

# (Dietary) Measures to Prevent Weight Loss in Dementia Residents

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# Objectives

- Discuss the evaluation and management of involuntary weight loss in residents with dementia
- Discuss screening tools for malnutrition
- Discuss the use of appetite stimulants and nutritional supplements
- Review medications commonly associated with weight loss and nutritional deficiencies
- Discuss vitamin supplements
- Discuss artificial nutrition in dementia

# What is considered 'normal'?

## When should we be concerned about weight loss?

- Our body composition changes with age (it's harder to keep muscle, etc), so it is expected after age 70 for one to lose  $\sim 0.22 - 0.44$  lbs per year.
- **Clinically significant weight loss = 5% in 3 months, 10% in 6 months**

# Why is this important? Why do we ask for serial weights?

- Unintentional weight loss > 5% in community dwelling older adults is predictive of mortality.
- Weight loss is a CMS quality trigger for long term care settings
- BMI < 22 is associated with increased mortality and poorer functional status in community dwelling adults > 75
- BMI 25-29 had less functional decline compared to older adults with normal BMI 18.5-24

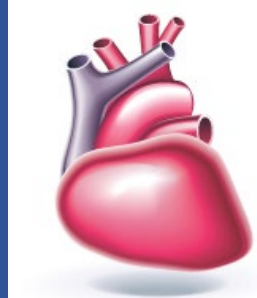
[Newman AB, Yanez D, Harris T, et al. Weight change in old age and its association with mortality. J Am Geriatr Soc 2001; 49:1309.](#)

# Etiology of Unplanned Weight Loss

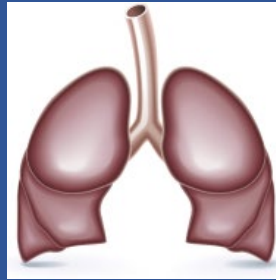


GI—Swallowing, dental, changes in taste/smell

CV



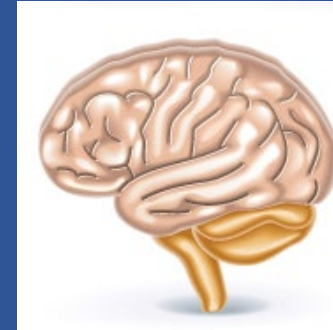
Respiratory



Need assistance with meals—mobility, cognition, transportation, poverty, isolation



Depression  
Dementia  
Substance use—EtoH



Unknown



Malignancy  
Chronic infection



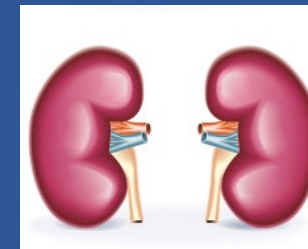
Medication Side Effect



Endocrine



Renal disease



# Causes of Involuntary Weight Loss

- Cancers
- Chronic diseases (COPD, CAD, liver, renal, autoimmune, infection, etc)
- Endocrine (DM, thyroid)
- GI Disorders (malabsorption, **swallowing difficulties**, ischemia)
- **Dementia—forgetting to eat and lack of awareness by family/caregivers**
- **Neurological (stroke, Parkinsons, etc)**
- **Alcoholism**, substance abuse
- **Dental problems—ill-fitting dentures, lack of dental care**
- **Depression, anxiety, bereavement, social isolation**
- **Decreased access to food, difficulty preparing meals (poverty, transportation)**
- Elder Abuse, Neglect
- **Medication side effect**
- **Recent hospitalization/illness**

# Why Older Adults in General are at Higher Risk for Weight Loss

- Recent illness/hospitalization
  - Appetite Loss/ Anorexia
  - Sarcopenia (muscle atrophy while immobile—why we focus on early hospital mobility)
  - Cachexia (inflammatory effects of disease)
  - Inability to compensate after period of low food intake (low physiological reserve)
  - Can result in long-term, persistent weight loss (can't bounce back)
- Greater risk of social isolation and poverty
  - 1/3 of adults age 65+ and 1/2 of adults age 85+ live alone
  - Several studies have shown that older adults who eat in the presence of others consume more than those who eat alone.
  - A greater proportion of older adults live near the poverty line, compared with the general population.

# MEALS ON WHEELS—Cause of Weight Loss in Older Adults

Medications (eg, digoxin, theophylline, SSRIs, antibiotics)

Emotional (eg, depression, anxiety)

Alcoholism, older adult abuse

Late-life paranoia or bereavement

Swallowing problems

Oral factors (tooth loss, xerostomia)

Nosocomial infections (eg, tuberculosis, pneumonia)

Wandering and other dementia-related factors

Hyperthyroidism, hypercalcemia, hypoadrenalism

Enteral problems (eg, esophageal stricture, gluten enteropathy)

Eating problems

Low salt, low cholesterol, and other therapeutic diets

Social isolation, stones (chronic cholecystitis)



# Malnutrition

- Malnutrition prevalence: 2016 meta-analysis from variety of health care settings (mostly in Europe), included data from 240 studies and over 110,000 older adults
- Rates of malnutrition were:
  - 6% of outpatients
  - 22% hospital
  - **29% long-term and post-acute care**

[Cereda E, Pedrolli C, Klersy C, et al. Nutritional status in older persons according to healthcare setting: A systematic review and meta-analysis of prevalence data using MNA®. Clin Nutr 2016; 35:1282.](#)

# Screening Tools for Malnutrition

The Nutrition Screening Initiative\* developed 3 tools to screen for nutritional risk in older adults:

- the DETERMINE checklist - **D**isease, **E**ating poorly, **T**ooth loss/mouth pain, **E**conomic hardship, **R**educed social contact, **M**ultiple medicines, **I**nvuntary weight loss/gain, **N**eeds assistance in self-care, **E**lder years (>80 years old)
- the Mini Nutritional Assessment (MNA), and 6-item short-form MNA-SF
- Simplified Nutritional Assessment Questionnaire (SNAQ).

Both the DETERMINE checklist and SNAQ are self-report questionnaires for patients **without** cognitive impairment.

# Mini Nutritional Assessment

- The MNA is a sensitive tool for evaluating the risk of malnutrition among frail older adults. 18 questions cover BMI, mid-arm and calf circumferences, weight loss, living environment, medication use, dietary habits, clinical global assessment, and self-perception of health and nutrition status.
- Sensitivity 83%, Specificity 90% for malnutrition in older adults
- Most commonly used by nutritionists
- The higher the score the better, lower scores indicate higher risk of malnutrition

# MNA-SF

## (Short Form Mini Nutritional Assessment)

**Decline in food intake over past 3 months due to loss of appetite, digestive problems, or chewing or swallowing difficulties:**

- A            0 = severe decrease in food intake  
              1 = moderate decrease in food intake  
              2 = no decrease in food intake

**Weight loss during the past 3 months:**

- B            0 = > 3kg (6.6 lbs)  
              1 = does not know  
              2 = 1-3 kg (2.2 – 6.6 lbs)  
              3 = no weight loss

**Mobility:**

- C            0 = bed or chair bound  
              1 = able to get out of bed or chair but does not go out  
              2 = goes out

**Psychological stress or acute disease in past 3 months:**

- D            0 = yes  
              2 = no

**Neuropsychological problems**

- E            0 = severe dementia or depression  
              1 = mild dementia  
              2 = no psychological problems

**BMI (kg/m<sup>2</sup>):**

- F1           0 = < 19  
              1 = 19 to < 21  
              2 = 21 to < 23  
              3 =  $\geq$  23

**Calf circumference (cm)**

- F2           0 = < 31  
              1 =  $\geq$  31

# MNA-SF Scoring

Note: If F1 (BMI) is not available, replace F1 (BMI) with F2 (calf circumference)

If F1 (BMI) is known, do not answer score F2 (calf circumference)

Scoring (Maximum 14 points)

- 12-14 points: normal nutritional status
- 8-11 points: at risk of malnutrition
- 0-7 points: malnourished

## MEDICATIONS:

Family members may ask, “Is there something my loved one can take to improve their appetite?”

### Options?

- Megestrol acetate (Megace)
- Dronabinol (Marinol)
- Mirtazapine (Remeron)
- Liquid oral supplements

# Megestrol Acetate for Anorexia-Cachexia Syndrome

Clinical effect	Clinical Impact
<u>Improves</u> appetite	NNT = 4
Small effect on weight gain	NNT = 12
Does <b><u>NOT</u></b> improve quality of life	--
Increases VTE risk	NNH = 2 - 55
Increases risk of dying	NNH = 23

In patients who take megestrol acetate, approximately 1 in 4 will have an increase in appetite, 1 in 12 will have a small increase in weight, and 1 in 23 will die.

# Dronabinol



- Orally active cannabinoid
- FDA-approved for anorexia with weight loss in AIDS
- Limited data, studies evaluated short term effect
- Long-term data and data showing survival benefit are lacking.
- Not a “geriatric-friendly” medication



# Mirtazapine

- Atypical antidepressant
- Increased appetite and weight gain are side effects
- 17% increase in appetite and 10% increase in weight gain **ONLY in older adults treated for depression**
- Most weight gain in first 4-8 weeks
- Weight gain with treatment of depression is similar to other antidepressants.

**No evidence to support use of mirtazapine for weight gain in absence of depression**

# Liquid Oral Supplements



- In undernourished, short-term, hospitalized patients:
  - Fewer complications: OR 0.72
  - Lower mortality: OR 0.66
- Disappointing impact on other circumstances of unintentional weight loss
- No clear impact on functional status, mood, or hospital length of stay.
- No evidence for supplementation at home or in well-nourished individuals

# Liquid Supplement or Candy Bar?

	Ensure Plus	Snickers	Greek Yogurt	Glucerna Strawberry
Size	8oz	4 minis	1 cup	8oz
Calories	350	170	150 cal	220
Fat	11g	8g	4.5g	9g
Protein	13g	3g	12g	10g
1 <sup>st</sup> 3 ingredients	1) Water 2) Corn maltodextrin 3) Sugar	1) Milk chocolate 2) Peanuts 3) Corn syrup	1) Nonfat milk 2) Cream 3) Live, active cultures	1) Water 2) Corn maltodextrin 3) Milk protein concentrate
Taste (n=1)	Tied for 3 <sup>rd</sup>	1	2	Tied for 3 <sup>rd</sup>

Distraction from real food?

# Medications Associated with Weight Loss

## Medications Associated with Weight Loss

ACE inhibitors

Allopurinol

Amantadine

Antibiotics (eg, erythromycin)

Anticholinergics

Antihistamines

Antiparkinsonian medications  
(eg, levodopa, selegiline)

Benzodiazepines

Bisphosphonates

Calcium channel blockers

Cholinesterase inhibitors

Digoxin

Dopamine agonists

Iron

Loop diuretics

Metformin

Opiates

Spirolactone

SSRIs (eg, sertraline)

Tricyclic antidepressants

# Vitamins for other diseases?

- In multiple large randomized clinical trials of older adults with normal cognition or mild cognitive impairment, supplementation with a variety of antioxidant vitamins has shown no impact on cognitive or incident dementia over follow-up times of 7–10 years.
- A systematic review has shown that multinutrient supplements improved chair rise time and handgrip strength in older frail adults, but no conclusive studies have shown efficacy of vitamins or antioxidants in frailty. Sarcopenia is part of the frailty syndrome; because vit D plays a critical role in muscle health, supplementation has been studied in seven randomized controlled trials as a therapy for sarcopenia, with mixed results.
- 2017 meta-analysis suggests that vit C supplementation does not reduce major cardiovascular events. This finding is consistent with the lack of benefit seen with the use of vitamin C for primary as well as secondary prevention of cardiovascular events.
- Routine use of vitamin E to prevent cancer, cardiovascular disease, dementia, or degenerative eye disease is unsupported by evidence. For some conditions, such as prostate cancer or cerebral hemorrhage, the risk may be increased. Vitamin E supplementation may also increase the propensity for bleeding in older adults who are taking aspirin or anticoagulants such as warfarin.

# What can we do to prevent weight loss in patients with dementia?

- Make meals social
  - Older adults who eat in the presence of others consume more
- Liberalize diet
- Increase nutrient density of food (protein, good fats)
- Small frequent meals
  - Delayed gastric emptying and early satiety more common with age
- Increased social support and feeding assistance
  - Meal preparation and cueing for eating
- Screen for depression
- Medication review
- Clarify goals and expectations
  - What to expect as dementia progresses

# Unplanned Weight Loss in the Elderly

## *Choosing Wisely*<sup>®</sup>

- Avoid using prescription appetite stimulants or high-calorie supplements for treatment of anorexia or cachexia in older adults; **instead, optimize social supports, provide feeding assistance, and clarify patient goals and expectations.**

The American Board of Internal Medicine Foundation and the American Geriatrics Society, Ten Things Physicians and Patients Should Question.

<http://www.choosingwisely.org>

So....About that... Clarifying Goals and  
Expectations



# The Clinical Course of Advanced Dementia

- 6th leading cause of death in the US
- Under recognized as a terminal disease
  - **30% of all decedents aged 65+ die from or with dementia**
- Characterized by a prolonged trajectory of severe disability
- Eating problems are the most common complication in advanced dementia.
  - Oropharyngeal dysphagia, aspiration, refusal to eat, inability to feed oneself, weight loss.

# No benefit of feeding tubes in advanced dementia in observational studies

- No improvement in
  - Survival
  - Nutritional status
  - Wound healing
  - Aspiration pneumonia
  - Functional status, quality of life
- Harms include
  - Worsening pressure ulcers
  - Patient discomfort, agitation
  - Increased physical and pharmacological restraint use
  - Family less likely to report excellent end of life care
  - More ED use, death in hospital
- There is little evidence that death is associated with dehydration/starvation.
- Discuss with patients and families that loss of appetite is part of the natural dying process. As patients get weaker, they need less and less food and fluids.

# The Cascade Study

- Followed 323 nursing home residents with advanced dementia (stage 7 Global Deterioration Scale) for 18 months
- 86% developed eating problems (hallmark of advanced disease)
- 53% had recurrent infections (PNA, UTI)
- 55% died
- 41% experienced hospitalization, ED visit, IV therapy, or tube feeding in the LAST 3 MONTHS OF LIFE
- *Residents whose family members understood poor prognosis and expected complications of advanced dementia had less aggressive care interventions in the last 3 months of life.*

# Feeding tubes in Advanced Dementia

## *Choosing Wisely*<sup>®</sup>

- Don't recommend percutaneous feeding tubes in patients with advanced dementia; instead offer oral assisted feeding.

Careful hand-feeding, small frequent meals, liberalize diet, assess food access

*The American Board of Internal Medicine Foundation and the American Geriatrics Society,  
Ten Things Physicians and Patients Should Question. <http://www.choosingwisely.org>*

# Using Goal-Directed Decision-Making in Advanced Dementia



1. Clarify the clinical situation with proxy decision-maker
  - Where are we now in the disease trajectory?
2. Determine values, care preferences, primary goals for care
  - Longevity
  - Comfort, Quality of life
  - Death at home
  - What care is perceived as burdensome?
3. Present treatment options
  - **Expected benefits vs. risks based on best evidence**
  - Expected treatment burden
4. **Weigh options and align with goals**

## Summary:

For advanced dementia,

- No role for feeding tubes, encourage hand feeding
- If goal is life prolongation, oral antibiotics for pneumonia are reasonable.
- If goal is comfort, antibiotics may increase burden.

Clark J, Raijmakers NJ, Allan S, et al. Declining oral intake towards the end of life: how to talk about it? A qualitative study. *Int J Palliat Nurs*. 2017;23(2):74–82.

# How do we discuss this with families?

- There is little evidence that death is associated with dehydration/starvation.
- Discuss with patients and families that loss of appetite is part of the natural dying process. As patients get weaker, they need less and less food and fluids.
- Artificial nutrition will not stop the progression of the disease.

# Case #1

An 83-year-old nursing home resident with advanced Alzheimer disease undergoes evaluation for weight loss. He has not had any hospitalizations, acute infections, or other serious medical problems in the last 20 months. Since entering the nursing home 6 years ago, he has had a **slow, steady decline in cognitive function**. He is fully ambulatory and attends most meals in the residents' dining hall; he needs minimal feeding assistance (set-up only). He is on a 2,600-kcal regular diet that was modified to include finger foods and nightly snacks. According to chart documentation, he usually consumes >75% of the food served, but a **2-day calorie count indicates that his consumption is closer to 40% of what he is served**. Records indicate that he has steadily lost 18 lb, or 10% of his weight, over 11 months. His current weight is 146 lb and his BMI is 22 kg/m<sup>2</sup>. When he first entered the nursing home 6 years ago, he gained about 18 lb and maintained his weight until this year.

# Case #1

Other than a comprehensive evaluation for potentially reversible causes of this resident's weight loss, which of the following should be done?

- (A) Prescribe oral liquid nutrition supplements with meals and snacks between meals.
- (B) Change the diet from regular to puréed.
- (C) Implement a program of individualized feeding assistance.
- (D) Start mirtazapine.



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# Case #1

- The patient has progressive decline in cognitive function placing him at increased risk of continued decline in nutrient intake, as confirmed by the 2-day calorie counts. Good candidate for individualized feeding assistance.
- Several controlled-intervention trials demonstrate that **90% of residents with inadequate nutrient intake increase food consumption by  $\geq 15\%$  in response to feeding assistance provided by trained staff, including social stimulation, encouragement to eat, verbal cueing, and help in choosing menu items, physical assistance as needed**
- 2-day trial of feeding assistance is a valid method of determining whether a resident will respond.
- A puréed diet is not appropriate because there is no specific indication for it.

Fox CB, Treadway AK, Blaszczyk AT, et al. Megestrol acetate and mirtazapine for the treatment of unplanned weight loss in the elderly. *Pharmacotherapy*. 2009;29(4):383–397. <https://doi.org/10.1592/phco.29.4.383>

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Simmons SF, Keeler E, An R, et al. Cost-effectiveness of nutrition intervention in long-term care. *J Am Geriatr Soc*. 2015;63(11):2308–2316. <https://doi.org/10.1111/jgs.13709>

## Case #2

An 82-year-old nursing home resident with Alzheimer disease was diagnosed with a **UTI 3 weeks ago**. The patient's fever responded rapidly to a course of amoxicillin. She remains somewhat lethargic and has not recovered to her baseline level of alertness and physical activity. No other specific problems are evident. Chart documentation indicates that she is eating 75%–100% of food served at most meals, but **she no longer goes to the residents' dining room for meals**. Prior to her recent illness, she was independent in eating.

On physical examination, weight is 153 lb and her BMI is 26 kg/m<sup>2</sup>, which is unchanged from monthly records over the last year. Temperature is 98.6°F, Lungs are clear, and jugular venous pressure is <5 cm. She has **2+ to 3+ pretibial and presacral edema that was not evident on previous examinations**. Otherwise, the examination is unchanged from baseline.

Laboratory results from 2 days ago show normal WBC count, electrolyte levels, and kidney function tests, unchanged from baseline. Urinalysis is normal. She was flagged for a check of her nutritional status given her slow recovery.

## Case #2

Which of the following should be undertaken to assess the patient's nutritional risk?

- (A) Administer the Mini Nutritional Assessment (MNA).
- (B) Obtain serum prealbumin level.
- (C) Measure biceps and triceps skinfold thickness and arm muscle circumference.

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## Case #2

- This patient is at risk given her slow recovery from the recent urinary tract infection. Her level of alertness and physical activity is noticeably different from baseline, her weight is unchanged, and she has significant edema. This would suggest that her nonfluid weight has declined. Given her clinical course, it is likely that she is not eating as well as in the past.
- The MNA is a sensitive tool for evaluating the risk of malnutrition among frail older adults.
- Calorie counts for 2-3 days are helpful in assessing residents with fluctuating or borderline nutrient intake but nursing home diet records may not accurately reflect intake. Several studies indicate that nursing home staff often overestimate how much residents eat. Residents reported as independent in eating are often the ones at greatest risk of having unrecognized poor nutrient intake.
- Measurements of skinfold and arm muscle circumference provide an indirect assessment of nutritional reserves. However, the usefulness of serial measurements is limited by poor retest reliability and inadequate sensitivity to change in nutritional status, especially over 1–2 months.
- Serum albumin and prealbumin lack sensitivity and specificity as markers of nutritional status in older adults. Prealbumin has a shorter half-life and is considered more responsive to nutrient intake than albumin. However, recent studies suggest it is not an adequate substitute for calorie counts in assessing the nutrient intake in older adults recovering from acute illness.

## Case #3

Use of dietary supplements among older adults continues to be high in the US, without proven benefit for most supplements.

Which of the following conditions has the best evidence for antioxidant vitamin supplements slowing progression of disease?

- (A) Macular degeneration
- (B) Mild cognitive impairment
- (C) Sarcopenia
- (D) Cardiovascular disease

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- (C) Sarcopenia
- (D) Cardiovascular disease



# Case #3—Vitamins for Macular Degeneration

- Age-Related Eye Disease Study (AREDS) formulation of antioxidant vitamins slows progression of both wet and dry forms of age-related macular degeneration. The formulation includes vitamins C and E,  $\beta$ -carotene, and zinc.
- The AREDS2 trial evaluated the utility of replacing  $\beta$ -carotene with the carotenoids lutein and zeaxanthin and of adding omega-3 fatty acids (DHA and EPA) to the AREDS vitamin formulation, but the trial did not show either further decrease in risk of age-related macular degeneration or reduction in progression of early nonexudative macular degeneration.

## Case #4:

Mrs. B is a 93 year old woman with advanced Alzheimer disease. Family has come to you with the following concerns:

- “She barely eats anymore.”
- She coughs with feeding and has had 2 pneumonias.
- She is spending much of the day in bed.
- She communicates using only a few words.

Their question to you “Is it time for a feeding tube?”

# Case #4

What are the most appropriate next steps:

- A) Surgical referral for a PEG tube
- B) Goals of care discussion with family to assess their current understanding of the disease process and explain the natural course of disease progression
- C) Start Dronabinol

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(C) Start Dronabinol.

QUESTIONS?

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