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SCHOOL OF MEDICINE

IM/GERIATRICS

Nutrition in Older Adults

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Disclosure

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- No additional financial disclosures
- No endorsements of off-label drug use

Objectives

- Discuss overarching concepts related to nutrition in older adults
- Correlate the 4Ms of Age Friendly Health Care with nutritional concepts in older adults
- List poor health outcomes associated with weight loss in older adults
- Identify older adults at risk for weight loss using the SNAQ assessment tool, infer meaning from the results, and recommend weight loss interventions
- Recommend evidence-based foods and eating strategies for PWD
- Recommend a healthy diet for multi-morbid older adults

- Key Evidence: CMS (2023) State Operations Manual: Appendix PP – Guidance to Surveyors for Long Term Care Facilities; Individual Research Studies

Audience Participation – Show Me Summit on Aging & Health 2023

Join SLIDO #3560997

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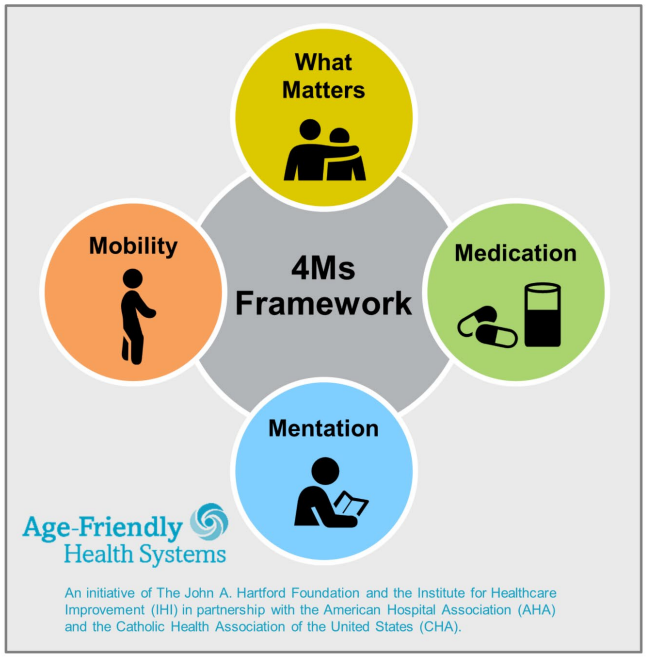
HOW TO PROVIDE
Age-Friendly Care



For related work, this graphic may be used in its entirety without requesting permission.
Graphic files and guidance at ihi.org/AgeFriendly

What Matters
Know and align care with each older adult's specific health outcome goals and care preferences including, but not limited to, end-of-life care, and across settings of care.

Medication
If medication is necessary, use Age-Friendly medication that does not interfere with What Matters to the older adult, Mobility, or Mentation across settings of care.

Mentation
Prevent, identify, treat, and manage dementia, depression, and delirium across settings of care.

Mobility
Ensure that older adults move safely every day in order to maintain function and do What Matters.

John A Harford Foundation, IHI (2023)

4Ms and Nutrition: What Matters & Medications

Preference Above All Else (CMS, 2023)

- In a NH, a resident might need a prescribed (restricted) diet to maintain nutrition, but CANNOT be made to eat one against their will which can lead to weight loss
- Rx Diets: diabetic, low salt, mechanically altered (mech ground, puree, thickened liquids)
- **Failure to incorporate resident food preferences resulting in weight loss is "actual harm"**

4Ms and Nutrition: Medications – Low Salt Diet

MINUTHE cohort (Hessels et al., 2023)

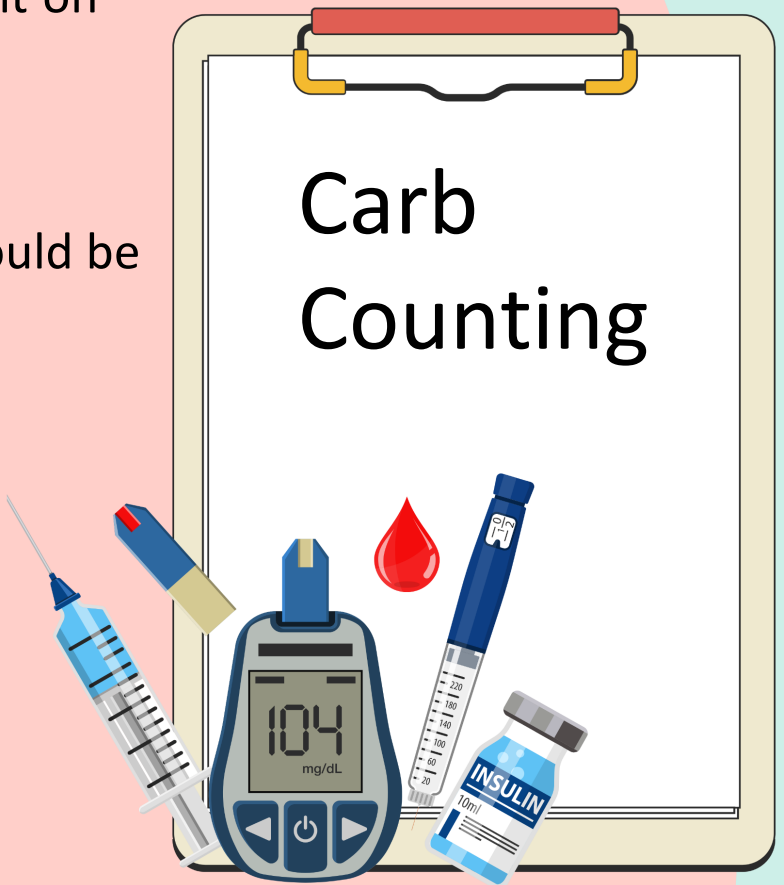
1. High sodium intake (4.7-14.3g/d) has an increased risk of mortality (HR **1.74 [95%CI, 1.03-2.95], p = .04)** as compared to normal intake (3.6-4.7 g/d)
2. Low sodium intake (0.7-2.8 g/d or 2.8-3.6 g/d) has an increased risk of mortality **(HR 2.05 [95% CI 1.16-3.62], p = .01)** and **HR 1.85 [95% CI 1.08-3.20], p = .03 respectively** as compared to normal intake (3.6-4.7 g/d)
3. **Mortality risk highest among those with low sodium with low protein intake**
4. Mortality risk is lowest among those with low sodium with high protein intake

4Ms and Nutrition: Medications – Diabetic Diet

Munshi et al. (2016) ADA Position Statement on Diabetes Management in LTC

1. Liberalized diets are associated with improved food and beverage intake
2. Recommendation: Restrictive diets should be minimized – Grade B evidence

Fang et al. (2016)
Intensive glucose lowering is associated with fewer MACE (RR 0.92 [CI 95% 0.85-1.00], p = 0.042 and MI (RR 0.90 [95% CI 0.82-0.98], p = 0.020 but do not reduce total mortality, cardiac death, stroke, CHF



Polypharmacy

4Ms and Nutrition: Medications -- Supplements

Polypharmacy includes supplements

SR and MA (Leelakanok & D'Cunha, 2019):

- Polypharmacy (≥ 5 meds) in >50% of patients, and excessive polypharmacy (≥ 10 meds) strongly associated with increased risk of dementia – aRR 1.30 (95% CI: 1.16-1.46), $p < 0.0001$) and aRR 1.52 (95% CI: 1.39-1.67), $p < 0.0001$

Deprescribing associated with increased nutritional and protein intake in poly-medicated, hospitalized stroke rehab patients (Matsumoto et al., 2022)

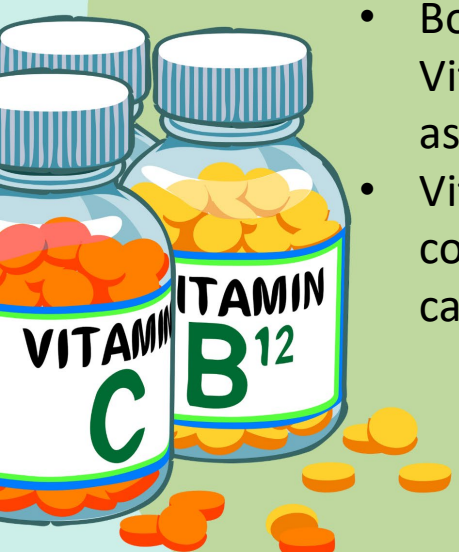
Supplements

4Ms and Nutrition: Medications -- Supplements

Insufficient evidence to recommend Multivitamin (USPSTF, 2022)

Large prospective US study including more than 8,000 participants on Vit A, D, E, C, B9, B12 (Cui et al., 2022)

- Both low and high exposure groups on Vit A, E, C, B9, and B12 significantly associated with all cause mortality risk
- Vit D only supplement to significantly correlate with reduced all cause and cancer related mortality risk



4Ms and Nutrition: Medications -- Supplements

Vitamin D

NIH (n.d.) Health Professionals Fact Sheet Summary

USPSTF insufficient evidence to screen asymptomatic adults

- D3 more effectively raises and maintains levels
- 51-70yo: 600IU and 800IU in those >70yo: 800IU – not to exceed 4000IU in most
- skin ability to synthesize D declines with age, and older adults spend less time outdoors – darker skin less able to absorb
- Mostly from foods: fatty fish, beef, liver, egg yolks, fortified milk and grains

Sun: 5-30m face, arms, hands, legs

- ≥spf 8 not blocks transmission
- window light not effective

4Ms and Nutrition: Mentation – EVOO

Kilmova (2019) -- SR 1973-2019

1. Extra Virgin Olive Oil (EVOO) contains polyphenols from crushing ripe olives (cold-pressed) which are neuroprotective and associated with improved short-term cognition and less mild cognitive impairment -- other benefits suggested by the evidence include: antioxidant, anti-inflammatory, anti-atherogenic, anti-cancer, anti-microbial, anti-viral

4Ms and Nutrition: Mentation – EVOO vs ROO

Kaddourmi et al. (2022)
RCT evaluating EVOO vs Refined Olive Oil (ROO) – extracted vs pressed on MCI and BBB permeability (thought impaired in AD)

- Both EVOO and refined olive oil significantly improved clinical dementia rating and behavioral scores
- Both reduced blood brain amyloid and p tau/t tau ratios
- Only EVOO significantly reduced BBB permeability and enhanced function connectivity thought 2/2 biophenols

4Ms and Nutrition: Mentation – MIND & MeDi Diets

Agarwal et al., (2023) & Devranis et al. (2023)

- MIND Diet: Reduced dementia incidence and increased resilience to cognitive decline despite underlying brain pathology; fewer brain plaques with higher compliance scores
- Mediterranean Diet (MeDi): studied extensively with most RCTs showing significant increase in at least 1 cognitive domain among people with various levels of CI
- Both MeDi and MIND: decreased depressive sx

4Ms and Nutrition: Mobility – Sarcopenia & ADLs

Sarcopenia is low muscle mass and low strength, and results in decreased physical function (Cruz-Jentoft et al., 2019)

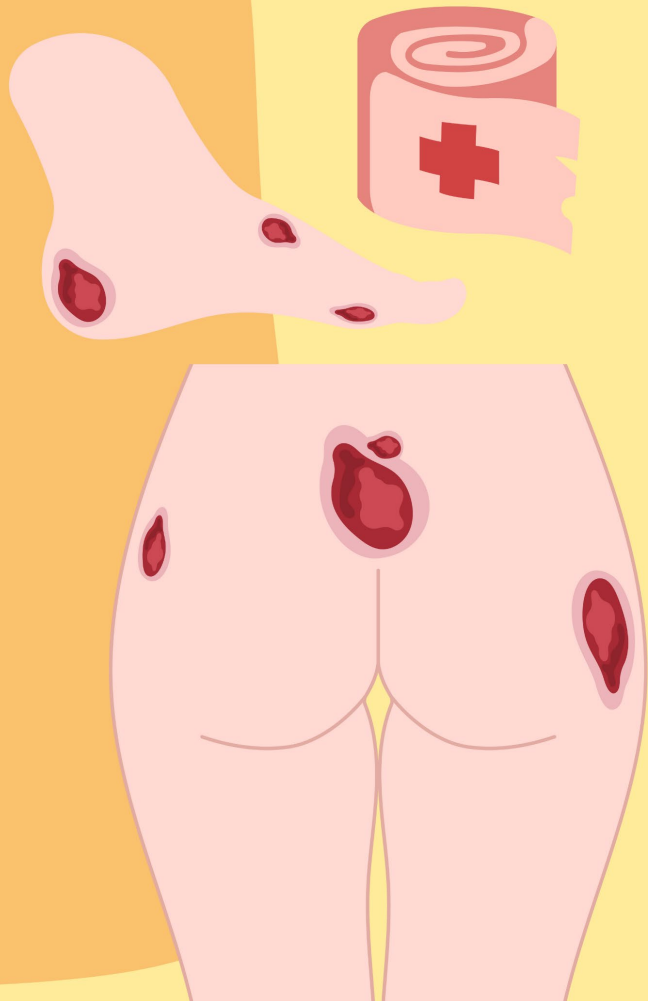
SARC-F: 11, 344 across all settings (Sanford et al., 2020)

- 65-74yo 30.7%
- 75-84yo 39.2%
- 85+yo 63.1%
- NH residents 84%

4Ms and Nutrition: Mobility – Wounds

Wounds decrease mobility & Decrease ADLs

- Pressure Ulcers (PUs) cost more than $26 Billion annually (Padula & Delaremente, 2018)
- Healing requires protein with maintained or improved nutrition (CMS, 2023)



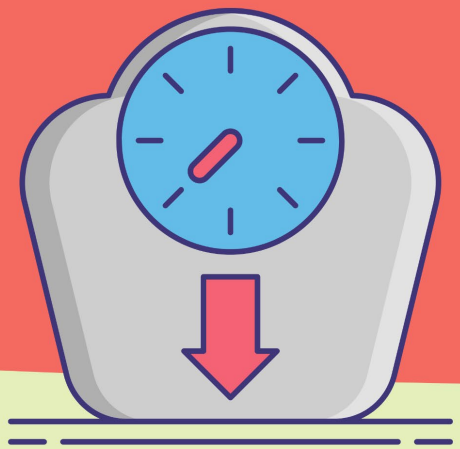
Abnormal Weight Loss

Suggested parameters for evaluating significance of unplanned and undesired weight loss are:

(CMS, 2023)

Interval	Significant Loss	Severe Loss
1 month	5%	Greater than 5%
3 months	7.5%	Greater than 7.5%
6 months	10%	Greater than 10%

The following formula determines percentage of weight loss:
% of body weight loss = (usual weight - actual weight) / (usual weight) x 100



4Ms and Nutrition: Mobility – Physical Decline & Fractures

SR: older adult weight loss leads to significant BMD loss – particularly in the total hip, which correlates with frailty and fractures (Jiang et al., 2023)

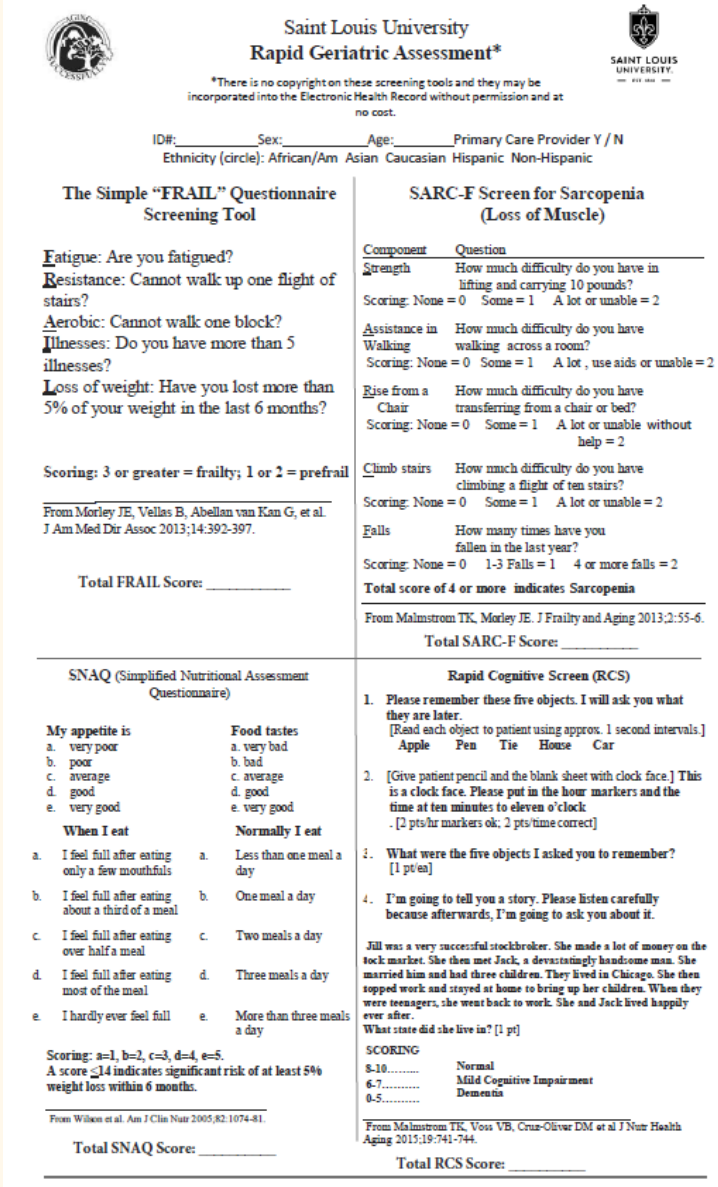
SR: all studies examining calorie restriction (CR) in older adults measuring lean muscle mass and bone density found CR to be associated with greater loss of muscle and BMD (Locher et al., 2016)

Regained weight has higher proportions of fat which leads further physical impairment (Arnold et al., 2010, Lee et al., 2010, & Newman et al., 2005).

RGA – widely validated screening tool for interdisciplinary health professionals and community advocates to identify geriatric syndromes – Frailty, Risk for Weight Loss, Sarcopenia, and Cognitive Impairment, (SLU GEC, 2023)

- FRAIL
- SNAQ
- SARC-F
- RCA

Screening positive indicates further medical assessment is indicated



Saint Louis University
Rapid Geriatric Assessment*

*There is no copyright on these screening tools and they may be incorporated into the Electronic Health Record without permission and at no cost.

ID#:_____Sex:_____Age:_____Primary Care Provider Y / N
Ethnicity (circle): African/Am Asian Caucasian Hispanic Non-Hispanic

The Simple "FRAIL" Questionnaire Screening Tool

Fatigue: Are you fatigued?
Resistance: Cannot walk up one flight of stairs?
Aerobic: Cannot walk one block?
Illnesses: Do you have more than 5 illnesses?
Loss of weight: Have you lost more than 5% of your weight in the last 6 months?

Scoring: 3 or greater = frailty; 1 or 2 = prefrail

From Morley JE, Vellas B, Abellan van Kan G, et al. J Am Med Dir Assoc 2013;14:392-397.

Total FRAIL Score: _____

SARC-F Screen for Sarcopenia (Loss of Muscle)

Component	Question
Strength	How much difficulty do you have in lifting and carrying 10 pounds? Scoring: None = 0 Some = 1 A lot or unable = 2
Assistance in Walking	How much difficulty do you have walking across a room? Scoring: None = 0 Some = 1 A lot , use aids or unable = 2
Rise from a Chair	How much difficulty do you have transferring from a chair or bed? Scoring: None = 0 Some = 1 A lot or unable without help = 2
Climb stairs	How much difficulty do you have climbing a flight of ten stairs? Scoring: None = 0 Some = 1 A lot or unable = 2
Falls	How many times have you fallen in the last year? Scoring: None = 0 1-3 Falls = 1 4 or more falls = 2

Total score of 4 or more indicates Sarcopenia

From Malmstrom TK, Morley JE. J Frailty and Aging 2013;2:55-6.

Total SARC-F Score: _____

SNAQ (Simplified Nutritional Assessment Questionnaire)

My appetite is
a. very poor
b. poor
c. average
d. good
e. very good

Food tastes
a. very bad
b. bad
c. average
d. good
e. very good

When I eat	Normally I eat
a. I feel full after eating only a few mouthfuls	a. Less than one meal a day
b. I feel full after eating about a third of a meal	b. One meal a day
c. I feel full after eating over half a meal	c. Two meals a day
d. I feel full after eating most of the meal	d. Three meals a day
e. I hardly ever feel full	e. More than three meals a day

Scoring: a=1, b=2, c=3, d=4, e=5.
A score ≤14 indicates significant risk of at least 5% weight loss within 6 months.

From Wilson et al. Am J Clin Nutr 2005;82:1074-81.

Total SNAQ Score: _____

Rapid Cognitive Screen (RCS)

1. **Please remember these five objects. I will ask you what they are later.**
[Read each object to patient using approx. 1 second intervals.]
Apple Pen Tie House Car

2. [Give patient pencil and the blank sheet with clock face.] **This is a clock face. Please put in the hour markers and the time at ten minutes to eleven o'clock**
. [2 pts/hr markers ok; 2 pts/time correct]

3. **What were the five objects I asked you to remember?** [1 pt/ea]

4. **I'm going to tell you a story. Please listen carefully because afterwards, I'm going to ask you about it.**

Jill was a very successful stockbroker. She made a lot of money on the stock market. She then met Jack, a devastatingly handsome man. She married him and had three children. They lived in Chicago. She then topped work and stayed at home to bring up her children. When they were teenagers, she went back to work. She and Jack lived happily ever after.
What state did she live in? [1 pt]

SCORING
8-10..... Normal
6-7..... Mild Cognitive Impairment
0-5..... Dementia

From Malmstrom TK, Voss VB, Cruz-Oliver DM et al J Nutr Health Aging 2015;19:741-744.

Total RCS Score: _____

SNAQ – assesses risk for weight loss in older adults across a wide variety of settings including NHs, hospitals, PCP, community screening events (Sanford et al., 2020; Wilson et al., 2005)

Important Clues for further assessment:

1. Appetite (Dementia?)
2. Taste (Dementia? Illness?)
3. Satiety (obstruction? Medication ADE?)
4. Meal intake (Dementia? Food Insecurity? Cost? Dysphagia? Dentition?)

(SLU Gateway Education Center (GEC), 2023)

SNAQ (Simplified Nutritional Assessment Questionnaire)

My appetite is	**Food tastes**
a. very poor	a. very bad
b. poor	b. bad
c. average	c. average
d. good	d. good
e. very good	e. very good

	When I eat		**Normally I eat**
a.	I feel full after eating only a few mouthfuls	a.	Less than one meal a day
b.	I feel full after eating about a third of a meal	b.	One meal a day
c.	I feel full after eating over half a meal	c.	Two meals a day
d.	I feel full after eating most of the meal	d.	Three meals a day
e.	I hardly ever feel full	e.	More than three meals a day

Scoring: a=1, b=2, c=3, d=4, e=5.
A score ≤14 indicates significant risk of at least 5% weight loss within 6 months.

Risk for Weight Loss & Unintentional Weight Loss

Unintentional weight loss in older adults is associated with poor nutrition, muscle loss, decreased physical function and death (Norman et al., 2021)

- SNAQ: 11, 344 screenings across settings (Sanford et al., 2020)

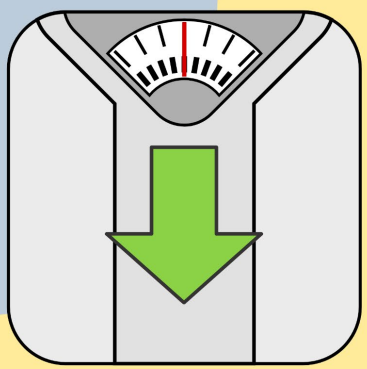
  At risk for weight loss:

  65-74yo 25.1%

  75-84yo 28.6%

  85+yo 35.7%

  NH resident 36.4%



Nutritional Interventions (CMS, 2023)

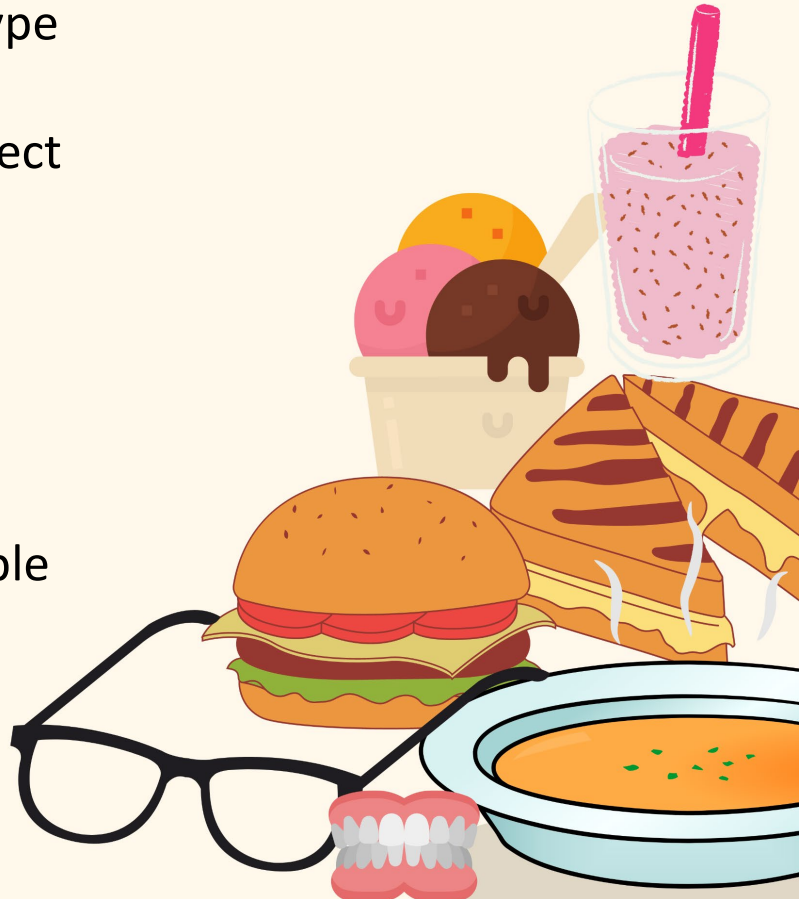
Liberalized diets (minimal restrictions in food type or consistency)

Palatable, attractive, nutritious food at the correct temperature – cold food cold and warm food warm

Flexible dining environment and times which promotes intake

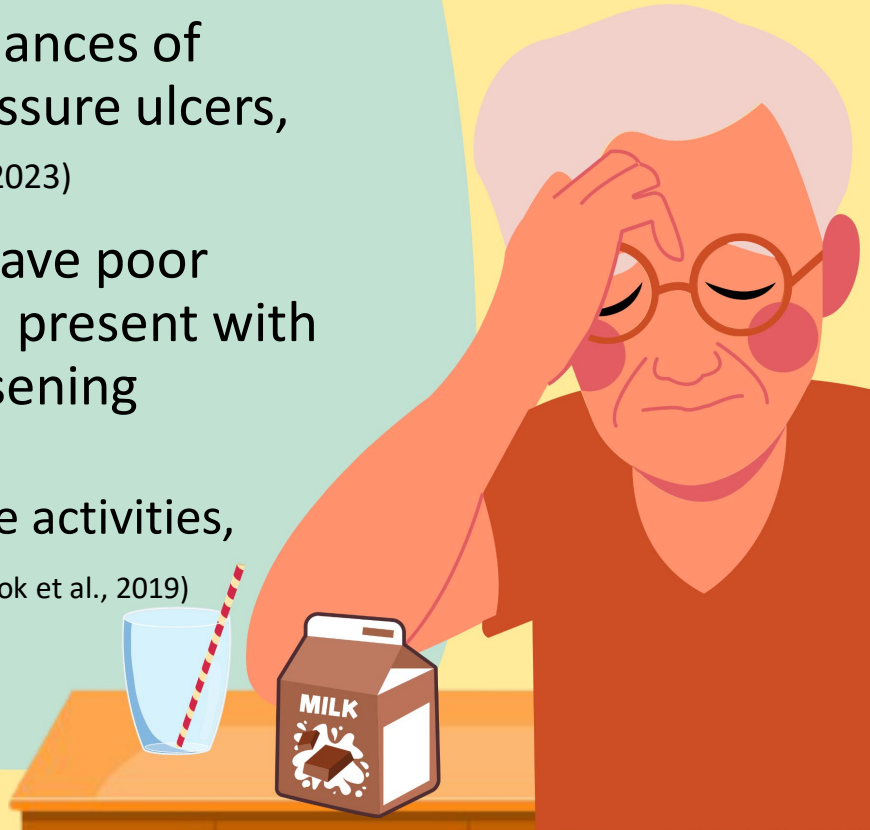
Functional support – senses (glasses? Hearing aids?), physically able (special utensils?, finger-foods? Staff assist?), chew (dentures?), accessible (within reach?)

Nourishing supplements and snacks between meals



Fluids are a critical part of nutrition, and need to be available within hands reach. Alternatives include broth, gelatin, popsicles, and ice cream (CMS, 2023)

- Inadequate hydration increases chances of Urinary tract infections (UTIs), pressure ulcers, skin infections and confusion (CMS, 2023)
- Evidence shows older adults can have poor thirst, and when dehydrated often present with falls, having little energy, and worsening dementia (Morley, 2015)
- Offer drinks in social activities, routine activities, and through verbal and visual cues (Cook et al., 2019)



Meaningful Activities Classification

(Morely, Philpot, Gill, & Berg-Weger, 2014)

Brief Social Stimulus
Computer Assisted
Task Oriented
Food Oriented
Cognitive Stimulus
Exercise
Music, including dancing
Spiritual

Communal Dining (International Psychogeriatrics, 2020)

Dining areas with socialization and increased choices result in increased nutrient intake, reduced food intake barriers, but are less effective on dementia units where people require individual needs to be met

Medical Assessment

- Geriatric Syndromes – **RGA** and **SLUMS**
- Depression using the **GDS, Tx Depression**
- Thyroid problems – **TSH**, **Free T4**, **Tx**
- Deficiencies: **B12**, **Iron Studies**
- Metabolic problems: protein calorie malnutrition, dehydration, kidney injury, infection – **CMP**, **CBC, protein intake, hydration, Tx**
- swallow problems (dysphagia) – **MBS**, **ST**
- bowel problems (constipation, obstruction, medications, etc.) – **colonoscopy**, **imaging**, **med rec**, **specialty referral?**
- gastric motility (diabetes, medications) – **diagnostic testing**, **med rec**, **specialty referral**
- Anorexia – **sched meals/fluids**; **low dose mirtazapine; increased calories/protein**
- Food insecurity – **SW referral**

Weight Loss Interventions: Food Intake

Dietary intake best:

Eating food stimulates the entire digestive system (Livovsky et al., 2020)

- Chewing stimulates olfactory process and gut hormones while mouth feel along with the sound of food being eaten enhances flavor – all combined add to flavor and the hedonic sensation (pleasure) influencing hunger
- Post prandial experience promotes digestive well-being and affects mood

EATING DIFFICULTY & MORTALITY

Advanced Dementia

- Advanced dementia pts often lose the desire to eat or the ability to physically consume food d/t the neurodegenerative process
- Eating difficulties are a natural part of the advanced dementia disease process
- In one study following those with advanced dementia over 18 mos, 85% experienced eating difficulties and 6-month mortality was nearly 50% of cohort (Mitchell et al., 2009)

50%

AMERICAN GERIATRICS SOCIETY
Position Statement

- **"1. Feeding tubes are not recommended for older adults with advanced dementia. Careful hand feeding should be offered; for persons with advanced dementia, hand feeding is at least as good as tube feeding for the outcomes of death, aspiration pneumonia, functional status, and comfort. Tube feeding is associated with agitation, greater use of physical restraints, greater healthcare use due to tube-related complications, and development of new pressure ulcers."**

- **Evidence from many studies suggests that benefits of TF do not outweigh substantial treatment burdens**

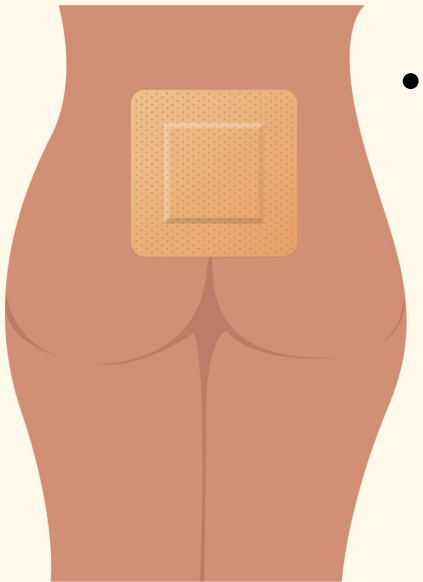
(American Geriatrics Society Ethics Committee and Clinical Practice and Models of Care Committee, 2014).

FEEDING TUBES

Pressure Ulcers

Teno et al., (2012) Matched Cohort

- **PEG patients 2.27 times more likely to acquire pressure ulcer [95% CI 1.95-2.65]**
- **Pressure ulcer patients less likely to heal (OR 0.70 [95% CI, 0.55-0.89]**



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Case 1: Mildred

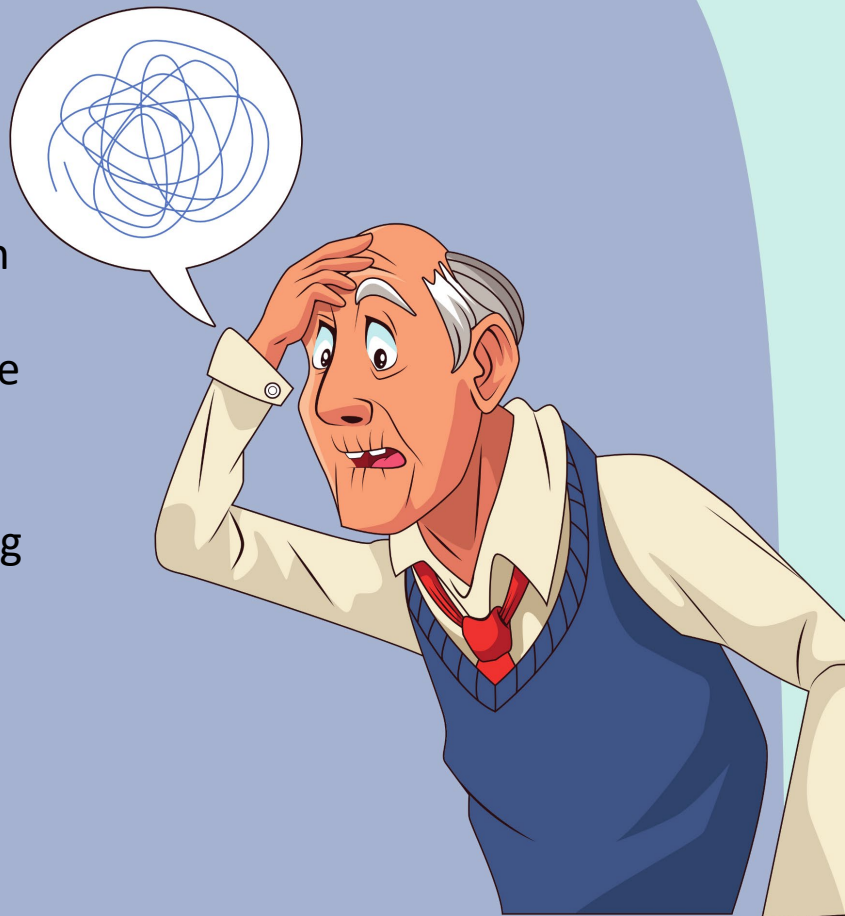
84yo widowed white female who lives alone. PMH: HTN, HLD, CAD, T2DM Her cardiologist wants her to reduce sodium intake under 2g/d and reduce red meat to reduce her risk of a heart attack. Her family mentions it won't be hard because she isn't a big meat eater. She admits to not eating much anyway and is no longer using the stairs due to weakness. You perform the RGA and find the following.

Case 2: Fred

72yo married black male with history of IDA, HTN, HLD, BPH, MCI, OA. His primary provider mentioned his BP a little high, told him his iron levels are normal and asked him to stop his iron pill. He is scared to stop the iron because he felt bad when it was low so keeps taking it. In addition to his regular meds, he is taking many OTC supplements on his own including B complex to help with stress, Vit D 5,000u to help bones, Vit C 1000mcg and folic acid 1mg to help with his immune system, memory supplement, omega FA for his heart, and a multivitamin. You perform an RGA and find the following.

Case 3: Willard

81yo WM with advanced dementia. He requires 24/7 supervision and assistance with all ADLs. Lately he has been spitting out his food and neither his daily caregiver or his wife can get anything of substance down. His wife mentions to you “if he doesn’t start eating better his doctor thinks we will need a feeding tube”. What thoughts would you share?



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