

Nutrition & Disease

Third Exam Study Guide/Key Words

Nutrients: Carbohydrates, fats, protein, vitamins, minerals, water. Imbalance: nutrients vs. calories; Dietary Guidelines- recommendations; discretionary calories; fruits and vegetables and reduced disease risk; phytochemicals- natural/protective; examples good green and orange-yellow foods; beta-carotene, lycopene; flavonoids; how phytochemicals work: antioxidants, deactivate carcinogens, compete with cholesterol for absorption (phytosterols), phytoestrogens block estrogen's effect- cancer; protection- macular degeneration, cataracts; 5-a-day: rainbow of colors recommendation; cooking methods good vs. bad; flavanols in dark chocolate- health effects; 7 nutrients low in American diets: Functions and examples in food: calcium, potassium, fiber, magnesium, Vitamin A, Vitamin C, Vitamin E; iron deficiency- teenage girls/women- hemoglobin; iron sources in food; folic acid women who may become pregnant- baby's nervous system; older Americans/shut-ins: Vitamin D deficiency; vegetarians needs: protein, iron, Vitamins B12 & D, calcium; why exercise is important (disease protection); endorphins; sedentary living: chronic diseases/obesity; **Dietary Guideline exercise** recommendations- minutes/day: prevent heart disease/stroke, keep healthy weight, to lose weight, total amount of exercise divided into smaller periods; moderate vs. rigorous exercise; types of exercise: aerobic, resistance training (weights), weight bearing, stretching; children and exercise: protect against obesity; pregnancy/breast feeding and exercise; exercise and breast/colon cancer; important time in life- exercise: breast cancer prevention; after menopause: body fat- estrogens; exercise: decrease body fat, decrease breast cancer risk; prevention of reoccurrence of breast/colon cancer; exercise and weight loss; dieting: calorie reduction vs. exercise and bone density; exercise and bone strength; osteoporosis: weight bearing and strength training; exercise and arthritis; exercise and diabetes; exercise and memory loss/ Alzheimer's disease; exercise and menopause; sarcopenia (40's & 50's); muscle- marbling with fat: increased risk heart disease and diabetes; RDA definition; aerobic exercise: maximum heart rate, resting heart rate, endurance (repetitions), strength (amount of weight); stretching/yoga; body weight: calories in = calories out to maintain current weight (energy balance); adjust calories in vs. out to gain or lose weight; two-thirds Americans overweight, one-third Americans-obese; overweight: 10-19% above healthy weight standard; obese: 20% or more above standard; 16% American children overweight; overweight/obesity and health risks (diseases); 10% weight loss- benefits; calories in (carbohydrates, fats, proteins); calories out: basal metabolism (60-75%); physical activity (15-30%); thermic effect of food (10%); **BMR** vs. body weight, lean body mass, men vs. women, age, thyroid hormones, body temperature, low calorie intake; calories burned: fat (low energy cost) vs. carbohydrate/protein; energy balance (food + drink balanced by BMR + physical activities); **BMI**- estimate of body fat: normal 18-24; overweight: 25-29; obese: 30 or greater; men vs. women body fat; BMI correlates: diabetes, fast food, fruits/vegetables, testosterone, vegetarian diet; BMI overestimate of fat in muscular person; BMI and pregnancy; underestimate body fat: older adults (less muscle mass); body fat and age; apple pattern weight distribution and disease risk; apple pattern: stress, tobacco, alcohol, exercise; pear pattern- weight distribution; waist to hip ratio, waist circumference; obesity report cards; obesity/diabetes and education level; reasons for obesity: immigrants to US; obesity- worldwide health problem; obesity in pets; **obesity vs. overweight:** definitions;

obesity and leading cause of death; increased health risks with obesity (examples); fatty liver and metabolic syndrome; health benefits of weight loss in obese people; yo-yo dieting; body fat and women: reproduction; amenorrhea: change in fat/lean ratio body tissue; anorexia nervosa; adipocytes: size and number in infants, adolescence, pregnancy; adipocytes and weight gain in adults: size and number; weight loss- adipocyte number doesn't change; hunger vs. appetite; brown fat; hypothalamus and hunger vs. satiety; leptin (lipostat) and weight regulation; leptin gene: obese mice; set point: obese people losing weight (slowed metabolism) vs. thin people- increased caloric intake (increased metabolism); adaptive thermogenesis: obese vs. non-obese people; physical activity and obesity; fidgeting and weight maintenance; obesity in US: multifactorial disease: energy imbalance: explanation: genetics (25%), environment (75%); genetic predisposition (not absolute); adoptees, identical twin studies; environment: Americans eating more calories (portion distortion) imbalance, moving less: examples- reasons why; obesity and social networks; children and obesity (health problems); food industry (advertising); children- personal trainers; exercise and obese teens; prevention of obesity: common sense suggestions; volumetrics diet; importance of breakfast; common sense suggestions: eating out; obesity treatment: diets, exercise; drugs (Alli); bariatric surgery (gastroplasty, gastric bypass, gastric banding); Lap-band; liposuction; **diabetes**: Type 1, 2, gestational; high blood glucose; insulin not being produced by pancreas vs. insulin sensitivity (resistance in tissues); who gets diabetes (who's at risk); worldwide problem; diabetes and metabolic syndrome; diabetes genes; diabetes and health risks (heart disease, blindness, kidney failure, amputations, infections, neurological problems, etc); normal blood glucose: 80-120 milligrams/100 ml blood: homeostasis; kidney threshold- glucose in urine; pre-diabetic 100-125 mg/100 ml; diabetic 126 and higher (blood glucose); measure blood glucose- fasting; glucose tolerance test; normal glucose metabolism: insulin release from pancreas (beta cells) after meal; glucose in liver and muscles: energy or storage (glycogen); hours after meal: glucagons released- pancreas alpha cells: increases blood glucose; insulin and glucagon in balance in normal, non-diabetic; warning signs (symptoms) of diabetes; diabetes causes: type 1 vs. type 2; ketones in diabetic: blood/urine, ketoacidosis; Atkins Diet and ketones; type 2 diabetes: insulin resistance; genetics and lifestyle: overweight/obese; abdominal obesity (metabolic syndrome); type 2 diabetes: underlying cause: excess fatty tissue (overstuffed adipocytes): insulin resistance; pre-diabetes: asymptomatic- diagnosis as diabetics 10 years later; high glucose levels; glucotoxicity; beta cell fatigue (dysfunctional): require insulin injections; type 2 diabetics: increased release of glucose from liver; gestational diabetes: mother at risk of type 2 diabetes after delivery; child at risk of diabetes later in life; diagnosis methods: diabetes: fasting glucose, glucose tolerance test, glycosylated hemoglobin, glucose/ketones in urine; sugar in diet and risk of diabetes; glucose monitoring of diabetic critical; treatment: insulin injections (long, intermediate, short acting); syringe, insulin pen, insulin pump; inhaled insulin; transplantation entire pancreas or beta cells; type 2 diabetic: oral glucose lowering drugs (how they work); coordination key: eating food, exercise and insulin/oral drug administration; insulin/drugs without food: hypoglycemia; diet and diabetes: Dietary Guidelines for Americans, consistent routine; sweets and diabetic; high fiber food, protein, fat recommendations; vegetarian diets and diabetic; glycemic index of foods; glycemic load; no calorie sweeteners; diabetes & alcohol, coffee, magnesium, physical activity; prevention