

ACE Inhibitors

1. Which of the following is an inhibitor of angiotensin converting enzyme?
 - A. Angiotensin III
 - B. Bromocryptine
 - C. Captopril
 - D. Glycyrrhizin that is found in black licorice
 - E. Sartans

2. Which of the following explains how ACE inhibitors help prevent hypertension?
 - A. Causing alkalosis and hypokalemia to inhibit the Na^+/K^+ pump
 - B. Causing hypoplasia of the zona fasciculata
 - C. Decreasing stimulation of aldosterone synthesis and secretion
 - D. Increasing hypoplasia of the zona reticularis
 - E. Inducing hyperplasia of the zona glomerulosa

Answers

1. C
2. C

Diet pills

1. Which of the following explains the mechanism of action for Fenfluramine as an appetite suppressant?
 - A. Blocks reuptake of serotonin
 - B. Decreases oxidation of serotonin
 - C. Enhances leptin binding to its receptor
 - D. Increases release of Agouti-related Peptide (AGRP)
 - E. Increases synthesis of serotonin

2. Which of the following mechanisms explains how Phentermine contributes to the control of body weight?
 - A. Activates nerve endings of skeletal muscle to release catecholamines
 - B. Increases directly the secretion of alpha-MSH
 - C. Inhibits directly the release of Agouti-related Peptide (AGRP)
 - D. Promotes release of catecholamines by the adrenal medulla
 - E. Stimulates neurons in the brain to release catecholamines

Answers

1. A

2. E

Essential fatty acids

1. Which of the following dietary components is most beneficial in lowering the risk of systemic inflammation?
 - A. Easily digested and absorbed foods
 - B. Omega-3 fatty acids
 - C. Processed foods
 - D. Trans fatty acids.
 - E. White wine

2. Patients with high circulating triglycerides are recommended to consume:
 - A. At least 2 servings of any fish per week
 - B. Foods with a smaller ratio of monounsaturated fatty acids to saturated fatty acids
 - C. Less fish because the potential consumption of mercury will worsen their condition
 - D. One g of EPA and DHA per week
 - E. Three to four g of EPA and DHA per day

Answers

1. B
2. E

Elderly Nutrition

1. Which of the following is the most likely cause of weight loss in the elderly?
 - A. Anorexia nervosa
 - B. Bulimia
 - C. Decreased cytokine production
 - D. Dementia (forgetting to eat)
 - E. Sarcopenia

2. Which of the following is a common reason for a deficiency of calcium amongst all elderly?
 - A. Absorption decreased by about one-third
 - B. Atrophic gastritis
 - C. Folate supplementation
 - D. Impaired sense of smell
 - E. Lack of estrogen

Answers

1. E
2. A

Fiber

1. Which of the following describes insoluble fiber?
 - A. Helps lower blood cholesterol
 - B. No effect on GI motility
 - C. No effect on stool bulk.
 - D. Obtained from nuts
 - E. Provides a small amount of calories

2. Which of the following describes a problem with consuming too much fiber ?
 - A. Can cause intestinal obstruction
 - B. Causes abdominal straining
 - C. Causes severe hypocholesterolemia
 - D. Impairs absorption of glucose
 - E. Leads to dry, hard stools

3. Intestinal processing of fiber is characterized by:
 - A. Bacteria fermenting fiber to produce primarily medium chain fatty acids.
 - B. Bacterial products of fiber metabolism possibly inhibiting carcinogenesis.
 - C. Fatty acids produced by gut bacteria leading to oxidative stress.
 - D. Palmitate, an important product, helping to maintain colonic homeostasis.
 - E. Primarily occurring in the small intestine.

Answers

1. D
2. A
3. B

Food stamps/lunch program

1. Which of the following can be purchased with food stamps?
 - A. Candy
 - B. Cigars
 - C. Cocaine
 - D. Paint
 - E. Tylenol

2. Which of the following is a nutritional requirement for school lunch programs?
 - A. Moderate cholesterol
 - B. One-third of daily recommended allowance for magnesium and zinc
 - C. One-third of daily recommended allowance for protein
 - D. Potato chips
 - E. Total fat of at least 30% most of which can be saturated fat

Answers

1. A

2. C

Food Pyramid

1. Which of the following is a correct comparison of the new My Pyramid with the previous food pyramid?
 - A. both pyramids include a physical activity component
 - B. both pyramids recommend limiting intake of all dietary fats
 - C. new pyramid emphasizes food group equality whereas the old designated a stacked approach.
 - D. new pyramid recommends more omega-6 than omega-3 fatty acids whereas no recommendation was made in the old pyramid
 - E. old pyramid but not the new pyramid considers ethnicity of the consumer

2. Which of the following nutrients requires at least 25% increased consumption to meet recommendations?
 - A. Beans
 - B. Grains
 - C. Milk
 - D. Oils
 - E. Solid fats

Answers

1. C
2. C

Glucocorticoid treatment in Asthma

1. Which of the following describes step 3 in the treatment of asthma?
 - A. Beta-2-selective adrenergic agonist only
 - B. High dose inhaled glucocorticoid plus long-acting beta agonist plus oral corticosteroid
 - C. Low dose inhaled glucocorticoid only
 - D. Low dose inhaled glucocorticoid plus long-acting beta agonist
 - E. Medium dose inhaled glucocorticoid plus short-acting inhaled beta agonist

2. Which of the following is a mechanism of action related to Prednisone but not to Dexamethasone?
 - A. Decreases capillary permeability
 - B. Decreases production of inflammatory mediators
 - C. Suppresses adrenal function at high doses
 - D. Suppresses PMS
 - E. Suppresses normal immune response



Answers

1. D

2. C

Goitrogens

1. A 6 year old Canadian boy is referred to the endocrinology clinic with a three month history of enlarged thyroid, facial edema, abdominal cramps, fatigue and yellowish skin. Growth was regular at the 25th percentile for height and the 75th percentile for weight. His skin was dry and there were numerous eczematous lesions. The thyroid was diffusely enlarged. At birth, TSH and T₄ levels on the neonatal blood spot were 9.6 mIU/L (normal <15) and 161 nmol/L (normal >87), respectively. The mother reported that the child developed severe multiple food allergies in infancy. Since the age of 18 months, the child's diet had been very restricted and consisted of oatmeal, cabbage, radishes, peas, sweet potatoes, peanuts and fruit that includes peaches and strawberries. A 1-week dietary recall was:

Dietary Intake	Patient	RDA*
Kcal	1315	1900
Carbohydrate, %	69	60
Protein, %	20	10
Fat, %	11	30
Sodium, mg	143	550
Potassium, g	3.0	1.75
Vitamin A, mg (retinol & carotenoids)	7.8	1.0

Other relevant laboratory values follow:

	Patient	Normal
¹³¹ I uptake (24 h)	58	10 – 30
TSH, mIU/L	940	<4.0
T ₄ , nmol/L	<16	80-170

Which of the following most likely explains the child's high TSH and low T₄ lab values?

- A. Elevated thyroid-stimulating IgG (TSI)
 - B. Genetically defective iodide pump
 - C. Low protein-low fat diet
 - D. Low sodium-high potassium diet
 - E. Overconsumption of goitrogens
2. Which of the following is a treatment you might likely use for this child acutely to reduce the size of the goiter?
- A. Administer iodine-131
 - B. Administer levothyroxine
 - C. Change his diet
 - D. Prescribe phenylbutazone
 - E. Prescribe propylthiouracil

Answers

1. E
2. B

Glycogen Storage Diseases

1. A four-month-old presents with hypoglycemia and hepatomegaly. Injection of glucagon increases liver output of lactate but not of glucose. A liver biopsy is taken and incubation of the biopsy with ^{14}C -alanine produces no ^{14}C -labeled glucose. Which of the following liver enzymes is most likely to be deficient?
 - A. Debranching enzyme
 - B. Fructose-1,6-bisphosphatase
 - C. Glucose-6-phosphatase
 - D. Glucose-6-phosphate dehydrogenase
 - E. Glycogen phosphorylase

2. Which of the following explains why a patient with von Gierke's (Type I glycogen storage) disease may develop hyperuricemia?
 - A. Acidosis lowers uric acid excretion
 - B. Lactate is converted to uric acid instead of to glucose
 - C. Overproduction of pyrimidine nucleotides
 - D. Serum triglycerides are elevated and bind uric acid, keeping it from being excreted
 - E. Urea cycle is more active

Answers

1. C
2. A

Hashimoto's thyroiditis

1. Hypothyroidism due to goitrogens and antibody production in Hashimoto's thyroiditis differ in their mechanisms. Which of the following explains these differences?
 - A. Goitrogens have no effect on peroxidase activity whereas this enzyme may be attacked by antibodies in a patient with Hashimoto's thyroiditis
 - B. Goitrogens have no effect on TBG (thyroxine binding globulin) whereas this protein may be attacked by antibodies in a patient with Hashimoto's thyroiditis
 - C. Goitrogens have no effect on the Na^+/I^- symporter whereas this protein may be attacked by antibodies in a patient with Hashimoto's thyroiditis
 - D. Goitrogens may reduce function of the TSH receptor whereas this is normal in a patient with Hashimoto's thyroiditis
 - E. Goitrogens may reduce lysosomal proteolytic activity whereas this is normal in a patient with Hashimoto's thyroiditis

2. Which of the following explains a mechanism for increased or decreased risk in Hashimoto's Thyroiditis?
 - A. Postmenopause women are more at risk than those premenopause because estrogen no longer is available to suppress autoantibodies to thyroglobulin
 - B. Radiation increases the risk by inducing antibodies to thyroid-stimulating immunoglobulin (TSI)
 - C. Radiation reduces the risk by repressing thyroid autoantibodies
 - D. Women are more at risk than men during child bearing years because estrogen can induce autoantibodies to thyroid peroxidase
 - E. Women who are postpartum are more at risk than women who have not been pregnant because of rebound after the immunosuppression of pregnancy

Answers

1. E

2. E

Hyperlipidemias

1. A patient who is unable to clear (extract) free fatty acids from chylomicrons and VLDL likely has a defect in the gene coding for:
 - A. Apo E receptor
 - B. Apo B100 receptor
 - C. Apo B48
 - D. Lipoprotein lipase
 - E. Pancreatic lipase

2. Which of the following is a clinical sign/symptom that most likely would be a definitive characteristic in a patient with type III hyperlipidemia compared to a patient with type I hyperlipidemia?
 - A. eruptive xanthomas
 - B. hepatosplenomegaly
 - C. lipemia retinalis
 - D. lower circulating HDL
 - E. premature atherosclerosis

3. Which of the following would be associated with a patient having a defective apo E?
 - A. Familial hypercholesterolemia
 - B. Hyperlipidemia associated with excessive amounts of VLDL and chylomicrons
 - C. Hyperlipidemia caused by excessive fatty acid delivery to the liver
 - D. Hyperlipidemia with excessive amounts of chylomicrons and normal amounts of VLDL
 - E. Hyperlipidemia with excessive amounts of chylomicron remnants and HDL

4. Which of the following is a characteristic of Type I hyperlipidemia in addition to hypertriglyceridemia?
 - A. Abnormalities of the apo E receptor
 - B. Accumulation of chylomicrons
 - C. Accumulation of VLDL only
 - D. Defective hormone-sensitive lipase
 - E. Defective pancreatic lipase

Answers

1. D
2. E
3. E
4. B

IBS/Crohn's Disease

1. Which of the following features is unlikely to be associated with Irritable Bowel Syndrome?
 - A. Amenorrhea.
 - B. Emotional stress.
 - C. Gastrointestinal motility
 - D. Postinfection/inflammation
 - E. Visceral hypersensitivity.

2. Which of the following provides a cure for Crohn's disease?
 - A. Aminosalicylate
 - B. Immunosuppressive agents
 - C. Methotrexate treatments
 - D. No cure is available
 - E. Surgery

Answers

1. A

2. D

Mineralocorticoid supplementation

1. Which of the following is least likely to be a contraindication for the use of hydrocortisone?
 - A. Acute hepatitis.
 - B. Administration of live virus vaccines
 - C. Hypersensitivity to mineralocorticoid supplementation
 - D. Systemic fungal infections
 - E. Taking a high dose glucocorticoid supplement

2. While none of the following scenarios is ideal, which would likely be the most favorable situation for treating a patient with a mineralocorticoid supplement?
 - A. Giving Florinef to a patient who has osteoporosis
 - B. Giving Florinef to a patient who is hyperglycemic
 - C. Giving Florinef to a patient with congestive heart failure
 - D. Giving Hydrocortisone to a patient who is also using dexamethasone
 - E. Giving Hydrocortisone to a patient who is hyperglycemic

Answers

1. A

2. E

Parenteral/enteral Nutrition

1. Which of the following is not likely to be a liver complication from total parenteral nutrition?
 - A. Cholestasis
 - B. Cirrhosis
 - C. Decreased VLDL production
 - D. Failure of the organ
 - E. Steatosis

2. Which of the following is an indication for a patient to receive enteral nutrition instead of parenteral nutrition?
 - A. Being a child with 7-10 days of inadequate oral intake.
 - B. Being an child with 3-5 days of inadequate oral intake.
 - C. Patient who has had an ileal resection.
 - D. Patient with a mechanical obstruction
 - E. The necessity for nutritional intervention.

3. Which of the following metabolic complications is associated with both total parenteral and enteral nutrition?
 - A. Hypercapnia
 - B. Hyperglycemia
 - C. Hyperlipidemia
 - D. Hyponatremia
 - E. Hypokalemia

Answers

1. C
2. E
3. B

Paget's disease

1. Which of the following describes an aspect of the mechanism of action of nitrogen-containing bisphosphonates in ultimately causing decreased bone resorption?
 - A. Cause osteoclasts to undergo apoptosis
 - B. Detachment of osteoclasts from the bone perimeter
 - C. Exchange with terminal pyrophosphate moiety of ATP
 - D. Increase prenylation of signaling proteins involved in cell function
 - E. Inhibit HMG CoA reductase in the cholesterol biosynthesis pathway

2. Which of the following is a process that is ultimately disrupted by non-nitrogen-containing bisphosphonates?
 - A. Cytoskeleton abnormalities in osteoclasts
 - B. Energy metabolism following formation of an ATP analog
 - C. Protein trafficking
 - D. Repression of IL-6 production by the drug binding to a DNA response element
 - E. Small G-protein function

3. Which of the following describes the quiescent stage of Paget's disease?
 - A. Formation of structurally weak, highly vascular woven bone
 - B. Initial osteoclastic bone resorption
 - C. Irregular thickening of both cortical and trabecular bone
 - D. Predominance of osteoblastic activity
 - E. Replacement of woven bone with lamellar bone

4. Which of the following is a finding that is characteristic of Paget's disease?
 - A. Elevated blood 24,25-hydroxy vitamin D
 - B. Elevated blood alkaline phosphatase
 - C. Hepatobiliary disease
 - D. Hypercalcemia
 - E. Urinary excretion of hydroxylysine

Answers

1. B
2. B
3. C
4. B

Alcoholic Pancreatitis

1. Which one of the following features in a patient would confirm that the patient has chronic alcoholic pancreatitis rather than acute alcoholic pancreatitis?
 - A. Edema
 - B. Elevated serum lipase
 - C. Fibrosis
 - D. Leukocytosis
 - E. Spasm of the Duct of Sanotriini

2. Which of the following serum laboratory test results is used as an indicator of heavy drinking in men?
 - A. Alanine and aspartate aminotransferases.
 - B. Alkaline phosphatase
 - C. Amylase
 - D. Carbohydrate-deficient transferrin
 - E. Lipase

Answers

1. C
2. D

Thyrotoxic periodic paralysis

1. Which of the following describes a mechanism that can trigger an attack of thyrotoxic periodic paralysis?
 - A. Carbohydrate ingestion mediated by insulin increasing activity of the Na⁺/K⁺-ATPase
 - B. Elevated blood ammonia causing alkalosis that favors K⁺/H⁺ exchange
 - C. Exercise causing a decrease in muscle glucose transport, thereby shifting the distribution of potassium between the cells and the blood
 - D. High protein meal causing the production of glucagon-like peptide
 - E. Pharmacological inhibition of aldosterone function leading to further hypokalemia

2. Why would you administer propranolol to a patient with thyrotoxic periodic paralysis?
 - A. Decreases insulin secretion by blocking epinephrine binding to beta-adrenergic receptors on pancreatic beta-cells
 - B. Decreases Na/K-ATPase activity by blocking catecholamine binding to adrenergic receptors in muscle cells
 - C. Decreases thyroid hormone secretion by blocking cyclic AMP formation in thyroid follicular cells
 - D. Increases insulin secretion by activating alpha2-adrenergic receptors on pancreatic beta-cells
 - E. Increases insulin secretion by activating alpha1-adrenergic receptors on pancreatic beta-cells

Answers

1. A
2. B

Dietary needs of the vegan

1. Which of the following most accurately determines the biological value of a dietary protein?
 - A. Amount and proportion of amino acids such as alanine, glutamine and tyrosine
 - B. Amount and proportion of amino acids such as isoleucine, methionine and phenylalanine
 - C. Amount and proportion of collagen in the protein source
 - D. Effect of the protein on whole body proteolysis
 - E. Source of the protein

2. In doing a nutritional assessment on your patient you learned that she has switched from being a pescatarian to a flexitarian. Which of the following does she now include in her diet that was not included previously?
 - A. Chicken
 - B. Dairy
 - C. Eggs
 - D. Fish
 - E. Raw food

3. Which of the following foods has the lowest availability of methionine in its protein?
 - A. Corn
 - B. Peanuts
 - C. Quinoa
 - D. Rice
 - E. Spinach

Answers

1. B
2. A
3. B