

Certification Examination of Nutrition Specialists
Exam Content Outline

A. Fundamental Principles of Nutrition

25% of exam

- Basic understanding of nutritional genomics research in practice
- Nutritional considerations related to physiologic changes associated with life cycle stage
- Tailoring of assessment and therapy specific to life cycle stage
- Nutritional considerations related to psychological and social factors associated with life cycle stage
- Estimation of caloric values of specific meals
- Calculation of individual caloric requirements
- Effects of age, gender, and physical activity on body composition and energy expenditure
- Effect of microbiome on body composition and metabolism
- Metabolism (biochemical pathways and reactions) of carbohydrates, lipids, proteins, and micronutrients
- Effect of microbiome on metabolism of macronutrients & micronutrients, including use of probiotics & prebiotics
- Nutritional biochemical pathways including energy production and detoxification
- Regulation of fluid, electrolyte, and acid-base balance
- Inflammatory pathways including insulin, oxidative stress, and fatty acid oxidation
- Chemistry of enzymes, co-factors, and organic acids
- Chemistry of enzymes, co-factors, and organic acids in genomic theory
- Epigenetics: methyl donor biochemistry, and hypo- and hyper-methylation
- Pathway genomics: one carbon, methylation, tetrahydrobiopterin, and trans-sulfuration
- Physiology of the digestive tract (motility, absorption, secretion, intestinal barrier function)
- Malabsorption and effects on macronutrients and micronutrient status
- Role of oxidative stress and detoxification pathways on health status
- Digestion, absorption, and transport of macronutrients and micronutrients
- Impact of nutrition on disease states of the GI tract
- Effects of macronutrients, vitamins, and minerals on health and disease states

B. Nutrients and Human Health

14% of exam

- Lipid metabolism, including cytokine and eicosanoid pathways
- Structure and function of soluble and insoluble fiber and impacts on health
- Tolerable upper intake levels of nutrients
- Symptoms and treatment of nutrient toxicity
- Macronutrient and micronutrient food sources and impact on health
- Functional and medical foods and their impact on health
- Supplemental sources of nutrients
- Impact of agricultural methods and food processing, preparation, and storage on nutrient value
- Nutrients used in fortification and applicable food sources



- Dietary Guidelines and Dietary Reference Intakes for preventive and therapeutic interventions
- Appropriate use of nutrient supplementation
- Role of key phytochemicals and zoochemicals in health
- Nutrient deficiency and insufficiency: causes, symptoms, and treatment

C. Nutrition Assessment

14% of exam

- Comprehensive medical nutrition health history
- Evaluation of laboratory data including identification of optimal value ranges
- Evaluation of functional testing (organic acid, stool, and saliva tests for adrenals and hormones)
- Evaluation of hormonal and neurotransmitter imbalances based on laboratory assessment
- Assessment of single nucleotide polymorphisms (SNPs)
- Nutritional inborn errors of metabolism
- Body composition analysis (skin fold, bioelectrical impedance, other)
- Waist-to-hip ratio measurements
- Computerized analysis of food intake
- Identification of symptoms that require medical referral
- Correlation of symptoms and lab findings for research and development of personalized Medical Nutrient Therapy (MNT) protocol
- Use of behavior change strategies such as Motivational Interviewing and Stage of Change theory
- Lifestyle factors which impact nutrient needs and compliance such as exercise, stress, and sleep

D. Clinical Intervention and Monitoring

35% of exam

- Impact of nutritional genomics on health
- Drug/herb action, duration of action, purpose and dose of a client's current therapeutic regimen
- Nutrient depletions related to commonly used drugs
- Interactions between drugs and foods, alcohol, vitamins, minerals, herbs, phytochemicals, and zoochemicals
- Synergistic effects and antagonistic interactions of nutrients in foods and supplements
- Effectiveness and contraindications of popular diets
- Linking childhood behaviors to obesity and other chronic health issues in adults
- Gauging and optimizing client compliance
- Evidence-based dose and duration of nutraceutical use for common conditions
- Good manufacturing practices and other quality markers for nutritional supplements
- Effects of disordered eating patterns on nutrition status, body composition, and body functions
- Application of national guidelines, policies, consensus recommendations, and evidence-based research in the development of personalized therapeutic interventions
- Evidence-based use of common botanical supplements for health promotion and common conditions
- Safety, toxicity, and interactions of botanical supplements
- Consideration of client's personal and cultural beliefs when developing nutrition intervention plans



- MNT for obesity
- MNT for cardiovascular disease, dyslipidemias, and hypertension
- MNT for type 1 diabetes
- MNT for insulin resistance and type 2 diabetes
- MNT for endocrine disorders
- MNT for autoimmune disorders
- MNT for gastrointestinal disorders
- MNT for hematologic disorders
- MNT for bone disorders
- MNT for hepatic disorders
- MNT for pulmonary disorders
- MNT for renal disorders
- MNT for cognitive and neuro-cognitive disorders
- MNT for food allergies and intolerances
- MNT for cancer
- MNT for bariatric surgery
- MNT for surgical procedures
- MNT for mastication, swallowing, and nutrient absorption disorders
- MNT for HIV-AIDS
- MNT for dermatological disorders
- MNT for mental health/mood disorders

E. Public Health

6% of exam

- Nutritional epidemiology and translation of research studies into practice
- Disease risk and prevalence related to socioeconomic status, geographic residency, ethnicity, and life cycle stage
- Causes and preventative measures for common food borne illnesses
- Tracking current outbreaks of food borne illness and communication with clients
- Identification of populations at risk for food safety issues
- Factors that negatively affect food quality and safety
- Impact of environmental toxicity on health

F. Practice Management

6% of exam

- HIPAA compliance requirements
- Working within scope of practice and in collaboration with other healthcare professionals as needed
- Compliance with ethical standards
- Licensure and certification
- Insurance coverage and reimbursement