Interprofessional Geriatrics Training Program

Nutrition for the Older Adult

Acknowledgements

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Learning Objectives

Upon completion of this module, learners will be able to:

1. Identify the unique nutritional needs of the older adult
2. Discuss weight loss parameters to assess the older adult's general health
3. Summarize the process that clinicians can use to assess at-risk patients for poor nutrition and malnutrition
4. Discuss appropriate strategies to manage the nutritional needs of the older adult

Nutrition and the Older Adult

- "Over the past 50 years, the understanding of the impact of nutrition on health has become increasingly important, facilitating a growing interest in the relationships between aging and nutrition"

(Anderson et al., 2016, p. 1)

Nutrition and the Older Adult

- "Undernutrition and micronutrient deficiencies are common among older people, but they are not inevitable consequences of being old"

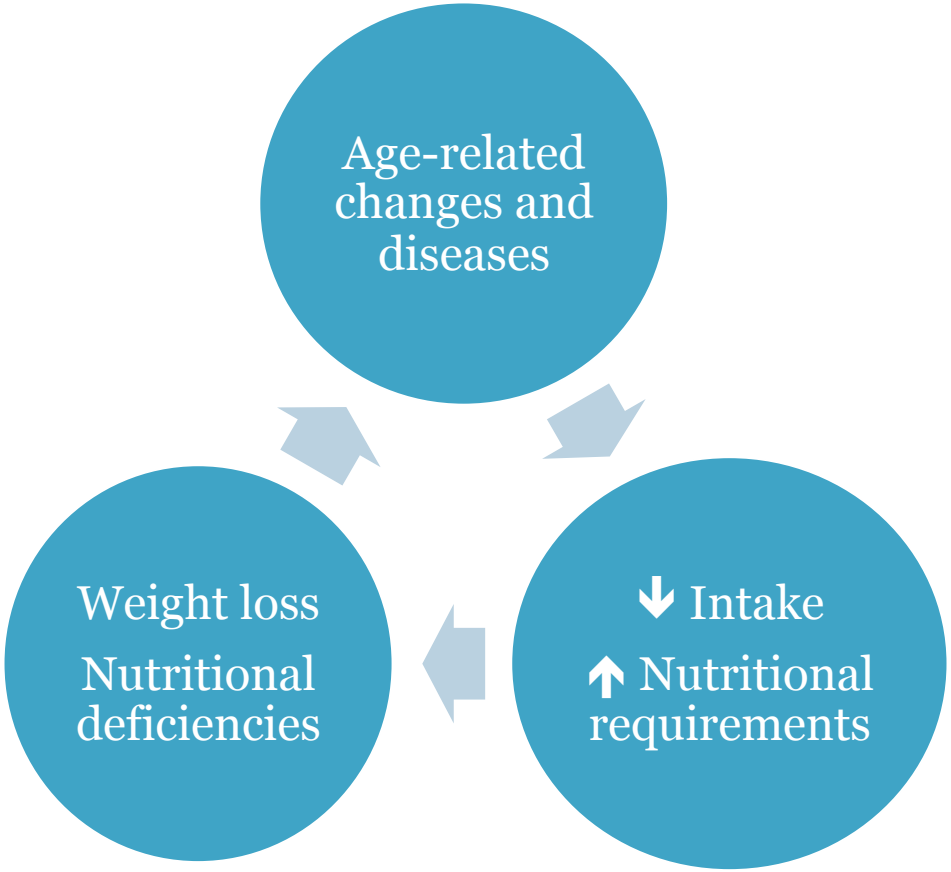
(MacEntee et al., 2011, p. 73)

As We Age…

- Caloric needs change as a result of more body fat and less lean muscle
- Age-related changes in the digestive tract, such as intestines losing muscle strength and decreasing motility, means that the absorption of nutrients decreases in older adults
- The liver may be less effective at breaking down toxic substances
- The pancreas secretes less insulin, and cells become less responsive
- Intakes of vitamin B12, calcium, zinc, vitamin D, vitamin E, and folate are often lower

(Wells & Dumbrell, 2006)

As We Age…



(Adapted from Volkert et al., 2015)

Nutritional Requirements

- To provide energy when food intake is inadequate to meet immediate metabolic needs, an adult of 70 kg lean body mass requires stores of:
  - Fat > 15 kg
  - Protein > 6 kg (lean muscle)
  - Glycogen > 0.4 kg

(Bauer et al., 2013)

Older Adults Are Nutritionally Challenged

- Estimated that 2-32% of community-dwelling elderly are nutritionally deficient in protein and calories
  - An estimated 6% are considered to be malnourished
- 20-65% of elderly hospitalized patients suffer from nutritional deficiencies
- Malnutrition in long-term care facilities is estimated to be 30-60%

(Cereda, 2012; Kaiser et al., 2010; Wells & Dumbrell, 2006)

Older Adults Are Nutritionally Challenged

- Because the thirst mechanism may become impaired and the kidneys become less efficient in recapturing water before urinary excretion, older adults are at increased risk for dehydration
- Malnutrition and undernutrition are frequently underdiagnosed and undertreated

(Cereda, 2012; Kaiser et al., 2010; Wells & Dumbrell, 2006)

Nutritionally At-Risk Patients

- Involuntary gain or loss of ≥ 10% of usual body weight within 6 months
- Gain or loss of 5% of usual body weight within one month
- 20% over or under ideal body weight
- Presence of chronic disease or increased metabolic requirements
- Cognitive impairment or frailty
- Altered diets or dietary schedules
- Inadequate nutrient intake for more than 7 days
- Caregiver status

(Artaza-Artabe et al., 2016; Cereda, 2012)

Malnutrition

Malnutrition Definition

- One measurement of malnutrition is the depletion of energy stores, as evidenced by:
  - Low weight for height
  - Low body mass index (BMI): below 19
  - Little subcutaneous adiposity
  - Low muscle mass
  - Temporal wasting

Malnutrition Incidence

- Incidence of malnutrition among older adults:
  - Risk among hospitalized older adults is estimated at 22%-43% (with 50% among ICU patients) (Finocchiaro & Hook, 2015)
  - Cognitively impaired older adults have a 58.9% risk for malnutrition (Rullier et al., 2013)
  - Risk for malnutrition among frail older adults is estimated at 46.9% (Bollwein et al., 2013; Artaza-Artabe et al., 2016)

Malnutrition Incidence

- In the elderly, signs of malnutrition may be noted before hospitalization
- Pre-existing malnutrition contributes to the advancement of disease
- There is a proven strong association between malnutrition and mortality

(Artaza-Artabe et al., 2016; Cereda, 2012)

Causes of Malnutrition in Older Adults

Biological Causes

- Functional inability to shop, cook, chew, or swallow properly
- Loss of mental capacity
- Diminished taste
- Medications

Social Determinants

- Social isolation
- Financial limitations
- Reduced appetite because of illness or depression

(Robbins, 1989)

Impacts of Malnutrition on Patients and Health Systems

- Malnutrition in older adults is predictive of poor clinical outcomes and risk for increased mortality (Thomas et al., 2000)
- Hospital costs for treatment of nutritionally at-risk or malnourished patients may be four times greater than those incurred by well-nourished patients (Amaral et al., 2007)

Malnutrition Outcomes

- Impaired muscle function (Artaza-Artabe et al., 2016)
- Reduced respiratory drive (Favaro-Moreira et al., 2016)
- Decreased cardiac function (Favaro-Moreira et al., 2016)
- Leads to:
  - Pressure injury development (Banks et al., 2010)
  - Increased risk of frailty (Artaza-Artabe et al., 2016)
  - Decreased cognitive function (Morley, 2010)
  - Increased sleep disturbance and fatigue (Favaro-Moreira et al., 2016)

Assessment Question 1

Malnutrition is common among older adults and is evidenced by:

a) Temporal wasting, low BMI, increased muscle mass

b) Little subcutaneous adiposity, low muscle mass, low BMI

c) Low weight for height, increased subcutaneous adiposity

d) Increased weight for height with low BMI

Assessment Question 1: Answer

Malnutrition is common among older adults and is evidenced by:

a) Temporal wasting, low BMI, increased muscle mass

b) Little subcutaneous adiposity, low muscle mass, low BMI (Correct Answer)

c) Low weight for height, increased subcutaneous adiposity

d) Increased weight for height with low BMI

Weight Loss in the Elderly

Weight Loss in the Elderly

- Lean body mass may decline because of normal physiologic changes associated with age
- Rapid weight loss of ≥ 5% in one month must be evaluated by a health care provider
- A weight loss of > 4% per year is an independent predictor of mortality
- Early identification and treatment of weight loss and nutritional deficiencies may prevent the morbid sequelae of malnutrition

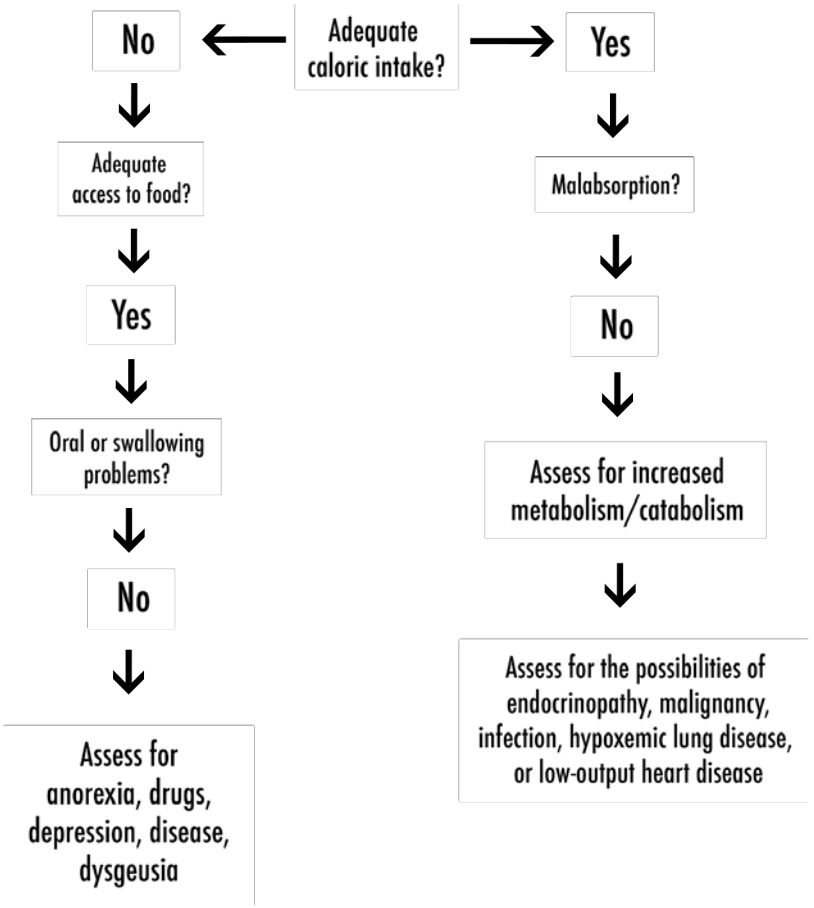
(Robbins, 1989)

Weight Loss in the Elderly

- When there is a documented weight loss of 5% of the total body weight, follow the Diagnostic Algorithm for Weight Loss on the following slide

(Wallace & Schwartz, 2002)

Diagnostic Algorithm for Weight Loss



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(Wallace & Schwartz, 2002)

Assessment Question 2

Early identification and treatment of weight loss and nutritional deficiencies may prevent the morbid sequelae of malnutrition. The health care provider should evaluate a rapid weight loss of:

a) ≥ 5% in one month

b) ≥ 3% in one month

c) ≥ 2% in one month

d) ≥ 1% in one month

Assessment Question 2: Answer

Early identification and treatment of weight loss and nutritional deficiencies may prevent the morbid sequelae of malnutrition. The health care provider should evaluate a rapid weight loss of:

a) ≥ 5% in one month (Correct Answer)

b) ≥ 3% in one month

c) ≥ 2% in one month

d) ≥ 1% in one month

Assessment

Assessment

- A comprehensive evaluation of a patient's nutritional status typically includes data collection in each of the following areas:
    - Dietary history
    - Physical examination
    - Medications and lab values
    - Procedures

(Cereda, 2012)

Diet History

- Have the patient record an intake history and their food frequency using a food diary, which should include the number of meals and snacks per day
- Questionnaires on obtaining diet history are also available: https://epi.grants.cancer.gov/dhq2/forms/dhq2_pastyear.pdf (National Cancer Institute, 2017)

(Bingham et al., 1994)

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Diet History

- When taking a diet history, assess for contributing factors:
  - Chewing or swallowing difficulties
  - Gastrointestinal (GI) problems, decreased oral intake
  - Excessive alcohol consumption and other sources of empty calories
  - Unintentional weight loss of ≥ 10% of body weight
  - Recent severe illness or chronic illness, especially malignancy, COPD, infection, or acquired immunodeficiency syndrome (AIDS)

(Morley & Silver, 1995; Robbins, 1989)

Assessment: Nutrition Screening Tools

- Nutrition Screening Initiative by the American Academy of Family Physicians
  - SCALES: **S**adness, **C**holesterol levels, **A**lbumin, **L**oss of weight, **E**ating problems, **S**hopping problems (Azad, 2002)
  - http://www.mna-elderly.com/publications/598.pdf
- Mini Nutritional Assessment (MNA): MNA app is available for the iPhone
  - http://www.mna-elderly.com/user_guide.html (Nestle Nutrition Institute, 2017)

Mini Nutritional Assessment (MNA) Items

Anthropometric Measures

- BMI
- Weight
- Mid-arm and calf circumference

Dietary Information

- Meals
- Food and fluid intake
- Feeding autonomy

(Nestle Nutrition Institute, 2017)

Mini Nutritional Assessment (MNA) Items

General Assessment

- Lifestyle
- Medications
- Mobility
- Stress

Self-Perception Measures

- Health
- Nutrition

(Nestle Nutrition Institute, 2017)

Assessment: Physical Exam

- Signs of nutritional deficiency:
  - Weight < 10% of ideal weight
  - Sparse subcutaneous adiposity
  - Temporal muscle wasting in face
  - Muscle wasting

(Morley & Silver, 1995; Robbins, 1989)

Assessment: Physical Exam

- Signs of nutritional deficiency (continued):
- Condition of skin, hair, and nails
  - Skin may be dry and sallow
  - Hair and nails may be thin, dry, and brittle
- Mouth (mucous membranes)
- Neurologic signs

(Morley & Silver, 1995; Robbins, 1989)

Assessment: Signs of Vitamin Deficiency

Deficiency	Symptoms
Vitamin B12	Anemia, fatigue, nervous system damage, burning tongue
Vitamin D	Osteoporosis
Vitamin E Folate	Anemia, weakness, neurological problems, muscle cramps
Zinc	Loss of appetite, impaired taste, skin rash, weakened immunity, poor wound healing

(Guigoz et al., 1996)

Protein Undernutrition

- Inadequate intake of calories and protein (marasmus-type malnutrition)
  - A decrease in body weight and muscle mass
  - Normal serum albumin
  - May occur in patients in a community or long-term care setting
- Low albumin malnutrition
  - Response to biological stress
  - May occur in hospital patients

(Guigoz et al., 1996)

Assess Medication History and Lab Values

Medication History

- Prescriptions and over-the-counter products

Lab Values

- Low serum albumin and other serum proteins
- Low vitamin and mineral levels
- Total lymphocyte count (TLC)

- No single lab test is diagnostic of malnutrition
- Several tests that reflect protein synthesis can also reflect nutritional status
  - Nitrogen balance
  - Creatinine height index

(Guigoz et al., 1996)

Assessment Question 3

A comprehensive evaluation of a patient's nutritional status typically includes data collection in each of the following areas EXCEPT:

a) Dietary history

b) Physical examination

c) Medications and lab values

d) Family history

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Assessment Question 3: Answer

A comprehensive evaluation of a patient's nutritional status typically includes data collection in each of the following areas EXCEPT:

a) Dietary history

b) Physical examination

c) Medications and lab values

d) Family history (Correct Answer)

Management

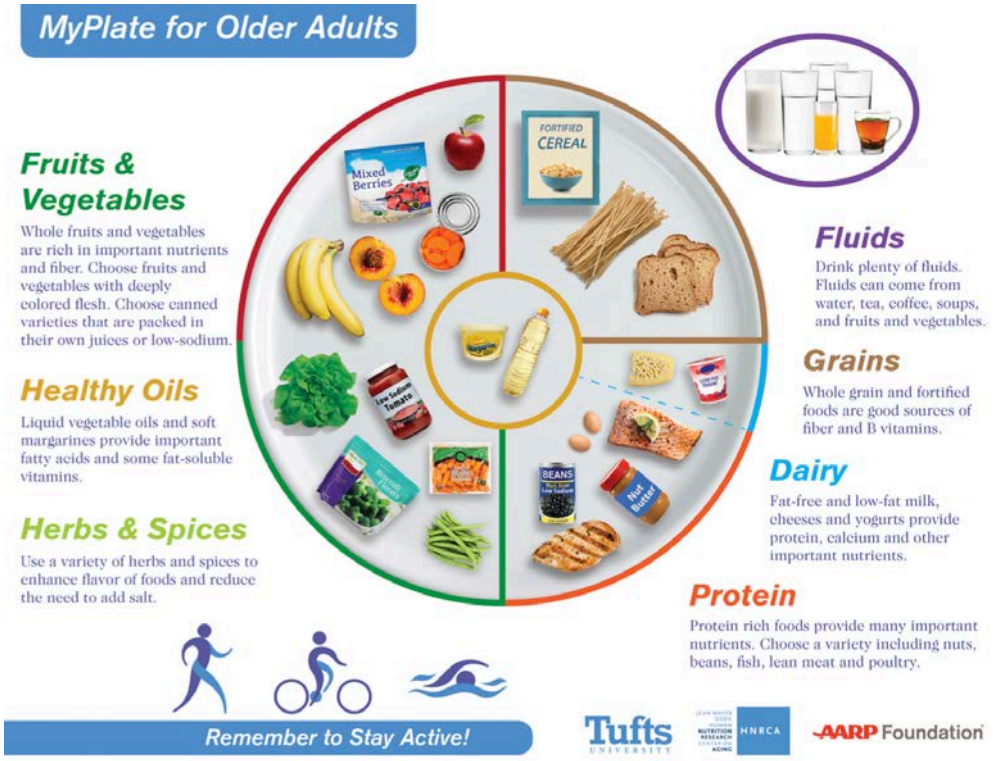
MyPlate

- Tufts University created MyPlate for Older Adults as an easy-to-use visual guide for the ideal meal
- It indicates:
  - Vegetables and fruits with deeply-colored interiors
  - Whole grains, fortified breads, and brown rice
  - Low-fat and nonfat dairy products
  - Beans, nuts, fish, poultry, lean meats, and eggs
  - Liquid vegetable oils and soft spreads
  - Spices and herbs to replace salt
- Includes a reminder to get regular physical activity and plenty of fluids

(Tufts University, n.d., COPYRIGHT)

MyPlate

- Additional information on MyPlate can be found at:
  - http://hnrca.tufts.edu/myplate/



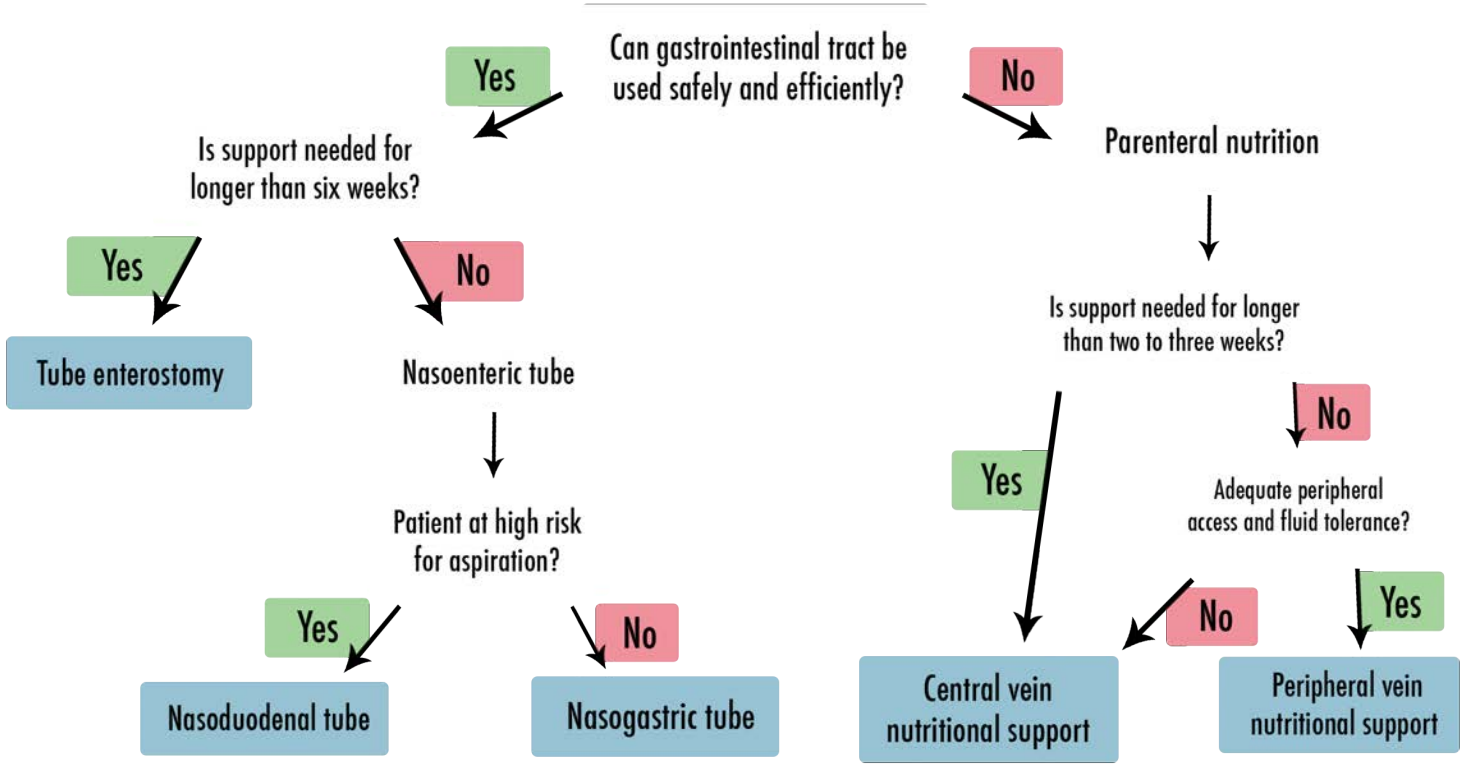
(Tufts University, n.d., COPYRIGHT)

Management: Nutritional Support

- Nutritional support is the provision of nutrients to patients who cannot meet their nutritional requirements by eating standard diets
- Nutrients may be delivered:
    - Enterally
    - Using oral nutritional supplements
    - Nasogastric and nasoduodenal feeding tubes
    - Tube enterostomies
    - Parenterally, using lines or catheters placed in peripheral or central veins, respectively

(National Collaborating Centre for Acute Care, 2006)

Nutritional Support Algorithm



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(McPhee & Papadakis, 2011)

Decision for Nutritional Support

- Because this is a particularly challenging decision at the end of life, the decision to implement nutrition support is a collaborative, *interprofessional* team discussion with the patient and family, who are the decision-makers
- A new option, intensive individualized comfort care, may be offered as an alternative to tube feedings or comfort care measures only

(Bell et al., 2016)

High-Quality Alternative to Tube Feedings: Intensive Individualized Comfort Care

- Perceptions by the family that health care staff lack concern about feeding and that a family member is "starving to death" often lead to inappropriate use of feeding tubes at the end of life
- The frequently-used phrase "comfort measures only" implies that care is being limited or diminished
- Likewise, the more recent term "comfort feeding only" suggests that the quality of meals and assistance provided will be limited or lessened in some fashion

(Palecek et al., 2010)

High-Quality Alternative to Tube Feedings: Intensive Individualized Comfort Care

- Instead, Dr. Ruth Palan Lopez proposes that family members be provided with the option of intensive individualized comfort care
- The aims of this paradigm of care are to aggressively seek and attain comfort to meet patients' individual needs and provide support for their family members

(Palecek et al., 2010)

High-Quality Alternative to Tube Feedings: Intensive Individualized Comfort Care

- Applying the principles of intensive individualized comfort care to this larger view of mealtimes, Dr. Lopez suggests that three components of mealtime should be addressed within the **context of meals as a <u>shared experience</u>**:
  - Past
  - Present
  - Future

(Palecek et al., 2010)

High-Quality Alternative to Tube Feedings: Intensive Individualized Comfort Care

- Therefore, those implementing intensive individualized comfort care for mealtimes should encourage family members to provide information about food preferences, values and beliefs, and cultural background that can be used to create individualized meal plans
  - The individualized meal plan should use familiar foods, flavors, and rituals as a means of remaining connected to the individual and maintaining their familial relationships, while little emphasis should be placed on weighing residents or counting calories

(Palecek et al., 2010)

Assessment Question 4

Intensive individualized comfort care seeks to provide comfort to meet the patient's individual needs while providing support for their family. Providers should encourage family members to:

a) Use familiar foods and flavors

b) Use rituals as a means of remaining connected to the individual and maintaining their familiar relationships

c) Provide information about food preferences, values and beliefs, and cultural background that can be used to create individualized meal plans

d) All the above

Assessment Question 4: Answer

Intensive individualized comfort care seeks to provide comfort to meet the patient's individual needs while providing support for their family. Providers should encourage family members to:

a) Use familiar foods and flavors

b) Use rituals as a means of remaining connected to the individual and maintaining their familiar relationships

c) Provide information about food preferences, values and beliefs, and cultural background that can be used to create individualized meal plans

d) All the above (Correct Answer)

Dysphagia: Symptoms

- Delayed swallowing, drooling, dysphonia
- Coughing within one minute of swallowing

(Groher & Crary, 2015)

Dysphagia: Treatment

- Adjust the consistency of food when necessary by:
  - Thickening liquids (add gels, purees, etc.)
  - Thinning foods and liquids (add water, juice, etc.)
- Maintain an upright position (as near 90° as possible) whenever eating or drinking
- Take small bites and eat slowly
- Avoid talking while eating
- If one side of the mouth is weak, place food into the stronger side of the mouth
- At the end of the meal, check the inside of the cheek for any food that may have been pocketed

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(Groher & Crary, 2015)

Interview with Expert: Samuel N. Grief, MD, FCFP, FAAFP

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Expert Interview: Samuel N. Grief, MD, FCFP, FAAFP
Dysphagia

Listen to Our Expert Discuss:

- Dysphagia indicated by difficulty eating or swallowing
- Dysphagia could be related to gastroesophageal reflux, but most commonly occurs following a medical crisis, such as a stroke or a surgery that caused neurological impairment
- Could be caused by another disease process, or, preferentially, by a general difficulty in swallowing certain textures
- Important to make sure that the foods served to an older adult are palatable, easy to swallow, and easy to chew

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Nutrition and Dietary Supplements

- Older adults taking dietary supplements may be at risk for polypharmacy or drug-supplement interactions if being treated for chronic conditions
- Drug-supplement interactions should be considered for patients who are taking medications or receiving treatment for chronic conditions including:
    - Cardiovascular disease (e.g., hypertension)
    - Blood clotting disorders
    - Cancer

Nutrition and Dietary Supplements

- Dietary supplements might enhance or counteract the efficacy of medications
- Often, patients take a dietary supplement because of the perception that it is "good for" a chronic condition from which they might be suffering
- For example, vitamin E may have beneficial effects related to cardiovascular health
- However, because of its blood-thinning effects, vitamin E supplementation may not be suitable for patients receiving warfarin therapy

Nutrition and Dietary Supplements

- Health care providers should ask patients about specific dietary supplements and the motivations for consumption
- Practitioners should query regarding supplement use among those who are:
  - Chronically ill
  - Under medical treatment or taking medications
  - Diagnosed with a chronic illness with poor prognosis
  - Diagnosed with illnesses that have ineffective or unpleasant conventional therapies

Summary

- Careful attention should be paid to the nutrition of older adults, who can be nutritionally challenged
- Although early identification and treatment of weight loss and nutritional deficiencies may prevent the morbid sequelae of malnutrition, malnutrition and undernutrition frequently are underdiagnosed and undertreated
- A comprehensive evaluation of a patient's nutritional status typically includes data collection, including a dietary history, physical examination, medication history, and lab values

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Summary

- Perceptions by the family that a medically complex family member is "starving to death" often lead to inappropriate use of feeding tubes at the end of life
- Intensive individualized comfort care seeks to provide comfort to meet the patient's individual needs while providing support for their family

Resources

- http://www.healthcare.uiowa.edu/igec/tools/nutrition/determineNutrition.pdf Accessed April 10, 2017
- http://hnrca.tufts.edu/myplate/ Accessed April 10, 2017
- http://www.mna-elderly.com/publications/598.pdf Accessed April 10, 2017
- http://www.mna-elderly.com/user_guide.html Accessed April 10, 2017

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