Past Papers ❗

Which of the following can cause hyperkalemia:
A. Beta blockers, insulin deficiency, exercise
B. Excess insulin
C. Excessive aldosterone secretion
D. High sodium intake
Answer: A

What is correct regarding someone who increases their salt intake:
A. Blood pressure decreases
B. Potassium excretion unchanged
C. Renin secretion increases
D. Aldosterone levels decrease
Answer: B

Which of the following conditions is associated with a decrease in intracellular K+ concentration and a decrease in K+ secretion by the cortical collecting tubules:
A. Metabolic alkalosis
B. Hyperaldosteronism
C. Metabolic acidosis
D. Increased dietary potassium intake
Answer: C

What do you expect to find in a person with aspirin overuse (poisoning):
A. Increased HCO3- net rate into the blood
B. Decreased respiratory rate
C. Metabolic alkalosis
D. Increased serum potassium
Answer: A

A patient with acidosis presents with the following values: pH = 7.28, Na+ = 140 mEq/L, Cl- = 110 mEq/L, and anion gap = 18 mEq/L. Given these values, what are the likely levels of HCO3- (bicarbonate)and CO2 (carbon dioxide) and in the blood:
A. 44,30
B. 12,28
C. 15,25
D. 10,16
Answer: B

Which of the following is wrong about placenta:
A. It is a major source of nutrition from day 1.
B.It originates from trophoblastic cords
C.hCG is found in the urine after 8 days of pregnancy

D. It secretes more than four types of hormones
Answer: A

In a fetal male, a high level of plasma testosterone is primarily derived from:
A. hCG (human chorionic gonadotropin)
B. Maternal estrogen
C. Fetal adrenal glands
Answer: A

In penile erection, Which of the following drugs is used:
A. Alcohol
B. Vasodilating drug
C. Antidepressants
D. Smoking
Answer: B

Which of the following statements is incorrect:
A.Antrum follicles produce FSH and LH
B.FSH stimulates follicle maturation in the ovary
C. LH triggers ovulation
D.FSH and LH are both produced by the anterior pituitary gland
Answer: A

All of the following statements about hormone levels before ovulation is true except:
A. Dominant follicle matures.
B. The estrogen increase and the progesterone decrease
C. LH surge occurs
D. FSH levels decrease
Answer: B

All of the following regarding the capacitation of sperm is true except:
A. Occurs in the epididymis 1-10 hours before ejaculation
B. Enhances sperm motility
C. Occurs in the female reproductive tract
D. Prepares sperm for fertilization
Answer: A

Which of the following is a function of estrogen:
A. Changes the vaginal epithelium to resist trauma
B.Stimulates hair growth on the body
C.Regulates testicular function in males
D.Decreases breast size in females
Answer: A

All of the following occurs during pregnancy Except:
A. Increase in blood volume
B. Enlargement of the uterus
C. 50% shrinkage of the anterior pituitary gland
D. Increse in prolactin levels
Answer: C

A patient was admitted to the ICU because of septic shock. Which of the following findings you would most likely expect in his/her plasma pH and (HC03) :
A) Increase pH and decrease [HCO3-]
B) Decrease pH and increase [HC03-]
C) Increase pH and no change in [HCO3-]
D) Increase pH and increase [HC03-]
E) Decrease pH and decrease [HCO3-]
ANSWER : E

Urinalysis: Titratable acid excretion: 5 mEq/L NH4+ excretion: 5 mEq/L HCO3- excretion: 50 mEg/L
What of the following is correct:
A) New Addition of 50 mEq/L H+ to the blood ✔
B) Net secretion of 40 mEq/L H+
C) Net HCO3- excretion of 1 mEq/L
D) Addition of new 40 mEq/L of HCO3- to the blood
E) Net Ht excretion 5 mEq/L

A plasma sample revealed the following values in a patient:
PH = 7.12 PCO2 = 50. HC03- = 18 This patient is in a state of:
A) metabolic alkalosis with partial respiratory compensation
B) respiratory alkalosis with partial renal compensation
C)metabolic acidosis with partial respiratory compensation
D) respiratory acidosis with partial renal compensation
E) Mixed acidosis: metabolic and respiratory acidosis
ANSWER : E

A patient presents in the emergency room and the following data are obtained from the clinical labs: plasma pH= 7.15, HCO3-=8 mmol/L, PCO2= 24 mmHg This patient is in a state of:

A) metabolic alkalosis with partial respiratory compensation
B) respiratory alkalosis with partial renal compensation
() metabolic acidosis with partial respiratory compensation
D) respiratory acidosis with partial renal compensation
ANSWER : C

**Aspirin poisoning —>ANSWER : Increased anion gap

Removal of Corpus luteum at which of the following weeks of pregnancy will NOT cause abortion :
A) Fifth week
B) 17th week
C) Seventh week
D) Second week
E) Any week of pregnancy (Ist week-to-40 week)
ANSWER : B

All of the following facilitate sufficient oxygen delivery to fetal tissues through placenta, EXCEPT ONE :
A) On the fetal side of the placenta when CO2 is lost, the pH rises allowing additional oxygen uptake (Bohr effect) .
B) High fetal cardiac output .
C) The oxygen dissociation curve for fetal hemoglobin is shifted to the right of that for maternal hemoglobin
D) The maternal blood gains CO2, the pH falls allowing release of oxygen (Bohr effect) .
E) High fetus-haemoglobin (HbF) which has higher affinity for O2 than mother's haemoglobin (HbA).
ANSWER : C

A 24- year-old pregnant women with her cycle averaging 30 days, on what day will the ovulation occur?
A) Day 14
B) Day 15
C) Day 4
D) None of the above. She is pregnant so ovulation does not occur
ANSWER : D

When do progesterone levels rise to their highest point during the female hormonal cycle?

A) Between ovulation and the beginning of menstruation (20th -24th day)
B) During menstruation phase (0-4th day)
C) When 12 primary follicles are developing to the antral stage
D) When the blood concentration of luteinizing hormone is at its highest point
E) Immediately before ovulation (14th day)
ANSWER : A

Spermatogenesis is regulated by FSH via a negative feedback control system.
What is the positive signal that stimulates spermatogenesis via Sertoli cells and the negative feedback signal associated with inhibiting pituitary formation of FSH ?
A) Positive: Testosterone. Negative: Testosterone
B) Positive: Testosterone. Negative: Estrogen
C) Positive: Inhibin. Negative: Luteinizing hormone
D) Positive: Testosterone. Negative: Inhibin
E) Positive: Luteinizing hormone. Negative: Testosterone
ANSWER : D

From the figure on the right, at which day of the female sexual cycle estradiol demonstrates a positive feedback control over both Luteinizing hormone LH and follicle stimulating hormone FSH secretion ?
A) day 16-20
B) day 13-14
C) day 0-4
D) day 5-10
E) Estradiol has only negative feedback control over LH and FSH
ANSWER : B

The Process of conversion of spermatid to sperm is called
A) Spermiogenesis
B) Spermatogenesis
ANSWER : A

Which of the following cells is the most sensitive to radiation :
A) Germinal cells
B) Leydig cells
C) Fibroblast
D) Sertoli cells
ANSWER : A

How does the blastocyst obtain nutrition during the first week after implantation ?
A) The cells of the blastocyst contain stored nutrients that are metabolized for nutritional support
B) Mainly from endometrial secretions
C) Mainly by trophoblast cells that digest the nutrient-rich endometrial cells and absorb those contents for use by the blastocyst
D) Mainly from the placenta which provides nutrition derived from maternal blood O
E) Mainly from ejaculated semen
ANSWER : C

Physio10p1

1. A 26-year-old woman doubles her potassium intake from 80 to 160 mmol/day. What would you expect to see after 2 weeks?

A. Decreased potassium excretion

B. Increased potassium excretion

C. Marked increase in plasma sodium

D. Significant hyperkalemia

Answer: B. Increased potassium excretion

Explanation: The kidneys adapt by increasing K^+ excretion, with only a small rise in plasma K^+. Sodium is not affected.

2. Which of the following is the major cation in the intracellular fluid?

A. Sodium

B. Potassium

C. Calcium

D. Magnesium

Answer: B. Potassium

Explanation: Potassium is the major intracellular cation (140 mEq/L inside cells).

3. What is the first line of defense against changes in extracellular potassium concentration after a meal?

A. Increased renal excretion

B. Shifting potassium into cells

C. Decreased aldosterone secretion

D. Increased sodium intake

Answer: B. Shifting potassium into cells

Explanation: Rapid K^+ uptake into cells (mainly via insulin) buffers extracellular K^+ until renal excretion increases.

4. Which hormone is released after a meal to stimulate potassium uptake into cells?

A. Aldosterone

B. Insulin

C. ADH

D. Cortisol

Answer: B. Insulin

Explanation: Insulin stimulates Na^+/K^+-ATPase, promoting K^+ uptake into cells after meals.

5. Which of the following is NOT a consequence of severe hyperkalemia?

A. Cardiac toxicity

B. Muscle weakness

C. Hyperpolarization of cell membranes

D. Ventricular fibrillation

Answer: C. Hyperpolarization of cell membranes

Explanation: Hyperkalemia causes depolarization, not hyperpolarization (that's hypokalemia).

6. Which of the following increases potassium secretion in the cortical collecting tubule?

A. Acidosis

B. Decreased sodium delivery

C. Increased aldosterone

D. Decreased extracellular potassium

Answer: C. Increased aldosterone

Explanation: Aldosterone increases K^+ secretion. Acidosis and low sodium delivery decrease it.

7. What effect does acidosis have on potassium secretion by the kidneys?

A. Increases secretion

B. Decreases secretion

C. No effect

D. Increases reabsorption in the loop of Henle

Answer: B. Decreases secretion

Explanation: Acidosis inhibits Na^+/K^+-ATPase, reducing K^+ secretion.

8. Which of the following factors does NOT promote potassium uptake into cells?

A. Insulin

B. β-adrenergic stimulation

C. Aldosterone

D. Acidosis

Answer: D. Acidosis

Explanation: Acidosis inhibits K^+ uptake into cells; the others promote it.

9. What is the main site for regulated potassium secretion in the nephron?

A. Proximal convoluted tubule

B. Thick ascending limb

C. Late distal tubule and cortical collecting duct

D. Bowman's capsule

Answer: C. Late distal tubule and cortical collecting duct

Explanation: Principal cells here are the main regulated site for K^+ secretion.

10. Which channels are responsible for potassium secretion in the principal cells of the collecting duct?

A. ENaC and Na^+/K^+-ATPase

B. ROMK and BK channels

C. SGLT2 and Na^+/K^+-ATPase

D. Aquaporins and ENaC

Answer: B. ROMK and BK channels

Explanation: These are the main K^+ channels on the luminal side for secretion.

11. Which of the following would most likely cause hyperkalemia?

A. Increased aldosterone

B. Increased tubular flow

C. Addison's disease

D. High sodium intake

Answer: C. Addison's disease

Explanation: Addison's = low aldosterone → impaired K^+ secretion → hyperkalemia.

12. What happens to potassium excretion when both sodium intake and tubular flow rate increase?

A. Excretion always increases

B. Excretion always decreases

C. Excretion is unchanged due to opposing effects

D. Excretion is determined only by aldosterone

Answer: C. Excretion is unchanged due to opposing effects

Explanation: High Na^+ increases flow (increasing K^+ secretion) but suppresses aldosterone (decreasing K^+ secretion); net effect is balanced.

13. Which of the following can cause potassium to move from the intracellular to the extracellular compartment?

A. Insulin administration

B. Cell lysis

C. β-adrenergic stimulation

D. Alkalosis

Answer: B. Cell lysis

Explanation: Cell lysis releases K^+ from inside cells to the extracellular fluid.

14. Diuretics that increase tubular flow rate can lead to which potassium disorder?

A. Hyperkalemia

B. Hypokalemia

C. No effect

D. Both A and B

Answer: B. Hypokalemia

Explanation: Increased flow washes out K^+, increasing secretion and risking hypokalemia.

15. What is the effect of β-blockers on potassium homeostasis during strenuous exercise?

A. No effect

B. Prevents K^+ release from cells

C. Increases risk of hyperkalemia

D. Increases K^+ uptake into cells

Answer: C. Increases risk of hyperkalemia

Explanation: β-blockers inhibit β-adrenergic stimulation, reducing K^+ uptake into cells during exercise, increasing risk of hyperkalemia.

10/ P2

1. What is the effect of increased sodium intake on potassium excretion?

A) It significantly increases potassium excretion

B) It significantly decreases potassium excretion

C) It causes no significant change in potassium excretion

D) It causes severe hypokalemia

Answer:

C) It causes no significant change in potassium excretion

2. Which two mechanisms counterbalance each other to keep potassium excretion unchanged during high sodium intake?

A) Increased aldosterone and decreased distal tubular flow

B) Decreased aldosterone and increased distal tubular flow

C) Increased GFR and decreased potassium intake

D) Increased potassium intake and decreased sodium intake

Answer:

B) Decreased aldosterone and increased distal tubular flow

3. What is the effect of acute acidosis on potassium secretion?

A) It increases potassium secretion

B) It has no effect on potassium secretion

C) It decreases potassium secretion

D) It increases aldosterone secretion

Answer:

C) It decreases potassium secretion

4. In chronic acidosis, what is the net effect on potassium secretion?

A) Decreased potassium secretion

B) Unchanged potassium secretion

C) Increased potassium secretion

D) Potassium secretion stops completely

Answer:

C) Increased potassium secretion

5. In alkalosis, what happens to potassium excretion?

A) It decreases

B) It increases

C) It remains unchanged

D) It becomes zero

Answer:

B) It increases

6. Which of the following is NOT a cause of hyperkalemia?

A) Renal failure

B) Decreased distal nephron flow

C) Excess aldosterone

D) Metabolic acidosis

Answer:

C) Excess aldosterone

7. Which of the following would cause the most serious hypokalemia?

A) Decrease in potassium intake from 150 to 60 mEq/day

B) Increase in sodium intake from 100 to 200 mEq/day

C) Excessive aldosterone secretion plus high sodium intake

D) Excessive aldosterone secretion plus low sodium intake

E) Addison's disease

F) Beta-adrenergic blocker treatment

G) Spironolactone treatment

Answer:

D) Excessive aldosterone secretion plus low sodium intake

8. What percentage of plasma calcium is in the ionized (biologically active) form?

A) 10%

B) 25%

C) 50%

D) 90%

Answer:

C) 50%

9. Which hormone is the major regulator of plasma calcium levels?

A) Aldosterone

B) Parathyroid hormone (PTH)

C) Insulin

D) Vasopressin

Answer:

B) Parathyroid hormone (PTH)

10. How does PTH increase plasma calcium levels?

A) By increasing GI absorption only

B) By decreasing bone resorption

C) By increasing renal reabsorption, bone resorption, and GI absorption (via vitamin D)

D) By increasing renal excretion of calcium

Answer:

C) By increasing renal reabsorption, bone resorption, and GI absorption (via vitamin D)

11. Most calcium reabsorption in the proximal tubule occurs via:

A) Transcellular pathway

B) Paracellular pathway

C) Active secretion

D) Glomerular filtration

Answer:

B) Paracellular pathway

12. What is the formula for excretion of a substance by the kidney?

A) Excretion = Filtration + Reabsorption

B) Excretion = Filtration - Reabsorption + Secretion

C) Excretion = Filtration × Reabsorption

D) Excretion = Filtration - Secretion

Answer:

B) Excretion = Filtration - Reabsorption + Secretion

13. After a decrease in GFR, why does sodium excretion eventually return to normal?

A) Because sodium intake decreases

B) Because tubular reabsorption increases

C) Because tubular reabsorption decreases to match filtration

D) Because aldosterone secretion stops

Answer:

C) Because tubular reabsorption decreases to match filtration

14. What happens to plasma creatinine concentration after a decrease in GFR?

A) It decreases

B) It remains unchanged

C) It increases

D) It fluctuates randomly

Answer:

C) It increases

15. Which two mechanisms help maintain sodium balance after a reduction in GFR?

A) Increased aldosterone and decreased potassium secretion

B) Tubuloglomerular feedback and glomerulotubular balance

C) Increased creatinine excretion and increased GFR

D) Decreased PTH and decreased calcium reabsorption

Answer:

B) Tubuloglomerular feedback and glomerulotubular balance

16. What is the initial effect of a decrease in proximal tubular reabsorption on sodium excretion?

A) Decreased sodium excretion

B) Increased sodium excretion

C) No change in sodium excretion

D) Complete cessation of sodium excretion

Answer:

B) Increased sodium excretion

17. Over time, how does sodium excretion change after a sustained decrease in tubular reabsorption?

A) It remains high

B) It returns to normal

C) It drops to zero

D) It fluctuates randomly

Answer:

B) It returns to normal

Physio11

1. Which of the following is the most powerful regulatory mechanism for acid-base balance?

a) Chemical buffer system

b) Protein buffer system

c) Respiratory mechanism

d) Renal mechanism

Answer: d) Renal mechanism

2. What is the primary buffer system in the extracellular fluid?

a) Phosphate buffer

b) Protein buffer

c) Bicarbonate buffer

d) Ammonia buffer

Answer: c) Bicarbonate buffer

3. In the kidney, bicarbonate reabsorption primarily occurs in which segment?

a) Glomerulus

b) Proximal tubule

c) Loop of Henle

d) Distal tubule

Answer: b) Proximal tubule

4. Which transporter is mainly responsible for hydrogen ion secretion in the proximal tubule?

a) Na+/K+ ATPase

b) Na+/H+ exchanger

c) H+/K+ ATPase

d) Cl-/HCO3- exchanger

Answer: b) Na+/H+ exchanger

5. What happens to secreted hydrogen ions in the renal tubules?

a) Combine with bicarbonate to form carbonic acid

b) Are excreted directly without buffering

c) Combine with phosphate or ammonia to form titratable acid or ammonium

d) Both a and c

Answer: d) Both a and c

6. Which of the following is true regarding renal compensation for respiratory acidosis?

a) Decreased H+ secretion

b) Increased bicarbonate reabsorption

c) Decreased ammonium excretion

d) No change in acid-base handling

Answer: b) Increased bicarbonate reabsorption

7. Which statement about the anion gap is correct?

a) It helps differentiate types of metabolic acidosis

b) It measures the concentration of bicarbonate in plasma

c) It is not useful in acid-base disorders

d) It is calculated by adding sodium and chloride concentrations

Answer: a) It helps differentiate types of metabolic acidosis

8. What is the normal arterial blood pH?

a) 7.0

b) 7.2

c) 7.4

d) 7.6

Answer: c) 7.4

9. Which of the following is NOT involved in renal acid-base regulation?

a) Secretion of ammonia

b) Reabsorption of bicarbonate

c) Increased ketogenesis

d) Excretion of titratable acid

Answer: c) Increased ketogenesis

10. What limits hydrogen ion excretion in the renal tubules?

a) Excess chloride

b) Excess bicarbonate

c) Insufficient tubular buffers

d) Insufficient sodium

Answer: c) Insufficient tubular buffers

11. The Henderson-Hasselbalch equation relates pH to which two variables?

a) pCO_2 and plasma protein concentration

b) pCO_2 and bicarbonate concentration

c) pO_2 and bicarbonate concentration

d) pO_2 and plasma protein concentration

Answer: b) pCO_2 and bicarbonate concentration

12. Which enzyme catalyzes the conversion of CO_2 and H_2O to carbonic acid in renal tubular cells?

a) Carbonic anhydrase

b) ATP synthase

c) Amylase

d) Lactate dehydrogenase

Answer: a) Carbonic anhydrase

13. Ammonia in the kidney primarily functions to:

a) Buffer hydrogen ions in tubular fluid

b) Increase bicarbonate excretion

c) Decrease acid secretion

d) Promote sodium reabsorption

Answer: a) Buffer hydrogen ions in tubular fluid

14. Which of the following statements about phosphate as a buffer is true?

a) Phosphate buffers are the main extracellular buffer

b) Phosphate buffers operate mainly in the renal tubular fluid

c) Phosphate buffers are ineffective at physiological pH

d) Phosphate buffers are only intracellular

Answer: b) Phosphate buffers operate mainly in the renal tubular fluid

15. During metabolic acidosis, the kidney compensates by:

a) Decreasing hydrogen ion secretion

b) Increasing bicarbonate reabsorption and generating new bicarbonate

c) Increasing bicarbonate excretion

d) Decreasing ammonium production

Answer: b) Increasing bicarbonate reabsorption and generating new bicarbonate

16. Which of the following is a volatile acid eliminated primarily by the lungs?

a) Sulfuric acid

b) Phosphoric acid

c) Carbonic acid

d) Lactic acid

Answer: c) Carbonic acid

17. The normal plasma bicarbonate concentration is approximately:

a) 10 mEq/L

b) 24 mEq/L

c) 40 mEq/L

d) 50 mEq/L

Answer: b) 24 mEq/L

18. In the proximal tubule, bicarbonate reabsorption involves:

a) Direct transport of bicarbonate across the apical membrane

b) Conversion of bicarbonate to CO_2, diffusion into cells, and regeneration of bicarbonate

c) Secretion of bicarbonate into the tubular lumen

d) Passive diffusion of bicarbonate

Answer: b) Conversion of bicarbonate to CO_2, diffusion into cells, and regeneration of bicarbonate

19. Which of the following best describes the role of the kidneys in chronic respiratory acidosis?

a) Decrease bicarbonate reabsorption

b) Increase bicarbonate reabsorption and ammonium excretion

c) Decrease hydrogen ion secretion

d) No change occurs

Answer: b) Increase bicarbonate reabsorption and ammonium excretion

20. The term “titratable acid” in renal physiology refers to:

a) Hydrogen ions buffered by phosphate in tubular fluid

b) Hydrogen ions buffered by ammonia

c) Hydrogen ions excreted without buffering

d) Bicarbonate ions excreted in urine

Answer: a) Hydrogen ions buffered by phosphate in tubular fluid

Physio12

1. What is the main function of secreted H^+ in the renal tubules?

A) To increase urine pH

B) To combine with filtered HCO_3^-, allowing its reabsorption

C) To be excreted directly as free H^+

D) To buffer ammonia in the blood

Answer: B) To combine with filtered HCO_3^-, allowing its reabsorption

2. Why can only a small amount of H^+ be excreted directly in urine?

A) Because H^+ is reabsorbed in the distal tubule

B) Because urine pH cannot drop below 4.5

C) Because all H^+ is buffered by phosphate

D) Because H^+ is always excreted as NH_4^+

Answer: B) Because urine pH cannot drop below 4.5

3. When excess H^+ is secreted into the tubular lumen, which urinary buffers help excrete it?

A) Calcium and potassium

B) Phosphate ($NaHPO_4^-$) and ammonia (NH_3)

C) Chloride and sulfate

D) Urea and creatinine

Answer: B) Phosphate ($NaHPO_4^-$) and ammonia (NH_3)

4. What is the source of ammonium (NH_4^+) production in the proximal tubule?

A) Urea breakdown

B) Glutamine metabolism

C) Fatty acid oxidation

D) Glucose metabolism

Answer: B) Glutamine metabolism

5. What is the net effect when H^+ is buffered by NH_3 in the collecting tubule?

A) Loss of HCO_3^- in the urine

B) Addition of new HCO_3^- to the blood

C) Decreased NH_4^+ excretion

D) Increased urine pH

Answer: B) Addition of new HCO_3^- to the blood

6. How is titratable acid in urine measured?

A) By titrating urine with NaOH to pH 7.4

B) By measuring urine pH directly

C) By adding HCl to urine

D) By measuring total urine volume

Answer: A) By titrating urine with NaOH to pH 7.4

7. Which of the following is NOT included in titratable acid measurement?

A) H^+ buffered by phosphate

B) H^+ buffered by organic acids

C) H^+ in association with NH_4^+

D) H^+ buffered by creatinine

Answer: C) H^+ in association with NH_4^+

8. What is the formula for net H^+ excretion by the kidneys?

A) (Titratable acid + NH_4^+ excretion) – HCO_3^- excretion

B) (NH_4^+ excretion – titratable acid) + HCO_3^- excretion

C) (HCO_3^- excretion + titratable acid) – NH_4^+ excretion

D) (Titratable acid – HCO_3^- excretion) × NH_4^+ excretion

Answer: A) (Titratable acid + NH_4^+ excretion) – HCO_3^- excretion

9. During chronic acidosis, which renal response is most increased?

A) HCO_3^- excretion

B) NH_4^+ production and excretion

C) Urine volume

D) Glucose reabsorption

Answer: B) NH_4^+ production and excretion

10. In alkalosis, what happens to HCO_3^- handling by the kidneys?

A) Increased reabsorption

B) Complete reabsorption

C) Increased excretion

D) Converted to CO_2

Answer: C) Increased excretion

11. Which equation is used to relate pH, HCO_3^-, and pCO_2 in acid-base physiology?

A) Nernst equation

B) Henderson-Hasselbalch equation

C) Michaelis-Menten equation

D) Starling's equation

Answer: B) Henderson-Hasselbalch equation

12. In respiratory acidosis, what is the compensatory renal response?

A) Decrease HCO_3^- reabsorption

B) Increase HCO_3^- reabsorption and add new HCO_3^-

C) Decrease H^+ secretion

D) Increase urine pH

Answer: B) Increase HCO_3^- reabsorption and add new HCO_3^-

13. In metabolic acidosis, which is a primary renal compensation?

A) Increase HCO_3^- excretion

B) Increase H^+ excretion as NH_4^+ and $NaHPO_4^-$

C) Decrease NH_4^+ excretion

D) Increase urine pH

Answer: B) Increase H^+ excretion as NH_4^+ and $NaHPO_4^-$

14. In respiratory alkalosis, what happens to HCO_3^- in the urine?

A) It is completely reabsorbed

B) It is excreted in excess

C) It is converted to NH_4^+

D) It is converted to CO_2

Answer: B) It is excreted in excess

15. In metabolic alkalosis, why does HCO_3^- excretion increase?

A) Because of decreased filtration

B) Because of decreased reabsorption due to high plasma HCO_3^-

C) Because of increased H^+ secretion

D) Because of increased urine volume

Answer: B) Because of decreased reabsorption due to high plasma HCO_3^-

16. A patient has the following urine data:

Urine volume = 1.0 L/day

Urine HCO_3^- = 2 mmol/L

Urine NH_4^+ = 15 mmol/L

Urine titratable acid = 10 mmol/L

What is the daily net acid excretion?

A) 10 mmol/day

B) 15 mmol/day

C) 23 mmol/day

D) 27 mmol/day

Answer: C) 23 mmol/day

(Calculation: 10 + 15 – 2 = 23 mmol/day)

17. What does a positive value for net HCO_3^- addition indicate?

A) Net gain of H^+ in the body

B) Net loss of H^+ from the body

C) Net loss of HCO_3^- in urine

D) No change in acid-base status

Answer: B) Net loss of H^+ from the body

18. Which of the following is a correct compensation for metabolic acidosis?

A) Decrease in ventilation

B) Increase in ventilation (hyperventilation)

C) Increase in HCO_3^- excretion

D) Decrease in NH_4^+ excretion

Answer: B) Increase in ventilation (hyperventilation)

19. In which condition do the kidneys excrete the most NH_4^+?

A) Respiratory alkalosis

B) Metabolic alkalosis

C) Chronic acidosis

D) Normal acid-base balance

Answer: C) Chronic acidosis

20. What is the main renal compensation for respiratory alkalosis?

A) Increase HCO_3^- reabsorption

B) Increase H^+ secretion

C) Increase HCO_3^- excretion

D) Increase NH_4^+ excretion

Answer: C) Increase HCO_3^- excretion

Q1: A person was admitted in a coma. Arterial blood gas shows:

pH = 7.1, PCO_2 = 16 mm Hg, HCO_3^- = 5 mmol/L. What is the underlying acid-base disorder?

a) Metabolic Acidosis

b) Metabolic Alkalosis

c) Respiratory Acidosis

d) Respiratory Alkalosis

Answer: a) Metabolic Acidosis

(Low pH, low HCO_3^-, low PCO_2 indicates metabolic acidosis with respiratory compensation)

Q2: After upper gastrointestinal tract aspiration in a man undergoing surgery, arterial blood shows:

pH = 7.55, PCO_2 = 52 mm Hg, HCO_3^- = 40 mmol/L. What is the underlying disorder?

a) Metabolic Acidosis

b) Metabolic Alkalosis

c) Respiratory Acidosis

d) Respiratory Alkalosis

Answer: b) Metabolic Alkalosis

(High pH, high HCO_3^-, elevated PCO_2 indicates metabolic alkalosis with respiratory compensation)

Q3: A young woman found comatose after unknown sleeping pill ingestion has:

pH = 6.90, HCO_3^- = 13 mmol/L, $PaCO_2$ = 68 mm Hg. What best describes her acid-base status?

a) Uncompensated metabolic acidosis

b) Uncompensated respiratory acidosis

c) Simultaneous respiratory and metabolic acidosis

d) Respiratory acidosis with partial renal compensation

Answer: c) Simultaneous respiratory and metabolic acidosis

(Both low pH, low HCO_3^-, and high $PaCO_2$ indicate combined acidosis)

Q4: A nervous student is breathing rapidly before an exam. What acid-base disturbance is expected?

a) Metabolic Acidosis

b) Metabolic Alkalosis

c) Respiratory Acidosis

d) Respiratory Alkalosis

Answer: d) Respiratory Alkalosis

(Hyperventilation lowers CO_2, causing respiratory alkalosis)

Q5: A 45-year-old female with renal failure missed dialysis and feels sick. What acid-base disorder is most likely?

a) Metabolic Acidosis

b) Metabolic Alkalosis

c) Respiratory Acidosis

d) Respiratory Alkalosis

Answer: a) Metabolic Acidosis

(Renal failure causes retention of acids, leading to metabolic acidosis)

Q6: A 74-year-old man on diuretics presents with lower extremity edema improvement but worsening shortness of breath. ABG shows metabolic alkalosis. What causes this?

a) Respiratory acidosis

b) Metabolic acidosis

c) Metabolic alkalosis due to contraction alkalosis

d) Respiratory alkalosis

Answer: c) Metabolic alkalosis due to contraction alkalosis

(Diuretics cause chloride loss and volume contraction leading to metabolic alkalosis)

Physio13

1. What is the primary function of the female reproductive system before pregnancy?

A) Milk production

B) Preparation for conception and pregnancy

C) Childbirth

D) Hormone secretion

Answer: B) Preparation for conception and pregnancy

2. Which structure is considered part of the female reproductive system and is responsible for milk production?

A) Uterus

B) Fallopian tube

C) Mammary gland

D) Cervix

Answer: C) Mammary gland

3. Where does fertilization of the ovum usually occur?

A) Ovary

B) Uterus

C) Fallopian tube (ampulla)

D) Cervix

Answer: C) Fallopian tube (ampulla)

4. What is the name of the process by which oocytes are generated?

A) Spermatogenesis

B) Oogenesis

C) Ovulation

D) Fertilization

Answer: B) Oogenesis

5. At what stage is the primary oocyte arrested at birth?

A) Metaphase I

B) Prophase I

C) Anaphase II

D) Telophase I

Answer: B) Prophase I

6. What is the function of granulosa cells during childhood?

A) Stimulate oocyte maturation

B) Produce oocyte maturation inhibiting factor

C) Trigger ovulation

D) Produce progesterone

Answer: B) Produce oocyte maturation inhibiting factor

7. Which hormone stimulates the development of ovarian follicles at puberty?

A) Progesterone

B) Estrogen

C) Follicle-stimulating hormone (FSH)

D) Luteinizing hormone (LH)

Answer: C) Follicle-stimulating hormone (FSH)

8. What triggers ovulation in the female reproductive cycle?

A) FSH surge

B) LH surge

C) Progesterone increase

D) Estrogen decrease

Answer: B) LH surge

9. What is the fate of the follicle after ovulation?

A) It degenerates

B) It becomes the corpus luteum

C) It forms a new ovum

D) It becomes the placenta

Answer: B) It becomes the corpus luteum

10. Which hormone is primarily responsible for maintaining the endometrium after ovulation?

A) Estrogen

B) Progesterone

C) FSH

D) LH

Answer: B) Progesterone

11. How many primary oocytes are present in the ovaries at birth?

A) 100–200

B) 1–2 million

C) 10,000–20,000

D) 400–500

Answer: B) 1–2 million

12. How many oocytes are typically ovulated during a woman's reproductive life?

A) 10–20

B) 100–200

C) 400–500

D) 1,000–2,000

Answer: C) 400–500

13. What is the main hormone secreted by the corpus luteum?

A) FSH

B) LH

C) Progesterone

D) Estrogen

Answer: C) Progesterone

14. What is the first menstrual cycle called?

A) Menopause

B) Menarche

C) Ovulation

D) Luteal phase

Answer: B) Menarche

15. During the reproductive years, how do the ovaries alternate ovulation?

A) Both ovaries ovulate together

B) Left ovary only

C) Right ovary only

D) Each ovary alternates every month

Answer: D) Each ovary alternates every month

1. Which of the following is NOT considered a part of the female reproductive system?

A) Ovaries

B) Fallopian tubes

C) Mammary glands

D) Prostate gland

Answer: D) Prostate gland

2. Where does fertilization of the ovum most commonly occur?

A) Ovary

B) Uterus

C) Vagina

D) Ampulla of the fallopian tube

Answer: D) Ampulla of the fallopian tube

3. What is the primary function of granulosa cells in the primordial follicle during childhood?

A) Produce estrogen

B) Nourish the oocyte and secrete oocyte maturation inhibiting factor

C) Trigger ovulation

D) Form the corpus luteum

Answer: B) Nourish the oocyte and secrete oocyte maturation inhibiting factor

4. At what stage is the primary oocyte arrested at birth?

A) Metaphase I

B) Prophase I

C) Anaphase II

D) Telophase I

Answer: B) Prophase I

5. What triggers the resumption of oocyte development at puberty?

A) Increase in prolactin

B) Activation of the hypothalamic-pituitary-gonadal axis

C) Decrease in estrogen

D) Increase in testosterone

Answer: B) Activation of the hypothalamic-pituitary-gonadal axis

6. How many primary oocytes are present in the ovaries at birth?

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A) FSH

B) Progesterone

C) LH

D) Inhibin

Answer: C) LH

9. What is the fate of the follicle after ovulation?

A) It degenerates immediately

B) It becomes the corpus luteum

C) It forms a new ovum

D) It becomes the placenta

Answer: B) It becomes the corpus luteum

10. What is the main function of the corpus luteum?

A) Produce FSH

B) Produce estrogen only

C) Produce progesterone (and some estrogen)

D) Produce GnRH

Answer: C) Produce progesterone (and some estrogen)

11. Which hormone is secreted by granulosa cells to inhibit FSH release?

A) LH

B) Progesterone

C) Inhibin

D) Estrogen

Answer: C) Inhibin

12. What is the first menstrual cycle called?

A) Menopause

B) Menarche

C) Ovulation

D) Luteal phase

Answer: B) Menarche

13. During the reproductive years, how do the ovaries alternate ovulation?

A) Both ovaries ovulate together

B) Left ovary only

C) Right ovary only

D) Each ovary alternates every month

Answer: D) Each ovary alternates every month

14. What keeps the primary oocyte arrested in prophase I during childhood?

A) High levels of FSH

B) Oocyte maturation inhibiting factor

C) High levels of LH

D) Low estrogen

Answer: B) Oocyte maturation inhibiting factor

15. When is the second meiotic division of the oocyte completed?

A) At ovulation

B) At birth

C) After fertilization

D) At puberty

Answer: C) After fertilization

Physio14

1. What structure forms after ovulation and secretes progesterone?

a) Corpus albicans

b) Primary follicle

c) Corpus luteum

d) Graafian follicle

Answer: c) Corpus luteum

2. If fertilization does not occur, the corpus luteum degenerates into:

a) Corpus hemorrhagicum

b) Corpus albicans

c) Ovarian cyst

d) Tertiary follicle

Answer: b) Corpus albicans

Section 2: Hormonal Regulation

3. Which hormone surge triggers ovulation?

a) FSH

b) Estrogen

c) LH

d) Progesterone

Answer: c) LH

4. The luteal phase is consistently how many days long?

a) 7 days

b) 14 days

c) 21 days

d) Variable

Answer: b) 14 days

5. Which feedback mechanism occurs during the luteal phase (high estrogen + high progesterone)?

a) Positive feedback

b) Negative feedback

c) Neutral feedback

d) No feedback

Answer: b) Negative feedback

Section 3: Ovarian Cycle and Gonadotropins

6. What initiates the first menstrual cycle (menarche) at puberty?

a) Rising GnRH pulses

b) Increased inhibin

c) Surge of progesterone

d) Decreased FSH

Answer: a) Rising GnRH pulses

7. Which hormone is primarily inhibited by luteal cells' secretion of inhibin?

a) LH

b) FSH

c) Estrogen

d) Progesterone

Answer: b) FSH

Section 4: Endometrial Cycle

8. The first day of menstrual bleeding marks the start of:

a) Proliferative phase

b) Secretory phase

c) Menstrual cycle

d) Luteal phase

Answer: c) Menstrual cycle

9. Which phase is characterized by endometrial glandular development and nutrient storage?

a) Menstrual phase

b) Proliferative phase

c) Secretory phase

d) Follicular phase

Answer: c) Secretory phase

10. Why does menstrual blood typically not clot?

a) Low platelet count

b) Presence of fibrinolysin

c) High estrogen levels

d) Absence of tissue fluid

Answer: b) Presence of fibrinolysin

Section 5: Estrogen and Progesterone Functions

11. Which hormone promotes stratified vaginal epithelium to resist infection?

a) Progesterone

b) FSH

c) Estrogen

d) Inhibin

Answer: c) Estrogen

12. Progesterone's primary role in the uterus is to:

a) Trigger menstruation

b) Prepare the endometrium for implantation

c) Stimulate FSH release

d) Inhibit bone growth

Answer: b) Prepare the endometrium for implantation

13. Post-menopausal osteoporosis is linked to decreased levels of:

a) Progesterone

b) LH

c) Estrogen

d) Inhibin

Answer: c) Estrogen

Section 6: Miscellaneous

14. Which factor does NOT influence menstrual bleeding patterns?

a) Genetics

b) Diet

c) Blood pressure

d) Lunar cycle

Answer: d) Lunar cycle

15. During the proliferative phase, endometrial thickness reaches:

a) 1–2 mm

b) 3–5 mm

c) 5–6 mm

d) 7–8 mm

Answer: b) 3–5 mm

Physio15

1. Which structure is responsible for the production of sperm in the male reproductive system?

A) Leydig cells

B) Seminiferous tubules

C) Prostate gland

D) Epididymis

Answer: B) Seminiferous tubules

2. What is the main function of Leydig cells?

A) Produce sperm

B) Secrete inhibin

C) Produce testosterone

D) Store sperm

Answer: C) Produce testosterone

3. Which hormone directly stimulates Leydig cells to produce testosterone?

A) FSH

B) GnRH

C) LH

D) Inhibin

Answer: C) LH

4. What is the role of FSH in the male reproductive system?

A) Stimulates Leydig cells

B) Stimulates Sertoli cells and spermatogenesis

C) Inhibits GnRH

D) Increases testosterone breakdown

Answer: B) Stimulates Sertoli cells and spermatogenesis

5. What hormone is produced by Sertoli cells to inhibit FSH secretion?

A) Testosterone

B) Inhibin

C) LH

D) Estrogen

Answer: B) Inhibin

6. During which life stage is testosterone production highest in males?

A) Childhood

B) Fetal life

C) Puberty and adulthood

D) Old age

Answer: C) Puberty and adulthood

7. What is the function of the SRY gene during fetal development?

A) Stimulates Sertoli cells

B) Initiates male sex differentiation

C) Inhibits testosterone production

D) Promotes oogenesis

Answer: B) Initiates male sex differentiation

8. Which of the following is NOT a secondary sexual characteristic caused by testosterone?

A) Deepening of the voice

B) Growth of facial and pubic hair

C) Increased skin thickness

D) Increased estrogen levels

Answer: D) Increased estrogen levels

9. What is the duration of spermatogenesis from spermatogonium to mature spermatozoa?

A) 24 hours

B) 7 days

C) 74 days

D) 365 days

Answer: C) 74 days

10. Which process describes the maturation of spermatids into spermatozoa?

A) Spermatogenesis

B) Oogenesis

C) Spermiogenesis

D) Fertilization

Answer: C) Spermiogenesis

11. What is the effect of increased testicular temperature on spermatogenesis?

A) Increases sperm production

B) No effect

C) Prevents spermatogenesis

D) Increases testosterone production

Answer: C) Prevents spermatogenesis

12. Which hormone is essential for the conversion of spermatids into mature sperm?

A) LH

B) FSH

C) GnRH

D) hCG

Answer: B) FSH

13. What is the main anabolic effect of testosterone in adult males?

A) Decrease in bone density

B) Increase in protein formation and muscle development

C) Decrease in red blood cell count

D) Inhibition of Sertoli cells

Answer: B) Increase in protein formation and muscle development

14. What is the genetic background required for male pattern baldness?

A) Only testosterone

B) Only genetics

C) Both genetic predisposition and high androgen levels

D) High estrogen levels

Answer: C) Both genetic predisposition and high androgen levels

15. What is the chromosomal content of each mature spermatozoon?

A) 23 pairs of chromosomes

B) 46 chromosomes

C) 23 chromosomes

D) 46 pairs of chromosomes

Answer: C) 23 chromosomes

1. The main reason the testes are located in the scrotum is:

A) To protect them from injury

B) To maintain a temperature lower than body temperature

C) To keep them close to the kidneys

D) To increase testosterone production

Answer: B) To maintain a temperature lower than body temperature

2. What is the effect of increased testicular temperature on spermatogenesis?

A) It enhances sperm production

B) It causes degeneration of most cells of the seminiferous tubules except spermatogonia

C) It has no effect

D) It increases the motility of sperm

Answer: B) It causes degeneration of most cells of the seminiferous tubules except spermatogonia

3. In cases of cryptorchidism (undescended testicles), what is the recommended action if descent does not occur naturally by 1.5 years?

A) No action is needed

B) Hormonal therapy

C) Surgical intervention

D) Radiation therapy

Answer: C) Surgical intervention

4. How long do sperm remain viable after ejaculation at body temperature?

A) 1-2 hours

B) 24-48 hours

C) 1 week

D) Several months

Answer: B) 24-48 hours

5. Where do sperm acquire the capability of motility?

A) Seminiferous tubules

B) Epididymis

C) Prostate gland

D) Vas deferens

Answer: B) Epididymis

6. Which component makes up the largest volume of semen?

A) Fluid from vas deferens

B) Fluid from seminal vesicles

C) Fluid from prostate gland

D) Mucus from bulbourethral glands

Answer: B) Fluid from seminal vesicles

7. The slightly alkaline nature of prostatic fluid is important because:

A) It increases sperm count

B) It neutralizes the acidity of other seminal fluids and vaginal secretions

C) It causes sperm to become inactive

D) It helps sperm stick together

Answer: B) It neutralizes the acidity of other seminal fluids and vaginal secretions

8. What is the average pH of combined semen?

A) 3.5

B) 5.0

C) 6.0

D) 7.5

Answer: D) 7.5

9. Which gland produces a milky, alkaline secretion that protects sperm from acidic environments?

A) Seminal vesicle

B) Prostate gland

C) Bulbourethral gland

D) Adrenal gland

Answer: B) Prostate gland

10. Which of the following is NOT a function of prostaglandins in semen?

A) Stimulate contractions of the vas deferens

B) Enhance sperm motility

C) Stimulate backward peristalsis in the uterus and fallopian tube

D) Increase testosterone production

Answer: D) Increase testosterone production

11. Which statement about oogenesis is correct?

A) It begins at puberty

B) It produces four functional gametes per primary oocyte

C) The second meiotic division is completed only upon fertilization

D) It continues throughout life

Answer: C) The second meiotic division is completed only upon fertilization

12. How many mature spermatozoa are produced from one primary spermatocyte?

A) One

B) Two

C) Three

D) Four

Answer: D) Four

13. What is the primary neurotransmitter released by parasympathetic nerves during penile erection?

A) Dopamine

B) Acetylcholine

C) Serotonin

D) GABA

Answer: B) Acetylcholine

14. Which enzyme is activated by nitric oxide to cause smooth muscle relaxation in penile arteries?

A) Adenylate cyclase

B) Guanylyl cyclase

C) Phospholipase C

D) Tyrosine kinase

Answer: B) Guanylyl cyclase

15. Emission and ejaculation are primarily controlled by:

A) Parasympathetic nerves

B) Somatic nerves

C) Sympathetic nerves

D) Enteric nerves

Answer: C) Sympathetic nerves

16. The process of emission involves:

A) Contraction of the vas deferens and accessory glands to expel sperm into the internal urethra

B) Relaxation of the penile arteries

C) Spermatogenesis

D) Inhibition of sperm motility

Answer: A) Contraction of the vas deferens and accessory glands to expel sperm into the internal urethra

17. The final phase of the male sexual act, where semen is expelled from the urethra, is called:

A) Emission

B) Ejaculation

C) Resolution

D) Orgasm

Answer: B) Ejaculation

18. After ejaculation, the rapid disappearance of sexual excitement is known as:

A) Emission

B) Plateau

C) Resolution

D) Refractory period

Answer: C) Resolution

Physio16

1. What activates the cilia in the fallopian tube to help move the ovum?

A) Progesterone

B) Estrogen

C) Oxytocin

D) Prostaglandins

Answer: B) Estrogen

2. Where does fertilization of the ovum usually occur?

A) Uterine cavity

B) Cervix

C) Ampulla of the fallopian tube

D) Isthmus of the fallopian tube

Answer: C) Ampulla of the fallopian tube

3. Which of the following aids the transport of sperm to the site of fertilization?

A) Movement of cilia in the fallopian tube only

B) Prostaglandins in seminal fluid and oxytocin release

C) High estrogen levels only

D) Thick cervical mucus

Answer: B) Prostaglandins in seminal fluid and oxytocin release

4. What is “capacitation” of spermatozoa?

A) The process of sperm production in the testes

B) The process by which sperm become motile in the male tract

C) The activation of sperm in the female tract to enable fertilization

D) The fusion of sperm and egg genetic material

Answer: C) The activation of sperm in the female tract to enable fertilization

5. Which of the following is NOT a change that occurs during sperm capacitation?

A) Loss of excess cholesterol from the sperm membrane

B) Increased permeability to calcium ions

C) Strengthening of the acrosome membrane

D) Washing away of inhibitory factors by female fluids

Answer: C) Strengthening of the acrosome membrane

(It actually becomes weaker.)

6. What is the function of hyaluronidase in the acrosome reaction?

A) Digests proteins in the zona pellucida

B) Depolymerizes hyaluronic acid between granulosa cells

C) Stimulates the release of progesterone

D) Causes cortical granule release in the oocyte

Answer: B) Depolymerizes hyaluronic acid between granulosa cells

7. How is polyspermy (entry of more than one sperm) prevented after the first sperm enters the oocyte?

A) Zona pellucida hardens immediately

B) Oocyte releases cortical granules, modifying the zona pellucida

C) Sperm are repelled by electrical charges

D) Sperm are phagocytosed by granulosa cells

Answer: B) Oocyte releases cortical granules, modifying the zona pellucida

8. After fertilization, how long does it take for the zygote to travel through the fallopian tube to the uterus?

A) Less than 1 day

B) 1-2 days

C) 3-5 days

D) 7-10 days

Answer: C) 3-5 days

9. Before implantation, from where does the blastocyst obtain its nutrition?

A) Maternal blood

B) Uterine milk (endometrial secretions)

C) Placenta

D) Amniotic fluid

Answer: B) Uterine milk (endometrial secretions)

10. What is the main function of trophoblast cells during implantation?

A) To produce estrogen

B) To secrete proteolytic enzymes and invade the endometrium

C) To form the fetal heart

D) To secrete progesterone

Answer: B) To secrete proteolytic enzymes and invade the endometrium

11. Which structure is responsible for the exchange of nutrients and gases between mother and fetus?

A) Decidua

B) Amnion

C) Placenta

D) Corpus luteum

Answer: C) Placenta

12. What is the direction of fetal and maternal blood flow in the placenta?

A) Both flow in the same vessels

B) Fetal blood in villi, maternal blood in surrounding sinuses

C) Maternal blood in villi, fetal blood in surrounding sinuses

D) Both flow in the umbilical vein

Answer: B) Fetal blood in villi, maternal blood in surrounding sinuses

13. In early pregnancy, what is the main source of nutrition for the embryo?

A) Amniotic fluid

B) Maternal blood

C) Decidua (endometrial cells)

D) Placenta

Answer: C) Decidua (endometrial cells)

14. Which of the following is NOT a function of the placenta?

A) Respiration

B) Nutrition

C) Excretion

D) Production of sperm

Answer: D) Production of sperm

15. Why can fetal hemoglobin carry more oxygen than maternal hemoglobin at low PO_2?

A) Lower hemoglobin concentration in fetus

B) Fetal hemoglobin is shifted to the right of the maternal curve

C) Fetal hemoglobin is shifted to the left and is present in higher concentration

D) Maternal blood has higher CO_2

Answer: C) Fetal hemoglobin is shifted to the left and is present in higher concentration

16. What is the main hormone detected in pregnancy tests?

A) Estrogen

B) Progesterone

C) Human chorionic gonadotropin (hCG)

D) Testosterone

Answer: C) Human chorionic gonadotropin (hCG)

17. Which hormone prevents involution of the corpus luteum in early pregnancy?

A) Estrogen

B) Progesterone

C) hCG

D) Oxytocin

Answer: C) hCG

18. What is a major function of estrogen during pregnancy?

A) Decreases uterine contractility

B) Causes development of decidual cells

C) Enlarges uterus, breasts, and relaxes pelvic ligaments

D) Maintains the corpus luteum

Answer: C) Enlarges uterus, breasts, and relaxes pelvic ligaments

19. Which hormone is primarily responsible for decreasing uterine contractility and preparing the breasts for lactation?

A) Estrogen

B) Progesterone

C) hCG

D) Oxytocin

Answer: B) Progesterone

20. The placenta cannot produce estrogen until:

A) The corpus luteum involutes

B) The fetal adrenal cortex secretes DHEA

C) The maternal pituitary secretes LH

D) The fetal heart starts beating

Answer: B) The fetal adrenal cortex secretes DHEA

Physio17

1. What is the average weight gain during pregnancy?

A) 2–5 kg

B) 5–10 kg

C) 10–15 kg

D) 20–25 kg

Answer: C) 10–15 kg

2. Which of the following is NOT a major contributor to maternal weight gain during pregnancy?

A) Fetus

B) Amniotic fluid

C) Increased bone density

D) Fat accumulation

Answer: C) Increased bone density

3. The basal metabolic rate of a pregnant woman increases by approximately:

A) 5%

B) 10%

C) 15%

D) 25%

Answer: C) 15%

4. During pregnancy, the anterior pituitary gland enlarges and increases production of all EXCEPT:

A) ACTH

B) TSH

C) Prolactin

D) FSH

Answer: D) FSH

5. The hormone responsible for increasing calcium absorption from the mother's bones during pregnancy is:

A) Insulin

B) Parathyroid hormone

C) Estrogen

D) Progesterone

Answer: B) Parathyroid hormone

6. Which vitamin is especially important before birth to prevent hemorrhage in the newborn?

A) Vitamin A

B) Vitamin D

C) Vitamin K

D) Vitamin B12

Answer: C) Vitamin K

7. By how much does maternal blood volume typically increase before term?

A) 10%

B) 20%

C) 30%

D) 50%

Answer: C) 30%

8. What is the main reason for increased urination during pregnancy?

A) Decreased kidney function

B) Increased fluid intake and excretory load

C) Decreased blood volume

D) Lower aldosterone levels

Answer: B) Increased fluid intake and excretory load

9. Which hormonal change increases uterine contractility near term?

A) Increased progesterone

B) Decreased estrogen

C) Increased estrogen-to-progesterone ratio

D) Decreased oxytocin

Answer: C) Increased estrogen-to-progesterone ratio

10. What is the role of oxytocin during labor?

A) Inhibits uterine contractions

B) Increases uterine contractility and milk ejection

C) Suppresses prolactin secretion

D) Decreases cervical dilation

Answer: B) Increases uterine contractility and milk ejection

11. Which fetal hormone contributes to the onset of labor?

A) Fetal insulin

B) Fetal cortisol

C) Fetal thyroxine

D) Fetal glucagon

Answer: B) Fetal cortisol

12. What mechanical factor can induce labor, especially in the case of twins?

A) Decreased uterine stretch

B) Stretch of the uterine musculature

C) Decreased cervical irritation

D) Decreased fetal movement

Answer: B) Stretch of the uterine musculature

13. The positive feedback mechanism in labor is primarily initiated by:

A) Maternal stress

B) Stretching of the cervix

C) Increased blood pressure

D) Decreased estrogen

Answer: B) Stretching of the cervix

14. Which stage of labor lasts from the onset of true labor to complete dilation of the cervix?

A) First stage

B) Second stage

C) Third stage

D) Fourth stage

Answer: A) First stage

15. What is the main cause of early labor pain?

A) Perineal stretching

B) Hypoxia of the uterine muscle

C) Tearing of the vaginal canal

D) Stretching of the cervix

Answer: B) Hypoxia of the uterine muscle

16. Which hormone is essential for the final development of the breast lobule-alveolar system?

A) Estrogen

B) Progesterone

C) Oxytocin

D) Prolactin

Answer: B) Progesterone

17. What is colostrum?

A) The first urine produced by the newborn

B) The first milk-like secretion produced around delivery

C) The hormone that initiates labor

D) The hormone that suppresses ovulation

Answer: B) The first milk-like secretion produced around delivery

18. After birth, what triggers surges in prolactin secretion to maintain milk production?

A) Maternal estrogen

B) Suckling by the baby

C) Increased blood volume

D) Placental hormones

Answer: B) Suckling by the baby

19. Nursing mothers experience suppression of ovarian cycles because:

A) Prolactin stimulates FSH and LH

B) Suckling inhibits GnRH secretion

C) Estrogen levels are high

D) Oxytocin increases progesterone

Answer: B) Suckling inhibits GnRH secretion

20. The “let-down” reflex in milk secretion is mediated by:

A) Prolactin

B) Estrogen

C) Oxytocin

D) FSH

Answer: C) Oxytocin

Physio18

1. Which of the following is a common cause of male sterility?

- A) Excessive intake of vitamin C
- B) Destruction of seminiferous tubular epithelium by diseases such as mumps
- C) Increased physical activity
- D) Overproduction of estrogen

Answer: B) Destruction of seminiferous tubular epithelium by diseases such as mumps

2. Cryptorchidism is best described as:

- A) Excessive testosterone production
- B) Failure of a testis to descend into the scrotum at birth
- C) Inflammation of the prostate
- D) Enlargement of the seminal vesicles

Answer: B) Failure of a testis to descend into the scrotum at birth

3. Infertility in men is most likely when sperm count falls below:

- A) 50 million/ml
- B) 35 million/ml
- C) 20 million/ml
- D) 100 million/ml

Answer: C) 20 million/ml

4. Which of the following is NOT a cause of erectile dysfunction?

- A) Vascular disease
- B) Neurological injury
- C) High levels of testosterone
- D) Certain medications (e.g., antidepressants)

Answer: C) High levels of testosterone

5. Benign prostatic hypertrophy (BPH) in older men can cause:

- A) Increased fertility

- B) Urinary obstruction
- C) Early puberty
- D) Increased testosterone secretion

Answer: B) Urinary obstruction

6. Which hormone is primarily responsible for testicular descent during fetal development?

- A) Estrogen
- B) Progesterone
- C) Testosterone
- D) Luteinizing hormone

Answer: C) Testosterone

7. The most common cause of female sterility is:

- A) Failure to ovulate
- B) Excessive estrogen secretion
- C) Overactive adrenal glands
- D) High body temperature

Answer: A) Failure to ovulate

8. Anovulatory cycles are characterized by:

- A) Normal corpus luteum formation
- B) No progesterone secretion
- C) Excessive testosterone secretion
- D) Prolonged cycle duration

Answer: B) No progesterone secretion

9. Which of the following is a typical symptom of polycystic ovarian syndrome (PCOS)?

- A) Regular menstrual cycles
- B) Hirsutism (excess hair growth)
- C) Early menopause

- D) High progesterone levels

Answer: B) Hirsutism (excess hair growth)

10. Preeclampsia is characterized by all of the following EXCEPT:

- A) Hypertension
- B) Proteinuria
- C) Seizures
- D) Edema

Answer: C) Seizures

(Seizures are a feature of eclampsia, not preeclampsia.)

11. Eclampsia differs from preeclampsia by the presence of:

- A) Proteinuria
- B) Seizures and coma
- C) Edema
- D) Weight gain

Answer: B) Seizures and coma

12. Which drug class is commonly used to treat erectile dysfunction by enhancing the effect of cyclic GMP?

- A) Beta-blockers
- B) PDE-5 inhibitors
- C) Antidepressants
- D) Diuretics

Answer: B) PDE-5 inhibitors

13. Removal of the ovaries in a fully developed woman will result in:

- A) Increased breast size
- B) Regression of sexual organs and thinning of pubic hair
- C) Early puberty

- D) Increased bone density

Answer: B) Regression of sexual organs and thinning of pubic hair

14. The most common treatment for lack of ovulation due to hyposecretion of gonadotropins is:

- A) Estrogen therapy
- B) Human chorionic gonadotropin (hCG) administration
- C) Testosterone injections
- D) Surgical removal of the uterus

Answer: B) Human chorionic gonadotropin (hCG) administration

15. During normal placental development, trophoblasts invade and remodel which arteries?

- A) Coronary arteries
- B) Spiral arteries of the uterine endometrium
- C) Renal arteries
- D) Pulmonary arteries

Answer: B) Spiral arteries of the uterine endometrium

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