

Water, Electrolyte, and Acid-Base Balance (C27)
Chapter Study Guide / Tortora

1. What three homeostatic mechanisms regulate the cellular fluid medium?
2. Fluid compartments: What are the two principle water compartments in the human body? How are the non-cellular volumes further subdivided? Describe how water moves between these compartments:
3. What is water balance? How do we gain water? How do we loose water?
4. Where is the thirst center located? How do we sense dehydration? What is the role of ADH and aldosterone?
5. How may fluid excesses from drinking hypotonic water effect your body?
6. What are the major intracellular and extracellular cations / anions?
7. What is the difference between a strong acid and a weak acid (give examples)? What is the difference between a strong base and a weak base (give examples)?
8. What is a buffer?
9. What is the difference between a physiological buffer and a chemical buffer?
10. What are the three major chemical buffer systems?
11. Define acidosis and alkalosis:
12. What is the difference between respiratory acidosis and respiratory alkalosis?
13. What is the difference between metabolic acidosis and metabolic alkalosis?
14. What is pH? The scale? What number is the strongest acid? What number is the strongest base? What is our normal pH blood value?
15. Why must we regulate pH? Think about proteins!
16. What happens to pH when you hyperventilate?
17. What happens to respiratory rate when you hyperventilate?

Hot List Questions:

1. What are the two main water compartments? How may these compartments be further subdivided? What keeps the water in these compartments?
2. What is the average water balance?
3. What is a buffer? How many buffers do we use? Which buffer is first to act?
Explain
4. What stimulates thirst? Mechanism(s) - Explain
5. What are the major intracellular and extracellular cations?
6. What are the methods of water loss?
7. What is normal pH?
8. What happens to blood pH and respiration when you hyperventilate? CO₂?