Wisconsin Indianhead Technical College

10806175 Pathophysiology

Course Outcome Summary

Course Information

Description This introductory course in pathophysiology covers topics related to alterations of homeostasis and the associated pathophysiological processes. Course studies include the processes involved that generate illness; signs and symptoms of commonly occurring illness states; and effects of disease processes on the cell. Review of normal homeostatic mechanisms is included. Study of these fundamental processes in relation to the pathophysiological processes can enable the students to apply this knowledge to clinical situations.

Instructional Level Associate Degree

Total Credits 3.00

Total Hours 48.00

Types of Instruction

Instruction Type	Credits/Hours
Classroom Presentation (Lecture/Demonstration/Discussion)	3/48

Course History

Revised By Erin Winesburg (15237468)

Target Population

Nursing - Associate Degree students who have successfully completed HAI and II

Pre/Corequisites

Prerequisite 10806179 Advanced Anatomy and Physiology

Prerequisite 10806197 Microbiology

Course Competencies

1. Analyze cellular and systemic functions which maintain homeostasis and the mechanisms involved with adaptation, dysfunction, and disease.

Domain *Cognitive* ***Level*** *Analysis* ***Status*** *Active*

Assessment Strategies

1.1. by responding to selected case studies, scenarios, and/or questions pertaining to altered cellular response and inflammation

Criteria

Your performance will be successful when:

1.1. you include predictions and provide reasons for cellular adaptations
1.2. you include a description of local and systemic effects of inflammation
1.3. you include a description of pathophysiologic changes that occur with chronic inflammation
1.4. you compare normal capillary exchange with those that occur with inflammatory response
1.5. you examine common causes of cell damage

Learning Objectives

1.a. Define homeostasis
1.b. List cellular functions
1.c. Identify pathological cellular changes
1.d. Review capillary dynamics
1.e. Discuss how capillary changes affect tissue and blood
1.f. Discuss common causes of cell damage
1.g. Describe the role of chemical mediators in the inflammatory response
1.h. Apply concepts of acute and chronic inflammation to selected clinical models

2. Examine the basic principles of infection and the responses of the body to the infection process.

Domain *Cognitive* ***Level*** *Application* ***Status*** *Active*

Assessment Strategies

2.1. by developing a concept map of response to a question relating the factors involved with infection
2.2. by explaining host responses to infection

Criteria

Your performance will be successful when:

2.1. you review basic characteristics of pathogens
2.2. you explain the stages in development of and course of an infection
2.3. you predict host responses to infectious process
2.4. you explain pathophysiological changes due to the infectious process

Learning Objectives

2.a. Review basic characteristics of pathological microbes
2.b. Review stages in development and course of infection
2.c. Predict host responses to infection
2.d. Relate the development of infection to breaks in the three lines of defense
2.e. Examine stages in development and course of an infection
2.f. Determine factors relating to pathogenicity and virulence in microbes
2.g. Apply concepts of response to infection to clinical models

3. Explore immunity and pathophysiological responses to normal and abnormal immune responses.

Domain *Cognitive* ***Level*** *Application* ***Status*** *Active*

Assessment Strategies

3.1. by developing a concept map of case study of an altered immune response
3.2. by including the pathophysiological changes that occur due to the altered immune response

Criteria

Your performance will be successful when:

3.1. you describe the alterations associated with host failure, autoimmunity, and exaggerated immune response
3.2. you respond to a case study or scenario concerning the four types of hypersensitivity reaction

3.3. you list the pathophysiological effects of altered immune responses to the body
3.4. you compare normal and abnormal immune responses

Learning Objectives

3.a. Review normal immune responses
3.b. Examine abnormal immune responses
3.c. Correlate pathophysiological effects on body due to abnormal immune response
3.d. Compare the primary immune alterations associated with host failure, exaggerated immune response, and autoimmunity
3.e. Examine the four main types of hypersensitivity reactions
3.f. Apply concepts of altered immunity to selected clinical settings

4. Explore the pathophysiology of neoplasms including benign and malignant tumors.

Domain *Cognitive* ***Level*** *Application* ***Status*** *Active*

Assessment Strategies

4.1. by responding to various questions and/or case studies of clients with cancer

Criteria

Your performance will be successful when:

4.1. you include local and systemic changes that occur with cancer
4.2. you include an explanation of host defenses
4.3. you include a description of stages, risk factors, and prevention

Learning Objectives

4.a. Differentiate between benign and malignant tumors
4.b. Identify local and systemic pathophysiological changes that occur in cancer
4.c. Explore possible host defenses against cancer
4.d. Describe stages of risk factors and prevention in carcinogenesis

5. Summarize the pathophysiological evolution of fluid, electrolyte, and acid base imbalances.

Domain *Cognitive* ***Level*** *Comprehension* ***Status*** *Active*

Assessment Strategies

5.1. by responding to a case study or questions concerning clients with fluid imbalances
5.2. by responding to a case study or questions relating to electrolyte imbalance
5.3. by developing a case study or concept map relating to pH alterations

Criteria

Your performance will be successful when:

5.1. you include causes and effects of fluid imbalances including third space shifts
5.2. you include pathophysiological changes that occur due to electrolyte imbalances
5.3. you apply the concepts of altered pH to clinical models

Learning Objectives

5.a. Explain the cause and effects of fluid imbalance
5.b. Examine third space shifts
5.c. Differentiate between normal and abnormal effects of cation and anion imbalances
5.d. Outline critical factors that control pH
5.e. Describe clinical importance of electrolyte imbalance
5.f. Examine mechanisms that cause respiratory and metabolic acidosis and alkalosis
5.g. Apply concepts of altered fluid/electrolyte acid base balance to selected clinical models

6. Summarize the pathophysiological evolution of disease in response to stress.

Domain *Cognitive* ***Level*** *Comprehension* ***Status*** *Active*

Assessment Strategies

6.1. by responding to a case study or questions relating to the stress response

Criteria

Your performance will be successful when:

6.1. you include variations of the stress response relative to the disease process
6.2. you relate the stress response to altered status, growth, and development states

Learning Objectives

6.a. Describe the stress response
6.b. Relate the response to various diseses and altered status of growth and development states

7. Summarize the pathophysiological evolution of disease in the cardiovascular and hematologic systems.

Domain *Cognitive* ***Level*** *Comprehension* ***Status*** *Active*

Assessment Strategies

7.1. by responding to selected case studies and questions related to cardiovascular and perfusion dysfunction

Criteria

Your performance will be successful when:

7.1. you include related pathophysiology involved with altered cardiovascular and perfusion
7.2. you include predictions of causes and effects of altered function

Learning Objectives

7.a. Identify key requirements for effective perfusion
7.b. Explain the development of hypertension
7.c. Predict the clinical manifestations of hypertension
7.d. Summarize myocardial compensatory mechanisms
7.e. Summarize the development and clinical manifestations of shock
7.f. Explain the pathophysiology that relates to altered cardiovascular function
7.g. Apply concepts of altered perfusion to selected clinical models
7.h. Examine selected cardiovascular disorders, (development and clinical manifestations) including congestive heart failure (CHF), hypertension, coronary artery disease, deep vein thrombosis, peripheral artery disease, valvular disease, left- and right-sided heart failure
7.i. Apply concepts of cardiovascular alterations to selected clinical models

8. Summarize the pathophysiological evolution of disease in respiratory and renal systems.

Domain *Cognitive* ***Level*** *Comprehension* ***Status*** *Active*

Assessment Strategies

8.1. by responding to questions, case studies, and scenarios relating to alterations in ventilation and perfusion
8.2. by responding to questions, case studies, and scenarios relating to alterations in renal/urinary function

Criteria

Your performance will be successful when:

8.1. you include pathophysiological changes that affect ventilation, perfusion, CO2 gas exchange, and O2 gas exchange
8.2. you include processes that can alter ventilation and perfusion
8.3. you include pathophysiological changes that affect renal/urinary function
8.4. you include processes that alter filtrate production
8.5. you include hormonal or neural processes that can alter filtrate production and urine formation

Learning Objectives

8.a. Explain role of ventilation and perfusion in CO2 and O2 gas exchange
8.b. Review the normal anatomy and physiology of the respiratory system
8.c. Describe processes that can alter ventilation and perfusion
8.d. Explain the pathophysiology that occurs with altered ventilation and diffusion
8.e. Examine selected respiratory disorders including infections of the upper and lower respiratory tract, cystic fibrosis, pulmonary edema, pulmonary hypertension, atelectasis, respiratory distress syndrome in all ages, and respiratory failure

8.f. Apply concepts of altered ventilation and perfusion to selected clinical models
8.g. Review the normal anatomy and physiology of the renal/urinary system
8.h. Discuss the pathophysiological processes that contribute to altered function of the renal/urinary system
8.i. Examine selected renal/urinary disorders including cystitis and pyelonephritis, kidney stones, benign prostatic hypertrophy; nephrotic syndrome, urinary tract obstruction, adenocarcinoma, kidney cancer, bladder cancer, Wilms' tumor, acute and chronic renal failure, polycystic disease, and the effects of hypertension on the renal/urinary system
8.j. Apply concepts of altered renal/urinary function to selected clinical models

9. Summarize the pathophysiologic evolution of disease in the gastrointestinal system.

Domain *Cognitive* ***Level*** *Comprehension* ***Status*** *Active*

Assessment Strategies

9.1. by responding to selected questions/studies/scenarios relating to disorders of the GI system

Criteria

Your performance will be successful when:

9.1. you include alterations that affect nutrition, digestion, absorption, and elimination
9.2. you include the pathophysiological changes in the tissues that alter the function of the GI system
9.3. you include pathophysiology, risk factors, signs and symptoms, and development of GI cancer

Learning Objectives

9.a. Examine the role of nutrition and absorption in health
9.b. Contrast normal and abnormal GI function
9.c. Explain the processes that can alter nutrition, digestion, and elimination
9.d. Explain the pathophysiology that occurs with altered digestion and elimination
9.e. Examine selected gastrointestinal disorders including acute and chronic gastritis, gastroenteritis, acute and chronic pancreatitis, gastroesophageal reflux disease, peptic ulcer disease, diverticulitis, Crohn's disease, hepatitis, cirrhosis, cholecystitis, small and large bowel obstruction, and GI cancer
9.f. Apply concepts of altered nutritional states, digestion, and elimination

10. Summarize the pathophysiologic evolution of disease in the endocrine and neural systems.

Domain *Cognitive* ***Level*** *Comprehension* ***Status*** *Active*

Assessment Strategies

10.1. by responding to questions/case studies/scenarios relating to altered nerve transmission and transduction
10.2. by responding to questions and case studies/scenarios relating to abnormal endocrine responses and regulation

Criteria

Your performance will be successful when:

10.1. you include pathophysiological effects on nerve tissue leading to altered nerve transmission and transduction
10.2. you include pathophysiological manifestations of head and spinal cord injuries, strokes, long-term CNS-related diseases, and mental illness disorders
10.3. you include the pathophysiology and the resulting altered function of the sensory organs
10.4. you include alterations in regulation and release of hormones
10.5. you include pathophysiological changes and resulting altered function of the hypothalamus-pituitary axis

Learning Objectives

10.a. Describe specific functions of the nervous system and transduction
10.b. Determine processes that alter nerve transmission
10.c. Predict pathophysiological changes in tissues that result in altered nerve transmission
10.d. Examine selected acute and long-term NS disorders including head and spinal cord injuries, strokes, long-term CNS-related diseases, and mental illness disorders as well as pathophysiological changes and resulting altered function of the sensory organs
10.e. Apply altered neural, transmission, and transduction scenarios to clinical settings
10.f. Discuss the role of the hypothalamus-pituitary axis in hormone regulation

10.g. Describe the role of the neural-endocrine stress response
10.h. Analyze pathophysiological mechanisms that alter hormonal and metabolic regulation
10.i. Apply concepts of altered-hormonal regulation and response to selected clinical questions and scenarios

11. Summarize the pathophysiologic evolution of disease in the integumentary and reproductive systems.

Domain *Cognitive* ***Level*** *Comprehension* ***Status*** *Active*

Assessment Strategies

11.1. by responding to selected case studies and scenarios or questions relating to alterations in the integumentary system
11.2. by responding to selected case studies and scenarios or questions relating to alterations in male and/or female reproductive systems

Criteria

Your performance will be successful when:

11.1. you include normal and abnormal responses to burns
11.2. you include problems that occur within the acute and long-term healing of burns
11.3. you include pathophysiological changes to the integumentary system
11.4. you include the signs and classification of skin lesions including skin cancer
11.5. you include the pathophysiological changes that can occur in the male and female reproductive systems

Learning Objectives

11.a. Identify classifications of burns
11.b. Describe the effects of different types of burns
11.c. Describe possible complications involving burns and healing
11.d. Describe changes and typical lesions in the skin
11.e. Compare the types of skin cancers and the presenting lesions
11.f. Explain the various pathophysiological changes that can occur in the male and female reproductive tract

Course Learning Plans and Performance Assessment Tasks

Type	Title	Source	Status
PAT	(No Title)	Course	Active
LP	(No Title)	Course	Active