

Thank you for joining the webinar! 

Addressing Sarcopenia and Protein-Energy Malnutrition Through Dietary Management

Presented by:
Liz Friedrich, MPH, RDN, CSG, LDN, FAND

For **Call-in information**, go to 'Event Info' tab in the **upper left corner** of your screen.


The webinar will begin shortly.

Addressing Sarcopenia and Protein-Energy Malnutrition Through Dietary Management

Liz Friedrich, MPH, RDN, CSG, LDN, FAND
June 27, 2017



About our speaker



Liz Friedrich, MPH, RDN, CSG, LDN, FAND


Addressing Sarcopenia and Protein-Energy Malnutrition Through Dietary Management

Liz Friedrich, MPH, RDN, CSG, LDN, FAND
June 27, 2017



4


Objectives



- State the criteria used to identify protein-energy malnutrition
- Define sarcopenia and sarcopenic obesity
- Understand protein needs for healthy older adults and older adults with diagnoses common in residents in long-term care
- State at least three interventions that can be used to increase protein available to residents in long-term care

5


Polling Question



What is your role?

- A. RDN or NDTR in a skilled nursing, assisted living, CCRC, rehab, or hospice facility
- B. Certified Dietary Manager in a skilled nursing, assisted living, CCRC, rehab, or hospice facility
- C. Nursing Home Administrator or Residential Care/Assisted Living Administrator
- D. RN, DON, ADON
- E. Other

6

Protein Basics 

Proteins


- Are made up of amino acids (AA), which are attached to one another in long chains

Proteins

- Do most of the work in cells
- Are required for the structure, function, and regulation of the body's tissues and organs

Baronski S, Ayello EA. Wound Care Essentials: Practice Principles. 4th ed. Walters Kluwer; 2016.
Escott-Stump S. Nutrition and Diagnosis-Related Care. 8th edition. Wolters Kluwer; 2015.

7

Protein Basics 

Proteins


- There are 20 different types of amino acids that can be combined to make a protein.


Proteins

- The sequence of amino acids determines each protein's unique structure and its specific function.

Baronski S, Ayello EA. Wound Care Essentials: Practice Principles. 4th ed. Walters Kluwer; 2016.
Escott-Stump S. Nutrition and Diagnosis-Related Care. 8th edition. Wolters Kluwer; 2015.

8


Protein Functions 




- Build muscle, ligaments, skin cells, blood
- Draw fluid into the capillary bed
- Transport lipids, vitamins, minerals, and oxygen
- Form antibodies, which keep the immune system functioning

Baronski S, Ayello EA. Wound Care Essentials: Practice Principles. 4th ed. Walters Kluwer; 2016.


9


Protein Functions 

- Maintain the body fluid balance by producing albumin and globulin.
- Without sufficient protein in the blood stream, edema can develop.
- Contribute to the acid-base balance by producing acids and bases, keeping the blood pH slightly alkaline (pH 7.35 to 7.45).



Baronski S, Ayello EA. Wound Care Essentials: Practice Principles. 4th ed. [Wound Care]. 2008.
Escott-Stump S. Nutrition and Disease-Related Care. 8th edition. Wound Care. 2013.


Dietary Protein as an Energy Source 



Dietary protein can be used as an energy source.

If a diet lacks enough carbohydrate, dietary protein can be used to synthesize glucose.


Demling RH. Nutrition, Anabolism, and Wound Healing Process: An Overview. *Eplasty*. Feb 3, 2009. 11

Dietary Protein as an Energy Source 


Under normal circumstances, dietary protein is used for protein synthesis in the body rather than for energy.

In periods of stress, 25-30% of the amino acids consumed are misused, going to produce fuel (energy) in the body rather than for protein synthesis.

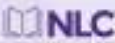
Demling RH. Nutrition, Anabolism, and Wound Healing Process: An Overview. *Eplasty*. Feb 3, 2009. 12

Dietary Protein as an Energy Source 

When dietary protein is used as an energy source rather than for protein synthesis, the result is a loss of lean body mass (LBM).




Demling RH. Nutrition, Anabolism, and Wound Healing Process: An Overview. *Eplasty*. Feb 3, 2009. 13

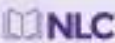
High Biological Value (HBV) Protein 

The protein digestibility corrected amino acid score (PDCAAS) is an international standard for determining the quality of a protein.

- Represents the adequacy of its most limiting amino acid.
- Food and supplements with a PDCAAS of 1.0 or 100% are HBV proteins.



Schaafsma G. The protein digestibility-corrected amino acid score. *J Nutr*. 2000. 13(7):1865S-1867S. 14

High Biological Value (HBV) Proteins 

Food Source	Biological Value
Whey protein	104
Egg	100
Cow's milk	95
Beef	80
Fish	79
Casein	77
Soybean	74

Escott-Stump S. *Nutrition and Diagnosis-Related Care*. 8th edition. Wolters Kluwer; 2015. 15

Amino Acid Categories

Indispensable (Essential)

- Histidine
- Isoleucine
- Leucine
- Lysine
- Methionine
- Phenylalanine
- Threonine
- Tryptophan
- Valine

Dispensable (Non-Essential)

- Alanine
- Aspartic acid
- Asparagine
- Glutamic acid
- Serine

Dietary Reference Intakes for Energy, Carbohydrate, Fiber, Fat, Fatty Acids, Cholesterol, Protein, and Amino Acids (Macronutrients). The National Academies Press; 2005. *Information updated after the live event

Conditionally Indispensable AA

- Arginine
- Cysteine
- Glutamine
- Glycine
- Proline
- Tyrosine

Dietary Reference Intakes for Energy, Carbohydrate, Fiber, Fat, Fatty Acids, Cholesterol, Protein, and Amino Acids (Macronutrients). The National Academies Press; 2005. *Information updated after the live event


Branched-Chain Amino Acids (BCAA)



Refers to chemical structure of 3 amino acids

- Leucine
- Isoleucine
- Valine

- BCAA are found in any food containing protein
- Leucine is being researched for its role in maintaining muscle mass and muscle protein synthesis


Bauer J, Biolo G, Cederholm T, et al. Evidence-based recommendations for optimal dietary protein intake in older people: a position paper from the PROT-AGE Study group. J Am Med Dir Assoc. 2013;14(8):592-599

Food Sources of Leucine 

- ✓ Soybeans
- ✓ Beef
- ✓ Peanuts
- ✓ Salmon
- ✓ Wheat germ
- ✓ Almonds
- ✓ Chicken
- ✓ Eggs
- ✓ Legumes


National Institute of Child Health and Human Development, U.S. Department of Agriculture. Archived from the original on 17 March 2017. Retrieved from Wikidata on June 17, 2017. 19

Protein-Energy Malnutrition (PEM) 


One study (based on the Mini-Nutrition Assessment) cites the risk of malnutrition at 47-62% of older adults in long-term care.

- Deficiency of both protein and energy (calories)
- Results in a defective utilization of nutrients
- Negative nitrogen balance
- Results in a loss of lean body mass

Bell CL, Tamura BK, Masaki KH, Et al. Factors associated with weight loss, low BMI, and malnutrition among nursing home patients: a systematic review of the literature. *J AM Med Dir Assoc.* 2013;14(2):94-100. 20
Demling RH. Nutrition, Anabolism, and Wound Healing Process: An Overview. *Eplasty.* Feb 3, 2009.

Lean Body Mass (LBM) 

- Maintained by:
 - Genetic drive to maintain protein stores
 - Anabolic hormones that stimulate protein synthesis
 - Resistance exercise
 - Adequate protein in diet to meet demands
- Body weight is made up lean body mass and body fat
- A patient can be overweight but depleted of lean body mass



Demling RH. Nutrition, Anabolism, and Wound Healing Process: An Overview. *Eplasty.* Feb 3, 2009. 21

Loss of Lean Body Mass (LBM)

NLC

Leads to:


- Inability to heal and recover from surgery, illness, or disease
- Loss of independence
- Decreased strength and energy
- Increased risk of falls and fractures
- Impaired wound healing
- Reduced respiratory muscle strength in patients with COPD

Demling RH. Nutrition, Anabolism, and Wound Healing Process: An Overview. *Plasty*. Feb 3, 2009.
Santilli V, Bernetti A, Magone M, et al. Clinical definition of sarcopenia. *Clinical Cases in Mineral and Bone Metabolism*. 2014;11(3):177-180.

Identifying PEM

NLC

- Lab values (albumin, prealbumin) are not good indicators of PEM because they:
 - Are negative acute-phase reactants
 - Rise and fall in inflammation
- Inflammation is a result of many acute and chronic medical conditions
- Many patients in LTC have conditions (both acute and chronic) that cause inflammation




White JV, Guenter P, Jensen G, Malone A, Schofield M. Consensus Statement of the Academy of Nutrition and Dietetics/ASPEN: Characteristics Recommended for the Identification and Documentation of Adult Malnutrition (Undernutrition). *J Acad Nutr Diet* 2012;112:730-738.


Albumin and Prealbumin

NLC

- Do not automatically improve with nutrition intervention
- Are no longer considered accurate for identifying PEM
- Are indicators of increased morbidity and mortality
- Are still used by some clinicians to diagnose mild, moderate, and severe malnutrition




24

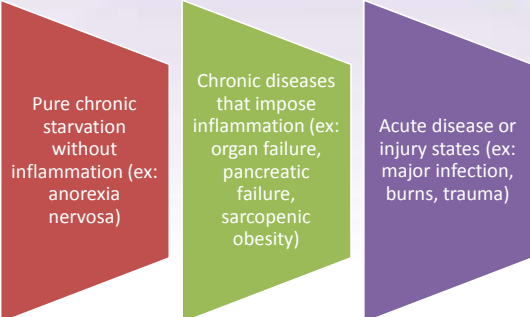
Polling Question 

In your estimation, what percentage of the MDs, NPs, and PAs that you work with use albumin as an indicator of malnutrition?

- A. 0-25%
- B. 25-50%
- C. 50-75%
- D. 75-100%

25

Etiology-Based Malnutrition 




Pure chronic starvation without inflammation (ex: anorexia nervosa)

Chronic diseases that impose inflammation (ex: organ failure, pancreatic failure, sarcopenic obesity)


Acute disease or injury states (ex: major infection, burns, trauma)


Jensen GL, Mirtallo J, Compher C et al. Adult Starvation and Disease-Related Malnutrition: A Proposal for Etiology-Based Diagnosis in the Clinical Practice Setting From the International Consensus Guideline Committee. *JPEN* 14(2):159-159, 2010. 26

2012 Update 


- The American Society of Parenteral and Enteral Nutrition (ASPEN) and the Academy of Nutrition and Dietetics (Academy) released proposed criteria to identify malnutrition.
- Published simultaneously in *JPEN* and *J Acad Nutr Diet* in 2012

White JV, Guenter P, Jensen G, Malone A, Schofield M. Consensus Statement of the Academy of Nutrition and Dietetics/ASPEN: Characteristics Recommended for the Identification and Documentation of Adult Malnutrition (Undernutrition). *J Acad Nutr Diet* 2012;112:730-738. 27


Academy/ASPEN Consensus Statement 



Malnutrition in the context of acute illness or injury




Malnutrition in the context of chronic disease



Malnutrition in the context of social/environmental circumstances


White JV, Guenter P, Jensen G, Malone A, Schofield M. Consensus Statement of the Academy of Nutrition and Dietetics/ASPEN: Characteristics Recommended for the Identification and Documentation of Adult Malnutrition (Undernutrition). *J Acad Nutr Diet*. 2012;112:730-738. 28

ASPEN/Academy Consensus Statement 

Outlines a standardized set of diagnostic criteria to identify and document adult malnutrition in routine clinical practice

1. Insufficient energy intake
2. Weight loss
3. Loss of muscle mass
4. Loss of subcutaneous fat
5. Localized or generalized fluid accumulation that could mask weight loss
6. Diminished functional status as measured by hand grip strength

White JV, Guenter P, Jensen G, Malone A, Schofield M. Consensus Statement of the Academy of Nutrition and Dietetics/ASPEN: Characteristics Recommended for the Identification and Documentation of Adult Malnutrition (Undernutrition). *J Acad Nutr Diet*. 2012;112:730-738. 29

ASPEN/Academy Consensus Statement 

Diagnosis is based on a comprehensive assessment that includes:

- History and clinical diagnosis
- Physical exam
- Anthropometric data
- Laboratory data
- Food/nutrient intake
- Functional assessment


White JV, Guenter P, Jensen G, Malone A, Schofield M. Consensus Statement of the Academy of Nutrition and Dietetics/ASPEN: Characteristics Recommended for the Identification and Documentation of Adult Malnutrition (Undernutrition). *J Acad Nutr Diet*. 2012;112:730-738. 30

Diagnosis of Malnutrition

A comprehensive nutrition assessment can be used to identify malnutrition

A comprehensive assessment should include, if possible:

- Nutrition focused physical assessment
- Diminished functional status, as measured by hand grip strength




31

Recommended Laboratory Data

- C-reactive protein
- White blood count (indicator of infection, trauma, etc.)
- Blood glucose
- Nitrogen balance
- Electrolytes and other indicators of dehydration

Every blood draw for lab results requires a patient to be stuck with a needle



White JV, Guenter P, Jensen G, Malone A, Schofield M. Consensus Statement of the Academy of Nutrition and Dietetics/ASPEN: Characteristics Recommended for the Identification and Documentation of Adult Malnutrition (Undernutrition). *J Acad Nutr Diet* 2012;112:730-738. 32

Estimating Protein Needs

- Nitrogen balance
 - Compares nitrogen (protein) intake to output
 - Calculated using a 24-hour urine test
- Mathematical calculations

How do *you* estimate protein needs?

Charney P, Malone A. *Academy of Nutrition and Dietetics Pocket Guide to Nutrition Assessment*. 3rd ed. Chicago IL: Academy of Nutrition and Dietetics; 2016. 33

Protein Needs

Condition	Protein Needs (g/kg) Academy Pocket Guide to Nutrition Assessment	Protein Needs (g/kg) Recent literature
Healthy adult	0.8	
Older adult > 65 years	1.0	1.0-1.2* PROT-AGE study
Pressure injury	1.25-1.5	
Liver disease/cirrhosis	1.2-1.6	
CKD predialysis	0.6-0.8	
CKD hemodialysis	1.2-1.3	
CKD peritoneal dialysis	>1.3	
Critical illness	1.5-2.0	
Sarcopenia		1.0-1.5 ** Morley

*Bauer J, Biolo G, Cederholm T, et al. Evidence-based recommendations for optimal dietary protein intake in older people: a position paper from the PROT-AGE Study group. *J Am Med Dir Assoc.* 2013;14(8):542-555. 34
**Morley JE. Hormones and sarcopenia. *Curr Pharm Des.* 2017. [Epub ahead of print].
Cawston P, Malone A. *Academy of Nutrition and Dietetics Pocket Guide to Nutrition Assessment*. 3rd ed. Chicago, IL: Academy of Nutrition and Dietetics; 2016.

Meal Distribution

- Research suggests that protein intake should be evenly distributed throughout the day to maximize protein synthesis


Paddon-Jones D, Rasmussen BB. Dietary protein recommendations and the prevention of sarcopenia. *Current Opin Clin Nutr Metabol Care.* 2009;12(1):86-90. 35

PROT-AGE Study Group

The amount of additional dietary protein or supplemental protein needed depends on the disease, its severity, the patient's nutritional status prior to disease, and the disease impact on the patient's nutritional status.


- Most older adults who have an acute or chronic disease need more dietary protein (**1.2-1.5 g/kg/day**)
- People with severe illness or injury or with marked malnutrition may need as much as **1.0 g/kg/day**.

Bauer J, Biolo G, Cederholm T, et al. Evidence-based recommendations for optimal dietary protein intake in older people: a position paper from the PROT-AGE Study group. *J Am Med Dir Assoc.* 2013;14(8):542-555. 36


PROT-AGE Study Group 

Older people with severe CKD (estimated GFR < 30 mL/min/1.73 m²) who are not on dialysis are an exception to the high-protein rule; these individuals need to limit protein intake.

Use clinical judgment to determine protein needs of those with CKD who are not on dialysis




Bauer J, Biolo G, Cederholm T, et al. Evidence-based recommendations for optimal dietary protein intake in older people: a position paper from the PROT-AGE Study group. *J Am Med Dir Assoc.* 2013;14(8):542-559. 37

PROT-AGE Recommendations 

➤ Patients with CKD, Non-dialysis

Non-Dialysis	Hemodialysis	Peritoneal Dialysis
Severe CKD (GFR< 30): 0.8 g/kg/day	>1.2 g/kg/day, up to 1.5 g/kg/day	>1.2 g/kg/day, up to 1.5 g/kg/day
Moderate CKD (GFR 30-<60): >0.8 g/kg/day, monitor GFR		
Mild CKD, GFR> 60: Increase protein as needed		


Bauer J, Biolo G, Cederholm T, et al. Evidence-based recommendations for optimal dietary protein intake in older people: a position paper from the PROT-AGE Study group. *J Am Med Dir Assoc.* 2013;14(8):542-559. 38

Protein Needs BMI ≥30 

- For obese critically-ill patients, the Academy *Pocket Guide for Nutrition Assessment* recommends
 - 1.9 g/kg IBW obesity class I or II with trauma
 - 2.5 g/kg IBW obesity class III with trauma


- Critically ill patients are in a controlled environment so nitrogen balance can be monitored

Charney P, Malone A. *Academy of Nutrition and Dietetics Pocket Guide to Nutrition Assessment*. 3rd ed. Chicago IL: Academy of Nutrition and Dietetics; 2016. 39


Practical Advice BMI \geq 30 

- Using actual body weight results in a very high number of grams/day
- Using **adjusted** body weight, **desirable** body weight, or **ideal** body weight may seem logical but is not supported by research

What does that number really mean?




40


Practical Advice BMI \geq 30 

Use clinical judgement, based on comorbidities and goals of care

- Document the method used to estimate protein needs
- Indicate that due to obesity, needs may be difficult to determine



41

Conditions in LTC that May Affect Protein Needs 

- Chronic kidney disease
- Liver disease
- Adult failure to thrive/anorexia of aging
- Protein-energy malnutrition
- Pressure injuries and other wounds
- Sarcopenia


Neidert K, Carlson M, eds. Nutrition Care of the Older Adult: A Handbook for Nutrition Throughout the Continuum of Care. Chicago IL: Academy of Nutrition and Dietetics; 2016. 42

Sarcopenia

NLC

“Loss of muscle mass that occurs with aging”

“Syndrome characterized by progressive and generalized loss of skeletal muscle mass and strength with a risk of adverse outcomes such as physical disability, poor quality of life, and death.”




Santilli V, Bernetti A, Magone M, et al. Clinical definition of sarcopenia. *Clinical Cases in Mineral and Bone Metabolism*. 2014;11(3):177-180. 43

Sarcopenia

NLC

Definitions proposed by the European Working Group on Sarcopenia in Older People

- Primary sarcopenia
 - Refers to muscle wasting related to aging
- Secondary sarcopenia
 - Refers to muscle loss related to disuse, inflammation, or malnutrition



Santilli V, Bernetti A, Magone M, et al. Clinical definition of sarcopenia. *Clinical Cases in Mineral and Bone Metabolism*. 2014;11(3):177-180.

Sarcopenia

NLC


- 5-13% of 60-70 year olds
- 11-50% in those ≥ 80 years old
- Over 50% of healthy, ambulatory, community-dwelling adults over 80

Associated with catabolism


Can be aggravated by low-grade production of inflammatory cytokines in chronic disease (malnutrition of chronic disease)

Santilli V, Bernetti A, Magone M, et al. Clinical definition of sarcopenia. *Clinical Cases in Mineral and Bone Metabolism*. 2014;11(3):177-180. 45

Sarcopenia



- No specific biomarkers or clinical indices to diagnose
- Anthropometric assessment may overlook the diagnosis
- Characterized by low muscle mass plus low muscle strength or low physical performance




Identification:

- Measurement of walking speed in the elderly with muscle mass and hand grip strength
- DEXA (dual-energy x-ray absorptiometry), CT (computed tomography) or MRI (magnetic resonance imaging)

Santilli V, Bernetti A, Magone M, et al. Clinical definition of sarcopenia. *Clinical Cases in Mineral and Bone Metabolism*. 2014;11(3):177-180. 46

Sarcopenic Obesity



Describes obese persons with muscle loss resulting from disease or lack of use


With aging, lean body mass decreases while fat mass increases

Excess energy intake, physical inactivity, low-grade inflammation, insulin resistance, and hormonal changes play a role

Obesity and sarcopenia together can cause physical impairment, metabolic disorders, and mortality

Santilli V, Bernetti A, Magone M, et al. Clinical definition of sarcopenia. *Clinical Cases in Mineral and Bone Metabolism*. 2014;11(3):177-180. 47


Management of Sarcopenia

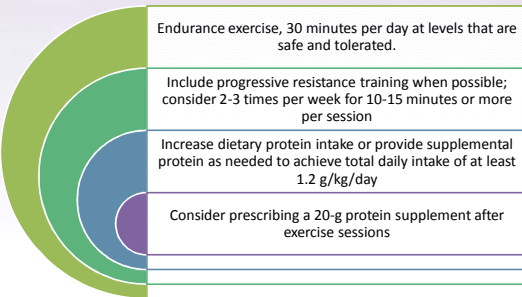


As per Morley, Argiles, et al:

- 1.0 to 1.5 grams protein/kg body weight/day
- Leucine-enriched essential amino acids
- Vitamin D replacement
- Resistance exercise to improve gait and speed
- Aerobic exercise to improve quality of life


Morley JE, Argiles JM, Evans WJ et al. Nutritional recommendations for the management of sarcopenia. *J Am Med Dir Assoc*. 2010;11(6):391-396. 48

Exercise Recommendations PROT-AGE 




- Endurance exercise, 30 minutes per day at levels that are safe and tolerated.
- Include progressive resistance training when possible; consider 2-3 times per week for 10-15 minutes or more per session
- Increase dietary protein intake or provide supplemental protein as needed to achieve total daily intake of at least 1.2 g/kg/day
- Consider prescribing a 20-g protein supplement after exercise sessions

Bauer J, Biolo G, Cederholm T, et al. Evidence-based recommendations for optimal dietary protein intake in older people: a position paper from the PROT-AGE Study group. *J Am Med Dir Assoc.* 2013;14(8):542-559. 49


Resistance Exercise 

Use rubber bands, light weights, or body weight


Must conform to abilities of each individual




50

Exercise and Protein Supplement 

Evidence supports the combination of exercise and protein/amino acid supplements for prevention and treatment of muscle loss in certain debilitating conditions and for chronic diseases such as COPD and heart failure



Bauer J, Biolo G, Cederholm T, et al. Evidence-based recommendations for optimal dietary protein intake in older people: a position paper from the PROT-AGE Study group. *J Am Med Dir Assoc.* 2013;14(8):542-559. 51

Protein or Amino Acid Supplements for Sarcopenia Management 


Dietary enrichment with leucine or a mixture of branch-chain amino acids may help enhance muscle mass and muscle function; further studies are needed.

B-Hydroxymethyl buterate (HMB) may attenuate muscle loss and increase muscle mass and strength in older people; further studies are needed.

Creatine supplementation may be justified for older people, especially those who are creatine-deficient or at high risk of deficiency

Morley JE. Hormones and sarcopenia. *Curr Pharm Des.* 2017. [Epub ahead of print].
*Information updated after the live event


52

Translating Evidence Into Practice 

Protein needs:


- 80 year old woman, 159 pounds, with sarcopenia, who dislikes chicken and fish
- At 1.0-1.5 g/kg body weight she needs 72-109 grams protein/day
- Can those needs be met without a supplement?
- What can you do to help her meet those needs?

53

Protein Intake in Older Adults 


Older adults are at high risk for inadequate protein intake

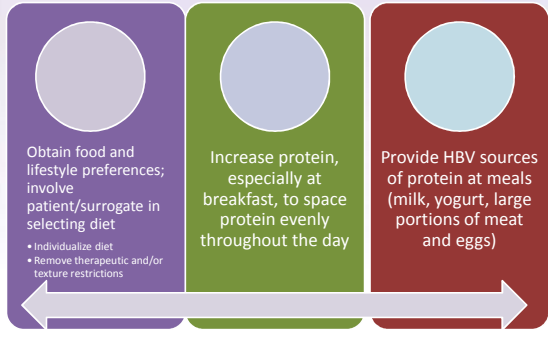
- Decreased intake associated with aging ("anorexia of aging")
- Difficulty with shopping, food prep, etc.
- Difficulty eating, chewing, or swallowing
- Cognitive issues that might affect food intake



Neidert K, Carlson M, eds. *Nutrition Care of the Older Adult: A Handbook for Nutrition Therapists.* Chicago IL: Academy of Nutrition and Dietetics; 2016.


54

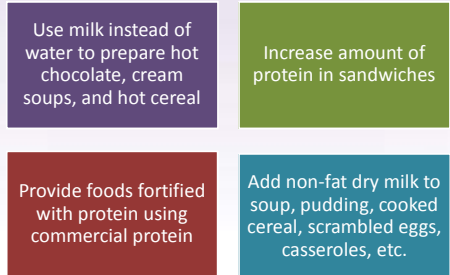
Translating Evidence Into Practice 



- Obtain food and lifestyle preferences; involve patient/surrogate in selecting diet**
 - Individualize diet
 - Remove therapeutic and/or texture restrictions
- Increase protein, especially at breakfast, to space protein evenly throughout the day**
- Provide HBV sources of protein at meals (milk, yogurt, large portions of meat and eggs)**


55

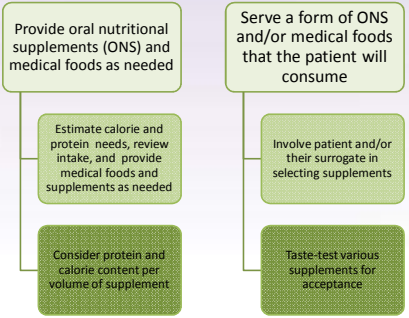
Translating Evidence Into Practice 



- Use milk instead of water to prepare hot chocolate, cream soups, and hot cereal**
- Increase amount of protein in sandwiches**
- Provide foods fortified with protein using commercial protein**
- Add non-fat dry milk to soup, pudding, cooked cereal, scrambled eggs, casseroles, etc.**


56

Translating Evidence Into Practice 



- Provide oral nutritional supplements (ONS) and medical foods as needed**
 - Estimate calorie and protein needs, review intake, and provide medical foods and supplements as needed
 - Consider protein and calorie content per volume of supplement
- Serve a form of ONS and/or medical foods that the patient will consume**
 - Involve patient and/or their surrogate in selecting supplements
 - Taste-test various supplements for acceptance

57

Timing of ONS 


Provide supplements between meals and/or with med passes to meet "standard of care"

- ONS are generally suggested to be given between meals rather than with meals

Supplement with meals to equalize protein intake throughout the day ?????

- Research indicates that that protein intake should be equally spaced throughout the day


Thomas, D.R. Guidelines for the use of oreigenic drugs in long-term care. *Nutrition in Clinical Practice*. 2006; 21(1): 82-87.
Paddon-Jones D, Rasmussen BB. Dietary protein recommendations and the prevention of sarcopenia. *Current Opin Clin Nutr Metabol Care*. 2009;12(1):86-90.

Choosing ONS 

ONS have been shown to improve strength outcomes in malnourished older adults with sarcopenia

To manage sarcopenia, consider an ONS with additional branch-chain amino acids such as leucine, if it is acceptable to the patient

Cramer JT, Cruz-Jentoft AJ, Landi F, et al. Impacts of high-protein oral nutritional supplements among malnourished men and women with sarcopenia: a multicenter, randomized, double-blind, controlled trial. *JAMDA*. 2016 (17):1044-1055.
Morley JE, Argiles JM, Evans WJ et al. Nutritional recommendations for the management of sarcopenia. *J Am Med Dir Assoc*. 2010;11(6):391-396.


Choosing ONS 

Monitor and evaluate effectiveness of supplement

- Change timing or form of supplement to meet patient's needs
- Change flavor to avoid flavor fatigue

Document if an individual declines nutrition interventions


Update care plan to reflect changes

Polling Question 

What does your facility use to assure your residents are meeting their protein needs?

- A. Medical food (low-volume, protein-dense)
- B. 4 or 8 fl oz oral nutritional supplement
- C. Protein powder
- D. Fortified foods and/or “homemade” supplements
- E. Other

61


Regulatory Requirements in LTC 

New CMS rules (March 2017) have a more intense focus on patient-centered care and care planning

State Operations Manual Appendix PP - Guidance to Surveyors for Long Term Care Facilities (Rev. 168, 03-08-17)

Download rules at <https://www.cms.gov/Regulations-and-Guidance/Guidance/Transmittals/2017Downloads/R168SOMA.pdf>

62

Regulatory Requirements in LTC 


- **Surveyors will be looking for evidence of:**
 - Resident and/or their surrogate being involved in nutrition care decisions
 - Resident exercising their right to make choices and/or refuse care
- **Include residents in decisions regarding diet and ONS**
- **Document conversations regarding a resident’s choices in medical record**

63

References 


- Baronski S, Ayello EA. *Wound Care Essentials: Practice Principles*. Wolters Kluwer. 2016.
- Bauer J, Biolo G, Cederholm T, et al. Evidence-based recommendations for optimal dietary protein intake in older people: a position paper from the PROT-AGE Study group. *J Am Med Dir Assoc*. 2013;14(8):542-559.
- Bell CL, Tamura BK, Masaki KH, Et al. Factors associated with weight loss, low BMI, and malnutrition among nursing home patients: a systematic review of the literature. *J Am Med Dir Assoc*. 2013;14(2):94-100.
- Charney P, Malone A. *Academy of Nutrition and Dietetics Pocket Guide to Nutrition Assessment*. 3rd ed. Chicago IL: Academy of Nutrition and Dietetics; 2016.
- Cramer JT, Cruz-Jentoft AJ, Landi F, et al. Impacts of high-protein oral nutritional supplements among malnourished men and women with sarcopenia: a multicenter, randomized, double-blinded, controlled trial. *JAMDA*. 2016 (17):1044-1055
- Demling RH. Nutrition, Anabolism, and Wound Healing Process: An Overview. *Eplasty*. Feb 3, 2009.
- Dietary Reference Intakes for Energy, Carbohydrate, Fiber, Fat, Fatty Acids, Cholesterol, Protein, and Amino Acids (Macronutrients). The National Academies Press; 2005.
- Escott-Stump S. *Nutrition and Diagnosis-Related Care*. 8th edition. Wolters Kluwer; 2015.
- Jensen GL, Mirtallo J, Compher C et al. Adult Starvation and Disease-Related Malnutrition: A Proposal for Etiology-Based Diagnosis in the Clinical Practice Setting From the International Consensus Guideline Committee. *JPEN* 14(2):159-159, 2010.

64

References 


- Morley JE. Hormones and sarcopenia. *Curr Pharm Des*. 2017. [Epub ahead of print].
- Morley JE. Anorexia of aging: a key component in the pathogenesis of both sarcopenia and cachexia. *Journal of Cachexia, Sarcopenia, and Muscle*. 2017. wileyonlinelibrary.com. DOI:10.1002/jcsm.1212.
- Morley JE, Argiles JM, Evans WJ et al. Nutritional recommendations for the management of sarcopenia. *J Am Med Dir Assoc*. 2010;11(6):391-396
- National Nutrient Database for Standard Reference. U.S. Department of Agriculture. Archived from the original on 3 March 2015. Retrieved from Wikipedia on June 17, 2017.
- Neidert K, Carlson M, eds. *Nutrition Care of the Older Adult: A Handbook for Nutrition Throughout the Continuum of Care*. Chicago IL: Academy of Nutrition and Dietetics; 2016.
- Paddon-Jones D, Rasmussen BB. Dietary protein recommendations and the prevention of sarcopenia. *Current Opin Clin Nutr Metabol Care*. 2009;12(1):86-90.
- Peterson SJ, Braunschweig CA. Prevalence of Sarcopenia and Associated Outcomes in the Clinical Setting. *Nutr Clin Pract*. 2016;31:40-48.
- Santarpia L, Contald F, Pisanisi F. Dietary protein content for an optimal diet: a clinical view. *J Cachexia Sarcopenia Muscle*. 2017: Wiley Online Library. doi: 10.1002/jcsm.12176.


65

References 


- Santilli V, Bernetti A, Magone M, et al. Clinical definition of sarcopenia. *Clinical Cases in Mineral and Bone Metabolism*. 2014;11(3):177-180.
- Schaafsma G. The protein digestibility-corrected amino acid score. *J Nutr*. 2000. 13(7):1865-1867.
- Thomas, D.R. Guidelines for the use of orexigenic drugs in long-term care. *Nutrition in Clinical Practice*. 2006; 21(1), 82-87.
- White JV, Guenter P, Jensen G, Malone A, Schofield M. Consensus Statement of the Academy of Nutrition and Dietetics/ASPEN: Characteristics Recommended for the Identification and Documentation of Adult Malnutrition (Undernutrition). *J Acad Nutr Diet*.2012;112:730-738.

66


Questions? 



67

CEU/CPE Instructions 

To receive your CEU/CPE Certificate:



1. Complete the webinar survey at <https://www.surveymonkey.com/r/sarcopeniaPEM>
2. Obtain the webinar code found at the end of the survey
3. Go to www.NutriciaLearningCenter.com and click on "CE Credit Request"
4. Enter the webinar code obtained
5. Certificate will be visible for download on your NLC dashboard
