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18/MHS01/272

BIOMEDICAL ENGINEERING

PHS 212 (HUMAN PHYSIOLOGY)

Write short note on the characteristics (and components) of urine.

The characteristics of urine are;

1. Composition: Normal urine is composed of about 95 percent water and 5 percent solutes. Normal solutes found in urine include:
2. Urea.
3. Creatinine.
4. Uric acid.
5. Ketone bodies.
6. Potassium.
7. Sodium.
8. Chloride.
9. Specific Gravity: The specific gravity of urine depends upon the amount of solutes present. The greater the concentration of solutes, the higher the specific gravity. Normal range for specific gravity is from 1.008 to 1.030.
10. Appearance: Urine is a transparent (clear) fluid. Color varies from pale yellow to dark amber, depending upon its concentration. (Concentration is the ratio of solutes to water.)
11. Dilute urine may be pale, straw colored, or even appear colorless.
12. Concentrated urine appears highly colored (for example, bright yellow or deep amber).
13. Turbid (cloudy) urine is usually considered abnormal. It may be the result of blood, pus, sperm, or bacteria present in the urine.
14. Odor: Normal, freshly voided urine has a faint aromatic odor. Old, stale urine develops a strong ammonia odor from chemical breakdown.
15. A strongly offensive odor may indicate the presence of bacteria.
16. Diet selection can alter normal odor. Asparagus is a good example.
17. Some medications may alter the normal odor of urine. Ampicillin is one example.
18. Amount: The average, normal adult will excrete approximately 1,500 to 2,000 ml of urine each day (every 24 hours). This will vary with fluid intake and fluid loss. Fluid losses other than urination include fluid lost through vomiting, diarrhea, and “insensible” losses. Insensible fluid loss is that which is not perceptible or appreciable. Such loss includes that fluid which is lost through respiration, evaporation from the skin, and fecal content.
19. The pH of normal urine is generally in the range 4.6 – 8, with a typical average being around 6.0. Much of the variation occurs due to diet. For example, high protein diets result in more acidic urine, but vegetarian diets generally result in more alkaline urine (both within the typical range of 4.6 – 8).