

Collecting of physiology final exam:

First year /second semester

If you come by any mistake (**whether it be spelling, grammatical or scientific**) while browsing this sheet, kindly report it to the **Academic team Facebook account**.



1. Number of acetylcholine molecules in each vesicle:

10,000

2. Which of the following remains at relatively the same length after contraction of sarcomere?

- a. A band
- b. H band
- c. Z line.

3. Isn't true about acetylcholine receptors

Number of subunits in fetus=6.

4. Amount of O₂ stored in skeletal muscle

0.3

5. What equation of the following is true:

$$Q = k(p_c - p_i) - \sigma(\pi_c - \pi_i)$$

6. Distribution vessels:

Arteries

7. Blood volume is called unstressed volume:

Veins

8. The highest cross sectional area is in:

Capillary

9. Found in skeletal muscle but not in smooth muscle:

Troponin

10. Isn't true about arterioles:

Alpha 1 adrenergic receptors are found in arterioles of skeletal muscles

11. One of the following not function of pericyte:

Repair of endothelial cells

12. Connect with dystrophin:

Actin and β -dystroglycan

13. Containing fenestrated capillaries without diaphragm:

Renal glomerulus

14. The sarcomere extends from:

Z line to Z line

15. The organ than is not affected by vasoconstriction:

The brain

16. The energy of phosphate bond in ATP:

7300 calories

17. All of the following are the highest in male except:

Maximum force of contractions

18. Which correct about motor unit:

Motor nerve innervate multiple muscle fiber (second)

motor neuron branch into small fibers(third)

motor neuron axon make swelling on the postsynaptic membrane (fourth)

19. Entire myosin is...

A band

20. Which of the following sentences are true about venous constriction:

↓Radius → ↑resistance → ↑ratio → ↑capillary hydrostatic pressure

21. The phase of simple muscle twitch that takes 2 milliseconds:

The latent phase

22. Which system provide extra energy for 200-800 meter?

Glycogen lactic acid system

Types of skeletal muscle fibers (skeletal myo-fiber types):

| Type of muscle Fiber | Slow Fibers (Type I) | Fast Fibers (Type II) | |
|------------------------|--|---|--|
| | Type I (slow oxidative :SO) or (slow-twitch fibers: ST) | Type IIA (fast-oxidative glycolytic :FOG) (fast-twitch fibers) | Type IIB or Type IIX (fast glycolytic :FG) Fast twitch |
| Myoglobin (color) | +++ (red) | ++ (pink-red) | + (white) |
| Metabolism | Oxidative (aerobic) | Anaerobic-lactic acid (glycolytic) & Oxidative (aerobic) | Anaerobic (creatine phosphate) |
| Strength | Small diameter, least powerful | Intermediate diameter, Intermediate strength | Greatest diameter, Most powerful |
| Fatigue resistance | High (fatigue resistant) | Moderate | Low (easily fatigued) |
| Capillary blood supply | Dense | Intermediate | Sparse |
| Power produce | low | Intermediate | High |
| Speed contraction | Very Fast | Fast | Slow |
| Time to Peak tension | 0.1-0.2(sec) | 0.05-0.08 (sec) | 0.05-0.08 (sec) |

23. What is the wrong in the table above?

- a. Power produce
- b. Speed of contraction**
- c. Time to peak tension
- d. Fatigue resistance

24. Lactic acid oxygen debt=

8 liters

25. Power stroke involve:

dissolution of actin from myosin

pull actin filament against myosin

ATP is unlinked from myosin

26. Most of fluid is drained by blood stream, but.... Drained away by lymphatic vessels :

2 to 4 liters of fluid

27. Conductance is affected by:

Radius

28. For arteries in series the relation between resistance and pressure :

Resistance increase and pressure decrease

29. Skeletal muscle resting potential is maintained by:

The Cl^- influx

30. The function of myoglobin:

O₂ buffering

Facilitates O₂ diffusion

O₂ storage

31. One of the following is true about synchronization of muscles:

synchronization occurs in non-athletes

32. What causes the relaxation of skeletal muscles?

Ca²⁺ dissociation from intracellular area

33. What's the purpose of ryanodine receptor?

Increase intracellular (cytosolic) Ca²⁺

34. Compliance of systemic vein is about

24 times that of artery

35. One of these not true:

low compliance when there's large increase in volume with slight increase in pressure

36. Heart murmur is made by blood moving through:

Heart valves

37. Not increase in hypertrophy:

Sarcomere

38. Plasma has a relative viscosity of :

1.7

39. Contraction occurs in smooth muscle is:

70% its original length

40. Which of the following is not true about smooth muscle:

Actin: myosin ratio is 1:6

41. Calcium in smooth muscle is bound with:

Calmodulin

42. The cause of intracellular edema?

Lack of nutrition

low blood flow

(The answer is inaccurate)

43. Increasing blood flow during exercise muscle:

Active hyperemia

44. The cause of decreased arterial pressure:

Increase [O₂] in tissue

45. More Na can flow through the acetylcholine-gated channels than other ions because of:

Concentration gradient and electrical gradient

46. Increased flow will reach to a state that is determined by:

force and frequency

metabolic demand

47. Parasympathetic stimulation not found in:

Skin

Skeletal muscle

48. Not true:

Neural and local control are equal at different tissue

49. Lowest pressures:

0

50. Effective perfusion pressure?

Arterial end - venous end

51. Not true:

Initiated by neural and developed and moderate by hormones

52. Not true about inward eutrophic remodeling

The vascular wall is thinner

53. Resistance is directly related to?

Viscosity

54. Fahreace lindqvist diameter best seen in:

Veins**

55. Remodeling in radial artery:

Outward remodeling

56. Not true about eutrophic :

Increased total cross sectional area

57. Not an angiogenic growth factor:

Tumor

58. Angiogenesis is slow in

Well established tissues

59. Vasodilator for skeletal muscle:

K ions

60. Not true :

Decreased interstitial fluid pressure increase lymph flow

61. Doesn't make external intermittent compression:

Skin within wet environments

62. Not true about interstitial:

Contract greatly

63. Not true:

Low compliance means large increase in volume causes small increase in pressure

64. Not true:

capillary hydrostatic pressure tends to force fluid inward

65. Transcytosis is by:

Caveolae

66. Substances that pass through Transcytosis :

Large molecules and lipid insoluble

67. Which of the following is true :

Resting membrane potential is the same in a large myelinated nerve

68. Which has lowest interstitial proteins

brain

69. Not true about actin :

contain 10 sites for ADP

70. Denervation :

1-2 years

71. Sarcopenia is decrease in all the following except :

age

72. Dephosphorylation in smooth muscle:

Myosin light chain phosphatase

73. Not true:

latent period of smooth muscle 5-10 ms

74. Not true:

slow wave occurs in multi-unit smooth muscle

75. Not true:

regulatory chain is phosphorylated in tyrosine position 1

76. External intermittent compression of lymphatic:

- Contraction of surrounding skeletal muscles
- Movement of body parts
- Pulsation of arteries adjacent to the lymphatic
- Compression of the tissue by objects outside the body

77. The most resistant vessel is:

- a. Artery
- b. Arteriole
- c. Capillary
- d. Venule

78. Which of the following true about Critical closing pressure

The vessels collapse and no flow of blood even though pressure is not zero

This exam was of:

- ♦ PHYSIOLOGY OF SKELETAL MUSCLE 1& 2
- ♦ PHYSIOLOGY OF SMOOTH MUSCLE
- ♦ VASCULAR PHYSIOLOGY 1, 2 & 3

And contained of 96 question.*

Class of 2024
BAU #4

These questions were collected by students after exam depending on their memories, so they may come by mistake or inaccurate questions or answers.

Special thanks for everyone who contributed in collecting these questions and answers.

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