Chapter 16 & pp. 423-442, 137-141 Adult Nutrition

Adult focus

Shift from growth to maintenance

Preserving health

Maintaining healthy weight

Promoting future health and wellness/preventing or delaying chronic disease

List 4 lifestyle factors:

Key Nutrition Concepts

Poor nutrition and health progress slowly and may or may not be reversible.

Diet and exercise are modifiable risk factors for **many** diseases.

Typically nutrient intakes ≠ recommendations.

Enjoy their food

Focused on sustaining mental and physical capacity. Prevent/delay chronic Dz.

Definition of Adulthood

Ages in adulthood for teaching purposes:

Early adulthood - 20-39 yrs

Midlife - 40 to 64 yrs

“Sandwich” generation – the 50’s

Later adulthood – 60-65 yrs

10 leading causes of death

Social determinants of health

What adults eat:

Personal choice

Where people:

 learn

work

play

Community they live in

Policies & politics

Physiological Changes

Growing stops by the 20’s

Bone density stops in early 30’s, declines begin ~40 yo

Muscular strength peaks around 25 to 30, then declines

Changes in amount & location of body fat

Decline in:

Muscle mass (“lean muscle mass”)

Lean mass

Flexibility & dexterity

Bone mass

Climacteric changes

= Point in life where crucial changes occur

Menopause: female end of reproductive capacity

After 30 yo, males decrease testosterone and muscle mass

+ E balance -> wt gain. Shifts subcutaneous to visceral (intra-abdominal) adiposity

Gut Microbiome

Part of the immune system

Gut-brain axis

Gut dysbiosis (imbalance protective/harmful bacteria) may be associated with:

Changes in wt

Insulin sensitivity

Glucose metabolism

Dyslipidemia

Other cardio-metabolic and carcinogenic factors

Continuum of Nutritional Health

Estimating Energy Needs

Indirect calorimetry

Doubly labeled water

Mifflin-St. Jeor

Developed in 1990

More accurate than Harris-Bennidict

Males: RMR = (10 x kg) + (6.25 x cm) – (5 x age) + 5

Females: RMR = (10 x kg) + (6.25 x cm) – (5 x age) - 161

p. 408 “A pound of body weight is the equivalent of approximately 3,500 kcals.”

Nutrient Recommendations

Acceptable macronutrient distribution ranges (AMDR)

Fat 20-35% of calories

Carbohydrate 45-65% of calories

Protein 10-35% of calories

Risk Nutrients

Fiber

Calcium & Vitamin D

Vitamin A

Vitamin E

Choline

Potassium & Sodium

Magnesium

Iron

Dietary Guidelines:  translates nutrient issues into food choices

Set of dietary and lifestyle recommendations

Based on latest scientific information

Developed to promote health and prevent disease

Key components of the U.S. system are the Dietary Guidelines for Americans and MyPlate

Specific food approach

Consume fruits, vegetables and whole grains

Select health-promoting fats

Select fish, poultry and meat alternatives

Select more nutrient-dense foods

Limit sugar & sodium

Get regular physical activity

Balance E in with E out

Total diet approach

Choose nutrient-dense foods

Don’t eat too much

Beverages

Choose H2O: 3-5 x 12 oz/d

Limit coffee and tea to 3-4 C/d

Drink 2 x 8 oz milk

If fruit juice is consumed, limit to 4 oz/d

Avoid sweetened beverages

Physical Activity

Combined w/ health-promoting eating can combat:

CAD & CVA

T2DM

HTN

Osteoporosis

Colon & breast cancer

Benefits inc: improved muscle strength, balance, endurance, physical & mental health, cognitive fx, manages wt, lowers BP, improves blood chol, improves sleep, improves self-esteem & self-efficacy, decreases depression & anxiety…

Define:

Physical activity

Exercise

Physical fitness

Wellness

Unstructured physical activity

Structured physical activity

Health-related Components of Fitness

Aerobic activity

Cardiorespiratory endurance

Muscular strength

Muscular endurance

Flexibility

Body composition

Newest addition: Neuromuscular

Principles of exercise

Overload

Progression

Specificity

Recuperation

Individuality

Reversibility

Overuse

Adaptations

Acute bout structured PA

Chronic structured PA

Recommendations:

Walk the walk

Understand barriers to participation

Be empathetic

Write a prescription

Cardiorespiratory

Strength

Flexibility

If moderate, don’t need a stress test

Leading causes of death by age group

Topics include:

**Overweight & obesity**

Cancer

**Cardiovascular diseases**

**Diabetes**

**Metabolic syndrome**

HIV/AIDS

http://www.ted.com/talks/peter\_attia\_what\_if\_we\_re\_wrong\_about\_diabetes

“Dieting Mentality”

https://www.cdc.gov/obesity/data/prevalence-maps.html

Classification

Central adiposity =

Distribution of body fat > indication of metabolic health

 Waist circumference = risk

VAT v. SCAT

Age, sex, and cultural differences

Assessment & Intervention

Assessment: BMI & waist circumference; Diet, weight, dieting & health history; PA; lab work; nut knowledge; readiness to change.

Hamwi formula

Intervention:

Medical nutrition therapy

Cognitive behavioral therapy

Meds

Bariatric surgery

Cardiovascular Disease

Review terms:

CHD or CAD (“CVD” in 7th) (CVD/CVA)

Ischemia

Angina

Coronary occlusion

Myocardial infarct

Arteriosclerosis

Atherosclerosis

CAD Interventions

Same as for stroke

Cardio-protective diet: predominantly plant-food diet

Fish 2x/wk

Limit salt

Appropriate fats

Weight loss if ovwt

Daily PA

Not smoking

Pharmacotherapy + diet mods

Metabolic Syndrome Syndrome X

Seen in ~20-30% of U.S. adults

Metabolic abnormalities that risk of CHD, stroke & T2DM including:

 VAT (large waist circumference)

 fasting blood glucose, TG (TAG), BP

 HDL

Diabetes Mellitus

Definition: fasting blood glucose ≥126 mg/dL

Type 1 (~10-15% of cases)

Pancreatic beta cells destroyed – autoimmune Dz

Type 2

Hyperinsulinemia

Defective production of insulin and insulin resistance

Most common type

Physiological effects

**Short Term**

Hunger & thirst

Fatigue

 Urination

 Weight

Blurred vision

 Infections

 Wound healing

**Long Term**

Heart disease

Hypertension

Blindness

Kidney failure

Stroke

Poor circulation

Loss of limbs

Interventions for Diabetes

http://www.diabetes.org/are-you-at-risk/diabetes-risk-test/?loc=atrisk-slabnav

Normalize blood glucose and glucose metabolism

Medical nutrition therapy (MNT) & physical activity

Exchange lists/CHO counting/plate method

Self-Monitored Blood Glucose/HA1C

Physical Activity

Pharmacotherapy

Gestational Diabetes

Seen in 2-12% of pregnant women

Increases w/ obesity

low fiber diet

Leads to:

Increased blood glucose

Triglycerides

Free fatty acids

HTN

Spontaneous abortion, stillbirth & congenital anomalies

Glucose Screening / Dx

Screen all at 1st prenatal visit for DM:

Fasting > 95 mg/dL

Random plasma glucose level > 200 mg/dL

Symptoms of hyperglycemia

Test at 24-28 weeks with

75 g, 2 hour OGTT

Normal if < 92 fasting

< 180 @ 1-hour

< 153 @ 2-hours

50 g non-fasting screen

Oral glucose tolerance test (OGTT) Fasting + 75 g glucose

given

Gestational diabetes Dx if :

Overnight fast > 92 mg/dL

1-hour after glucose load > 180 mg/dL

2-hours after glucose load > 153 mg/dL

Tx

Normalize blood glucose with:

Diet

Assess current habits

Individualize eating plan

Monitor wt gain

F/u during and after pregnancy

Physical activity: 3 x /wk @ ~50-60% of VO2 max

Metformin &/or insulin prn

Eating Plan

Estimate caloric need

Design meal pattern

Whole-grain breads & cereals, vegetables, fruits, & high-fiber foods

Limited simple sugars & juice

CHO that do not greatly raise glucose

Unsaturated fats

Three regular meals & snacks