

What is least likely to result in angioedema?

- Verapamil
- Naproxen
- Ondansetron
- Captopril
- Bee sting

Which of the following is a common symptom in an infant with milk protein allergy?

- Blood in the stool
- Failure to thrive
- Shock
- Fever
- Angioedema

Which of the following was theorized by T.A. Knight in his work with pea plants?

- Alternate forms of traits
- DNA in the nucleus of eukaryotic cells
- DNA in the nucleus of plant cells
- Centromeres on chromosomes
- Genes on chromosomes

Which of the following types of hypersensitivity reactions is IgE mediated?

- Type II
- Type IV
- Type I
- Type III
- Type V

In type I hypersensitivity reactions, IgE binds to which cells causing their degranulation upon re-exposure?

- Macrophages
 - Red blood cells
 - Mast cells
 - Epithelial cells
 - Hepatocytes
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A child is brought to the emergency department with rapid-onset urticarial rash and pruritus after eating peanuts. He has no respiratory distress, wheezing, stridor, or facial edema. Which of the following is the most appropriate treatment at this time?

- Steroids
 - Proton pump inhibitors
 - Epinephrine
 - Non-steroidal anti-inflammatory drugs
 - Antihistamines
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Which of the following is not typically seen in anaphylaxis?

- Wheeze
 - Bradycardia
 - Hypotension
 - Hives
 - Throat swelling
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Which of the following tests helps identify an allergen that causes an allergic reaction?

- Serum protein electrophoresis
 - Eosinophil count
 - Radioallergosorbent test (RAST)
 - Montoux testing
 - Serum IgM levels
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Which of the following foods accounts for 2 to 3% of food allergies in children under 1 year of age?

- Gluten
 - Peanut
 - Mushroom
 - Cow's milk
 - Egg
-

Which of the following diseases requires endoscopy and biopsy for confirmation of diagnosis?

- IgE-mediated hypersensitivity reaction
 - Eosinophilic esophagitis
 - Milk protein allergy
 - Infantile gastroesophageal reflux disease
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Which of the following decreases the oxygen-carrying capacity of the blood?

- Myocardial infarction
 - Cyanide poisoning
 - Pneumonia
 - Polycythemia
 - Carbon monoxide poisoning
-

Which of the following are part of the basic cell housekeeping functions?

- Generation of action potentials
 - Evasion of programmed cell death
 - Generation of energy
 - Production of exotoxins
 - Defense against microbial pathogens
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The plasma membrane is responsible for...?

- ...generating adenosine triphosphate.
 - ...regulating the intracellular movement of organelles.
 - ...regulating the process of cell division.
 - ...degrading misfolded proteins.
-

- ...regulating the movement of molecules and ions into the cells.
-

Which of the following is involved in the biosynthesis of immunoglobulins in plasma cells?

- Smooth endoplasmic reticulum
 - The cell membrane
 - Lysosomes
 - Mitochondria
 - Rough endoplasmic reticulum
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Which of the following statements is true?

- The cell is dynamic and constantly in motion.
 - Most of the cells have a round ball-like shape.
 - The cytoplasm is highly structured by the cytoskeleton and cilia.
 - Organelles swim randomly within the cytosol.
 - Cells have limited turnover in order to conserve energy.
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Which of the cellular functions is the first to be affected by hypoxia?

- Communication with the surrounding environment
 - Degradation and recycling of cellular components
 - Protein synthesis
 - ATP generation
 - DNA synthesis
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Which of the following is one of the mechanisms by which infections cause cell injury?

- Increasing oxygen concentration
 - Activating the host's immune system
 - Generating UV light
 - Accelerating cellular senescence
 - Releasing ionizing radiation
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Pyroptosis is...?

- ...cellular homicide.
 - ...cellular soup.
 - ...programmed cell death.
 - ...suicide by inflammation.
 - ...fail-safe suicide.
-

Which of the following is utilized by the cells as a mechanism of self-preservation?

- Necroptosis
 - Autolysis
 - Necrosis
 - Apoptosis
 - Autophagy
-

The changes made by a cell in response to injury or adverse changes in their environment are referred to as...?

- ...apoptosis.
 - ...remodeling.
 - ...adaptation.
 - ...homeostasis.
 - ...necrosis.
-

Which of the following causes cell damage by inhibiting the electron transport chain?

- Carbon tetrachloride
 - Mercury chloride
 - Acetaminophen
 - Cyanide
-

How does acetaminophen cause cell injury?

- **Formation of toxic metabolites**
 - Modification of the cell membrane sulfhydryl group
 - Inhibition of RNA polymerase II
 - Reduction of the oxygen-carrying capacity of the blood
 - Formation of oxygen-containing free radicals
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Which of the following will result from reduced activity of Na⁺/K⁺-ATPase?

- Shrinkage of the intracellular organelles
 - Increased intracellular K⁺ concentration
 - Increased extracellular Ca⁺⁺ concentration
 - **Increased intracellular Na⁺ concentration**
 - Movement of water to the extracellular compartment
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Which of the following will result from the deactivation of oxidative phosphorylation?

- **Accumulation of lactic acid**
 - Decreased intracellular H⁺ concentration
 - Increased protein synthesis
 - Decreased inorganic phosphate concentration
 - Increased glycogen synthesis
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Which of the following is responsible for activating the apoptosis pathway in a mitochondrial injury?

- Cytochrome P450
 - Chloride ions
 - Proton ions
 - **Cytochrome C**
 - Pyruvate
-

The changes made by a cell in response to injury is referred to as...?

- ...remodeling.
 - ...transformation.
-

- ...adaptation.
 - ...reconstruction.
 - ...cell death.
-

What are the two factors that determine the development of disease?

- Microbial pathogens and malignancy
 - Aging and immunity
 - Chemical toxins and physical trauma
 - Genetic and environmental factors
 - Microbial pathogens and immunity
-

Which of the following is true about cell renewal?

- The renewal capacity of the cells is unlimited.
 - The rate of cell renewal is constant among the different cell types.
 - The rate of cell renewal increases with age.
 - Cell renewal may lead to the accumulation of pathological changes.
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Too much sun exposure can cause cell/tissue injury because of the excessive exposure to...?

- ...allergens.
 - ...toxic gases.
 - ...microbial pathogens.
 - ...chemical toxins.
 - ...UV light.
-

Which of the following has a limited regenerative capacity?

- Neurons
 - Hepatocytes
 - The epithelial cells of the skin
 - The epithelial cells of the intestines
 - Hematopoietic cells
-

All of the following can cause cell injury except...?

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- ...trauma.
 - ...chemical toxins.
 - ...infections.
 - ...normal levels of oxygen.
 - ...high storage levels of vitamins.
-

Cancer is a response to cell injury acting through which of the following mechanisms?

- Loss of genetic integrity
 - Loss of ATP generation
 - Loss of membrane structure
 - Loss of protein synthetic capacity
 - Aging
-

Programmed cell death is called...?

- ...phagocytosis.
 - ...necrosis.
 - ...mitosis.
 - ...cell adaptation.
 - ...apoptosis.
-

The expression used to point out the fact that laboratory findings from testing an organism in vitro are not always reflected when applied to an organism in vivo is...?

- ..."In vitro artificia".
 - ..."In vitro milieu".
 - ..."In vivo artificia".
 - ..."In vivo milieu".
 - ..."In vivo veritas".
-

Which of the following is a common feature of the physiologic process in the body?

- Lack of selectivity
 - The tendency to accept change
 - Redundancy
 - Absolute efficiency
 - Lack of inhibition
-

Which of the following describes hypertrophy?

- Increase in cell size
 - Irreversible type of adaptation
 - Increase in cell number
 - Transformation of one differentiated cell type to another differentiated cell type
 - Abnormal structure of cells or tissue
-

Which of the following contributes to the formation of reactive oxygen species in reperfusion injury? Select all that apply.

- Decreased activity of the Golgi apparatus
 - Increased intracellular proton concentration
 - Damaged mitochondria release free radicals
 - Increased recruitment of inflammatory cells
 - Decreased extracellular calcium concentration
-

Atrophy is...?

- ...a reduction in cell number.
 - ...the transformation of one differentiated cell type into another differentiated cell type.
 - ...an increase in cell number.
 - ...a decrease in cell size.
 - ...the replacement of normal parenchymal tissue by connective tissue.
-

Autophagy plays an important role in which of the following processes?

- Defense against intracellular pathogens
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- Degrading extracellular molecules taken in by the cell through endocytosis
 - Synthesis of glycogen and long-chain fatty acids
 - Defense against cancer cells
 - Packaging proteins destined to be exported from the cell
-

What role does mTOR play in autophagy regulation?

- Labeling autophagosomes for degradation
 - Activation of the starvation signaling pathways
 - Inhibition of the LC3B proteins
 - Inhibition of the Atg gene products
 - Activation of the Akt protein
-

Which of the following upregulates the mTOR signaling pathway?

- Adenosine monophosphate
 - Rapamycin
 - Insulin
 - Starvation
 - Stress
-

A maladaptive response of the heart to high blood pressure will lead to...?

- ...preservation of peripheral perfusion.
 - ...increased blood supply to the myocytes.
 - ...increased heart contractility.
 - ...heart failure.
 - ...decreased size of the myocytes.
-

Which type of adaptation occurs in the heart in cases of hypertension?

- Atrophy
 - Dysplasia
 - Hyperplasia
 - Hypertrophy
 - Metaplasia
-

What is the leading cause of death in the world?

- Cardiovascular disease
- HIV/AIDS
- Alzheimer's disease
- Trauma

Which of the following immune cells can be found engulfing lipid molecules in an atherosclerotic plaque?

- Macrophages.
- Neutrophils.
- B-lymphocytes.
- T-killer cells.
- Lymphocytes.

Which of the following best describes an embolus?

- An occluding thrombus
- A blood clot in the venous system
- A free moving blood clot
- A blood clot on an arterial wall
- A blood clot on a prosthetic valve

From the onset of myocardial infarction (MI) symptoms, how long is the window to salvage cardiac tissue?

- 20 hours
- 60 minutes
- 4 hours
- 20 minutes

What cardiac vessel occlusion is also called the widow maker?

- Left circumflex artery occlusion
- Left anterior descending artery occlusion
- Right posterior artery occlusion

- Right coronary artery occlusion
-

What part of the heart does the left anterior descending artery affect most?

- Right ventricle
 - Right atrium
 - Left ventricle
 - Left atrium
-

What principally drives the coagulation cascade after an injury?

- Common pathway
 - Intrinsic pathway
 - Thrombin activation
 - Phospholipid and calcium ions
 - Extrinsic pathway
-

Thrombin cleaves which of the following factors?

- V, VIII, XIII
 - VI, VII, XII, XIII
 - I, III, V, IX
 - IV, V, VI, VII
 - VII, VIII, IX, XIII
-

In heart failure, how do the kidneys try to compensate for the heart's decreased ability to pump blood?

- Release epinephrine
 - Increase myocardial contractility
 - Decrease sodium reabsorption in the loop of Henle
 - Release anti-diuretic hormone
 - Increase fluid and salt retention
-

According to Starling's law, what effect does increased end diastolic volume have within a healthy heart?

- Decreased stroke volume
 - Increased myocardial chronotropy
 - Increased pulmonary congestion
 - Increased stroke volume
 - Decreased end organ perfusion
-

Thrombin is necessary for which of the following events?

- Endothelial activation
 - Lymphocyte inhibition
 - Smooth muscle contraction
 - Activation of factor X
 - Exposure of tissue factor
-

Which statement concerning angiotensin II is correct?

- It decreases the ADH level.
 - It increases Na⁺ and Cl⁻ reabsorption.
 - It causes vasodilatation.
 - It increases parasympathetic nervous system activity.
 - It decreases K⁺ excretion.
-

Which of the following conditions causes hypertension because of increased growth hormone levels?

- Cushing syndrome
 - Renal artery stenosis
 - Acromegaly
 - Hypothyroidism
 - Hyperthyroidism
-

Which of the following is a cardiovascular cause of hypertension?

- Acromegaly
 - Pregnancy
 - Hyperthyroidism
 - Coarctation of the aorta
-

- Renin-secreting tumor
-

Which of the following is the neurologic cause of hypertension?

- The rigidity of the aorta
 - Acromegaly
 - Polyarteritis nodosa
 - Primary hyperaldosteronism
 - Sleep apnea
-

Which of the following is an intrinsic factor that affects venous return to the heart?

- High altitude
 - Musculovenous pump
 - Atmospheric pressure
 - External compression
 - Gravity
-

Which of the following is a modifiable factor in the development of varicose veins?

- Obesity
 - Prior extremity trauma
 - Pregnancy
 - Ligamentous laxity
 - Female sex
-

In connective tissue disorders (e.g., Marfan syndrome, Ehlers-Danlos syndrome, and Loeys-Dietz syndrome), what location of the aorta is weak and susceptible to damage?

- Intima
 - Media
 - Endothelium
 - Adventitia
 - Basal lamina
-

Which type of trauma increases the chance of aortic dissection?

- High altitude
- Gradual deceleration
- Gradual acceleration
- Rapid acceleration
- **Rapid deceleration**

Which of the following is an extrinsic factor that affects venous return to the heart?

- **Gravity**
- Venous gradient
- Abdominothoracic pump
- Sympathetic tone
- Valve integrity

Which statement is correct concerning the risk factors in the development of varicose veins?

- Prolonged standing decreases the risk.
- Smoking is a non-modifiable risk factor.
- Congenital abnormalities are modifiable risk factors.
- **Pregnancy increases the risk.**
- Advanced age decreases the risk.

Which of the following could be a complication of varicose veins?

- Erythema marginatum
- Diminished lower extremity pulses
- Erythema nodosum
- Ecthyma gangrenosum
- **Stasis dermatitis**

Which drug can increase the risk of aortic dissection?

- Marijuana