay, and worsening infectious complications.**
- ✓ **Although obesity is most commonly associated with macronutrient excess, it is reported that at least 15%–20% of obese patients may be nutritionally deficient in at least one micronutrient.**



Best Practice Updates for Multidisciplinary Care in Weight Loss Surgery

Caroline M. Apovian¹, Sue Cummings², Wendy Anderson¹, Loren Borud³, Kelly Boyer³, Kristina Day³, Edward Hatchigian³, Barbara Hodges⁴, Mary E. Patti⁵, Mark Pettus⁶, Frank Perna¹, Daniel Rooks³, Edward Saltzman⁷, June Skoropowski³, Michael B. Tantillo³, and Phyllis Thomason³





The EL3 evidence base supporting the high prevalence rates and need for systematic preoperative assessment and treatment of nutrient insufficiencies/deficiencies is primarily represented by surveillance studies, case series, and case reports. Additions to this evidence base since the 2008 AACE-TOS-ASMBSCPG ([EL4,CPG]) support this recommendation.

Table 5
Preoperative Checklist for Bariatric Surgery*


- ✓ Complete H & P (obesity-related co-morbidities, causes of obesity, weight/BMI, weight loss history, commitment, and exclusions related to surgical risk)
- ✓ Routine labs (including fasting blood glucose and lipid panel, kidney function, liver profile, lipid profile, urine analysis, prothrombin time/INR, blood type, CBC)
- ✓ Nutrient screening with iron studies, B₁₂ and folic acid (RBC folate, homocysteine, methylmalonic acid optional), and 25-vitamin D (vitamins A and E optional); consider more extensive testing in patients undergoing malabsorptive procedures based on symptoms and risks
- ✓ Cardiopulmonary evaluation with sleep apnea screening (ECG, CXR, echocardiography if cardiac disease or pulmonary hypertension suspected; DVT evaluation if clinically indicated)
- ✓ GI evaluation (H pylori screening in high-prevalence areas; gallbladder evaluation and upper endoscopy if clinically indicated)
- ✓ Endocrine evaluation (A_{1c} with suspected or diagnosed prediabetes or diabetes; TSH with symptoms or increased risk of thyroid disease; androgens with PCOS suspicion (total/bioavailable testosterone, DHEAS, Δ₄-androstenedione); screening for Cushing's syndrome if clinically suspected (1 mg overnight dexamethasone test, 24-hour urinary free cortisol, 11 PM salivary cortisol)
- ✓ Clinical nutrition evaluation by RD
- ✓ Psychosocial-behavioral evaluation
- ✓ Document medical necessity for bariatric surgery
- ✓ Informed consent
- ✓ Provide relevant financial information
- ✓ Continue efforts for preoperative weight loss
- ✓ Optimize glycemic control
- ✓ Pregnancy counseling
- ✓ Smoking cessation counseling
- ✓ Verify cancer screening by primary care physician

*Jeffrey I. Mechanick, M.D et al. AACE/TOS/ASMBS Guidelines.
Surgery for Obesity and Related Diseases 9 (2013) 159–191*

* See text for abbreviations.



1) malnutrizione



2) valutazione stato di nutrizione &
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(markers)



A variety of nutrition screening and assessment tools are available. They consist of historical and physical examination data, such as :

BMI
weight loss history,
fat store loss,
muscle wasting,
laboratory data: lymphocyte count and serum
levels of albumin, prealbumin, and cholesterol.



The large prospective Preoperative Risk Assessment Study conducted by the U.S. Department of Veterans Affairs reported that **the single most valuable predictor of poor outcome was a serum albumin level <3.0 g/dL**. Visceral proteins are important as predictors of risk but are not indicative of actual measures of malnutrition per se.

Although several nutrition **screening tools** are available and validated in nonsurgical and geriatric patient populations, to date **the only validated assessment method for surgical patients is the NRS-2002.10 (Nutrition Risk Screening)**.

Other nutrition assessments, such as the NRS-2002, guide the practitioner to initiate a nutrition care plan in the perioperative period for patients who meet sufficient scores based on weight loss, reduced intake, and illness.





Management of perioperative nutrition support

Robert G. Martindale and Linda L. Maerz

Current Opinion in Critical Care 2006, 12:290–294

- Albumin levels are an accurate and inexpensive indicator of potential morbidity and the best single indicator of postoperative complications.
- Despite the availability of numerous global assessment tools, visceral proteins (albumin, transferrin, prealbumin, and retinol-binding protein) and various combinations of the two, no single assessment tool or laboratory value consistently yields information that would change nutritional practice in the acute setting.
- Recent data using the ratio of prealbumin (half-life, 48 h) and C-reactive protein may be of some value. C-reactive protein has a half-life of 8 h and is altered minimally by perioperative interventions. The ratio of prealbumin and C-reactive protein may indicate when the patient starts to produce visceral proteins as the inflammatory response wanes.



Table 1. Nutrition Risk Screening (NRS) 2002. Note: This table is reproduced and adapted with permission from [30], Copyright © 2003 Elsevier Ltd.

Nutritional Risk Scoring (NRS)			
<i>Initial Screening</i>			
		Yes	No
Is BMI < 20.5?			
Has the patient lost weight within the last 3 months?			
Has the patient reduced dietary intake in the last week?			
Is the patient severely ill (e.g., in intensive therapy)?			
Yes: If the answer is “Yes” to any question, the final screening is performed.			
No: If the answer is “No” to all questions, the patient is re-screened at weekly intervals. If the patient, e.g., is scheduled for a major operation, a preventative nutritional care plan is considered to avoid the associated risk status.			
<i>Final Screening</i>			
	<i>Impaired Nutritional Status</i>		<i>Severity of Disease (≈Increase in Requirements)</i>
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 *, COPD *. Chronic hemodialysis, diabetes, oncology
Moderate Score 2	Wt loss >5% in 2 months or BMI 18.5–20.5+ impaired general condition or food intake 25%–60% of normal requirement in preceding week		Moderate Score 2 Major abdominal surgery * Stroke * Severe pneumonia, hematologic malignancy
Severe Score 3	Wt loss >5% in 1 month (>15% in 3 months) or BMI > 18.5+ impaired general condition or Food intake 0%–25% of normal requirement in preceding week in preceding week.		Severe Score 3 Head injury * Bone marrow transplantation * Intensive care patients (APACHE410)
Score	+	Score	=Total score:
Score ≥3: The patient is nutritionally at-risk and a nutritional care plan is initiated.			
Score <3: Weekly rescreening of the patient. If the patient, e.g., is scheduled for a major operation, a preventive nutritional care plan is considered to avoid the associated risk status.			
* Indicates that a trial directly supports the categorization of patients with that diagnosis.			



REPORT

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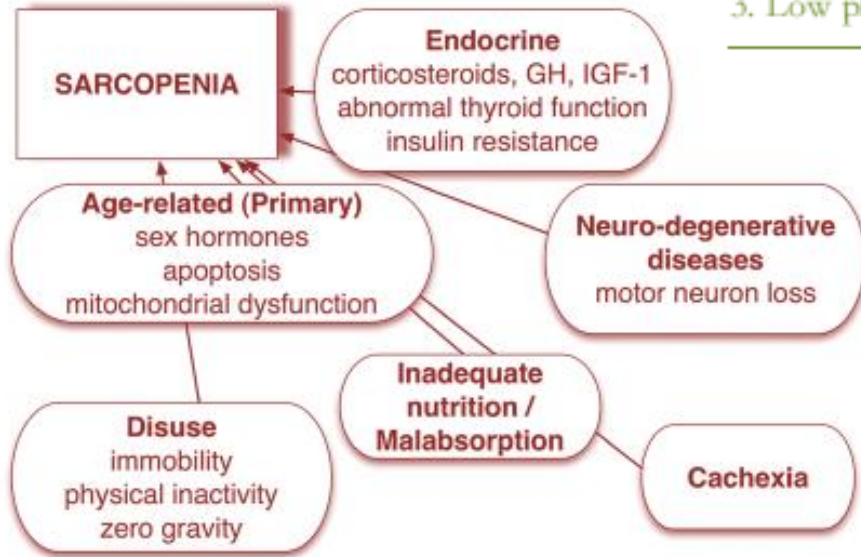


Figure 1. Mechanisms of sarcopenia.

Table 1. Criteria for the diagnosis of sarcopenia

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1. Low muscle mass
2. Low muscle strength
3. Low physical performance

Table 2. Sarcopenia categories by cause

Primary sarcopenia

Age-related sarcopenia No other cause evident except ageing sarcopenia

Secondary sarcopenia

Activity-related sarcopenia Can result from bed rest, sedentary lifestyle, deconditioning or zero-gravity conditions
 Disease-related sarcopenia Associated with advanced organ failure (heart, lung, liver, kidney, brain), inflammatory disease, malignancy or endocrine disease
 Nutrition-related sarcopenia Results from inadequate dietary intake of energy and/or protein, as with malabsorption, gastrointestinal disorders or use of medications that cause anorexia



REPORT

Sarcopenia: European consensus and diagnosis

Report of the European Working Group on Sarcopenia
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 MAURO ZAMBONI¹³

Table 4. Measurements of muscle mass, strength, and function in research and practice^a

Variable	Research	Clinical practice
Muscle mass	Computed tomography (CT) Magnetic resonance imaging (MRI) Dual energy X-ray absorptiometry (DXA) Bioimpedance analysis (BIA) Total or partial body potassium per fat-free soft tissue	BIA DXA Anthropometry
Muscle strength	Handgrip strength Knee flexion/extension Peak expiratory flow	Handgrip strength
Physical performance	Short Physical Performance Battery (SPPB) Usual gait speed Timed get-up-and-go test Stair climb power test	SPPB Usual gait speed Get-up-and-go test

^aPlease refer to the text for a description and references on these measurement techniques.

Table 3. EWGSOP conceptual stages of sarcopenia

Stage	Muscle mass	Muscle strength	Performance
Presarcopenia	↓		
Sarcopenia	↓	↓	Or ↓
Severe sarcopenia	↓	↓	↓



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© 2012 American Society for Parenteral and Enteral Nutrition and the Academy of Nutrition and Dietetics
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Because no single parameter is definitive for adult malnutrition, the identification of 2 or more of the following 6 characteristics is recommended for diagnosis:

- **Insufficient energy intake**
- **Weight loss**
- **Loss of muscle mass**
- **Loss of subcutaneous fat**
- **Localized or generalized fluid accumulation that may sometimes mask weight loss**
- **Diminished functional status as measured by handgrip strength.**

The characteristics listed are continuous rather than discrete variables. The characteristics listed should be routinely assessed on admission and at frequent intervals throughout the patient's stay in an acute, chronic, or transitional care setting.



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Current Opinion in Critical Care 2006, 12:290–294

- Nutrient delivery in the immediate perioperative period has been the subject of numerous randomized trials, meta-analyses, review articles and editorial opinions. Yet several questions remain.
- *Which patients will benefit?*
- *What is the optimal route of nutrition support?*
- *When should nutrients be delivered for optimal results?*
- *What and how much nutrient should be given?*



*“Concerto all’alba”
Ravello, 2014*

Grazie per l'attenzione



Alessandro Pinto

