Unintentional Weight Loss In The Elderly

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List all the factors contributing to weight loss

85-year-old female
CC: dry mouth, depressed, little energy
Clinician notices;
10 # loss/6 mo, BMI 19.9, wt 102#
Reduced appetite
Lives alone, little family contact
Alcohol; 2-4 glasses of wine/day
Diet: Low fat, low sodium diet
List all the factors contributing to weight loss

PHx:
HF-stg 3, Depression, loose fitting dentures

Medications
Lisinopril 20 mg/day (HF)
Digoxin 0.125 mg/day (HF)
Lasix 40 mg/day (HF)
Nortryptyline 50 mg/day (antidepr)
Supports and disclaimers

Co-Director

“NEBGEC: The Nebraska Geriatric Education Center”

DHHS Health Resources and Services Administration
Objectives:

- The learner will be able to:
  - identify **indications** for evaluation of weight loss
  - list **age related changes** that influence appetite
  - describe the **evaluation** for weight loss.
- **Summary cards**
NOTHING NEW

“....the shoulders, clavicles, chests and thighs melt away.
This illness is fatal”

-Hippocrates

(460-370 BC)
FRAILTY-remembering the components

“FRAIL” mnemonic

Fatigue
Resistance (ability to climb one flight of stairs)
Ambulation (walking speed, ability 1 block)
Illnesses (greater than 5)
Loss of weight (>5%)

Abellan van Kan G. et. al. JAMDA 2008; 9:71-72
Abellan van Kan G. JAMDA Feb 2008 p 71-73
Weight loss and confusing terms

Cachexia-weight loss due to disease
- predominately muscle wasting

Starvation-caloric deprivation (anorexia)
- lose more fat than muscle

Sarcopenia “melting of flesh”
- muscle mass and function loss w aging
- lose more muscle than fat
- 50% age > 80
  - major factors: lack of exercise, cytokine excess

ALL FACTORS IN AGE-RELATED UNINTENTIONAL WEIGHT LOSS
DEFINITIONS

a. Triggers for evaluation

- **Wt. Loss:**
  - >5% over 30 days or ≥10% over 180 days
  - or
- **intake < 75% of all meals for > 7 days (MDS)**
  - or
- **BMI < 18.5 (BMI = WT/ Ht squared)**
  - or
- **Albumin ≤ 3.2**
INCIDENCE:

- Community-dwelling: 5-20%
- Hospital admissions: 15-20%
- During hospital care: 25%
- Home health patients: 40%
- Nursing home: 41%
Weight loss and Frailty
What to do if you do not have a dietitian?

- Wt loss predicts disability, hip fx., institutionalization, & death

- Nutritional Risk predicted by Mini-Nutritional Assessment (MNA)

-- **Mini-Nutritional Assessment - short form** – 6 item (MNA-SF)

  negatives = patient low nutritional risk
  positives = proceed to full MNA.

- **Mini-Nutritional Assessment** - validated, 18


Morley JE, JAMDA 2007: 8: 201-204
Rolland Y. Am J. MED 2006; 119:1019-1026
Abellan van Kan G. JAMDA Feb 2008 p 71-73
Weight loss and Frailty
What works?

Aggressive nutritional support delays frailty

+ Nutritional screen -> comprehensive geriatric assessment & targeted interventions prevent frailty adverse outcomes

Morley JE, Nutrition. 2001; 17:660-663
MORTALITY:

- **BMI** (Body Mass Index) (1)

  Increase risk of death with:

<table>
<thead>
<tr>
<th>MALES</th>
<th>FEMALES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Begins:</td>
<td>&lt; 20</td>
</tr>
<tr>
<td>Severe:</td>
<td>&lt; 18.5</td>
</tr>
</tbody>
</table>

Recent weight loss, most predictive of death 2

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3. Thomas DR, et.al. Reviews In Endocrinology And Metabolism. 2005; 6:129-136
APPETITE and AGING

**Appetite:**
- declines with age

Elders reset their “appetostat” down and have difficulty “turning it up” with stress.

Average body wt, decreases after age: 70-75 y.o.

Sjogren A. Age Aging 1994; 32:108
Roberts SB, et. al. JAMA 1994; 272:1601-4

**Intake:**
- 18% community elders consume < 1000 kcal/day
- 50% of elders consume < RDA of minerals and vitamins
- ~40% elderly, energy intake < 2/3 of RDA
- 10-20% elderly ……… consume protein < RDA

Thomas DR, The GRECC VA Medical Center St Louis Mo. Supplement to Annals of LTC 2002
FACTORS of AGE & DISEASE

Social
- Food availability
- Poverty
- Shop & cook
- Social interaction
- Social message to loose wt
- Loss of spouse

Biologic
- ↓ smell & taste
- GI; ↓ fundal stretch,
- ↑ CCK, & leptin

Psychological
- Depression
- Dysphoria
- Anxiety

Disease
- MEALS-ON-WHEELS
  mnemonic eval.
- Medical
SUMMARY FLOW CHART
For
APPETITITE and AGING *

OVARIES
↓ estrogen

ADIPOCYTES
↑ leptin

TESTIS
↓ testosterone

↓ Muscle mass,

↓ Taste and Smell

CNS
(↓ Neuropeptides, ↑ CART )

↑ CYTOKINES

STOMACH
↓ Adaptive relaxation
↑ antral stretch

DOUDENUM
↑ CCK

ANOREXIA

WEIGHT LOSS

*Adapted from article: Anorexia and weight loss in Elderly Outpatients. Thomas DR, Morley JE 12-00
REGULATION of APPETITE

Summary

COMBINATION of:

1) Peripheral satiation
2) Central feeding drive

MODULATED BY: Hormonal and cytokine feedback
INCREASE IN METABOLIC DEMANDS with INJURY & ILLNESS

- Surgery- minor 1.1
- Infection---mild 1.2
- Infection---moderate 1.4
- Infection---severe 1.6
- Cancer—therapy 1.3
- AIDS 1.6
- Pulmonary disease 1.3
- Skeletal trauma 1.35
- Wound healing 1.2-1.6

- Long bone fracture 1.3-1.5
- Severe trauma 1.35
- Severe infection /multiple trauma 1.3-1.5
- Multiple trauma on ventilator 1.5-1.7
- Trauma on steroids 1.6-1.7
- Sepsis 1.75-1.85
REVIEW

- Malnutrition prevalent and significant health factor in the elderly
- Appetite declines with age
- Unintentional weight loss is a marker of frailty and is Adult Failure To Thrive
- Unintentional weight loss is multifactorial
WEIGHT LOSS EVALUATION
WEIGHT LOSS EVALUATION
In the Elderly

Weight loss
1) 5%/30 days or 10%/180 d. or
2) Intake < 75% for > 7 d or
3) BMI ≤ 18.5 or
4) Albumin ≤ 3.2

Delirium?

Dehydration?

Anorectic?

Yes

Treat

Depressed?

No

Speech Therapy

Yes

Dysphagia?

No

Malabsorption?

- Stool for fat,
  - reduced substances
- Vitamin A level
- B-carotene level

Yes

Treat

Oral supplements*
(Ad. Lib favorite foods)
(Nutr. Supplements)
Appetite stims?**

Search for treatable causes
MEALS ON WHEELS***

None found

Albumin ≤ 3.0 g/l?

No

Palliative Care

Feeding tube?

Yes

Parenteral or enteral nutrition

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* Oral supplements
** Appetite stimulants
*** Meals on Wheels
WEIGHT LOSS EVALUATION algorithm

Triggers

- 5% in 30 days or 10% in 180 days ...........or
- Intake < 75 % for > 7 day....................or
- BMI < 18.5...........................................or
  - Albumin ≤ 3.2

Delirium ?

Dehydration ?
Anorexia?  
- Yes  
  - Depressed?  
    - Yes  
      - Treat  
    - No  
      - Dysphagia?  
        - Yes  
          - Speech Therapy  
        - No  
          - Dietary Oral Supplements  
          - Evaluation  
          - Appetite Stimulants?  
          - Next page
Search for treatable causes

“MEALS ON WHEELS”
Search for Treatable causes

“MEALS ON WHEELS” MNEMONIC

M edications/ M edical
E motional problems
A lcoholism / A buse / A cid (stomach)
L ate life paranoia
S wallowing problems

W andering and other
dementia-related behaviors
H yperthyroidism / H ypercalcemia
E ating problems (tremor, stroke, etc.)
E nteric problems (e.g. constipation, Cancer, etc.)
L ow salt diet, other therapeutic unpalatable diets
S hopping problems / S ocial isolation

O ral problems
N o money (poverty)
Medical problems

Cancer - most commonly thought of
Infections - cytokine access, anorexia
COPD - ↑ energy needs due to ↑ work of breathing
CHF - associated with anorexia and protein losing enteropathy

Dementia:
- associated with weight loss after initial period of hyperphagia
- unable to remember voluntary swallowing steps
Diagnostic Criteria for Cachexia

- Unintentional weight loss (> 5%)
- BMI
  - < 20 for age < 65 yo
  - < 22 for those age > 65
- Albumin < 3.5 g/dl
- Evidence of cytokine excess (disease, CRP)

## Cachexia, Disease & Prevalence

<table>
<thead>
<tr>
<th>Disease</th>
<th># w Dz</th>
<th>Cachexia %</th>
<th># needing treatment</th>
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<tbody>
<tr>
<td>Cancer</td>
<td>1,368,000</td>
<td>30%</td>
<td>410,400</td>
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<tr>
<td>COPD</td>
<td>16,000,000</td>
<td>20%</td>
<td>3,200,000</td>
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<tr>
<td>CKD</td>
<td>375,000</td>
<td>40%</td>
<td>150,000</td>
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<tr>
<td>RA</td>
<td>2,100,000</td>
<td>10%</td>
<td>210,000</td>
</tr>
<tr>
<td>HF</td>
<td>4,800,000</td>
<td>20%</td>
<td>960,000</td>
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<tr>
<td>Nursing home</td>
<td>1,600,000</td>
<td>20%</td>
<td>320,000</td>
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</tbody>
</table>

Cancer Cachexia

• 15-40% cancer patients cachetic
• **Causative factors;** cytokine excess, increase metabolism, anorexia
• **Nutritional support** improves QOL, may not change mortality
• Anti-cytokine agents can help (Megace*)


*Non-FDA approved*
COPD cachexia

-associated with muscle weakness, diaphragmatic dysfunction, respiratory failure & poor quality of life and death

-contributing factors; hyper catabolism, medications, anorexia, increase energy expenditure, increase cytokines.

Treatment:

-nutritional supplement and anti-cytokine (e.g. Megace) agents can improve problem.

Mostert R. et. al. Respiratory Medicine 2000; 94:859-67
Chronic Renal Failure Cachexia

- > 25 % on HD malnourished
- Multifactor approach prolongs survival, increases energy, increases body weight

Treatment:
- Multifactor approach;
  - dialysis + anti-cytokine therapy + erythropoietin supplementation + nutritional support

Cano W. Ann Med Interne (Paris), 2000; 151; 563-74
Heart Failure cachexia

- Increased cytokines predict weight loss (IL-1; TNF-Alpha, IL-6)
- Reversal of weight loss improves outcome
- Confusing problem when mixed with diuresis induced weight loss
  - use dry weight for BMI
  - albumin

Anker SD, Dialogs Cardiovascular Medicine 2000; 5:162-70
Dementia and Weight Loss

• Often precedes diagnoses AD
• Not due to increased energy expenditure

Multifactorial causes In Dementia

Mild Dementia
• Loss of smell
• Forgetting
• Loss of appetite

Moderate Dementia
• Swallowing disorders (dysphagia)
• Behavioral problems

Severe-End Stage
• Involuntary behavior and reflexes
• Severe dysphagia

Emotional problems (depression)

- Depression --- most common reversible cause of weight loss

Outpatients:

- up to 30%

NH pts % depressed

- 36% (Nationally)
- 45% (Nebraska)

Antidepressants with appetite stimulation

Mirtazapine (Remeron)

Alcoholism / Abuse / Acid (stomach)

**Alcoholism:** undiagnosed or under appreciated alcohol use will contribute or cause weight loss;

**Screen with:**

- Quantity and frequency plus CAGE questions

**Abuse** (self neglect most common)

**Acid (stomach)**

PUD, gastritis etc may present as anorexia or nausea alone in the elderly.
Late life paranoia

(Psychiatric problems)
- Late life paranoia
- Late life mania
- Anorexia nervosa

RARE
Swallowing problems:

**ETIOLOGIES:** neuromuscular, neurologic, decreased salivary flow, infections, obstructions or anatomical

-most common cause- dementia

**Frequency**  COMMON

-40-60% long-term care residents

**Evaluation:**
- clinical: teeth, mouth, throat, neck,
- further evaluation is best performed by speech therapy
- results in improved nutrition.

Sloane PD. JAMDA September, 2008 pages 476-485
Oral problems (taste, teeth, olfactory)

**Teeth**
- 80% of NH residents have some degree of tooth loss

**Mouth**
- 33% of NH residents have mucosal lesions.

The message;
Losing weight? Look in the mouth!

Weyant RJ, Adults. JAGS 52;547-553, 2004
Sahyoun NR,. Generations, 2004; 28:18
Oral problems (taste, teeth, olfactory)

- High correlation with reduced intake of calories, protein, fat, carbohydrates, fiber, calcium and antioxidants
- Diminished enjoyment of eating

With
- decayed/missing teeth
- periodontal disease
- missing/inadequate dentures
- decrease chewing capacity

Weyant RJ, Adults. JAGS 52;547-553, 2004
Sahyoun NR,. Generations, 2004; 28:18
Clinical responses

- Preventive dentistry
- Tooth replacement
- Artificial saliva
- Denture relining or new dentures
- Changing food texture
- Oral mucosa evaluation and treatment

Sahyoun NR, Generations, 2004; 28:18
“MEALS ON WHEELS”

No money (poverty)
Should “trigger” Social service consult

Wandering and other dementia-related behaviors

Lauque S, JAGS 52;1702-1707, 2004
“MEALS ON WHEELS”

Hyperthyroidism & Hypercalcemia & Hypoadrenalism

- Eating problems (tremor, stroke, etc.)
  - OT evaluations and therapy can assist many.
  - Assisting older people to feed is labor intensive

  *institution* = 18 minutes/meal
  *home* = 99 minutes/meal
"MEALS ON WHEELS"

Enteric problems
- Constipation - most common
- Malabsorption

Low salt diet
- other therapeutic unpalatable diets
- food preferences, consistency & temperature improve food intake

Low salt diet, therapeutic diets can cause malnutrition in the elderly

WHY?

- ↓fat diets – minimally effective on cholesterol
- dietary fat produces most food flavor
- regular diet no effect on NH residents with DM
- minority of elderly hypertensives are salt sensitive.

Tariq S., J Am Diet Assoc 2001;101(12):1463-1466
“MEALS ON WHEELS”

Shopping problems
   -(see above in “No money (poverty)"
   -Should “trigger”
   Social service consult to explore ways to finance and assist with shopping.

Social isolation
   “DH will address”

   Morley JE, Nutrition 2001;17:660-663
   Kayser-Jones J J Geron Nurs 1996;22:26-31
Search for treatable causes

"MEALS OF WHEALS"

Yes

Treat causes

NONE found

Albumin < 3.2?

Feeding tube?
Feeding Tube?

No

Palliative Care

Yes

Parenteral or Enteral feedings
WEIGHT LOSS EVALUATION
In the Elderly

Weight loss
1) 5%/30 days or 10%/180 d. or
2) Intake < 75% for > 7 d or
3) BMI ≤ 18.5 or 4) Albumin ≤ 3.2

Delirium?
Treatment

Dehydration?
Treatment

Anorectic?

Yes

Depressed?
Treatment

No

Dysphagia?
Yes → Speech Therapy

No

Malabsorption?
- Stool for fat, reduc. substances
- Vitamin A level
- B-carotene level

Yes → Treat

No

Oral supplements*
(Ad. Lib favorite foods)
(Nutr. Supplements)
(Appetite stims?)**

Treat

Yes

Search for treatable causes
MEALS ON WHEELS***

None found

Albumin ≤ 3.0 g/l?

Palliative Care

No

Feeding tube?

Yes

Parenteral or enteral nutrition

Speech Therapy

Yes
OVERVIEW

- Reviewed affect of unintentional weight loss in the elderly
- Aging affect on appetite and weight
- Disease affect on appetite and weight
- The evaluation of weight loss
Additional data at end of handout

- Additional tips to improve nutrition in the elderly
- Nursing home regulations regarding expected weight loss in EOL
- Tips on tube feedings
- List of common anorectic medications
- List of common drugs and which nutrient’s absorption they affect
- List of the appetite stimulants and conditions research has supported use.
Spanish Language Resources

www.familydoctor.org,
  Good resource for pt info in Spanish
http://medlineplus.gov/,
  Lists many patient education books that are available in spanish
http://www.health.utah.gov/cmh/multilinguallibrary.htm
University of Utah-excellent resource
http://www.preceutor.com/
(On home page for many computers @ UNMC) Go to patient education, then micromedex, then care notes, choose a topic and then spanish language. An excellent way to get topic specific patient info. quickly and can print out English version to compare
THANK YOU
for
your Kind Attention
Tips to Improve Elder's Appetites and Weights

- Caloric supplement 60 min pre meals increase caloric intake more than if given with the meal [i]
- Meals on Wheels delivery person stays while meal was eaten reduced nutritional risk and dysphoria. [ii]
- NH staff spend more time feeding and utilize more verbal and physical prompts increased food intake [iii]
- Elders eat more in morning, this is more exaggerated in dementia, it is recommended to provide more food in AM [iv, vi]
- Increase palatability later in day improves intake [vii]
- Taste enhancers increase food intake [viii]

References:
EXPECTED WEIGHT LOSS:

Documentation and performance of the following must be performed;

- Encourage and provide intake
- Surrogate/patient goals of care consistent with EOL care
- Risk factor assessment and nutritional intake performed
- Correctable causes of weight loss addressed (if consistent with patients goals of care)

Sloane PD. Et Al. JAMDA. Vol. 9, no .7, September 2008, pages 476-485
TUBE FEEDINGS

Indications:
1) **Neuromuscular disease** impairing swallow or gag reflex
2) **Increased metabolic rate** with inability to meet nutritional demands thru eating alone
3) **Post op pts** with underlying condition preventing oral intake (pts on ventilator)

However: in pts with cognitive impairment

No evidence of change in survival with TF

[Thomas DR, Kamel HK, Morley JE. Supplement to Annals of Long Term Care. Feb 2004
Mitchel

Mitchell SI, Arch Intern Med 1997;157:327-332
Arinzon Z. JAMDA, Vol 9, No 9, November 2008 pages, 657-662]
TUBE FEEDINGS

Main complications:

Aspiration pneumonia:

- 40% of all deaths due to tube feedings

Contributing factors:

Diseases:
- DM, pancreatitis, vagotomy, malnutrition

Medications:
- anticholinergic or antimotility medications

Formulas:
- high nutrient dense, hypo or hyper osmolar,
TUBE FEEDINGS

Aspiration pneumonia:

Aspiration risk:
- PEG 56% of pts.
- NG 44% of pts.
- Duodenal not better than PEG.
- Jejunal may confer less risk

Not associated with risk:
- Age, mental status, method of feeding (intermittent or continuous)

return
Medications causing anorexia

amlodipin   fentanyl   nizatidine   spironolactone
antineoplastics   furosemide   NSAIDS   theophyllines
amiodarone   hydralazine   omeprazole   warfarin
butyrphones   ipratropium   paroxetine
ciprofloxin   iron   phenytoin
colchicine   l-dopa   procainamide
Cholestyramine   lithium   phenothiazines
Cimetidine   l-thyroxine   potassium
conj. Estrogens   metronidazole   psyllium
digoxin   mineral oil   ranitidine
Enalapril   narcotics   resperidone
famotidine   nifedipine   SSRI’s
<table>
<thead>
<tr>
<th>PHARMACOLOGICAL AGENTS for UNINTENTIONAL WEIGHT LOSS</th>
<th>IMPROVED APPETITE</th>
<th>WEIGHT GAIN</th>
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<tr>
<td><strong>AGENT</strong></td>
<td><strong>CONDITION</strong></td>
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<tr>
<td>Corticosteroids</td>
<td>Cancer</td>
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<tr>
<td>Corticosteroids</td>
<td>AIDS</td>
<td>Yes</td>
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<tr>
<td>Cyproheptadine</td>
<td>Cancer</td>
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<td>Cannabinoids (Marinol,dronabinol)</td>
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<td><strong>Cannabinoids (dronabinol)</strong></td>
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<tr>
<th>DRUG</th>
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<tr>
<td>Acarbose</td>
<td>Iron</td>
<td>Decreased absorption</td>
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<td>Aluminum hydroxide</td>
<td>Thiamin, Vitamin A</td>
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<td>Aspirin</td>
<td>Folate/Vitamin C</td>
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<td>Benzodiazepines</td>
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<td>Cephlosporins</td>
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