The Basics of Nutrition – Exam Practice Questions and Answers Study Guide

Section 1: Nutrition Fundamentals

Q: What is nutrition? Nutrition is the scientific study of nutrients and how the body uses them.

Q: What are the six major classes of nutrients? Carbohydrates, fats (lipids), proteins, vitamins, minerals, and water.

Q: What is considered the most essential nutrient? Water.

Q: What is an essential nutrient? A nutrient that cannot be made by the body and must be supplied by food.

Q: About how many nutrients are considered essential? About 50.

Q: What is a micronutrient? A nutrient needed in milligram or microgram quantities in the diet.

Q: What is a phytochemical? A plant chemical that is not considered a nutrient but may provide health benefits. Many phytochemicals are antioxidants that may reduce the risk of heart disease and certain cancers.

Q: What is a dietary supplement? A product that contains a vitamin, mineral, herb or other plant product, amino acid, or dietary substance that supplements the diet by increasing total intake.

Q: True or False: Many popular dietary supplements are not helpful and may even be harmful. True.

Q: What is metabolism? The sum of all chemical processes that provide energy for the body to perform work.

Q: What is malnutrition? The state of health when the body is improperly nourished, including both under- and over-nutrition.

Section 2: Energy & Kilocalories

Q: How many kilocalories (kcal) does each macronutrient provide per gram?

- Fat: 9 kcal/g
- Carbohydrates: 4 kcal/g
- Protein: 4 kcal/g
- Alcohol: 7 kcal/g

Q: How many kilocalories does pure alcohol provide per 10 grams? 70 kilocalories.

Q: What is the kilocalorie content of a food that provides 7 g fat, 4 g carbs, and 3 g protein?

- Fat: 7 × 9 = 63 kcal
- Carbs: 4 × 4 = 16 kcal
- Protein: 3 × 4 = 12 kcal
- **Total: 91 kilocalories**

Q: How many kilocalories are provided from a food containing 4 grams of protein? 16 kcal (4 × 4 = 16).

Q: What is the kilocalorie difference between one gram of fat and one gram of carbohydrate? 5 kcal (9 − 4 = 5).

Q: A serving of food supplies 153 kcal from fat. How many grams of fat are in the serving? 153 ÷ 9 = **17 grams of fat**.

Q: True or False: On a food label, a Calorie (capital C) is really a kilocalorie. True.

Q: True or False: Vitamins provide usable calories for the body. False. Vitamins are micronutrients and do not provide calories.

Q: Which of the following is NOT a macronutrient: carbohydrates, fats, proteins, or vitamins? Vitamins — they are micronutrients.

Q: What is the nutrient that comprises the largest percentage of the body of a healthy man or woman? Water.

Q: After a strenuous workout, Jaime drank 32 oz of a drink that supplies 60 kcal per 8 oz serving. How many kcal did he consume? (32 ÷ 8) = 4 servings × 60 kcal = **240 kilocalories**.

Section 3: Diet Quality & Food Choices

Q: What does "nutrient dense" mean? A food or beverage that has more vitamins and minerals in relation to its energy value.

Q: True or False: Nuts are an example of a food that is energy dense but do not contain empty calories. True.

Q: Which of the following are examples of empty calorie foods?

- Lite beer
- Alcohol
- Sugar-sweetened soft drinks
- Pastries
- Grape jelly

Q: According to MyPlate, which food would be classified as a source of empty calories? Grape jelly.

Q: What is the major role of carbohydrates in the body? To provide the body with energy.

Q: True or False: Most foods are predominantly one nutrient. False.

Q: True or False: No specific food contains all the nutrients needed by the body. True.

Q: What is the usual pattern of foods that you choose to eat called? Your diet.

Q: According to MyPlate, what are the five food groups? Fruits, vegetables, grains, dairy, and protein foods.

Q: According to MyPlate, which food is grouped with dairy products? Cheese.

MyPlate Food Group Serving Sizes

Food Group	**Examples of One Serving**
Fruit	½ cup dried fruit

Food Group	Examples of One Serving
Protein	1 egg; 1 tbsp peanut butter; ¼ cup tofu
Dairy	1 cup plain yogurt; 1.5 oz natural cheese
Grain	1 slice of bread; ½ cup cooked pasta
Vegetable	1 cup raw vegetables; 2 cups uncooked leafy greens

Q: Which food is a good source of protein but also contains a lot of saturated fat? Avocado. *(Note: The question in the original material references avocado; however, peanut butter is also a common answer in related questions.)*

Q: Which food is generally NOT a good source of protein? Fruit.

Q: To achieve nutritional adequacy, one should consume a variety of foods from which food groups? Fruits and vegetables, and whole grains.

Q: Americans aged 2 years and older fall short of recommendations for which food groups?

- Fruit intake
- Vegetable intake
- Fat-free or low-fat milk intake

And exceed recommendations for:

- Meat intake
- Solid fat intake
- Added sugar intake
- Sodium intake

Section 4: Dietary Reference Intakes (DRIs)

Q: What is the Recommended Dietary Allowance (RDA)? The amount of a nutrient that should meet the needs of almost all healthy people in a particular group.

Q: What is the Adequate Intake (AI)? A nutrient intake recommendation set when research is not sufficient to determine the RDA.

Q: What is the Tolerable Upper Intake Level (UL)? The highest amount of daily nutrient intake unlikely to cause adverse health effects.

Q: What are Daily Values (DVs)? Dietary standards developed for food labeling purposes, based on a 2,000 kcal diet.

Q: What is the Estimated Energy Requirement (EER)? An estimation of calorie needs based on gender, age, height, weight, and physical activity level.

Q: Which DRI is set when there is not enough research to determine human requirements for a nutrient? Adequate Intake (AI).

Q: What are the Acceptable Macronutrient Distribution Ranges (AMDRs) for a 2,500 kcal/day diet?

- Carbohydrate: 281–406 grams/day
- Protein: 63–219 grams/day
- Fat: 56–97 grams/day

Q: A diet is likely to be safe and nutritionally adequate if: Average daily intakes for nutrients meet RDA or AI values.

Section 5: Food Labels & Nutrient Content Claims

Claim	**Legal Definition**
Fat-free	Less than 0.5 g of fat per serving
Low-fat	3 g fat or less per serving
Reduced fat	At least 25% less fat per serving than reference food
Extra lean (meat/poultry)	Less than 5 g fat, 2 g saturated fat, and 95 mg cholesterol per serving

Q: What is the Daily Value (DV) based on? A 2,000 kcal diet. People requiring more or less than 2,000 kcal must make the necessary adjustment.

Section 6: Whole, Refined & Enriched Grains

Type	**Characteristics**
Whole grain	Consists of the entire grain seed; higher in fiber; contains germ, endosperm, and bran
Refined grain	Has been milled; reduced amounts of B vitamins
Enriched grain	Has riboflavin, thiamin, niacin, folic acid, and iron added back

Q: When compared to a whole product, a refined product will typically have less of which nutrients? Vitamins and minerals.

Section 7: The Dietary Guidelines for Americans

Q: What are the basic goals of the Dietary Guidelines for Americans?

- Limit calories from added sugars and saturated fats, and reduce sodium intake
- Shift to healthier food and beverage choices
- Follow a healthy eating pattern across the lifespan
- Focus on variety, nutrient density, and amount of food

Q: The Dietary Guidelines for Americans were designed to reduce the risk of which conditions? Obesity and cardiovascular disease (among others).

Q: The traditional Asian dietary pattern is lacking in which nutrient-rich food group? Calcium-rich foods.

Section 8: Leading Causes of Death & Risk Factors

Q: What are the top two leading causes of death in the United States? Heart disease and cancer.

Q: Which of the following is NOT a leading cause of death in the United States? Tuberculosis.

Q: What is the #1 cause of preventable death in North America? Smoking.

Q: What is a risk factor? An aspect such as heredity, lifestyle, or nutritional choices that contributes to the development of a disease.

Q: Which of the following are examples of risk factors? Nutritional habits, heredity, and smoking.

Q: Eating a high-salt diet increases people's chances of developing high blood pressure. What is this high-salt diet considered? A risk factor for high blood pressure.

Q: Which of the following are examples of life-threatening chronic diseases that result from poor diet and lack of exercise? Heart disease, obesity, and type 2 diabetes.

Q: How is a disease classified when it takes many years to develop and has complex causes? Chronic disease.

Q: It is more practical and less expensive to _____ a disease than to treat it. Prevent.

Section 9: Malnutrition & Global Food Issues

Q: What are the effects of malnutrition most devastating during? Childhood, pregnancy, and infancy — all stages of rapid growth.

Q: What are potential problems associated with undernutrition during pregnancy?

- Death of the mother
- Premature births
- Baby with breathing difficulties

Q: Which of the following can occur as a result of nutritional deficiencies in children?

- Delayed physical development
- Blindness
- Stunted growth

Q: What is Plumpy'nut? An energy- and nutrient-dense paste made from a mixture of peanuts, powdered milk, oil, sugar, vitamins, and minerals — used for undernourished children in developing countries.

Q: What is food insecurity? Households that include members who worry about running out of food or not having enough money to buy food.

Q: Which circumstances increase a person's chance of undernutrition in the United States? Anorexia nervosa, chronic alcoholism, and living in poverty.

Q: What has the ability to develop crops that supply higher yields, resist pests, or are tolerant to drought conditions? Biotechnology.

Q: What is genetic modification? The alteration of a plant or animal's hereditary material.

Q: True or False: In 2016, the National Academy of Sciences reported that there is no scientific evidence that genetically engineered crops are unsafe for humans or harmful to the environment. True.

Q: What does sustainable agriculture involve? Farming methods that do not harm the environment and do not deplete natural resources.

Section 10: The Scientific Method & Research

Q: What is the first step of the scientific method? Making observations.

Q: What is a hypothesis? A possible explanation for an observation that guides scientific research.

Q: What is a placebo? A fake treatment.

Q: What is epidemiology? The study of the occurrence, distribution, and causes of disease patterns among various populations.

Q: Generally, epidemiological studies cannot _____. Determine cause and effect relationships.

Q: What is a case-control study? Comparing individuals with a disease (e.g., type 2 diabetes) to individuals with very similar characteristics who are healthy.

Q: What is an anecdote in the context of nutrition information? A report of personal experience (e.g., a friend at the gym recommends a post-workout supplement because his muscle mass increased).

Q: What is a testimonial? A personal endorsement of a product (e.g., an actor endorsing a weight loss supplement).

Q: What is conventional wisdom? A traditional belief.

Q: Which of the following is a red flag signaling poor nutrition advice?

- Recommendations that promise a quick fix
- Recommendations based on a single study
- Claims that sound too good to be true

Q: Which of the following journals does NOT have peer-reviewed articles? Men's Journal.

Q: What is the government agency that enforces consumer protection laws by investigating false or misleading health-related claims? The Federal Trade Commission (FTC).

Q: What federal agency tries to ensure the safety and effectiveness of health-related products? The FDA (Food and Drug Administration).

Q: When evaluating nutrition information, which of the following questions should be asked?

- Is the information from a peer-reviewed journal?
- Who sponsored the research?
- Are the authors trying to sell me something?

Q: Which domain extensions are generally considered reliable sources of nutrition information?

- `.edu` — Nationally accredited university publications
- `.gov` — Government health agency sites
- `.org` — Nationally recognized health associations

(Note: `.com` sites may contain ads and promotional content and should be evaluated carefully.)

Section 11: Types of Dietitians

Type	Role
Clinical Dietitian	Works in an outpatient hospital setting helping patients (e.g., post-heart attack) develop heart-healthy eating habits
Food Systems Management Dietitian	Works for a school district developing lunch menus, ordering food, and overseeing distribution
Community Dietitian	Works in public health settings or private practice/wellness programs; may help clients access government nutrition assistance
Research Dietitian	Works for university-based research groups studying diet and disease relationships

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Section 12: Dietary Supplements

Q: According to the Dietary Supplement Health and Education Act (DSHEA) of 1994, which of the following would be classified as a dietary supplement? Melatonin.

Q: According to the FDA, which substance CANNOT be classified as a dietary supplement? Tobacco.

Q: Consumers are often unaware that the FDA regulates dietary supplements as _____. Food.

Q: Match each dietary supplement with its known health effect:

Supplement	Health Effect
Ginger	Can safely treat morning sickness and some forms of nausea
Flaxseed oil	Generally safe but may cause diarrhea

Supplement	Health Effect
St. John's Wort	May interact with oral contraceptives
Bitter orange	May increase blood pressure and cause stroke

Section 13: Phytochemicals

Category	Description / Food Source
Carotenoids	Found in orange, red, and yellow fruits and vegetables
Alkaloids (Caffeine)	Stimulant effect; found in cocoa, coffee, and tea
Capsaicinoids	Pain-relieving properties; found in chili peppers
Fructooligosaccharides	Found in onions, bananas, asparagus, and wheat; may stimulate growth of beneficial bacteria in the intestines
Phenolics	Found in wine; antioxidant activity

Section 14: Body Systems & Digestion

Q: What is homeostasis? The relatively constant internal environment in the body that is critical for good health and survival.

Q: What is the largest organ in the body? The skin.

Q: What is the primary organ of the respiratory system? The lungs.

Q: Which body system produces heat to help maintain normal body temperature? The muscular system.

Q: Which body system produces red blood cells and stores several minerals? The skeletal system.

Q: Which organ systems are responsible for circulating fluids throughout the body? The lymphatic and cardiovascular systems.

Q: What are the chemical messengers of the body called? Hormones.

Q: What is a collection of cells adapted to perform a specific function called? A tissue.

Q: What is the smallest living functional unit in an organism? A cell.

Q: What is the name for the cellular structure that stores genetic material and directs protein synthesis? The nucleus.

Q: What organelle is responsible for energy production in cells? The mitochondrion.

Organ Systems Summary

System	Key Organs/Components	Primary Function
Digestive	Mouth, stomach, small & large intestine, rectum	Breaks down food into nutrients

System	Key Organs/Components	Primary Function
Cardiovascular	Heart, blood, blood vessels	Circulates blood and nutrients
Lymphatic	Lymph vessels, lymph nodes	Circulates lymph; transports fats (chylomicrons)
Respiratory	Lungs	Gas exchange; maintains acid-base balance
Urinary	Kidneys, bladder	Filters waste; maintains fluid balance
Skeletal	Bones, tendons, ligaments	Support, movement, protection; stores minerals
Muscular	Muscles	Movement; produces heat
Nervous	Brain, spinal cord, nerves	Controls body functions and responses
Endocrine	Thyroid gland, fat cells	Regulates metabolism via hormones
Integumentary	Hair, nails, skin	Protects against disease-causing agents
Reproductive	Reproductive organs	Produces offspring

Section 15: The Digestive System

Q: List the organs of the GI tract in order.

1. Mouth and salivary glands
2. Esophagus
3. Stomach
4. Small intestine
5. Large intestine (colon)
6. Rectum

Q: What are the accessory organs of digestion (organs that do not directly contact food)?

- Salivary glands — produce and secrete salivary amylase
- Liver — produces and secretes bile
- Gallbladder — releases bile into the duodenum
- Pancreas — produces and secretes the majority of digestive enzymes

Q: What is peristalsis? Waves of muscular contractions that propel food along the gastrointestinal tract.

Q: How does segmentation differ from peristalsis? Segmentation mixes chyme through a back-and-forth movement, rather than propelling it forward.

Q: What is the function of bile? To emulsify fat, assisting in fat digestion.

Q: Where is bile produced? Where is it stored? Produced in the **liver**; stored in the **gallbladder**.

Q: What enzyme does amylase digest? Starch.

Q: What are the components of saliva? Lingual lipase and salivary amylase.

Q: Which sense has the greatest effect on taste? Smell.

Q: What are the five primary taste sensations? Sweet, sour, salty, bitter, and umami (savory/broth/meaty).

Q: What closes over the trachea to allow food to enter the esophagus? The epiglottis.

Q: What is the main function of the gastroesophageal sphincter? To close the opening between the esophagus and the stomach.

Q: What does the stomach produce that is important for protein digestion? Hydrochloric acid.

Q: What is chyme? The watery mixture of food and gastric juices formed in the stomach.

Q: What controls the rate at which chyme leaves the stomach and enters the small intestine? The pyloric sphincter.

Q: Where do each of the following occur in the small intestine?

- **Duodenum** — Acidic stomach contents mix with alkaline fluids secreted by the pancreas and gallbladder
- **Jejunum** — Most digestion and nutrient absorption occurs here
- **Ileum** — Minimal absorption occurs here

Q: What type of nutrients are absorbed into the hepatic portal vein? Water-soluble compounds (water-soluble nutrients).

Q: How are chylomicrons (fats) transported? By the lymphatic system, eventually entering the bloodstream via a vein near the heart.

Q: Where is almost all macronutrient digestion and absorption completed? The small intestine.

Q: True or False: The large intestine has villi. False. The large intestine does not have villi.

Q: What is the role of beneficial bacteria in the large intestine?

- Metabolize undigested food
- Produce vitamin K and biotin

Q: What nutrients are produced by bacteria living in the large intestine? Biotin and vitamin K.

Section 16: Digestive Disorders

Q: What is responsible for the development of most stomach ulcers? *Helicobacter pylori* (H. pylori).

Q: What are symptoms of GERD (Gastroesophageal Reflux Disease)?

- Frequent heartburn
- Nausea and gagging
- Coughing or hoarseness

Q: What can worsen heartburn?

- Being pregnant
- Smoking cigarettes
- Having excess body fat
- Drinking alcohol
- Consuming certain foods

Q: Irritable Bowel Syndrome (IBS) can be characterized by:

- Constipation
- Loose stools
- Sensation of incomplete elimination

Q: What are true statements about Inflammatory Bowel Disease (IBD)?

- Cause is unknown
- Involves inflammation and swelling of the intestines
- Ulcerative colitis and Crohn's disease are the two most common forms

Q: What are causes of diarrhea?

- More water than normal is secreted into the GI tract
- The GI tract absorbs less water than normal
- Bacterial or viral infections

Q: For whom is prompt treatment of diarrhea especially important? Infants and the elderly.

Q: What is cystic fibrosis? A disease that produces thick mucus that blocks passageways, particularly in the respiratory and digestive systems.

Q: What are probiotics? Live, beneficial intestinal microbes (primarily bacteria or yeast) grown under laboratory conditions.

Q: What are prebiotics? Forms of dietary fiber that are poorly digested by humans but support and promote the growth of probiotics in the colon.

Section 17: Chemistry Basics (Applied to Nutrition)

Q: What is a molecule? Matter that forms when two or more atoms interact and are held together by a chemical bond.

Q: What is an element? A type of atom that cannot be divided into a simpler substance.

Q: What is an enzyme? A protein that catalyzes a particular chemical reaction inside the body. Most enzyme names end in **-ase**.

Q: What is the normal pH of blood? Slightly alkaline.

Q: Which statements about pH are true?

- Pure water has equal concentrations of H^+ and OH^-
- The pH scale ranges from 0–14
- The higher the concentration of H^+, the more acidic the solution

Q: Which organs work together to maintain the acid-base balance of the blood? The lungs and kidneys.

Q: What forms when an acid reacts with a base? A salt.

Q: What is metabolism? The sum of all chemical reactions occurring in living cells.

Section 18: Measurement & Conversions

Q: What is the standard measurement system used in nutrition? The metric system.

Q: To convert kilograms to pounds, you divide a person's weight in pounds by: 2.2 kg.

Q: What constant is used to convert inches to centimeters? 2.54 cm.

Q: What is a kilocalorie? A unit describing the energy content of food. 1 kilocalorie = 1,000 calories.

Section 19: Religious & Cultural Dietary Practices

Practice	**Religion**
Will not eat beef but will consume dairy	Follows traditional Hindu dietary practices
Fasts before communion	Follows traditional Roman Catholic practices
Will not eat pork or drink alcohol	Follows traditional Islamic dietary practices
Avoids tea, coffee, and alcohol	Follows traditional Mormon dietary practices
Will not eat pork, shellfish, or "tref" foods	Follows traditional Jewish dietary practices

Section 20: Healthy People 2020 – Nutrition & Weight Status Objectives

- Reduce the proportion of obese children and adolescents
- Increase the proportion of adults who have a healthy weight
- Increase the variety and intake of vegetables among people aged 2 and older