AP Biology Anatomy Independent Study Assignment
MEA/Thanksgiving/Winter Break/Student-Paced **EXAM: JAN. 20**
Including the larger overview section, there are NINE total sections/8 body systems to cover. You would be WISE to try to do one per week and NOT have to do all on your break/s. I am including a set of calendars for your planning purposes. If you want to AVOID working during your breaks, plan around the breaks/calendar dates. Enjoy!

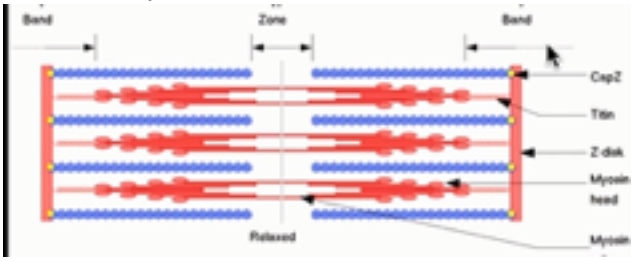
Overview:
Anatomy & Physiology *11:25 Min.*
http://www.bozemanscience.com/anatomy-and-physiology-introduction

1. Distinguish anatomy and physiology. Anatomy-structure, physiology-function
2. What is homeostasis? keeping an internal environment [illegible]
3. How is regulation of home temperature a negative feedback loop? A negative feedback loop is a type of self-regulating system where increased output *from* the system inhibits future production *by* the system.
4. What is the body's "thermostat"? hypothalamus
5. What is the body's target set point? 98.6 degrees
6. Describe the hierarchy of living systems. Parts that make up a whole of a house or an organism
7. At what level of hierarchy does anatomy fit? Organelle through organ system
8. List the 4 types of human tissues:
   a. Epithelial
   b. muscle
   c. nervous
   d. connective
9. What are the 3 morphologies for epithelial tissue? Squamous= flat, cuboidal= cube, columnar= shape
10. What are the 2 layer types? Simple and stratified
11. What are muscles cells responsible for? They are responsible for… motion
12. Distinguish smooth, skeletal and cardiac muscle. Skeletal= moving fingers and arms, Smooth= involuntary like digestion, cardiac= heart muscle w/ intercalated discs
13. What is the function of nervous tissue? Send signals throughout body

38. What is Paul Anderson showing in his visual here: who cares, but he is describing the walking/sliding motion of the myosin

39. What does all of this have to do with muscle contraction? What does it mean when a muscle contracts? Myosin heads that are pulling it past this

40. What is the picture shown here?

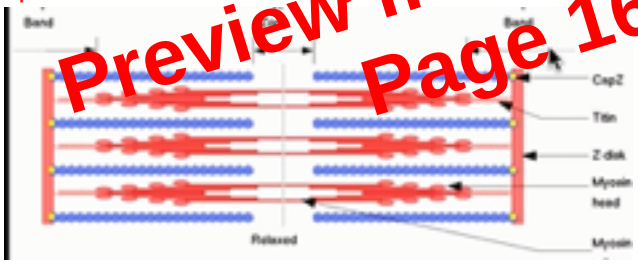


41. Where are the z-disks in the picture above? On the ends

42. Where are the actin and myosin in the picture above? Actin is the blue nad myosin is attached along the middle vertically

43. Where does the myosin attach? Is it able to move? The heads start grabbing the actin and pulling it together

44. Explain what has happened to the sarcomere before/after in the diagrams below: myosin is pulling the actin apart when a muscle is being flexed.



Big Guns: The Muscular System - CrashCourse Biology #31 ***12:52***
http://www.youtube.com/watch?v=jqy0i1KXUO4&list=SP3EED4C1D684D3ADF&index=31

1. What are the two things muscles do? Muscles contract and relax

2. What is the muscle belly? The thick part of the muscle in the middle

3. What are ligaments and tendons? Ligaments= bone to bone, tendon= bone to muscle

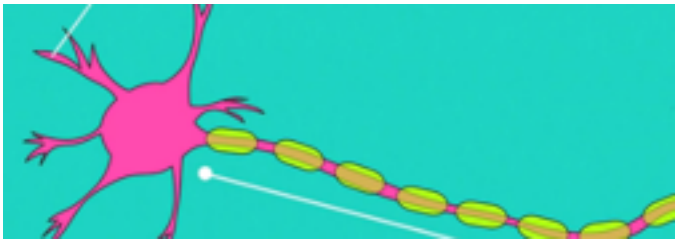
4. Relate the two diagrams shown below: the chicken has layers of thing strings as seen in the diagram on the right

7. Which is"flight or fight"? making one more alert for winning stuff

8. Which is "chill the heck out" response? The parathetic system which

9. What term refers to the body's balance? Homeostasis

10. Label the neuron shown below: dendrite, myelin, nodes of ranvier, axon



11. Which structure receives signals? Dendrites

12. What are the sections between myelin coverings covered? Nodes of ranvier

13. What is saltatory conduction? The moving of signals from one node to the other

14. What is a synapse? What happens in a synapse? The dedrites of two neurosns come toghether, neruotransmitter are transferred and information is tranferreed

15. What is a membrane potential? Electrical charge differing on the inside and outside of the membrane

16. How is the membrane potential managed? By a sodium potassium charge

17. On the diagram here, identify how the sodium potassium pump creates a membrane potential.

moves 3 poitive sodium out for every two negative potassium it lets in

18. What is a neuron called when it is inative? What is its membrane potential or volatage at that point? 70mv is the resting potential

19. What occurs to start a neuron in the direction of becoming active?an input or stimulus makes a change in the neuron creating an action potential

20. What is a neuron called when it does become active? What happens to the voltage of the membrane at this point? Action potantial is where the voltage rapidly rises and falls

21. Describe the charge of the inside of the membrane as sodium ions diffuse back in to the cell. A spike in the voltage across the membrane of the nerves and then there is a n undershoot until it evens out at the 70mv said above

22. What is a threshold? What occurs to the neuron at this point? The action potentail will always be the same except there will be more ina given an=mount oif tiem during loud noise

23. This signal of changing voltage travels down the neuron like a _wave _____.

24. What happens when a signal reaches the end of a neuron? Triggers the release of neuro transmitter

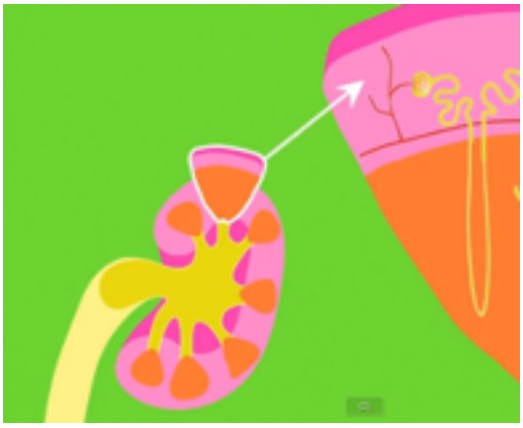
6. What do mammals convert ammonia into? Uric or urea acid

7. Animals that can't store a large amount of water don't produce urea. What is their ammonia waste product instead?uric acid

8. What percent of kidney fluids actually end up as urine? Roughly 1%

9. So what is the major role of kidneys? Helps maintain a stable blood pressure and amount of water and dissolved fluids

10. Label the structure below: Nephron



11. How long would the nephron system be if stretched out? 80 km

12. How does blood from the heart enter the kidneys? renal arteries to the capilarreis

13. Blood enters the kidneys and travels to the _____glomerus _____.

Big ball of capillaries

14. The glomerulus is the starting point of a single ____nephron _____. Label the glomerulus on the diagram above.

15. What enables the glomerulus to squeeze 20% fluids out of the blood/capillaries? High pressure

16. Where are these fluids sent to? Bowmans capsule

17. This fluid is no longer called blood, but instead ___filtrate _____.

18. What size are the particulates in this fluid generally? What particles do NOT get filtered out in the glomerulus? Small particulates within the fluid big ones don't get filtered out

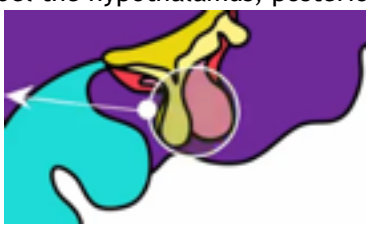
19. Where does filtrate from the Bowman 's capsule move next? Proximal convoluted tubule

10. Which are water soluble? Why does this matter? It isn't imoportant reallyt is it

11. Which are lipid soluble? Why is this important? See above for further details on this question

12. What is the role of the pituitary? How does it work with the hypothalamus? Tells other glands to make hormones based on information

13. Label the hypothalamus, posterior pituitary and anterior pituitary glands here:



14. Which is actually an extension of the hypothalamus? Posterior

15. What hormones does the posterior pituitary secrete? Function of each? Oxytocin= contraction of the rerus and breast feeding, AD= kindeys retain water well

16. Which gland communicates with the thyroid? What role does the thyroid have in the body? Yes no see above

17. How is the thyroid functional as a negative feedback loop? It feedback to the thyroid and other glands

18. Which gland controls the adrenal glands? What is their function? The postanal glands as well as the other glands see yeah

19. Which nervous system signals alarm/danger? The sympathetic system

20. How does the hypothalmus respond? Tells other glands how to act

21. What is ACTH? What hormone does it secrete? Epinephginre gland

22. What is another name for adrenaline? Insulin maybe

23. Why does your heart keep racing even after the danger passes?

24. The ____pancreas_____ is the biggest gland in the body?

25. What molecule regulates glucose? insulin

26. How is glucose stored in the body? Converted to fat and glycogen

27. What does the pancreas do when your blood sugar is low? Releases glycogen and other neat-0 chemicals

28. What are gonads? The sex organs on a human

29. What gland instructs the gonads? pituitary

30. What hormones do the testes produce? The ovaries? Androgens and testosterone

31. Jost discovered that in the absence of gonad/hormones, bunnies were born _____female_____.

32. The "default setting" for mammalian embryos is make it ____female _____.

33. What is an androgen? Function? Lowers voices and makes hair, more muscle, manly stuff

34. What hormones are most important in females? Estrogen