

Virginia Western Community College

DNH 150

NUTRITION

Prerequisites

BIO 141/142, DNH 111, DNH 115, DNH 120, DNH 141, DNH 142, DNH 145, DNH 146, DNH 216

Course Description

Studies nutrition as it relates to dentistry and general health. Emphasizes the principles of nutrition as applied to the clinical practice of dental hygiene.

Semester Credits: 2

Lecture Hours: 2

Required Materials

Textbook:

Whitney, Eleanor and Sizer, Fancis, Nutrition – Concepts and Controversies, (16th edition), Wadsworth Publishing, 2023. ISBN: 978-0357727614

Course Outcomes

At the completion of this course, the student should be able to:

1. To provide a basic foundation in the science of nutrition and the role of nutrition in the prevention and control of dental disease.
2. Demonstrate a knowledge of basic nutrition principles by:
 - a. Discussing the chemistry, functions, requirements, food sources and deficiency disorders associated with each major nutrient.
 - b. Recognizing intra-orally the effects of nutrients, diet and eating patterns on oral health.
 - c. Distinguishing between nutritional requirements for each stage of the life cycle.
3. To recognize the influence of cultural, socioeconomic and psychological factors on the dietary patterns and habits of clients.
4. To examine the nutritional needs of clients during specific stages of growth and development, such as: infancy and childhood, adolescence and old age.
5. To assess the nutritional needs of special clients, such as the orally, physically, and mentally handicapped, the diabetic, the pregnant, and the post-operative client.
6. Demonstrate the skills needed to plan, implement and evaluate nutrition education/analysis sessions with clients, including:
 - a. an adequate diet recall, and assessment of overall dietary adequacy

- b. recognition of behavioral factors affecting food choices
 - c. discussion of diet and dental diseases/caries risk assessment
 - d. recommendations for dietary improvements
7. To increase awareness of the anticipated changes in food production, and need for research in seeking answers to nutritional needs for the future.

Topical Description

UNIT 1: FOOD CHOICES AND HUMAN HEALTH, NUTRITION STANDARDS AND GUIDELINES, THE REMARKABLE BODY, AND CARBOHYDRATES – WEEKS 1-3

- A. The Diet and Health Connection
- B. Healthy People 2010: Nutrition for the Nation
- C. The Human Body and Its Food
- D. The Science of Nutrition
- E. Nutrient Recommendations
- F. Dietary Guidelines for Americans
- G. Diet Planning with the USDA Food Guide
- H. The Body's Cells
- I. Body Fluids and the Cardiovascular System
- J. Hormonal and Nervous Systems
- K. The Immune System
- L. The Digestive System
- M. Excretory System
- N. A Close Look at Carbohydrates
- O. The Need for Carbohydrates
- P. From Carbohydrates to Glucose
- Q. Refined, Enriched, and Whole-Grain Foods
- R. The Body's Use of Glucose
- S. Diabetes
- T. Management of Diabetes
- U. Hypoglycemia

UNIT 2: THE LIPIDS: FATS, OILS, PHOSPHOLIPIDS, AND STEROLS, THE PROTEINS AND AMINO ACIDS, AND THE VITAMINS – WEEKS 3-6

- A. Introducing the Lipids
- B. Usefulness of Fats in the Body
- C. Usefulness of Fats in Food
- D. Triglycerides: Fatty Acids and Glycerol
- E. Saturated Versus Unsaturated Fatty Acids
- F. Phospholipids and Sterols
- G. Digestion and Absorption of Fats
- H. Transport of Fats

- I. Storage and Usage of Body Fats
- J. Dietary Fat, Cholesterol and Health
- K. Essential Polyunsaturated Fatty Acids
- L. Processing on Unsaturated Fats
- M. The Structure of Proteins
- N. Variety of Proteins
- O. Denaturation of Proteins
- P. Digestion and Absorption of Dietary Protein
- Q. Roles of Body Proteins
- R. Amino Acids to Glucose
- S. Food Protein: Need and Quality
- T. Nitrogen Balance
- U. Protein Deficiency and Excess
- V. Definition and Classification of Vitamins
- W. Fat Soluble Vitamins: Vitamins A, D, E, K; Roles and Consequences of Deficiency
- X. Water Soluble Vitamins: Vitamins B and C; Roles and Consequences of Deficiency

UNIT 3: WATER AND MINERALS, ENERGY BALANCE AND HEALTHY BODY WEIGHT, NUTRIENTS' PHYSICAL ACTIVITY AND THE BODY'S RESPONSE – WEEKS 6-8

- A. Why Water is the Most Indispensable Nutrient
- B. The Body's Water Balance
- C. Safety and Sources of Drinking Water
- D. Body Fluids and Minerals
- E. The Major Minerals: Roles in the Body, Deficiencies and Toxicities
- F. The Trace Minerals: Roles in the Body, Deficiencies and Toxicities
- G. The Problems of Too Little or Too Much Body Fat
- H. Risks from Central Obesity
- I. The Body's Energy Balance
- J. Energy In and Energy Out
- K. Estimating Energy Requirements
- L. Body Weight Versus Body Fatness
- M. Body Mass Index
- N. Measures of Body Composition and Fat Distribution
- O. Hunger and Appetite
- P. Inside and Outside the Body Causes of Obesity
- Q. How the Body Gains and Loses Weight
- R. Achieving and Maintaining a Healthy Body Weight
- S. Eating Disorders
- T. Benefits of Fitness
- U. Physical Activity Guidelines
- V. The Essentials of Fitness
- W. The Active Body's Use of Fuels
- X. Vitamins and Minerals – Keys to performance

Y. Fluids and Temperature Regulation in Physical Activity

UNIT 4: DIET AND HEALTH, ORAL MANIFESTATIONS OF NUTRIENT DEFICIENCIES, LIFE STYLE
NUTRITION-MOTHER AND INFANT, CHILD AND TEEN, OLDER ADULT – WEEKS 8-10

- A. Nutrition and Immunity
- B. The Concept of Risk Factors
- C. Cardiovascular Diseases
- D. Nutrition and Hypertension
- E. Nutrition and Cancer
- F. Dental Caries: Primary Factors to Consider
- G. Periodontal Diseases: Systemic and Behavioral Risk Factors
- H. Nutritional Guidance: Determining the Need and Developing a Plan
- I. Pregnancy: The Impact of Nutrition on the Future
- J. Increased Need for Nutrients During Pregnancy
- K. Weight Loss After Pregnancy
- L. Teen Pregnancy
- M. Alcohol and Pregnancy
- N. Lactation
- O. Feeding the Infant
- P. Feeding a Healthy Young Child
- Q. Mealtimes and Snacking
- R. Nutrient Deficiencies and Brain Impairment
- S. Food Allergy, Intolerance, and Aversion
- T. Nutrition in Adolescence
- U. Eating Patterns and Nutrient Intakes
- V. The Later Years
- W. Energy and Activity
- X. Protein Needs; Carbohydrates and Fiber; Fats and Arthritis; Vitamin Needs, Water and the Minerals
- Y. Food Choices of Older Adults