# *Davis Advantage for Pathophysiology - Introductory Concepts and Clinical Perspectives 3rd edition Capriotti Test Bank*

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## Chapter 2, Cellular Injury, Adaptations, and Maladaptive Changes

**Multiple Choice**
*Identify the choice that best completes the statement or answers the question.*

____ 1. Which process is present in oxidative stress?

| | |
|---|---|
| 1. | Cells undergo transient ischemia with subsequent resumption of circulation. |
| 2. | Estrogen stimulation results in mitotic division of breast gland cells. |
| 3. | A blood clot obstructs a coronary artery, causing cardiac muscle ischemia. |
| 4. | A cell's environment cannot support cell metabolic requirements. |

____ 2. A client is diagnosed with a condition in which the brain cells experience low oxygen delivery. Which condition is the client exhibiting?

| | |
|---|---|
| 1. | Organelle disruption |
| 2. | Hypoxia |
| 3. | Xanthelasma |
| 4. | Ischemic-reperfusion injury |

____ 3. A client has a growth removed from their body. Which histologic finding indicates that the growth is classified as benign?

| | |
|---|---|
| 1. | Apoptosis |
| 2. | Differentiation |
| 3. | Oxidative phosphorylation |
| 4. | Atherosclerosis |

____ 4. The nurse is volunteering at a clinic in a developing country. Many of the young clients are diagnosed with kwashiorkor. Which cause does the nurse equate with the diagnosis?

| | |
|---|---|
| 1. | The condition is seen in individuals suffering from severe protein starvation. |
| 2. | The condition exists with hypertension in the aorta and systemic arterial circulation. |
| 3. | The condition indicates increased prostate gland cells because of testosterone stimulation. |
| 4. | The condition is the result of defective cholesterol metabolism. |

____ 5. By which process are findings identified that represent distinct disease processes to help with diagnosis?

| | |
|---|---|
| 1. | Histology |
| 2. | Biopsy |

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| | |
|---|---|
| 3. | Autopsy |
| 4. | Pathognomonic changes |

____ 6. A client is diagnosed with failure of the thyroid gland due to an increased in apoptotic cell death. What terminology does the nurse expect to be applied to the client's condition?

| | |
|---|---|
| 1. | Xanthomas |
| 2. | Hashimoto |
| 3. | Peptic ulcer |
| 4. | Anthracosis |

____ 7. Which field involves harvesting embryonic stem cells and performing nuclear transfer on these cells?

| | |
|---|---|
| 1. | Reproductive cloning |
| 2. | Restoration with stem cells |
| 3. | Transplantation |
| 4. | Therapeutic cloning |

____ 8. The nurse is providing care to a client with peripheral arterial disease (PAD) and gangrene of the foot, manifested by decaying tissue and necrosis caused by prolonged ischemia. Wound cultures indicate the presence of *Clostridium perfringens*. Which of the nurse's senses would help to confirm the presence of gangrene?

| | |
|---|---|
| 1. | Hearing |
| 2. | Touch |
| 3. | Smell |
| 4. | Vision |

____ 9. A client is diagnosed with impairment of cellular apoptosis. Which disease can this condition cause?

| | |
|---|---|
| 1. | Cancer at the location of the process |
| 2. | Degenerative neurological diseases |
| 3. | Necrosis of involved tissues |
| 4. | Infarction of the affected area |

____ 10. A client has a medical history of prolonged ischemia attacks. Which term would the nurse use in reference to the manifestation of the client's condition?

| | |
|---|---|
| 1. | Gangrene |
| 2. | Infarction |
| 3. | Necrosis |

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| | |
|---|---|
| 4. | Apoptosis |

____ 11. A client presents with persistently uncontrolled hypertension. The nurse informs the client's spouse that one of the consequences of prolonged raised blood pressure is a weakened area in the wall of the cerebral artery, located on the circle of Willis. Which condition fits the nurse's description?

| | |
|---|---|
| 1. | Xanthelasma |
| 2. | Infarction |
| 3. | Berry aneurysm |
| 4. | Ischemia |

____ 12. During an endoscopic examination on a client, it is found that the client has acid reflux. Which condition associated with gastroesophageal reflux disease (GERD) warrants close monitoring and aggressive treatment?

| | |
|---|---|
| 1. | Peptic ulcer disease |
| 2. | Malabsorption syndrome |
| 3. | Barrett's esophagus |
| 4. | Hiatal hernia |

____ 13. A preschool-age patient is diagnosed with leukemia. Health-care providers recommend regenerative medicine stem cell therapy. The client's parent states, "I can't agree to the sacrifice of an unborn child for the benefit of my child." Which information would the nurse share with the parent?

| | |
|---|---|
| 1. | Stem cells are also available from bone marrow. |
| 2. | There is no other source of stem cells available. |
| 3. | Banking umbilical cord blood after birth is critical. |
| 4. | Chemotherapy is an equally effective treatment. |

____ 14. A client has an abnormal thickening of the uterine lining due to an increase in estrogen levels. How can such a condition be reversed?

| | |
|---|---|
| 1. | Restoration of blood circulation |
| 2. | Treatment with hormone therapy |
| 3. | Complete surgical hysterectomy |
| 4. | By becoming pregnant |

____ 15. The nurse is providing care for a client who recently had a skin lesion surgically removed. Which information in the histology report indicates the lesion is malignant?

| | |
|---|---|
| 1. | Examined cells are poorly differentiated. |
| 2. | Cells present with orderly architecture. |

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| | |
|---|---|
| 3. | Edges of the specimen are unaffected. |
| 4. | Specimen contains well-differentiated cells. |

____ 16. Genetically programmed cell death is a process that can destroy cells that are no longer needed. Which term applies to this biological process?

| | |
|---|---|
| 1. | Atrophy |
| 2. | Apoptosis |
| 3. | Hypertrophy |
| 4. | Neoplasia |

____ 17. Which method is the most prevalent for replacing permanently injured tissues and organs?

| | |
|---|---|
| 1. | Stem cell restoration |
| 2. | Therapeutic cloning |
| 3. | Reproductive cloning |
| 4. | Transplantation |

____ 18. The nurse is providing care for a client experiencing hypoxia related to lung disease. The client reports extreme fatigue and weakness. Which pathological condition does the nurse suspect is occurring at a cellular level?

| | |
|---|---|
| 1. | Overabundance of extracellular sodium |
| 2. | Inability to produce sufficient adenosine triphosphate (ATP) |
| 3. | Hyperactivity of the sodium-potassium pump |
| 4. | Water leaving the cells, causing cellular dehydration |

____ 19. In the presence of partial limb paralysis, which of the following would lead to cellular atrophy?

| | |
|---|---|
| 1. | Increased blood flow |
| 2. | Hormone replacement therapy |
| 3. | Reduced muscle workload |
| 4. | High-protein diet |

____ 20. Which condition describes the increase in size of a weightlifter’s muscles?

| | |
|---|---|
| 1. | Hypertrophy |
| 2. | Metaplasia |
| 3. | Atrophy |
| 4. | Dysplasia |

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____ 21. A client reports an itchy, bumpy scar around an old wound that is identified as a keloid. Which term best describes this condition?

| | |
|---|---|
| 1. | Neoplasia |
| 2. | Hyperplasia |
| 3. | Dysplasia |
| 4. | Metaplasia |

**Multiple Response**

*Identify one or more choices that best complete the statement or answer the question.*

____ 22. Which vitamins are fat soluble? *Select all that apply.*

| | |
|---|---|
| 1. | Vitamin A |
| 2. | Vitamin C |
| 3. | Vitamin D |
| 4. | Vitamin K |
| 5. | Vitamin $B_6$ |

____ 23. At which time does physiological apoptosis occur? *Select all that apply*.

| | |
|---|---|
| 1. | During the embryonic development of the hand |
| 2. | During menopause in adult ovaries |
| 3. | When cells die because of stressors |
| 4. | When cells have completed their function and need elimination |
| 5. | When the liver is exposed to excessive amounts of alcohol |

____ 24. Which components of the serum level should be measured to confirm myocardial infarction? *Select all that apply*.

| | |
|---|---|
| 1. | Epinephrine |
| 2. | Troponin |
| 3. | Lysosomal enzyme |
| 4. | Acetylcholine |
| 5. | CPKmb |

____ 25. A client is being treated for atherosclerosis. Which options are directly detrimental to the client's condition? *Select all that apply*.

| | |
|---|---|
| 1. | Depletion of endothelial nitric oxide |
| 2. | *Helicobacter pylori* infection |
| 3. | Low-density lipoprotein (LDL) deposition |
| 4. | Inflammatory changes of the endothelium |

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| | |
|---|---|
| 5. | Acid reflux |

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## Chapter 2, Cellular Injury, Adaptations, and Maladaptive Changes
## Answer Section

### MULTIPLE CHOICE

1. ANS: 1
   Chapter: Chapter 2, Cellular Injury, Adaptations, and Maladaptive Changes
   Objective: List common cellular adaptations and maladaptations that occur in the body.
   Page: 16
   Heading: Basic Concepts of Cellular Injury>Free Radical Injury
   Integrated Processes: Nursing Process
   Client Need: Health Promotion and Maintenance
   Cognitive Level: Application [Applying]
   Concept: Cellular Regulation
   Difficulty: Moderate

| | Feedback |
|---|---|
| 1 | This is correct. Oxidative stress is a form of cell injury that occurs when free radical generation exceeds the mechanisms of removal. Oxidative stress commonly occurs in cells that undergo transient ischemia and subsequent resumption of circulation. |
| 2 | This is incorrect. Hormonal stimulation of hyperplasia occurs in pregnancy. It occurs when estrogen stimulation results in mitotic division of breast gland cells. |
| 3 | This is incorrect. Ischemic reperfusion injury occurs when a blood clot obstructs a coronary artery and results in cardiac muscle ischemia. |
| 4 | This is incorrect. Atrophy occurs when a cell's environment cannot support its metabolic requirements. The smaller size of the cells allows for less metabolic demand and more efficient functioning that is compatible with survival. |

   PTS: 1 CON: Cellular Regulation

2. ANS: 2
   Chapter: Chapter 2, Cellular Injury, Adaptations, and Maladaptive Changes
   Objective: Explain endothelial injury, ischemic tissue damage, and infarction of tissue.
   Page: 16
   Heading: Basic Concepts of Cellular Injury>Causes of Cell Injury>Hypoxic Cell Injury
   Integrated Processes: Nursing Process
   Client Need: Health Promotion and Maintenance
   Cognitive Level: Applying [Application]
   Concept: Oxygenation
   Difficulty: Moderate

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| | Feedback |
|---|---|
| 1 | This is incorrect. Organelles are a number of specialized structures within a living cell. Prolonged stress can cause irreversible cell damage resulting in organelle disruption. |
| 2 | This is correct. Hypoxia is a condition in which the body or a part of the body is deprived of adequate oxygen. Brain cells cannot withstand hypoxia for more than 6 minutes, whereas skeletal muscle can tolerate hypoxia for prolonged periods. |
| 3 | This is incorrect. Xanthelasma are raised skin lesions that develop because of intracellular accretion of excess cholesterol within epithelial cells. |
| 4 | This is incorrect. Ischemic-reperfusion injury is tissue damage. It occurs when the blood supply returns to the tissue after a period of ischemia or lack of oxygen. |

PTS: 1 CON: Oxygenation

3. ANS: 2
Chapter: Chapter 2, Cellular Injury, Adaptations, and Maladaptive Changes
Objective: List common cellular adaptations and maladaptations that occur in the body.
Page: 13
Heading: Basic Concepts of Cellular Adaptations and Maladaptive Changes>Neoplasia
Integrated Processes: Nursing Process
Client Need: Health Promotion and Maintenance
Cognitive Level: Application [Applying]
Concept: Cellular Regulation
Difficulty: Moderate

| | Feedback |
|---|---|
| 1 | This is incorrect. Apoptosis is an organized process that eliminates unnecessary or damaged cells without causing inflammation or any adverse effects on surrounding tissue. |
| 2 | This is correct. Differentiation is the process whereby newly growing cells acquire the specialized structure and function of the cells that are replaced. Well-differentiated cells in the lesion are indicative of a benign growth, whereas poorly differentiated cells are indicative of malignancy. |
| 3 | This is incorrect. Oxidative phosphorylation is a process through which cells generate energy in the mitochondria. |
| 4 | This is incorrect. Atherosclerosis is the change in metabolic processes associated with diabetes mellitus. |

PTS: 1 CON: Cellular Regulation

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4. ANS: 1
Chapter: Chapter 2, Cellular Injury, Adaptations, and Maladaptive Changes
Objective: Identify etiologic factors that can cause cellular adaptive and maladaptive changes.
Page: 18
Heading: Basic Concepts of Cellular Injury>Free Radical Injury>Nutritional Imbalances
Integrated Processes: Nursing Process
Client Need: Health Promotion and Maintenance
Cognitive Level: Application [Applying]
Concept: Nutrition
Difficulty: Moderate

| | Feedback |
|---|---|
| 1 | This is correct. Kwashiorkor is a form of malnutrition caused by protein deficiency. |
| 2 | This is incorrect. Hypertension is a condition in which blood pressure within the aorta and systemic arterial circulation is elevated. |
| 3 | This is incorrect. The condition in which prostate gland cells increase in number because of testosterone stimulation is called benign prostatic hyperplasia. |
| 4 | This is incorrect. Hypercholesterolemia is a condition that is caused by an excess of cholesterol in the bloodstream. |

PTS: 1 CON: Nutrition

5. ANS: 1
Chapter: Chapter 2, Cellular Injury, Adaptations, and Maladaptive Changes
Objective: List common cellular adaptations and maladaptations that occur in the body.
Page: 10
Heading: Basic Concepts of Cellular Adaptations and Maladaptive Changes
Integrated Processes: Nursing Process
Client Need: Health Promotion and Maintenance
Cognitive Level: Comprehension [Understanding]
Concept: Cellular Regulation
Difficulty: Easy

| | Feedback |
|---|---|
| 1 | This is correct. Histology is the microscopic study of tissues and cells, and it yields important diagnostic information for the clinician. |
| 2 | This is incorrect. Biopsy extracts a cell sample from an organ or mass of tissue to allow for histological examination. |
| 3 | This is incorrect. Autopsy is an examination of the tissues and organs of a deceased individual that allows for a study of the cause of death. |

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| | |
|---|---|
| **4** | This is incorrect. Pathognomonic changes are unique histological findings that represent distinct disease processes. For instance, an inflamed, craterlike breach in the gastrointestinal mucosa is pathognomonic for peptic ulcer disease. |

PTS: 1 CON: Cellular Regulation

6. ANS: 2
Chapter: Chapter 2, Cellular Injury, Adaptations, and Maladaptive Changes
Objective: List common cellular adaptations and maladaptations that occur in the body.
Page: 20
Heading: Cell Degeneration and Death>Apoptosis
Integrated Processes: Nursing Process
Client Need: Health Promotion and Maintenance
Cognitive Level: Applying [Application]
Concept: Cellular Regulation
Difficulty: Moderate

| | Feedback |
|---|---|
| **1** | This is incorrect. Xanthomas are yellow, raised skin lesions that develop due to intracellular accumulation of excess cholesterol within epithelial cells. |
| **2** | This is correct. Hashimoto's thyroiditis is a common autoimmune disease that causes gradual failure of the thyroid gland because of increased apoptotic cell death. |
| **3** | This is incorrect. Peptic ulcers are caused by *Helicobacter pylori*, which is a bacterium that erodes the gastric mucosa. |
| **4** | This is incorrect. Anthracosis is a benign deposition of coal dust within the lungs from inhalation of sooty air. |

PTS: 1 CON: Cellular Regulation

7. ANS: 4
Chapter: Chapter 2, Cellular Injury, Adaptations, and Maladaptive Changes
Objective: Distinguish between the processes of therapeutic cloning versus reproductive cloning.
Page: 23
Heading: Interventions to Treat Permanent Cell Injury>Therapeutic Cloning
Integrated Processes: Nursing Process
Client Need: Health Promotion and Maintenance
Cognitive Level: Comprehension [Understanding]
Concept: Cellular Regulation
Difficulty: Moderate

| | Feedback |
|---|---|

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| | |
|---|---|
| 1 | This is incorrect. Reproductive cloning is the deliberate production of genetically identical individuals, and it involves the production of a genetic duplicate of an existing organism. |
| 2 | This is incorrect. “Restoration with stem cells” refers to the regeneration of cells that are incapable of regeneration, such as brain, neuron, and heart muscle cells. |
| 3 | This is incorrect. Transplantation is the most prevalent method to replace permanently injured tissues or organs. |
| 4 | This is correct. Therapeutic cloning is a field that involves the harvesting of embryonic stem cells and the performance of nuclear transfer on these cells. |

PTS: 1 CON: Cellular Regulation

8. ANS: 3
Chapter: Chapter 2, Cellular Injury, Adaptations, and Maladaptive Changes
Objective: Explain endothelial injury, ischemic tissue damage, and infarction of tissue.
Page: 20
Heading: Cell Degeneration and Death>Gangrene
Integrated Processes: Nursing Process
Client Need: Physiological Integrity: Physiological Adaptation
Cognitive Level: Analysis [Analyzing]
Concept: Cellular Regulation
Difficulty: Difficult

| | Feedback |
|---|---|
| 1 | This is incorrect. The presence of gangrene is confirmed by the sense of smell, not hearing. |
| 2 | This is incorrect. The presence of gangrene is confirmed by the sense of smell, not touch. |
| 3 | This is correct. The presence of gangrene is confirmed by the sense of smell. A foul odor is caused by the *Clostridium perfringens* organism, associated with gangrene. |
| 4 | This is incorrect. The presence of gangrene is confirmed by the sense of smell, not vision. |

PTS: 1 CON: Cellular Regulation

9. ANS: 1
Chapter: Chapter 2, Cellular Injury, Adaptations, and Maladaptive Changes
Objective: Identify etiologic factors that can cause cellular adaptive and maladaptive changes.
Page: 20
Heading: Cell Degeneration and Death>Apoptosis

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Integrated Processes: Nursing Process
Client Need: Physiological Integrity: Physiological Adaptation
Cognitive Level: Application [Applying]
Concept: Cellular Regulation
Difficulty: Moderate

| | Feedback |
|---|---|
| 1 | This is correct. Certain cancers arise when cells lose the ability to program their own destruction, a process known as *apoptosis*, and go on to have an abnormally prolonged life span. These cells begin to divide uncontrollably and invade other tissues. |
| 2 | This is incorrect. Degenerative neurological diseases are caused when the cells, due to increased cellular apoptosis, die excessively and prematurely. For example, spinal muscular atrophy develops when nerve cells undergo increased apoptotic rates and die prematurely. |
| 3 | This is incorrect. Necrosis is the death of cells in a tissue or organ through injury or disease. |
| 4 | This is incorrect. Infarction is the death of tissue due to hypoxia caused by prolonged restriction of blood flow. |

PTS: 1 CON: Cellular Regulation

10. ANS: 2
Chapter: Chapter 2, Cellular Injury, Adaptations, and Maladaptive Changes
Objective: Explain endothelial injury, ischemic tissue damage, and infarction of tissue.
Page: 20
Heading: Cell Degeneration and Death>Cell Necrosis
Integrated Processes: Nursing Process
Client Need: Physiological Integrity: Physiological Adaptation
Cognitive Level: Comprehension [Understanding]
Concept: Cellular Regulation
Difficulty: Moderate

| | Feedback |
|---|---|
| 1 | This is incorrect. Gangrene is a condition that occurs when tissues endure prolonged ischemia, experience infarction and necrosis, and then are exposed to bacteria such as *Clostridium perfringens* that proliferate in the decaying tissue. |
| 2 | This is correct. Infarction, also called *ischemic necrosis,* is the death of tissue as a consequence of prolonged ischemia. |
| 3 | This is incorrect. Necrosis is a broad term used to describe the death of cells in a tissue or organ through injury or disease. |

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| | |
|---|---|
| 4 | This is incorrect. Apoptosis is the cell's genetically programmed degeneration, which can be normal or abnormal. |

PTS: 1 CON: Cellular Regulation

11. ANS: 3
Chapter: Chapter 2, Cellular Injury, Adaptations, and Maladaptive Changes
Objective: Explain endothelial injury, ischemic tissue damage, and infarction of tissue.
Page: 18
Heading: Basic Concepts of Cellular Injury>Hypertension
Integrated Processes: Nursing Process
Client Need: Physiological Integrity: Physiological Adaptation
Cognitive Level: Analysis [Analyzing]
Concept: Cellular Regulation
Difficulty: Difficult

| | Feedback |
|---|---|
| 1 | This is incorrect. Xanthelasma is a yellowish deposit of cholesterol underneath the skin cells, commonly on or around the eyelids. |
| 2 | This is incorrect. Infarction is tissue death due to prolonged obstruction of blood supply to the tissue. |
| 3 | This is correct. Berry aneurysm is a small, berrylike bulge that is caused by a weakened area in the wall of the cerebral artery at or near the circle of Willis in the brain. The berry aneurysm is directly related to the presence of hypertension. |
| 4 | This is incorrect. Ischemia is a deficiency in blood flow to tissues that leads to cell injury. |

PTS: 1 CON: Cellular Regulation

12. ANS: 3
Chapter: Chapter 2, Cellular Injury, Adaptations, and Maladaptive Changes
Objective: Explain endothelial injury, ischemic tissue damage, and infarction of tissue.
Page: 12
Heading: Basic Concepts of Cellular Adaptations and Maladaptive Changes>Metaplasia>Alert Box>Figure 2-5
Integrated Processes: Nursing Process
Client Need: Physiological Integrity: Physiological Adaptation
Cognitive Level: Application [Applying]
Concept: Cellular Regulation
Difficulty: Difficult

| | Feedback |
|---|---|

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| | |
|---|---|
| 1 | This is incorrect. Peptic ulcer disease occurs in the stomach, not in the esophagus. |
| 2 | This is incorrect. Malabsorption syndrome is not a condition related to GERD. |
| 3 | This is correct. Barrett's esophagus is a serious complication of GERD. In GERD, the lower esophageal squamous epithelial cells can undergo a metaplastic change into columnar stomach-like cells. This condition develops into Barrett's esophagus, which requires close monitoring and aggressive treatment because of the risk of esophageal cancer. |
| 4 | This is incorrect. Hiatal hernia can be a cause of GERD, it generally does not cause any signs or symptoms and will not need treatment. |

PTS: 1 CON: Cellular Regulation

13. ANS: 1
Chapter: Chapter 2, Cellular Injury, Adaptations, and Maladaptive Changes
Objective: Discuss therapeutic interventions to repair cell injury and cell death.
Page: 22
Heading: Interventions to Treat Permanent Cell Injury>Regenerative Medicine Using Stem Cells
Integrated Processes: Nursing Process
Client Need: Physiological Integrity: Physiological Adaptation
Cognitive Level: Application [Applying]
Concept: Cellular Regulation
Difficulty: Difficult

| | Feedback |
|---|---|
| 1 | This is correct. Based on the parent's comment, the nurse needs to provide information about alternative sources of stem cells. Bone marrow is a possible source, but finding a bone marrow match is necessary. |
| 2 | This is incorrect. Stem cells can be obtained from stored umbilical cord blood and bone marrow in addition to human embryonic cells obtained from fertilized human eggs in the blastocyst stage. Use of human embryonic cells is banned in the United States. |
| 3 | This is incorrect. Informing the parent that banking of the client's umbilical cord blood is critical only places guilt on the parent if the procedure was not performed when the client was born. |
| 4 | This is incorrect. Exhausting all efforts for regenerative medicine using stem cells may lead to common methods of treatment such as chemotherapy. However, research indicates the best results come from stem cell therapy. |

PTS: 1 CON: Cellular Regulation

14. ANS: 2

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Chapter: Chapter 2, Cellular Injury, Adaptations, and Maladaptive Changes
Objective: Discuss therapeutic interventions to repair cell injury and cell death.
Page: 21
Heading: Clinical Interventions To Reverse Cell Injury>Clinical Concept
Integrated Processes: Nursing Process
Client Need: Physiological Integrity: Physiological Adaptation
Cognitive Level: Analysis [Analyzing]
Concept: Cellular Regulation
Difficulty: Moderate

| | Feedback |
|---|---|
| 1 | This is incorrect. Restoration of blood circulation has no bearing on hyperplasia of the uterine endometrium. It is caused by an increase in uterine endometrial cells brought on by excessive estrogen. |
| 2 | This is correct. Hyperplasia is stimulated by hormonal or compensatory cellular mechanisms. Since hyperplasia of the uterine endometrium is caused by an overproduction of estrogen, hormone therapy to counter the effects of excessive estrogen helps reverse the condition. |
| 3 | This is incorrect. Surgical removal of the hyperplastic uterine endometrium is an irreversible treatment option. Complete surgical hysterectomy is unwarranted for this condition. |
| 4 | This is incorrect. Becoming pregnant does cause changes in body hormones; however, for a variety of reasons, this is not warranted as an appropriate treatment. |

PTS: 1 CON: Cellular Regulation

15. ANS: 1
Chapter: Chapter 2, Cellular Injury, Adaptations, and Maladaptive Changes
Objective: Compare and contrast characteristics of malignant cancer cells with normal, healthy cells.
Page: 13
Heading: Basic Concepts of Cellular Adaptations and Maladaptive Changes>Neoplasia>BOX 2-1. Cellular Differentiation: Benign and Malignant Neoplasms
Integrated Processes: Nursing Process
Client Need: Physiological Integrity: Physiological Adaptation
Cognitive Level: Analysis [Analyzing]
Concept: Cellular Regulation
Difficulty: Moderate

| | Feedback |
|---|---|
| 1 | This is correct. Neoplastic cells can appear very different from the healthy cells within their tissue of origin. Poorly differentiated cells are indicative of a malignancy. |

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| | |
|---|---|
| **2** | This is incorrect. In normal skin, skin cells are lined up in an orderly fashion. |
| **3** | This is incorrect. Unaffected margins on a specimen are indicative that the entire lesion has been removed whether the lesion is malignant or benign. |
| **4** | This is incorrect. The presence of well-differentiated cells is indicative of a benign lesion. |

PTS: 1 CON: Cellular Regulation

16. ANS: 2
Chapter: Chapter 2, Cellular Injury, Adaptations, and Maladaptive Changes
Objective: List common cellular adaptations and maladaptations that occur in the body.
Page: 20
Heading: Cell Degeneration And Death>Apoptosis
Integrated Processes: Nursing Process
Client Need: Physiological Integrity: Physiological Adaptation
Cognitive Level: Comprehension [Understanding]
Concept: Cellular Regulation
Difficulty: Moderate

| | Feedback |
|---|---|
| **1** | This is incorrect. Atrophy is a cellular adaptation in which cells revert to a smaller size in response to changes in metabolic requirements or their environment. Atrophy occurs when a cell's environment cannot support its metabolic requirements. |
| **2** | This is correct. In multicellular organisms, cells that are no longer needed or are a threat to the organism are destroyed by a programmed cell death called apoptosis. An example of this process is when an embryonic, paddle-shaped hand forms indentations to shape the individual fingers. |
| **3** | This is incorrect. Hypertrophy is an increase in individual cell size that results in an enlargement of functioning tissue mass. In hypertrophy, each individual cell becomes larger. Hypertrophy increases the cell's functional components, which leads to greater metabolic demand and energy needs. |
| **4** | This is incorrect. Neoplasia means *new growth* and usually refers to cancerous, disorganized, uncoordinated, uncontrolled, proliferative cell growth. |

PTS: 1 CON: Cellular Regulation

17. ANS: 4
Chapter: Chapter 2, Cellular Injury, Adaptations, and Maladaptive Changes
Objective: Discuss therapeutic interventions to repair cell injury and cell death.
Page: 22
Heading: Interventions to Treat Permanent Cell Injury>Transplantation

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Integrated Processes: Nursing Process
Client Need: Physiological Integrity: Physiological Adaptation
Cognitive Level: Comprehension [Understanding]
Concept: Cellular Regulation
Difficulty: Easy

| | Feedback |
|---|---|
| 1 | This is incorrect. Stem cells are capable of developing into any specialized tissue and organ and are therefore used to treat and regenerate injured tissues and cells. However, this is not the most prevalent method. |
| 2 | This is incorrect. Therapeutic cloning involves the harvesting of embryonic stem cells and the performance of nuclear transfer on these cells. This method, it could theoretically enable individuals in need of organ transplants to obtain exact tissue matches for their organs. However, this is still emerging technology with extensive ongoing research. |
| 3 | This is incorrect. Reproductive cloning is the creation of a genetic duplicate of an existing organism. Currently, reproductive cloning is only performed among livestock and other animals like cats, mice, rabbits, and mules. |
| 4 | This is correct. Transplantation is the most prevalent method to replace permanently injured tissues or organs, such as kidneys. It is a complex process involving many stages that include solicitation of donors, harvesting of organs, matching of donor organs and recipients, surgical implantation, and interventions to avoid organ rejection. |

PTS: 1 CON: Cellular Regulation

18. ANS: 2
Chapter: Chapter 2, Cellular Injury, Adaptations, and Maladaptive Changes
Objective: Explain endothelial injury, ischemic tissue damage, and infarction of tissue.
Page: 13
Heading: Basic Concepts of Cellular Injury>Dysfunction of the Na+/K+ Pump
Integrated Processes: Nursing Process
Client Need: Physiological Integrity: Physiological Adaptation
Cognitive Level: Analysis [Analyzing]
Concept: Cellular Regulation
Difficulty: Difficult

| | Feedback |
|---|---|
| 1 | This is incorrect. The intracellular sodium ion concentration is increased because the sodium is not being adequately pumped out of the cell. |
| 2 | This is correct. The client is hypoxic, which interferes with the production of ATP. Insufficient ATP contributes to the failure of active transport mechanisms such as the sodium-potassium pump ($Na^+/K^+$ pump). |

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| | |
|---|---|
| 3 | This is incorrect. Insufficient ATP contributes to the failure of active transport mechanisms, such as the sodium-potassium pump ($Na^+/K^+$ pump). |
| 4 | This is incorrect. Dysfunction of the sodium-potassium pump causes an increase in intracellular sodium, drawing in water and leading to cellular swelling. |

PTS: 1 CON: Cellular Regulation

19. ANS: 3
Chapter: Chapter 2, Cellular Injury, Adaptations, and Maladaptive Changes
Objective: Identify etiologic factors that can cause cellular adaptive and maladaptive changes.
Page: 10
Heading: Basic Concepts of Cellular Adaptations and Maladaptive Changes>Atrophy
Integrated Processes: Nursing Process
Client Need: Physiological Integrity: Physiological Adaptation
Cognitive Level: Comprehension [Understanding]
Concept: Cellular Regulation
Difficulty: Moderate

| | Feedback |
|---|---|
| 1 | This is incorrect. Increased blood flow could help prevent cellular atrophy. Reduction of blood flow can lead to atrophic changes. |
| 2 | This is incorrect. Increased levels of hormonal stimulation can help prevent cellular damage. |
| 3 | This is correct. With reduced workload of the partially paralyzed limb, cellular atrophy will occur, resulting in muscle wasting. |
| 4 | This is incorrect. A high-protein diet can help provide adequate nutrition and prevent cellular atrophy. Malnutrition is a cause of muscle wasting. |

PTS: 1 CON: Cellular Regulation

20. ANS: 1
Chapter: Chapter 2, Cellular Injury, Adaptations, and Maladaptive Changes
Objective: List common cellular adaptations and maladaptations that occur in the body.
Page: 10
Heading: Basic Concepts of Cellular Adaptations and Maladaptive Changes>Hypertrophy
Integrated Processes: Nursing Process
Client Need: Physiological Integrity: Physiological Adaptation
Cognitive Level: Comprehension [Understanding]
Concept: Cellular Regulation
Difficulty: Moderate

| | Feedback |
|---|---|

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| | |
|---|---|
| 1 | This is correct. Hypertrophy is the increase in size of an organ or tissue due to the enlargement of its component cells. Muscle growth is due to physiological hypertrophy, which is caused by angiogenesis. |
| 2 | This is incorrect. Metaplasia is the replacement of one cell type by another cell type. This could be due to a cell's genetic programming because of a change in environment, or, more commonly, a response to chronic inflammation. |
| 3 | This is incorrect. Atrophy is a wasting or decrease in size of a body organ, tissue, or other part due to disease, injury, or lack of use. |
| 4 | This is incorrect. Dysplasia is abnormal cellular growth within a specific tissue, often as a result of chronic inflammation or a precancerous condition. |

PTS: 1 CON: Cellular Regulation

21. ANS: 2
Chapter: Chapter 2, Cellular Injury, Adaptations, and Maladaptive Changes
Objective: List common cellular adaptations and maladaptations that occur in the body.
Page: 11
Heading: Basic Concepts of Cellular Adaptations and Maladaptive Changes>Hyperplasia
Integrated Processes: Nursing Process
Client Need: Safe and Effective Care Environment: Management of Care
Cognitive Level: Knowledge [Remembering]
Concept: Critical Thinking
Difficulty: Easy

| | Feedback |
|---|---|
| 1 | This is incorrect. Neoplasia means new growth and usually refers to disorganized, uncoordinated, uncontrolled proliferative cell growth that can be cancerous or benign. |
| 2 | This is correct. Hyperplasia is the increase in the number of cells in a tissue or organ, which only occurs in tissues such as the epithelium and glandular tissue. |
| 3 | This is incorrect. Dysplasia is abnormal cellular growth within a specific tissue, often as a result of chronic inflammation or a precancerous condition. |
| 4 | This is incorrect. Metaplasia is the replacement of one cell type by another cell type. |

PTS: 1 CON: Critical Thinking

**MULTIPLE RESPONSE**

22. ANS: 1, 3, 4
Chapter: Chapter 2, Cellular Injury, Adaptations, and Maladaptive Changes
Objective: Identify etiologic factors that can cause cellular adaptive and maladaptive changes.

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Page: 18
Heading: Basic Concepts of Cellular Injury>Free Radical Injury>Nutritional Imbalances
Integrated Processes: Nursing Process
Client Need: Health Promotion and Maintenance
Cognitive Level: Analysis [Analyzing]
Concept: Cellular Regulation
Difficulty: Difficult

| | Feedback |
|---|---|
| 1. | This is correct. Fat-soluble vitamins are vitamins A, D, E, and K. Fat is necessary for storage of these vitamins in the body. |
| 2. | This is incorrect. Individuals can counteract free radical injury through consumption of antioxidants such as vitamin C, which is not fat soluble. |
| 3. | This is correct. Fat-soluble vitamins are vitamins A, D, E, and K. Fat is necessary for storage of these vitamins in the body. |
| 4. | This is correct. Fat-soluble vitamins are vitamins A, D, E, and K. Fat is necessary for storage of these vitamins in the body. |
| 5. | This is incorrect. Individuals can counteract free radical injury through consumption of antioxidants such as vitamin $B_6$ and beta-carotene, which are not fat soluble. |

PTS: 1 CON: Cellular Regulation

23. ANS: 1, 2, 4
Chapter: Chapter 2, Cellular Injury, Adaptations, and Maladaptive Changes
Objective: Identify etiologic factors that can cause cellular adaptive and maladaptive changes.
Page: 20
Heading: Cell Degeneration and Death>Apoptosis
Integrated Processes: Nursing Process
Client Need: Health Promotion and Maintenance
Cognitive Level: Analysis [Analyzing]
Concept: Cellular Regulation
Difficulty: Difficult

| | Feedback |
|---|---|
| 1. | This is correct. Apoptosis of select cells occurs within the paddle-shaped hand plate to form indentations to shape the individual fingers. The apoptotic cells disintegrate in a stepwise manner without disrupting other cells. |
| 2. | This is correct. Physiological apoptosis also occurs in adult ovaries during menopause. |
| 3. | This is incorrect. This process is called cell necrosis. |

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| | |
|---|---|
| 4. | This is correct. Cells such as the white blood cells undergo apoptosis when they become exhausted after participation in immune reactions. |
| 5. | This is incorrect. The relevant process is intracellular accumulation, |

PTS: 1 CON: Cellular Regulation

24. ANS: 2, 3, 5
Chapter: Chapter 2, Cellular Injury, Adaptations, and Maladaptive Changes
Objective: Explain endothelial injury, ischemic tissue damage, and infarction of tissue.
Page: 20
Heading: Cell Degeneration and Death>Cell Necrosis
Integrated Processes: Nursing Process
Client Need: Health Promotion and Maintenance
Cognitive Level: Analysis [Analyzing]
Concept: Cellular Regulation
Difficulty: Difficult

| | Feedback |
|---|---|
| 1. | This is incorrect. Blood constituents such as norepinephrine and epinephrine are produced by the adrenal glands, and each constituent affects the vasculature's function differently and may have detrimental effects, but myocardial infarction is not one of them. |
| 2. | This is correct. Blood levels of CPKmb and troponin are measured to confirm myocardial infarction. |
| 3. | This is correct. Blood level of the lysosomal enzyme is measured to confirm myocardial infarction. |
| 4. | This is incorrect. Acetylcholine is a vasodilating substance produced by the endothelial cells and may have detrimental effects, but myocardial infarction is not one of them. |
| 5. | This is correct. Blood level of the lysosomal enzyme CPKmb is measured to confirm myocardial infarction. |

PTS: 1 CON: Cellular Regulation

25. ANS: 1, 3, 4
Chapter: Chapter 2, Cellular Injury, Adaptations, and Maladaptive Changes
Objective: Explain endothelial injury, ischemic tissue damage, and infarction of tissue.
Page: 19
Heading: Basic Concepts of Cellular Injury >LDL Cholesterol
Integrated Processes: Nursing Process
Client Need: Physiological Integrity: Physiological Adaptation
Cognitive Level: Analysis [Analyzing]

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Concept: Cellular Regulation
Difficulty: Difficult

| | Feedback |
|---|---|
| 1. | This is correct. Depletion of endothelial nitric oxide can impede the dilatory capacity of arteries, thus affecting blood flow. Restriction of coronary artery blood flow to the heart can have a serious negative effect on cardiac health. |
| 2. | This is incorrect. *H. pylori* is a bacterium that causes peptic ulcers in the gastrointestinal system. |
| 3. | This is correct. LDL cholesterol accumulates to form atherosclerotic plaque along the artery walls and directly affects cardiac health. |
| 4. | This is correct. Endothelial injury causes inflammation, which in turn causes diminished vasodilatory capacity of the artery. This results in LDL cholesterol deposition and clot formation in coronary arteries, which has a detrimental effect on cardiac health. |
| 5. | This is incorrect. Acid reflux irritates the lower esophageal cells, causing inflammation of the esophagus. Prolonged irritation and lack of treatment could lead to a condition known as *Barrett's esophagus*. |

PTS: 1 CON: Cellular Regulation

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