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Critical Analysis of Popular Diets and Supplements

Division of Human Nutrition

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Course Schedule

- 4-5 introductory lectures
- Instruction in use of analysis programs
- Sample diet analysis
- Midterm
- Student presentations and discussion
- Final



Lecture Topics

- Dieting and Obesity in the US
- Ingestive Science: The Control of Eating
- Digestion and Metabolism
- Dietary Supplements

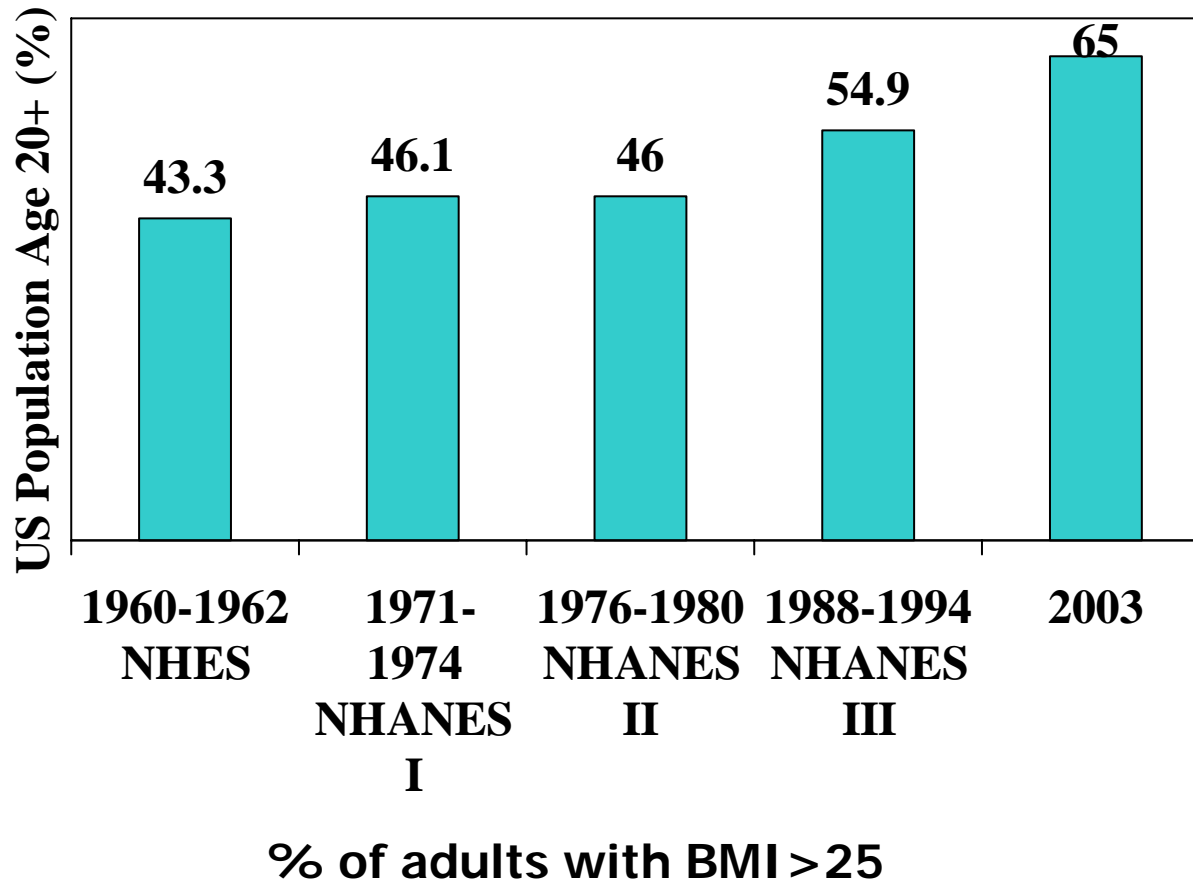
Medical Aspects of Obesity and Dieting

Do You Know Your Own BMI?

$$\text{BMI} = \text{weight}(\text{kg}) / \text{height}(\text{m})^2$$

		Weight (lbs)													
		120	130	140	150	160	170	180	190	200	210	220	230	240	250
Height	5'0"	23	25	27	29	31	33	35	37	39	41	43	45	47	49
	5'2"	22	24	26	27	29	31	33	35	37	38	40	42	44	46
	5'4"	21	22	24	26	28	29	31	33	34	36	38	40	41	43
	5'6"	19	21	23	24	26	27	29	31	32	34	36	37	39	40
	5'8"	18	20	21	23	24	26	27	29	30	32	34	35	37	38
	5'10"	17	19	20	22	23	24	26	27	29	30	32	33	35	36
	6'	16	18	19	20	22	23	24	26	27	29	30	31	33	34
	6'2"	15	17	18	19	21	22	23	24	26	27	28	30	31	32

About Two-out-of-Three U.S. Adults Are Overweight or Obese





Rising Prevalence of Obesity

- ❖ The prevalence of obesity among children and adolescents has increased approximately 50% over the past 20 years and now affects more than one in four young people.¹⁵
- ❖ Overweight children have an increased likelihood of being obese as an adult¹⁶ and obesity in both children and adults is associated with significant morbidity and increased early mortality.¹⁷



Costs of Obesity:

- ❖ Obesity is estimated to cause approximately 400,000 deaths annually
- ❖ 1-year direct and indirect costs are estimated to be \$117 billion.²⁵
- ❖ This represents 9.1% of all health care costs in the U.S.

How Might Obesity Shorten Lifespan?

Leading Causes of Death, U.S.

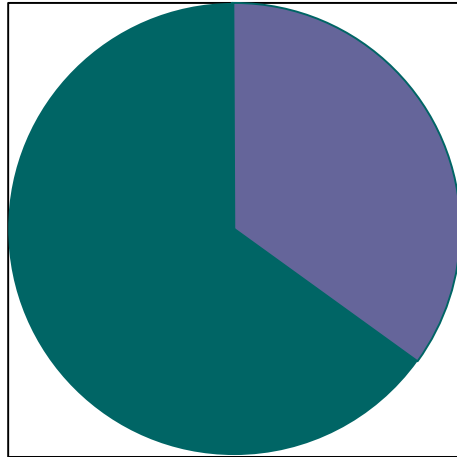
Cause	Rate/100,000	Obesity-Related
1. CHD	175	Yes
2. Cancer	133	Yes
3. Accidents	35	
4. Stroke	31	Yes
5. COPD	19	
6. Pneumonia	14	
7. Suicide	12	
8. Diabetes	10	Yes



Life Expectancy and Obesity

- Two studies published in 2003 find that obesity shortens life expectancy by at least several years
- The combination of obesity and smoking is particularly costly, and may reduce life by a mean of 13 years

Comorbid Conditions and BMI



■ No Comorbidity 35%

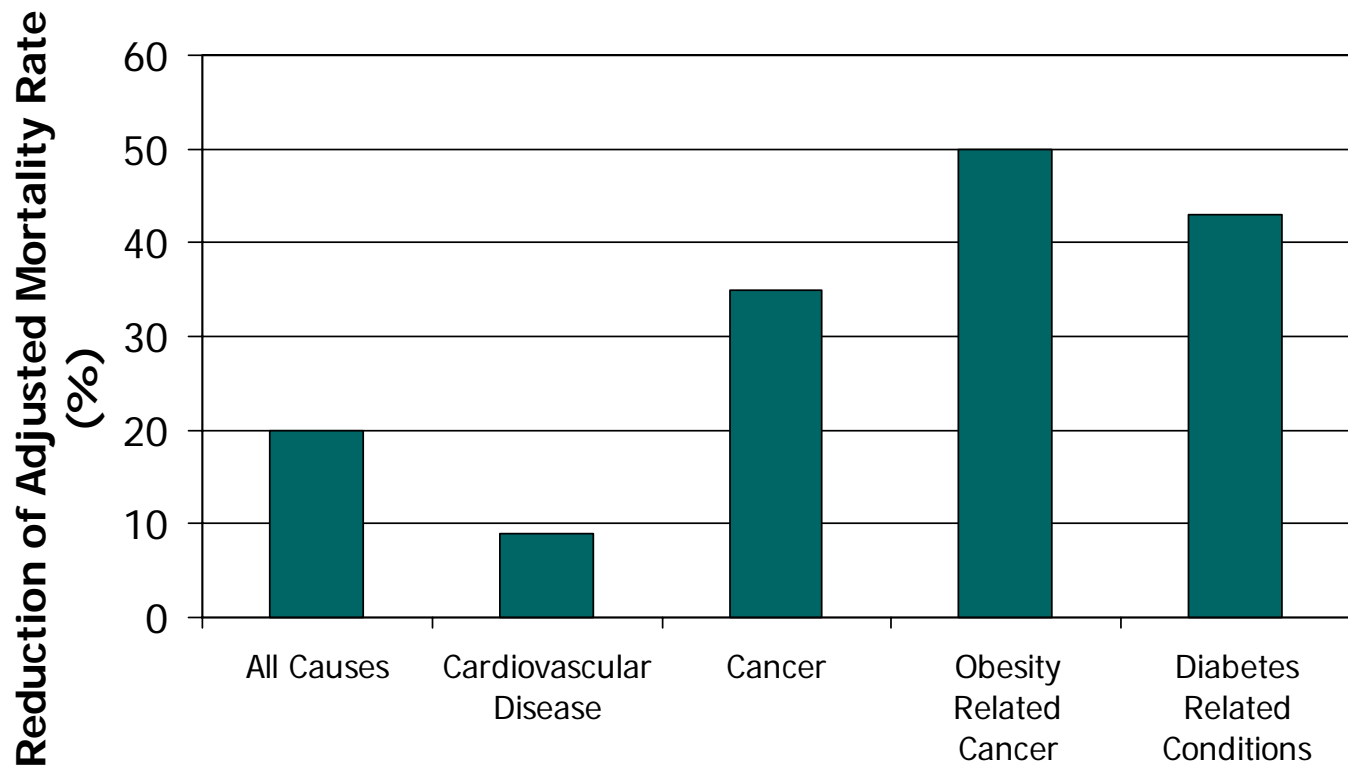
■ Comorbidity 65%

- Comorbid conditions that increase as BMI increases:
- Hypertension
- Dyslipidemias
- Type-2 diabetes

Effects of Substantial Weight Loss on Coexisting Health Problems (Among Approximately 850 Patients Who Completed a Very Low Calorie Diet)

- Hypertension (41% prevalence)
 - BP normalized, off all drugs 71%
 - BP normalized, still on drugs 12%
 - BP still high after weight loss 17%
- Diabetes mellitus (8% prevalence)
 - Oral hypoglycemics discontinued 100%
 - Insulin discontinued completely 87%
 - Insulin dose decreased 10%

Intentional Weight Loss and Reduction in Mortality



Source: Williamson, D.F, et al. (1995). Am J Epidemiol 141: 1128–1141



Are We Addressing Obesity Adequately?

I- Access to care & care utilization

- **Obese should *need* to seek care more**

Studies show:

- obese get fewer preventive tests (Pap, breast exams)
- more obese delay/cancel medical appts

These findings could be due to patient discomfort with providers, or vice versa

Are We Addressing Obesity Adequately?

II- Health Professionals' Attitude

- Obesity is almost uniformly endorsed as a problem second in importance only to smoking cessation (survey of 1222 physicians); however,
- Most physicians surveyed express low confidence in their ability to treat obesity
- Most report low or no exposure to systematic training in Rx of obesity
- Yet, rarely refer formally to weight-loss programs

Are We Addressing Obesity Adequately?

III- Health Professionals and Prejudice

- Survey of Canadian nurses:
 - 1/3 prefer not to care for obese at all
 - 24% agreed that the obese are “repulsive”
- Survey of physicians (Adams 1993):
 - 21% reluctant to do pelvics on obese
 - 2% reluctant for very attractive patients
 - 0% reluctant for thin patients

Are We Addressing Obesity Adequately?

III- Health Professionals & Prejudice-2

- Blinded evaluation of a chart by 122 PCPs: told only CC (migraines), sex, nl/OW/obese
 - Obese pts were prescribed more tests
 - Providers estimated they would spend less time with the pts they were told were obese (22 vs 31 min)
 - Obese were described more negatively on 12/13 indices (eg, "extent pt would annoy me")



Evaluation of Obesity

- Sleep disturbances
- Drugs
- Family history
- Endocrine
- Smoking status

A Classification of the Obesities

Neuroendocrine Obesities

- Hypothalamic syndrome
- Cushing's syndrome
- Hypothyroidism
- Polycystic ovary (Stein-Leventhal) syndrome
- Pseudohypoparathyroidism
- Hypogonadism
- Growth hormone deficiency
- Insulinoma and hyperinsulinism

Iatrogenic

- Drugs (psychotropics, corticosteroids)
- Hypothalamic surgery

Nutritional Imbalance and Obesity

- High-calorie, high-fat diets
- Cafeteria diets

Physical Inactivity

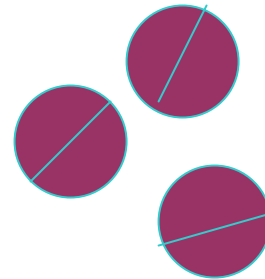
- Enforced (postoperative)
- Aging
- Job-related

Genetic (Dysmorphic) Obesities

- Autosomal recessive
- X-linked
- Chromosomal

Drugs Associated with Weight Gain

- Steroids; BCPs; HRT
- Tricyclic antidepressants
- Phenothiazines
- Lithium
- Antihistamines
- Sulfonylureas, insulin
- Beta blockers, thiazides





Treatments for Obesity

- Lifestyle modification
 - Diet
 - Physical activity
 - Behavior modification
- Pharmacotherapy
- Surgery



Lifestyle Modifications Alone May Not Provide Long-Term Results

- Diet and behavior modification with exercise
 - 58% regain weight lost by year two