

BI 121 Lecture 8



... Welcome back – let's get to work!!

- I. **Announcements** Tomorrow HR & BP Lab 4 + **Required Notebook Check. Turn in today?** Thurs Blood Chemistry Lab 5. Please read Lab 5 twice prior to Thursday. Thanks!
- II. **Cardiovascular System** LS 2012 ch 9, Torstar Books 1984, DC 2013 Module 4, Guyton & Hall (G&H) 2011 +...
  - A. Circulatory vs Cardiovascular (CV)? cf + parts LS pp 229, CV vs Lymphatic, DC pp 23, 31
  - B. CV Pulmonary & Systemic circuits DC fig 4-1 p 24, LS fig 9-2b p 231
  - C. Arteries, capillaries, veins G&H + Torstar
  - D. Varicose veins? Phlebitis? DC
  - E. ♥ layers, box, chambers, valves, inlets, outlets LS fig 9-4 p 233, fig 9-2a p 231; DC pp 23-6
  - F. Normal vs abnormal blood flow thru ♥ & CV system Billy has a hole in his ♥ SI Fox 2009 fig 13.16, 13.17
- III. **Comments on Midterm & Tests Returned**



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...Fun lab week with much personal data!

- I. **Announcements** Remember to read Lab 5 before Thursday. Thanks for helping us be well-prepared. Q from last time? Calculating grade from estimated final. Keys to success? Q?
- II. **CVD & Oil Connections** Anti-inflammatory vs. inflammatory? S&W ch 5
- III. **Blood Form & Function** LS ch 11 pp 296-304, 309-12 DC Module 5 + SI Fox + *National Geographic* Lennart Nilsson
  - A. Formed vs. nonformed/cells vs. plasma fig+tab 11-1
  - B. **Red blood cells/erythrocytes: O<sub>2</sub>-carrying** sickle cells, ABO blood typing, Rh factor pp 299-304.
  - C. **White blood cells/leukocytes: Defense/immunity** differential + general functions pp 309-12
  - D. **Platelets/thrombocytes: Initial clotting** p 304
- IV. **Blood Glucose & Diabetes Mellitus** LS ch 17, DC Module 13

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- I. **Announcements** Lab notebook due today! Lab 4 HR & BP. Thursday, Lab 5 Blood Chemistry. Read pp 5-1 thru 5-6 x2. Q?
- II. **Overview of Labs** HR & BP. Blood chem lab review
- III. **Cardiovascular Connections** LS 2012 ch 9
  - A. Cardiac cycle? Contract-relax!
  - B. ♥'s electrical highway + Pacemaker activity LS fig 9-7 p 235, tab 9-1 p 236, fig 9-8 p 237
  - C. NHLBI & AHA websites
- IV. **CV Physiology in the News** NHLBI & AHA websites Exercise & Nic? Exercise guidelines: ACSM, AHA, CDC
- V. **CV Pathophysiology & Risk Reduction** LS ch 9, 10 +...
  - A. AMI, CVA, CVD, PVD, TIA, HTN? + surgical treatments
  - B. Atherosclerosis? LS fig 9-27, 9-25, 9-26 pp 266-8
  - C. How to minimize risk of CVDs? Treatment triad: Exercise, Diet, Drugs + Surgery
  - D. Food choices make a difference? What's HAPOC?



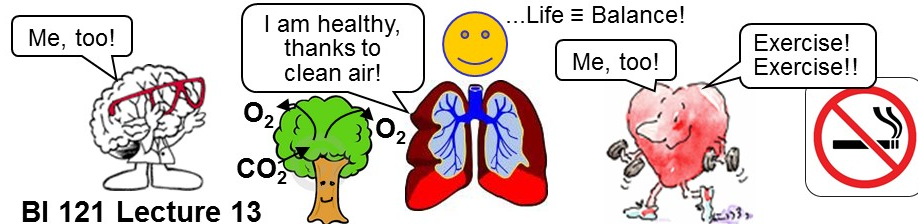
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Fun lab today! Data for a lifetime!  
Thanks for being prepared! ..



- I. **Lab 5 Review: Safety & Techniques** Q?
- II. **Introduction to Endocrinology** LS ch 17, DC Module 13, SI Fox+
  - A. Endocrine vignette: Cushing's syndrome LS fig 17-20 p 521-2
  - B. Endocrine system DC p 103 fig 13-1, LS fig 17-1, tab 17-1
  - C. What's an endocrine? + classes ~ LS pp 495 - 6
  - D. Hypothalamus (Master) – Pituitary (subcontroller) DC pp 104-6 + LS pp 499-506
  - E. Posterior pituitary + hormones DC p 108, LS fig 17-4 p 502
  - F. Anterior pituitary + hormones DC pp 105-7, LS pp 502-6
  - G. GH: Body builder's dream? Fountain of youth? LS pp 506-11
  - H. Peripheral endocrine organs DC pp 109-13, LS pp 513-36
    1. Pancreas (insulin, glucagon, diabetes)
    2. Thyroid
    3. Adrenals
- III. **Nervous System & Excitable Cell Connections** LS ch 5, 4, 7
  - A. How is the nervous system organized? fig 5-1 p 108
  - B. Neurons? What kind? fig 5-2 p 109
  - C. Brain structure & function fig 5-7, 5-8 pp 116 - 7
  - D. **Protect your head with a helmet!** Bicycle head injury statistics, NHTSA & BHSI

- I. Announcements Optional notebook check + Lab 6 tomorrow. Pulmonary Function Testing. Final exam > your Q on Wed. Q?
- II. Autonomic Nervous System Overview LS pp 178 – 85  
LS Table 7-1 p 183 + stories to remember **fight-or-flight!**
- III. Neuromuscular Connections LS ch 7 pp 186-92, DC pp 69-71  
How does the signal cross the nerve-muscle gap? LS fig 7-5
  - A. Normal function? Ca<sup>2+</sup> for bones!...but what else? LS p 190
  - B. What do black widow spider venom, botulism, curare & nerve gas have in common? Botox? LS p 189-91
- IV. Muscle Structure, Function & Adaptation LS ch 8, DC Module 12
  - A. Muscle types: cardiac, smooth, skeletal LS fig 8-1 p 194-6
  - B. How is skeletal muscle organized? LS fig 8-2, DC fig 12-2
  - C. What do thick filaments look like? LS fig 8-4, DC fig 12-4
  - D. How about thin filaments? LS fig 8-5
  - E. Banding pattern? LS fig 8-3, fig 8-7
  - F. How do muscles contract? LS fig 8-6, 8-10
  - G. What's a cross-bridge cycle? LS fig 8-11 +...
  - H. Summary of skeletal muscle contraction
    - I. Exercise adaptation variables: **mode, intensity, duration, frequency, distribution, individual & environmental char...?**
  - J. Endurance vs. strength training continuum? fiber types...



BI 121 Lecture 13

- I. Announcements Optional notebook check today. Discussion-Review followed by final exam tomorrow. Q?
- II. Introduction to PFT Lab 6 Pulmonary Function Testing
- III. Respiratory System LS ch 12, DC Module 7, SI Fox +...
  - A. Steps of respiration? External vs. cellular/internal? LS fig 12-1 pp 345-7
  - B. Respiratory system anatomy LS fig 12-2 p347, DC, SI Fox +...
  - C. Histology LS fig 12-4 pp 347-9, DC
  - D. How do we breathe? LS fig12-12, fig12-25 pp 349-56, 373-8
  - E. Gas exchange LS fig 12-19 pp 362-5
  - F. Gas transport LS tab 12-3 pp 365-70
- IV. Physiology of Cigarette Smoking
  - A. ANS, autonomic nerves & nicotine? Route of chemicals,...
  - B. Emphysema? 2nd-hand smoke?... p 356, 365
  - C. UO Smoke-Free since Fall 2012! Help is available!

The final is coming! I'll be ready!...



BI 121 Final Exam!

