

Study Guide for Exam 2; HLTH 140, Fall 2012

Nutrition

- Essential nutrients: Needed to build, maintain, and repair tissues and regulate body functions
- Macronutrients: Needed in large amounts
 - Water
 - Carbohydrates
 - Proteins
 - Fats
- Micronutrients: Needed in small amounts
 - Vitamins
 - Minerals
- Fuel potential
 - A kcalorie is the amount of energy it takes to raise the temperature of 1 kilogram of water 1°C
 - Macronutrients supply energy
 - Fat= 9 calories per gram
 - Protein= 4 calories per gram
 - Carbohydrates= 4 calories per gram
- Water
 - Function
 - Digests, absorbs, transports nutrients
 - Helps regulate body temperature
 - Carries waste out of body
 - Lubricates our body parts
 - RDA
 - 1 to 1.5 mL per calorie spent
 - 2 to 3 L or 8-12 cups of fluid
 - Water needs vary depending on factors such as food consumed and activity level
- Proteins
 - Function
 - Build and maintain muscles and bones, parts of blood, hormones, and cell membranes
 - Form enzymes that facilitate chemical reactions
 - What they're made of
 - 20 different amino acids
 - 9 essential amino acids (body can't produce it, so it's supplied by food)
 - 11 non-essential amino acids (body can produce these)
 - RDA
 - 0.36 g/lb of body weight
 - Sources
 - Complete proteins- supply ample amount of all essential amino

- acids
 - Animal proteins
 - Meat, fish, poultry, milk, cheese, eggs
 - Incomplete proteins- do not supply ample amounts of all essential amino acids
 - Vegetable proteins
 - Grains, legumes, seeds, nuts, other veggies
 - Mutual supplementation- nutritional strategy of combining two incomplete proteins to provide a complete protein (ex: red beans and rice)
- Fats (lipids)
 - Function
 - Most concentrated source of energy and principle form of stored energy in the body
 - Provides insulation
 - Provides essential fatty acids
 - Play role in production of other fatty acids and vitamins D
 - Provide major material for cell membranes and for myelin sheaths that help surround nerve fibers
 - Help absorb fat-soluble vitamins (A, D, E, K)
 - Add flavor, texture, and smell to foods
 - Provide emergency energy reserve when we are sick or when food intake decreases
 - Types
 - Saturated- found in animal proteins and other fats that remain solid at room temperature
 - Sources
 - Beef, pork, poultry, whole-milk dairy products, certain tropical oils (coconut and palm), certain nuts (macadamia)
 - Monounsaturated- found primarily in plant sources, are liquid at room temperature, are semi-solid/solid in fridge
 - Sources
 - Olive, sunflower, peanut, canola oils, avocados, many nuts
 - Polyunsaturated- primarily in plant sources, commonly referred to as “oil,” liquid at room temperature and when refrigerated
 - Sources
 - Corn and soybean oils, fish (trout, salmon, anchovies)
- Carbohydrates
 - Function
 - Body’s main source of energy
 - Fuel most of the body’s cells during daily activities
 - Used by muscle cells during high intensity exercise (good for endurance athletes to consume additional carbs)
 - Only source of energy for brain cells, red-blood cells, and some

other types of cells

- o RDA
 - 130 grams for males and females ages 1-70
- o Types
 - Simple (sugars)
 - Quick energy source
 - Easily digestible and composed of one or two units of sugar
 - o Sucrose, fructose, glucose, maltose, lactose
 - Complex (starches and dietary fibers)
 - Energy source
 - Slower to digest and composed of multiple sugar units
 - Includes starches and dietary fiber
 - Sources: whole grains (whole wheat, rye, brown rice, oats), vegetables, some fruits
 - Fiber
 - o Plant carbs that cannot be digested
 - o Types
 - Dietary fiber- present naturally in grains, legumes, fruits, vegetables, dried beans, nuts, seeds
 - Functional fiber- natural sources or synthesized in a lab, added to food or dietary supplement
 - Total fiber- sum of dietary and functional
 - o Properties
 - Soluble- dissolves in water or broken down by bacteria in large intestines, delays stomach emptying, slows glucose in blood
 - Insoluble- doesn't dissolve in water, doesn't break down in intestines, provides bulk to feces, prevents constipation, hemorrhoids
 - Refined vs. Whole grains
 - o Refined (processed)
 - o Unrefined (whole grains)
 - o Whole grains contain inner layer (germ), middle layer (endosperm), outer layer (bran)
 - o During processing- germ and bran removed, leaving starch and endosperm
 - o Refined grains have same calories but less fiber, vitamins, and minerals
 - o Whole grains take longer to digest, make people feel fuller faster and longer
 - o Consuming whole grains linked to reduced risk for heart disease, stroke, high blood pressure, diabetes, cancers