

NURSING FOUNDATIONS II (N11) STUDY GUIDE

BASIC NURSING SKILLS IN THE CARE OF CLIENTS WITH PHYSIOLOGIC NEEDS

NUTRITION

Introduction

Hello students!

In promoting physiologic health, one of the areas of expertise and responsibility of nurses is in ensuring that their client's nutritional needs are met. Poor nutrition does not only increase the risk for non-communicable diseases (NCDs) but can further aggravate the conditions of clients whose health is already compromised, i.e., those with underlying illnesses. Although there are dietitians and nutritionists with specific responsibilities to maintain optimal nutrition for these clients, nurses play a key multidisciplinary role (Xu, Parker, Ferguson, & Hickman, 2017) because of their frequent and close contact with clients and their families.

This session leads to the application of your competencies achieved in your course in N-9 (Nutrition) and equips you with the essential knowledge, skills, and attitudes in providing basic nursing care for clients with mild to moderate health problems related to nutrition and metabolism. You will review basic concepts in nutrition particularly in relation to its application using the nursing process, as well as common health problems related to nutrition and metabolism and your role as nurses in addressing these problems.

The nursing process will be our primary approach to understanding and applying the concepts of nutrition and metabolism. Our focus will be on nursing care that will promote the physiologic health of clients with mild to moderate problems related to nutrition and metabolism.

Learning Outcomes

After studying this topic, you should be able to:

1. Describe normal digestion, absorption, and metabolism of carbohydrates, proteins, and lipids.
2. Identify factors influencing nutrition and the body's metabolism.
3. Describe common health problems related to nutrition and metabolism
4. Discuss essential components and purposes of nutritional assessment and nutritional screening.
5. Identify significant findings from data based on nursing assessment.
6. Identify common nursing diagnoses based on significant assessment findings.
7. State outcome criteria for evaluating client responses to measures that promote adequate nutrition and good metabolism.
8. Describe common nursing interventions to address client's nursing problems in nutrition and metabolism.
9. Discuss roles and responsibilities of nurses in providing diet therapy and nutritional support.
10. Describe the steps in providing nutritional therapy and support.
11. Evaluate outcomes of care and client's response to interventions.
12. Develop a nursing care plan for clients with mild to moderate problems in nutrition and metabolism using the NANDA-I, NOC and NIC taxonomies.
13. Demonstrate appropriate documentation and reporting of nursing care.

The concepts of nutrition and metabolism

The body's required essential nutrients can be grouped into categories, namely: carbohydrates (CHO), proteins (CHON), lipids, vitamins, and minerals. These nutrients are important for three basic purposes: formation and maintenance of body structures (bones, blood, etc.), provision of the body's required energy (calories), and regulation of the body's biochemical processes and reactions (Berman, Snyder, & Frandsen, 2016). These also provide the necessary chemicals the body needs but which it cannot synthesize.

Here are additional terms you may need to review for this session: basal metabolic rate (BMR), resting energy expenditure (REE), ideal body weight (IBW), body mass index (BMI), food exchange, and recommended dietary allowances (RDA). Note, however, that you will need to look at the measurements for these as appropriate for Asians or specifically, for Filipinos.

There are several factors affecting or influencing a person's nutritional intake and the body's metabolism. These include development, gender, ethnicity and culture, beliefs about foods, personal preferences, religious practices, lifestyle, economics, medications and therapy, health, alcohol consumption, advertising, and psychological factors (Berman, Snyder, & Frandsen, 2016). These can be categorized into physiologic/genetic, psychological, socio-cultural, socio-economic status, and health-related. Even within the same age group, individuals vary in their nutritional requirements. These can be attributed to the quantity and quality of their food intake, the efficiency of the digestive system (problems in the intestines, for example, can reduce the absorption of digested foods), and biochemical activity which may be related to the individual's level of activity, or health status.

We started highlighting **nutrition** above because it is crucial to ensure that the body's processes will function optimally. The **gastrointestinal system** (GI) serves as the gateway for the entry of nutritive substances, including fluids, to enter the body, as well as the system for the mechanical and chemical processes for the body to meet its caloric requirements. These substances go through several processes: digestion (which breaks down these substances into absorbable units), absorption (wherein the products of digestion including micronutrients enter the lymph or the blood), and metabolism (the collective processes involved for the sustenance of the body). Metabolism is categorized into catabolism and anabolism (Berman, Snyder, & Frandsen, 2016).

Nursing Skills Video:

This video provides a "walk-through" of how the GI system works with good animation. If you have questions, post them in the Nursing Skills Video Forum.

Watch the video from this link: [Human digestive system - How it works! \(Animation\)](#)

The "end game" for the GI function is Fecal Elimination which will be tackled in the next session.

Common health problems related to nutrition and metabolism

A structurally intact and well-functioning GI system is needed to serve the purposes of nutrition and metabolism. Mild to moderate problems (including severe conditions) arise from inadequate or excessive intake of nutrients, and from pathophysiologic disturbances affecting the structure and functioning of the GI system. Health status, as mentioned above, is one of the major factors affecting the individual's eating habits and nutritional status. From the oral cavity down to the intestines, problems affecting their structure and functioning will consequently affect the processes of digestion, absorption, and metabolism.

Inflammation in the oral cavity can affect food intake; disease processes and surgery of the GI tract can affect digestion, absorption, and metabolism, including elimination. These and related diseases can also bring about nausea, vomiting, and diarrhea, thus affecting the individual's appetite and nutritional status. Diseases affecting specific GI organs like the liver, gallbladder, and pancreas (due to blockage, poor circulation, impaired metabolic processes, or even autoimmune and genetic disorders) can also alter the nutritional status of the individual (Berman, Snyder, & Frandsen, 2016).

Deepening Your Understanding

Read Chapter 47, pp. 1127-1170 on *Nutrition*

Berman, A., Snyder, S., & Frandsen, G. (2016). *Kozier & Erb's Fundamentals of Nursing: Concepts, Process, and Practice*. 10th ed. Upper Saddle River, New Jersey: Pearson Education, Inc.

Self-Assessment Activity

Try these series of cognitive exercises to joggle those neurons into active mode. Remember that the human mind has great capacity to store and bring out that knowledge – if we know how to do that.

Go to: [Test Your Understanding: Nutrition](#)

Nursing Care of Clients with Mild to Moderate Health Problems Related to Nutrition and Metabolism

In any health or disease condition an individual may be having, and in whatever stage that may be, requires focus on adequate nutritional intake to maintain basic physiologic functioning and if possible, return to an optimal level of health. Whether in the community or in the hospital setting, the nurse should be able to formulate a care plan to address these nursing problems, encourage health promotion strategies, provide basic nursing care to address nutritional needs, and prevent complications associated with problems related to nutrition and metabolism.

The nursing assessment uses the nursing health history to identify the contributing factors affecting nutritional intake, practices, or habits, as well as past and present health conditions that may affect the GI system and its functioning. In addition to this, a complete physical examination of the client will be important to validate these data, with a special focus on the GI system. Additional information can also be gleaned using nutritional screening, anthropometric measurements, biochemical (laboratory) data, calculation of the percentage of weight loss (or weight gain), intake and output measurements, and dietary history.

NANDA-I identifies and defines the nursing diagnoses related to nutrition and metabolism. Although *Imbalanced Nutrition: Less than body requirements* or *Overweight* (Berman, Snyder, & Frandsen, 2016) are commonly used diagnoses, recall those nutritional problems may affect other areas of the body's function. Thus, nutritional problems may be the etiology of other diagnoses, such as *Activity Intolerance*, *Constipation*, *Tissue Integrity*, etc. (Carpenito, 2017; NANDA, 2018).

Major goals for clients with or at risk for nutritional problems may include the following: maintain or restore optimal nutritional status, regain, or decrease specified weight, promote healthy nutritional practices, and prevent complications associated with malnutrition or problems affecting the GI system and functions. While these are specific to nutrition, there are other related and relevant outcome statements associated with your identified priority nursing diagnoses. You should be able to use NOC taxonomy labels in formulating your goals and outcome statements when developing your nursing care plans.

Nursing interventions to address nutritional, metabolic, and GI-related problems involve assisting clients and their support persons or significant others with planning and implementation of therapeutic diets as prescribed, stimulating their appetites, assisting dependent or incapacitated clients with their feeding, and nutrition-related programs to various population groups. Basic nursing procedures would involve enteral feedings (via nasogastric, gastrointestinal, gastrostomy, and jejunostomy tubes), and parenteral nutrition when oral intake is insufficient. The NIC taxonomy provides intervention labels related to nutrition and metabolism: Nutrition Management, Nutrition Support, Nutrition Therapy, etc. (Carpenito, 2017; NANDA, 2018). Use these labels in developing your nursing care plan. Evaluation of outcomes of care involves determining the presence of new or recurring signs and symptoms, changes in client status and behavior, client's response to treatment or management of nutritional problems, and whether client expectations were met, partially only, or requires reassessment (Berman, Snyder, & Frandsen, 2016).

The chapter on **Nutrition in Kozier's (2016, p.1168)** provides a sample nursing care plan to address the nursing diagnosis, *Overweight*. The related concept map can be found in **Kozier's (2016, p.1170)**. These examples present to you, in a particular way, the linkage among NANDA-I, NOC, and NIC taxonomies.

Activity: Case Application: Nutrition

Go back to the Case Study on *Overweight* referred to in **Nutrition in Kozier's (2016, p.1168)**. See additional information below:

During your conversation with RS, she commented that she really enjoyed attending the YMCA exercises, however, because of her physical appearance she feels embarrassed to go and see her friends there.

From these and the previous assessment data, can you think of another nursing diagnosis that you, as the nurse, can address with the client? Reflect on these and fill up the table provided below.

NANDA Nursing Diagnosis	Desired Outcome (NOC)	Interventions (NIC)

Share your table in the Discussion Forum and state the rationale for your choice of Nursing Diagnosis. Comment on 1 – 2 of your groupmates' posts. Please refer to the course site for the deadline for submission.

Pre-Lab

Basic Nursing Skills

Patients in the community and hospital settings often have various tubes and attachments to assist their recovery from surgeries, medical conditions, or procedures. Health care providers, especially nurses, must be competent in understanding how these devices work — their purpose, function, insertion, or removal — how to prevent complications from these various tubes and attachments, and ultimately, to care for the client with these tubes or attachments. Remember we render care **to the client** with the tube, and not the other way around.

N-11 Skills Procedure for this session will include the following:

- Capillary Blood Glucose monitoring
- Inserting a Nasogastric Tube (NGT)
- Administering a Tube Feeding
- Removing an NG Tube
- Administering a Gastrostomy or Jejunostomy Feeding
- Administering Parenteral Nutrition

Refer to Kozier's Fundamentals of Nursing for these procedures.

However, since most of these skills require an actual demonstration and return demonstration, we will focus first on understanding the procedure and the rationale behind specific steps. You will be provided with some videos to watch for certain procedures.

Nursing Skills Video:

Blood glucose testing is a simple investigation to detect hyper- or hypoglycemia, the main cause of which is diabetes mellitus, where the body is unable to produce sufficient insulin (Higgins 2008 as cited in (Larkin, Nicol, & Middlehurst, 2016). Monitoring a patient's blood glucose provides an accurate indication of how the body is controlling glucose metabolism (Dougherty et al. 2015 as cited in (Larkin, Nicol, & Middlehurst, 2016).

Before watching the video, it is advisable to go over the Skill Overview in the website, which provides, the explanation for the procedure, the steps and rationale for each of these steps.

Watch the video from this link: [Capillary Blood Glucose Monitoring](#)

Do you think you would be ready to do that in the clinical area?

If you have family members who are monitoring their blood sugar, you could observe the procedure when they do it on themselves.

Note: If the video does not load refer to the References below.

A **nasogastric (NG) tube** is a flexible plastic tube inserted through the nostrils, down the nasopharynx, and into the stomach or the upper portion of the small intestine. It is used to deliver nutrients to the patient manually or via a feeding pump. It is also used to remove gastric contents, such as in the case where there is suspected bleeding in the stomach, decompress the stomach, and obtain a specimen of the gastric contents

Nursing Skills Video:

Before watching the video, it is advisable to go over the Skills Procedures which provides, the explanation for the procedure, the steps and rationale for each of these steps.

Watch the video from this link: [Nasogastric \(NG\) Tube Insertion](#)
[Administering a Tube Feeding](#)
[Removing an NG Tube](#)

There are cases when clients go home with their NG Tube as required for long-term therapy. Thus, the nurse has the responsibility to teach the client on the care, proper feeding, and when to have it replaced.

For the rest of the procedures in the list given above, you will need to read, familiarize yourself with the equipment to be prepared, and understand the steps. You will find this in the **N11 Skills Procedures Checklist or e-Manual** that comes with the course pack, and is uploaded in the course site.

Assignment: NUTRITION - “Inspiring Clients to Eat”

Hospital diet is an essential part of modern therapy in all medical departments. It comprises both the so-called normal diets which are prepared according to modern nutritional knowledge, dietetic foods, and the various forms of artificial nutrition (nutrient-defined and chemically defined diets, parenteral and combined nutrition, i.e., enteral and parenteral nutrition) (Schmoz G, Hartig W, Vetter K, et al. [Importance of the modern hospital diet in medical practice]. Zeitschrift fur Ernährungswissenschaft. 1983 Dec;22(4):241-254. DOI: 10.1007/bf02023857.)

Specific Objectives:

1. Describe the different standard and special hospital diets
2. Develop a meal plan for a specific special diet

Specific Instructions:

Present in a tabular format the different types of standard and hospital diets. Choose what information to share to differentiate among these types of hospital diets: e.g., purpose, indication, examples, etc.

Choose a specific special diet (e.g., Cardiac diet). Create or develop a Special Diet Chart for this type of special diet. Use images or pictures, not only words or texts. Be creative. Include a brief description of this chart

Expected Output or Product:

Table of Standard and Special Hospital Diets
Special Diet Chart (e.g., Cardiac Diet Chart)

Form of submission (PowerPoint/docx or pdf/image/poster/pictograph/video, etc.)
Any form except video.

This is a Graded GROUP ASSIGNMENT. Post your output in your N-11 Submission bin. Please refer to VLE Course Site for the deadline for submission.

Clinical Case Study

Case Application:

Do the case study and answer the related questions. Post your answers in the submission bin provided on the course site.

References

- Berman, A., Snyder, S., & Frandsen, G. (2016). Nutrition. In *Kozier & Erb's Fundamentals of Nursing: Concepts, Process, and Practice* (10th ed). New Jersey: Pearson Education, Inc. Chapter 47, pp 1127-1170.
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Test Your Understanding: Nutrition

Match the concepts (A) with the correct definitions (B). Place your answers on the space provided.

COLUMN A	COLUMN B
_____ 1. Anabolism	a. Building tissue
_____ 2. Basal metabolic rate (BMR)	b. Breaking down tissue
_____ 3. Body mass index (BMI)	c. Contain all of the essential amino acids plus many of the nonessential ones
_____ 4. Calorie	d. Those that cannot be manufactured in the human body
_____ 5. Catabolism	e. Rate at which the body metabolizes food to maintain the energy requirements of a person awake and at rest
_____ 6. Complete proteins	f. Basic structural units of most lipids
_____ 7. Disaccharides	g. Lack of necessary or appropriate food substances
_____ 8. Enzymes	h. Soluble end product of lipid digestion
_____ 9. Essential amino acids	i. A large compound molecule of glucose stored in the body
_____ 10. Fatty acids	j. Biologic catalysts that speed up chemical reactions
_____ 11. Glycogen	k. All biochemical and physiological processes by which the body grows and maintains itself
_____ 12. Ideal body weight (IBW)	l. Single molecule sugars such as glucose
_____ 13. Incomplete proteins	m. Unit of heat energy
_____ 14. Kilocalorie (Kcal)	n. Fatty acid with one double carbon bond
_____ 15. Kilojoule (kJ)	o. One that could accommodate more hydrogen atoms
_____ 16. Lipoproteins	p. Weight recommended for optimal health
_____ 17. Malnutrition	q. One in which all carbon atoms are filled to capacity with hydrogen
_____ 18. Metabolism	r. Indicator of changes in body fat stores
_____ 19. Monosaccharides	s. Measure of degree of protein anabolism and catabolism
_____ 20. Monounsaturated fatty acids	t. Double molecule sugars
_____ 21. Nitrogen balance	u. Those that the body can manufacture
_____ 22. Nonessential amino acids	v. Amount of work energy required when a force of 1 newton moves 1 kilogram of weight 1 meter distance
_____ 23. Polyunsaturated fatty acids	w. Fatty acids with more than one double bond; vegetable oil
_____ 24. Saturated fatty acids	x. Lack one or more essential amino acids; usually plant based
_____ 25. Unsaturated fatty acid	y. Large calorie
_____ 26. Mid-arm circumference (MAC)	z. The feeding of a child when the child is hungry
_____ 27. Nasogastric tube	aa. Difficulty swallowing
_____ 28. Recommended dietary allowance (RDA):	bb. Through the gastrointestinal system
_____ 29. Gastrostomy	cc. A, D, E, and K vitamins that the body can store
_____ 30. Water-soluble vitamins	dd. An opening through the abdominal wall into the stomach
_____ 31. Prealbumin	ee. A form of anemia caused by inadequate supply of iron for synthesis of hemoglobin
_____ 32. Dysphagia	ff. Measure of fat, muscle, and skeleton.
_____ 33. Pellagra	gg. Estimate of lean body mass, or skeletal muscle reserves.
_____ 34. Demand feeding	hh. Inserted through one of the nostrils, down the nasopharynx, and into the alimentary tract
_____ 35. Clear liquid diet	
_____ 36. Fat-soluble vitamins	
_____ 37. Urea	
_____ 38. Low serum albumin	
_____ 39. Iron deficiency anemia	
_____ 40. Pureed diet	
_____ 41. Transferrin	

- _____ 42. Mid-arm muscle area (MAMA)
- _____ 43. Enteral
- _____ 44. Regurgitation

- ii. Modification of the soft diet wherein liquid may be added to the food, which is then blended to a semisolid consistency
- jj. The spitting up or backward flow of undigested food
- kk. A substance found in urine, blood, and lymph; the main nitrogenous substance in blood
- ll. Vitamins that the body cannot store, so people must get a daily supply in the diet; include C and B-complex vitamins
- mm. The average daily nutrient intake level sufficient to meet the nutrient requirement
- nn. A useful indicator of prolonged protein depletion
- oo. Responds more quickly to protein depletion
- pp. The most responsive serum protein to rapid changes in nutritional status
- qq. Caused by a chronic lack of niacin (vitamin B)
- rr. Diet is limited to water, tea, coffee, clear broths, ginger ale, or other carbonated beverages, strained and clear juices, and plain gelatin.

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