Nutrition and Aging

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Objectives

- Demographics of aging
- Impact of aging on nutrition
- Specific nutritional problems in aged
- Undernutrition & obesity
- Ethics of nutrition & tube feeding

Nutrition

"Half of what we eat keeps us alive;
the other half keeps doctors living well!

Walter Bortz, The Roadmap to 100, 2010

"Eat food, mostly plants, not too much."

Michael Pollan, In Defense of Food, 2008


University of Michigan
Integrative Medicine
www.med.umich.edu/umim
Optional
Weekly
Daily
Accompaniments
Lean Meats
Fish & Seafood
Eggs
Dairy
Seasonings
Healthy Fats
Legumes
Grains
Fruits
Vegetables
Water
Healing Foods Pyramid™

Aging & Nutrition

- 40% of men and 10% of women underweight
- 16% ingest <1000 kcal/day
- 50% of hospitalized are malnourished on admission
- 66% are malnourished at discharge

Mold J. Nutritional Assessment, in Practical Ambulatory Geriatrics, 1998

Risk Factors in Aging

- Biological
  - Impaired taste or smell
  - Impaired vision
  - Multiple medications
  - Cognitive deficits
  - Difficulty swallowing
  - Stomach/intestine diseases
  - End-stage disease

Risk Factors in Aging

- Psychological/mental health
  - Depression
  - Dementia
  - Bereavement
  - Substance abuse
  - Pre-death?

Risk Factors in Aging

- Social
  - Isolation
  - Recent moves
  - Institutionalization
  - Fear of crime
  - Fear of falling
  - Poverty

Risk Factors in Aging

- Functional
  - Manual dexterity problems
  - Mobility limitations
  - Falls
  - Incontinence

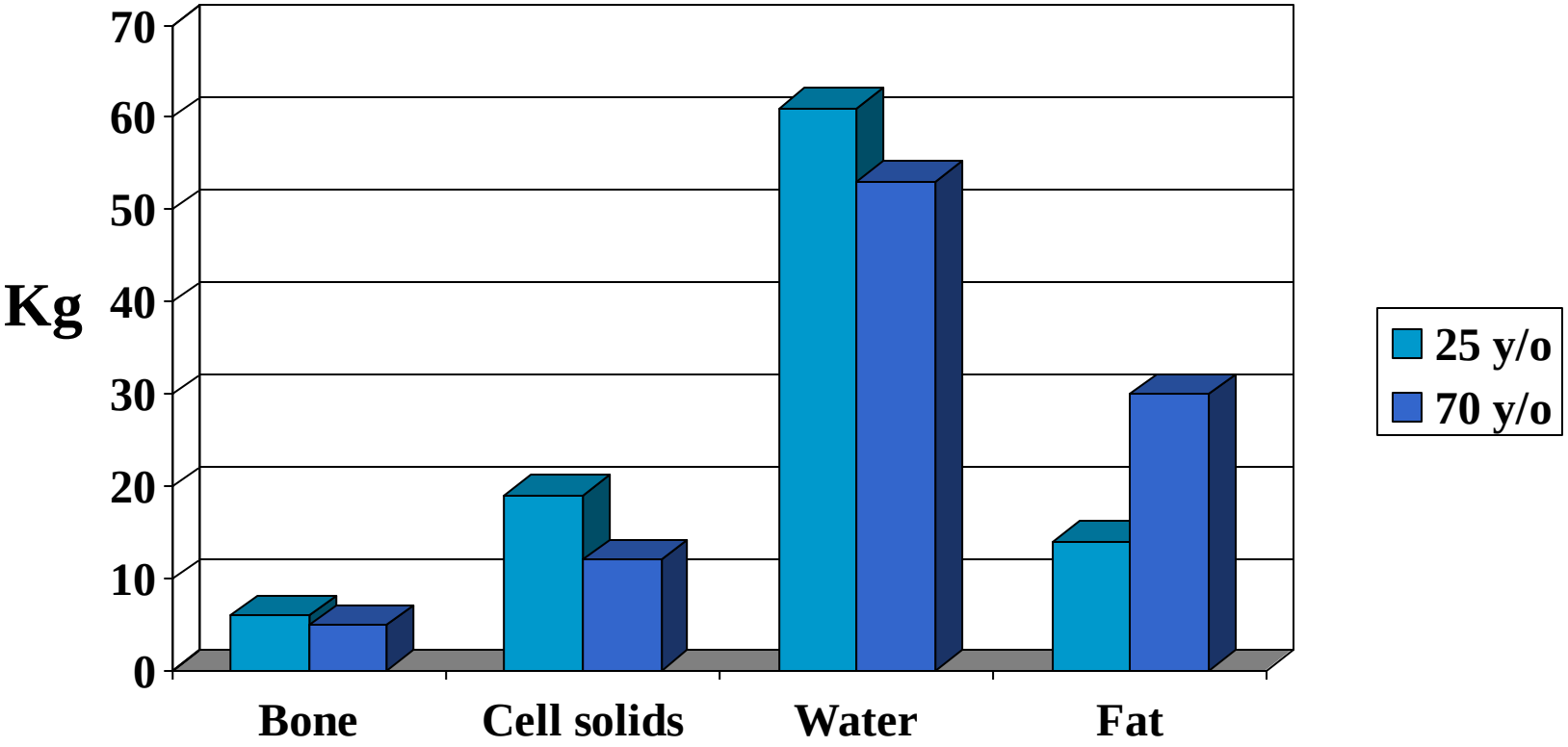
Specific Problems

- Dehydration
- Protein/calorie malnutrition
- Obesity
- Calcium
- Vitamin D
- Vitamin B_{12}
- Fiber

Dehydration

- 200,000 Medicare admits/yr
- Minor changes can create big problems
- 2% water loss reduces:
  - work capacity by 20%
  - cognitive performance by 10%
- Recommendation: drink 1500-1800 ml per day (5-6 glasses)

Body Composition



Malnutrition

Effects

- Decreased immunity
- Increased falls
- Poor wound healing
- Decreased cognition
- Depression
- Weakness/fatigue
- Anorexia

Low albumin levels – below 3.5 g/dl

Dx of P/C Malnutrition

- <90% of average body weight
- BMI < 22
- Serum albumin < 3.5 g/dl
- Serum cholesterol <160 mg/dl
- Low transferrin, prealbumin, white blood cells

What About Supplements?

- Vitamins - Two types
  - Fat soluble – A, D, E, K
  - Water soluble – B, C
- Problem of ingredients versus whole foods
- Problem of doses
- Worrisome recent study

“Real” Vitamins

- Best in real food
  - Food has complex mixtures of interacting vitamins, minerals, and other
  - One leaf of thyme has 35 antioxidants
- Vit E
  - Alpha-tocopherol versus gama-tocopherol
  - Dietary E, not capsules, reduced risk of Alzheimers

Vitamins from the farm, not the pharmacy

Problem of Doses

- Vitamin E
  - 100 IU – Nurses Health Study – decreased heart disease
  - 400 IU – increased heart failure and prostate cancer
- No study has clearly shown benefits of megadoses
  - Except in deficiency states

Iowa Women's Study

- 38,772 women 1986-2010
- Observational cohort study
- Increased mortality with vitamins
  - Multivitamin – 6%
  - B6 – 10%
  - Folic acid – 15%
  - Iron – 10%
  - Copper – 45%
- Calcium decreased mortality – 9%

Calcium

- Increased need with age
  - Inadequate intake
  - Decreased absorption
  - Lactose intolerance
  - Use of lasix (furosemide)
- Males: 1000 mg/d
- Females: 1500 mg/d

Vitamin D

- 35% of hospitalized elders are deficient
- Risks:
  - Low milk consumption,
  - Those who rarely go outside
  - Liver and renal disease
- Routinely test all admits to NH or supported housing?

Vitamin B_{12}

- 15% of those over 65 and 30% of those with gastric surgery are deficient
- Atrophic gastritis & GI surgery
- B12 levels not reliable between 200-300 pg/dl
- ⇧ levels of methylmalonic acid or homocysteine are better

Zinc

- Symptoms mistaken for aging
  - Impaired taste & smell, hypogonadism, immune deficiencies, dry skin, anorexia
- May retard pressure ulcer and wound healing
- DM and liver disease

Other Supplements

- Omega -3
- Resveratrol
- Co-Q10
- DHEA
- HGH

Obesity

- Weight loss more problematic
- Mortality tends to decrease with weight gain
- 26% of 65-76 y/o are overweight
- May complicate certain conditions (OA)
- Diets <1000 kcal to be avoided
- Watch for dehydration if dieting

Salt

- 44% of sodium consumed came from 10 food categories:
  - bread, pizza, soups, cheese, mixed pasta dishes, savory snacks
  - cold cuts and cured meats, poultry, sandwiches, mixed meat dishes
- Reducing the sodium content of the 10 leading sources by one-quarter would
  - reduce total dietary sodium by more than 10%,
  - preventing an estimated 28 000 deaths and
  - Decrease healthcare expenditures by $7 billion annually.

Diets?

- Mediterranean
- DASH – Dietary Approach to Stop Hypertension
- Atkins
  - Low carb, risky (ketones)
- South Beach
  - Glycemic index, only 33% of claims supported by evidence
- Weightwatchers

Eat, Drink, and Be Healthy, Walter Willet, 2005

Ethical Issues – Artificial Nutrition

- All persons decrease intake as dying
  - Two weeks of hardly eating is common
  - Two to three days of no fluid intake is common
- Cancer model
- Real life (& death) model

Artificial Nutrition Myths

- Prolongs life
- Promotes comfort
- Prevents aspiration
- It is “ordinary care”

Patient Comfort

- No evidence of enhanced comfort if pt doesn't ask for food or water
- Some evidence of increased suffering with feeding
- Most discomfort can easily be relieved

Brummel-Smith K. A Gastrostomy in every stomach? *J Am Board Fam Pract*, 1998;11:242-243

McCann R. Comfort care for terminally ill patients. JAMA 1994;272:1263