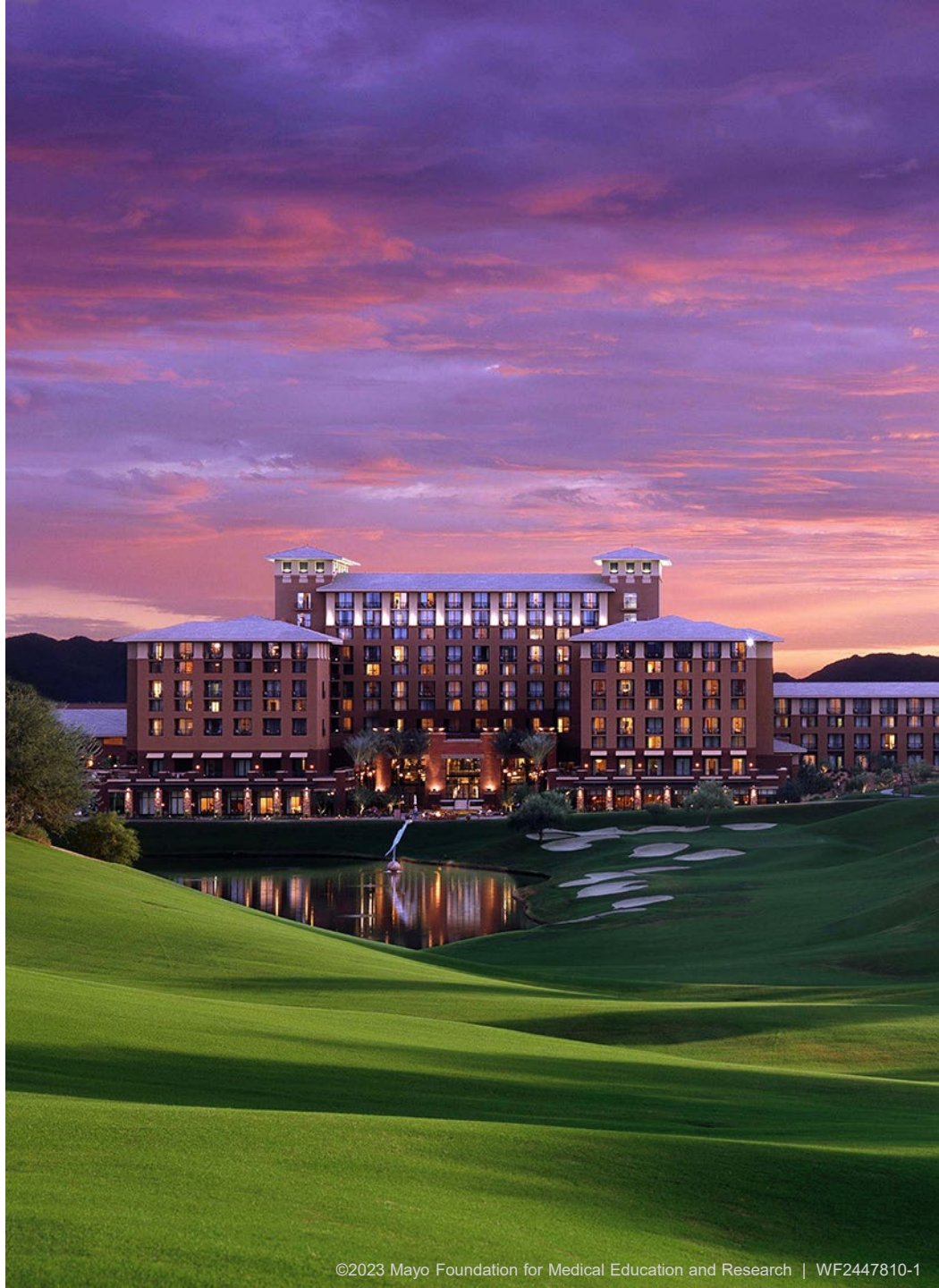
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23RD ANNUAL

NUTRITION AND WELLNESS IN HEALTH AND DISEASE 2023

September 28-30, 2023

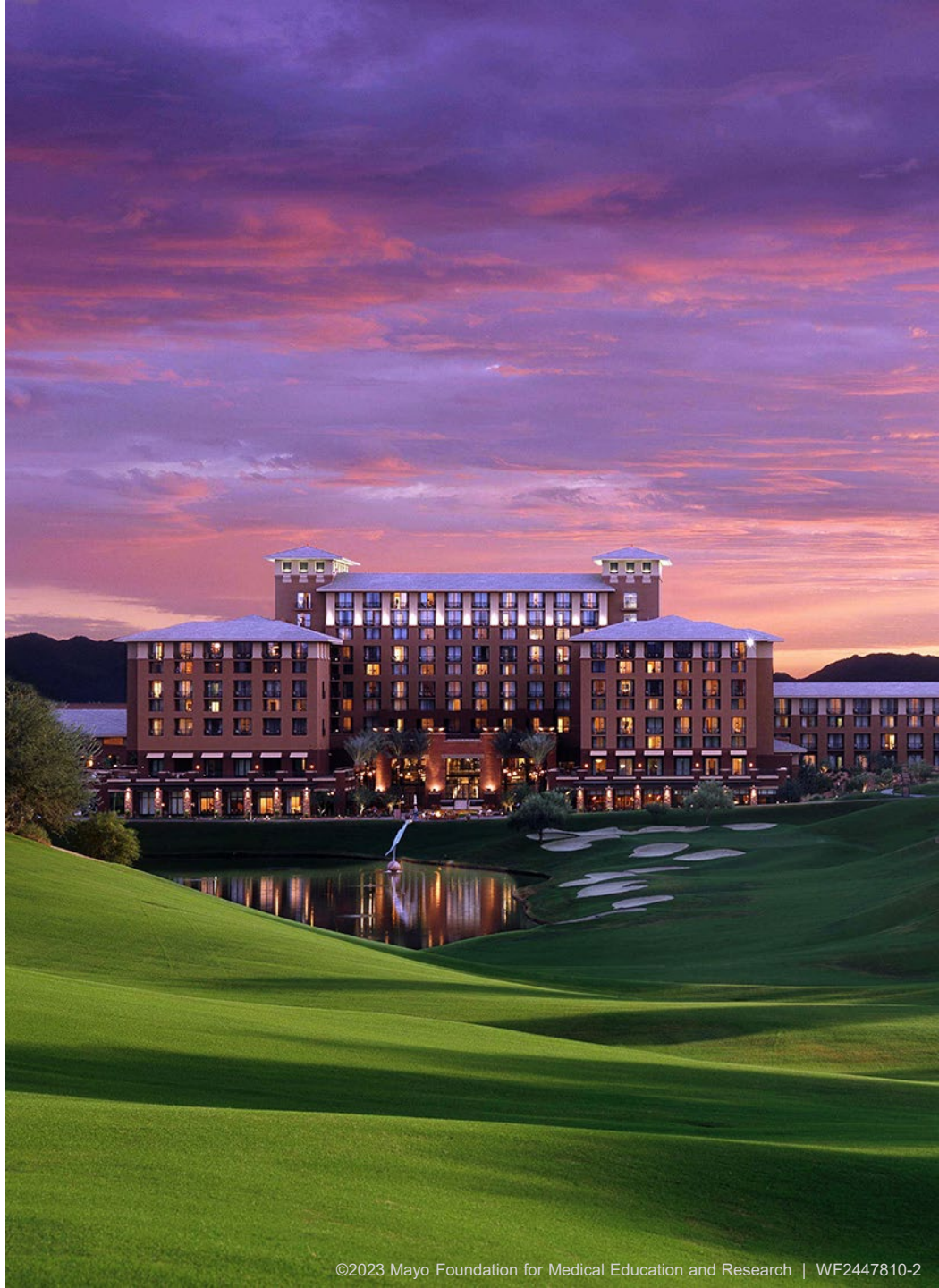


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DIET APPROACH TO MALNUTRITION

Tara M. Schmidt
M. Ed., RDN, LD



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DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIP(S) WITH INELIGIBLE COMPANIES

- Nothing to disclose

REFERENCES TO OFF-LABEL USAGE(S) OF PHARMACEUTICALS OR INSTRUMENTS

- Nothing to disclose

All relevant financial relationships have been mitigated.

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LEARNING OBJECTIVES

- Discuss nutrition interventions aimed at malnutrition
- Provide strategies for increasing the nutrient and calorie-density of foods
- Share nutrition interventions related to unintended weight loss in elderly patients

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DEFINING MALNUTRITION

- Malnutrition = a physical state of *unbalanced* nutrition, including **under**nutrition or **over**nutrition

  - Unable to meet their calorie, protein or nutrient needs

  - Inability to absorb or utilize nutrients

  + Excess energy consumption, but shortage of individual microelements



(2021, August 4). *What is malnutrition?* (E. Ellis, Ed.). Eatright.org . https://www.eatright.org/health/health-conditions/malnutrition-and-deficiencies/what-is-malnutrition

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CONSEQUENCES

- Loss of strength and function
- Increased risk of falls
- Depression
- Lethargy
- Immune dysfunction
- Increased risk of infection
- Delayed recovery from illness
- Pressure injuries
- Poor would healing
- Increased chance of hospital admission and readmission
- Increased treatment costs
- Increased mortality

Dorner, B., & Friedrich, E. K. (2018). Position of the Academy of Nutrition and Dietetics: individualized nutrition approaches for older adults: long-term care, post-acute care, and other settings. *Journal of the Academy of Nutrition and Dietetics*, *118*(4), 724-735.

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CHARACTERISTICS RECOMMENDED FOR DIAGNOSIS (AND/ASPEN)

- Two or more of the following six characteristics:
  - Insufficient energy intake
  - Unintentional weight loss
  - Decreased muscle mass
  - Decreased subcutaneous fat
  - Localized or generalized fluid accumulation (may mask weight loss)
  - Diminished functional status as measured by handgrip strength

White, J. V., Guenter, P., Jensen, G., Malone, A., & Schofield, M. (2012). ASPEN 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. *J Acad Nutr Diet*, *36*, 275-283.

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NUTRITION INTERVENTIONS AIMED AT MALNUTRITION



TAILORED NUTRITION CARE PLANS

- Identifiable underlying cause?
- Create a plan that reflects an individual's preferences and unique health needs
- Nutritional needs are determined by multiple factors:
  - Specific health problems and related organ system compromise
  - Level of activity
  - Energy expenditure
  - Caloric requirements
  - Ability to access, prepare, ingest, and digest food
  - Personal food preferences.

https://www.uptodate.com/contents/geriatric-nutrition-nutritional-issues-in-older-adults?search=malnutrition&source=search_result&selectedTitle=1~150&usage_type=default&display_rank=1

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NUTRITION INTERVENTIONS

- Diet Rx – General healthful diet, increased protein, increased calorie
- Nutrition support (enteral, parenteral, IV fluids) when oral intake is unable to met needs
- Nutrition education for patients, families, and caregivers
- Collaboration and referral of nutrition care with other care providers within and between health care organizations
- Discharge and transfer of nutrition care to a new setting or provider

Academy of Nutrition and Dietetics. Nutrition Care Manual. http://www.nutritioncaremanual.org. Accessed August 12, 2023.

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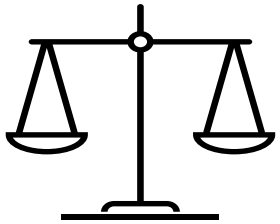
INADEQUATE ORAL INTAKE

- Increased risk during hospital stay including:
  - Reduced food intake
  - NPO orders
  - Restrictive diet orders
  - Delays in addressing nutrition needs



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INADEQUATE ORAL INTAKE



- Use least restrictive diet
- Assess risks vs. benefit of therapeutic diet
  - Is it necessary? Will it offer enough benefits to justify use?
- Consider quality of life
  - Unpalatable or unacceptable diet can lead to poor PO → malnutrition → negative health effects
- Include patient in decision-making related to food
- Goals: maintenance of health + nutritional needs + quality of life

= individualized nutrition approaches

Dorner, B., & Friedrich, E. K. (2018). Position of the Academy of Nutrition and Dietetics: individualized nutrition approaches for older adults: long-term care, post-acute care, and other settings. *Journal of the Academy of Nutrition and Dietetics*, *118*(4), 724-735.

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ONS IN ACUTE-CARE SETTINGS

- Adequate early nutrition intervention can improve outcomes
  - Preserving lean body mass
  - Optimize functional capacity
  - Prevent sarcopenia (higher morbidity, mortality, costs)
- When used, oral nutritional supplements (ONS) are associated with significant reduction in number of 30-day readmissions
    - More pronounced in oncology
  - Overall financial savings of 12.2%
    - Mortality, morbidity, complications, LOS
  - Association between time to ONS ordering and hospital LOS

Mullin, G. E., Fan, L., Sulo, S., & Partridge, J. (2019). The association between oral nutritional supplements and 30-day hospital readmissions of malnourished patients at a US academic medical center. *Journal of the Academy of Nutrition and Dietetics*, *119*(7), 1168-1175.

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JUST RELAX?

- A1c goals of <8.0% or <8.5% in patients with shortened life expectancies and significant comorbidities can help reduce hospital admissions
  - In older, nutritionally high-risk adults with diabetes, regular glucose monitoring + adjustment of medication is preferable to dietary restriction
  - Short-term substitution of a regular diet (over diabetic) increased calorie consumption and did not cause gross deterioration of glycemic control in a study of chronic care patients with type 2 diabetes

Dorner, B., & Friedrich, E. K. (2018). Position of the Academy of Nutrition and Dietetics: individualized nutrition approaches for older adults: long-term care, post-acute care, and other settings. *Journal of the Academy of Nutrition and Dietetics*, *118*(4), 724-735.

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JUST RELAX?

- Relaxed blood pressure goals of <150/90 or <140/90 with diabetes and/or CKD
- Relaxed sodium restriction in heart failure of 2,000-3,000 mg/day decreases hospital readmissions and mortality
- Lipid reduction more effective with medications over diet restriction
- Minimize diet restrictions and provide food preferences prior to supplementation

Dorner, B., & Friedrich, E. K. (2018). Position of the Academy of Nutrition and Dietetics: individualized nutrition approaches for older adults: long-term care, post-acute care, and other settings. *Journal of the Academy of Nutrition and Dietetics*, *118*(4), 724-735.

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INCREASING THE NUTRIENT AND CALORIE-DENSITY OF FOODS



INCREASING CALORIE DENSITY



- 5 to 6 small meals/day, instead of 3 large meals
- Snacks in between meals
- Addition of butter, nut butters, oil, nuts, gravy, powdered milk, protein powder, avocado, cheese, granola or cream
- Drink fluids between meals
- Calorie-containing beverages
- Select whole milk, yogurt, cream, half-and-half
- Calorie additives

Crowley, K. (2023). Patient education: Managing loss of appetite and weight loss with cancer (The Basics). In C. Armsby (Ed.), UpToDate.

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INCREASING PROTEIN DENSITY

- Include 1+ source with every meal and snack
- Animal proteins and dairy
- Plant proteins (beans, hummus, soy, tofu, kefir, nuts)
- Protein powders, additives
- RDA 0.8 g/kg
  - 1.0-1.2 g/kg may be protective
  - 1.2-2.0 g/kg in older adults with malnutrition



Ritchie, C., & Yukawa, M. (2023). Geriatric nutrition: Nutritional issues in older adults. In K. Schmader (Ed.), UpToDate.

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TOAST, OATMEAL, YOGURT, SMOOTHIE

Original	Calorie-dense
1 packet instant oatmeal made with water **= 100 kcal, 4 g protein**	½ cup quick oats made with ultra filtered whole milk, 1 Tbsp powdered peanut butter, 1 Tbsp brown sugar, 1 Tbsp raisins **= 414 kcal, 20 g protein**
1 slice of whole wheat toast with 1 tbsp butter **= 160 kcal, 3 g protein**	1 slice of whole wheat toast with 1 tbsp butter, 2 tsp honey, 2 tsp peanut butter, 1 Tbsp ground flax **= 306 kcal, 7 g protein**
6 oz light yogurt **= 73 kcal, 6.6 g protein**	6 oz whole fat Greek yogurt with 1 scoop protein powder **= 270 kcal, 29 g protein**
6 oz orange juice **= 91 kcal, 1 g protein**	Smoothie made with 6 oz orange juice, ½ cup whole fat Greek yogurt, 1 scoop protein powder, 1 banana **= 510 kcal, 27 g protein**

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NUTRITION INTERVENTIONS UNINTENDED WEIGHT LOSS IN ELDERLY PATIENTS



NUTRITION AND AGING

- Changes associated with normal aging increase nutritional risk for older adults
- Aging is characterized by diminished organ system reserves and weakened homeostatic controls
- Data from studies of acute hospitalization in older adults suggest that up to 71 percent are at nutritional risk or are malnourished
- Compared with younger adults, undernutrition in older individuals is both more common and may have greater impact on outcomes

de Luis, D., & Guzman, A. L. (2006). Nutritional status of adult patients admitted to internal medicine departments in public hospitals in Castilla y Leon, Spain—a multi-center study. *European journal of internal medicine*, *17*(8), 556-560. // \

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FACTORS AFFECTING NUTRITIONAL STATUS

- Living arrangements
- Finances
- Transportation
- Disability
- Chronic disease
- Polypharmacy
- Oral, dental changes
- Drug side effects
- Inability to purchase and/or prepare food
- Lack of independence
- Social isolation
- Depression
- Anorexia of aging
- Smell, taste changes
- Satiety hormones
- Dependence for feeding








Dorner, B., & Friedrich, E. K. (2018). Position of the Academy of Nutrition and Dietetics: individualized nutrition approaches for older adults: long-term care, post-acute care, and other settings. *Journal of the Academy of Nutrition and Dietetics*, *118*(4), 724-735.

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ADDRESS TREATABLE CAUSES

- Strengthen social supports
- Ensure adequate feeding assistance
- Improve mealtime ambiance
- Reduce dietary restrictions
- → Consider enteral feeding if other interventions have failed and is consistent with advance directives

Dorner, B., & Friedrich, E. K. (2018). Position of the Academy of Nutrition and Dietetics: individualized nutrition approaches for older adults: long-term care, post-acute care, and other settings. *Journal of the Academy of Nutrition and Dietetics*, *118*(4), 724-735.

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MANAGING LOSS OF APPETITE

- Eat foods that smell good, add spices or condiments
  - Salty, warm vs. cold vs. room temperature, soft?
- Eat with family or friends
- Buy pre-cooked foods or cook food ahead of time and freeze it
- Cooking and/or shopping assistance
- Short walk roughly one hour before eating

Crowley, K. (2023). Patient education: Managing loss of appetite and weight loss with cancer (The Basics). In C. Armsby (Ed.), UpToDate.

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ARS QUESTION

Within what BMI range do adults older than 65 have the lowest mortality?

1. 21 to 21.9 kg/m^2
2. 23 to 23.9 kg/m^2
3. 27 to 27.9 kg/m^2
4. 31 to 31.9 kg/m^2

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ARS QUESTION

Within what BMI range do adults older than 65 have the lowest mortality?

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3. 27 to 27.9 kg/m^2
4. 31 to 31.9 kg/m^2

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RATIONALE

- A 2014 metaanalysis found adults older than age 65 years had the lowest rates of mortality at a BMI between 27 and 27.9
- The association between all-cause mortality and BMI was found to be U-shaped with the nadir of the curve for BMI and mortality was between 24.0 and 30.9 with lowest risk between 27 and 27.9
- Weight loss in older adults with obesity results in potential loss of fat mass, lean body mass, and bone mass

REFERENCE(S):

Winter, J. E., MacInnis, R. J., Wattanapenpaiboon, N., & Nowson, C. A. (2014). BMI and all-cause mortality in older adults: a meta-analysis. *The American journal of clinical nutrition*, *99*(4), 875-890.

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OBESITY PARADOX

- Evidence that overweight and obesity appear to have a protective effect in some individuals
- Disease related risks related with obesity and higher BMI levels diminish with advanced age
- Overweight and mild to moderate obesity is associated with improved survival in older adults with acute and chronic heart failure
- Appears to be protective in those with CVD and type 2 diabetes
- Focus on weight stability (usual vs. ideal BMI)

Dorner, B., & Friedrich, E. K. (2018). Position of the Academy of Nutrition and Dietetics: individualized nutrition approaches for older adults: long-term care, post-acute care, and other settings. *Journal of the Academy of Nutrition and Dietetics*, *118*(4), 724-735.

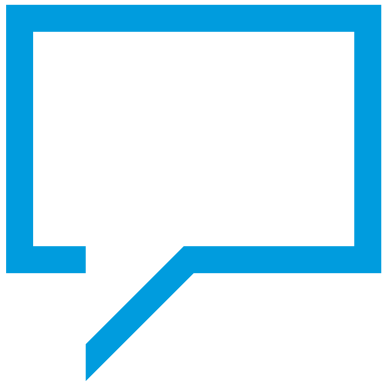
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TAKEAWAYS

- Create a plan that reflects an individual's preferences and unique health needs
- Assess risks vs. benefit of therapeutic diet with QOL in mind
- Focus on increased calorie and protein density, not food volume
- For older patients, focus on weight stability
  - Usual body weight is the most relevant basis for weight-related interventions rather than ideal body weight.

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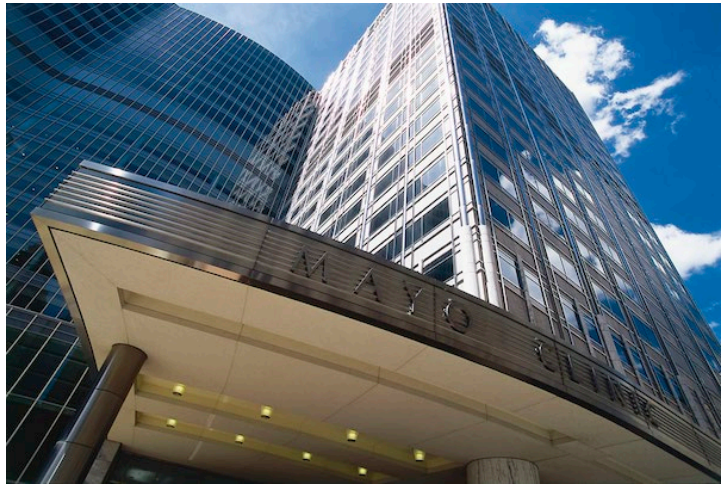
QUESTIONS & DISCUSSION



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