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ANSWER

CHARACTERISTICS AND COMPONENTS OF URINE

-PHYSICAL CHARACTERISTICS: Physical characteristics that can be applied to urine include colour, transparency, odour, density and pH (alkalinity-acidity).

- **Colour:** Typically urine is amber in colour but varies according to recent diet and urine concentration. Drinking more water generally tends to reduce the concentration of urine, therefore causes it to have a lighter colour. Dark urine may indicate dehydration. Red urine indicates haematuria (red blood cells in urine), a sign of kidney disease or damage.
- **Odour:** Generally, fresh urine has a mild aromatic smell but aged urine has a stronger odour similar to that of ammonia. The smell of urine may provide health information. For example, the urine of diabetic patients may have a sweet or fruity odour due to the presence of ketones or glucose.
- **pH:** The pH of normal urine is generally in the range of 4.6 – 8, with a typical average being around 6. Much of the variation occurs due to diet. For example high protein diet results in more acidic urine, but vegetarian diets results in a more alkaline urine (both within the typical range of 6.0).
- **Transparency:** This is also referred to as turbidity. The turbidity of a urine sample is gauged subjectively and reported as clear, slightly cloudy, cloudy, opaque or flocculent. Normally, fresh urine is either clear or very slightly cloudy. Excess turbidity results from the presence of suspended particles in the urine. Common causes of abnormal turbidity include: increased cells, urinary tract infections or obstructions.
- **Density:** Density, also known as specific gravity, is the ratio of the weight of a volume of a substance compared with the weight of the same volume of distilled water. The density of normal urine ranges from 0.001 to 0.025.

-CHEMICAL COMPOSITION OF URINE: Urine is an aqueous solution of greater than 95% water, with a minimum of these remaining constituents, in order of decreasing concentration;

- Urea 9.3g/L
- Chloride 1.87g/L
- Sodium 1.17g/L
- Potassium 0.75g/L
- Creatinine 0.67g/L
- Other dissolved ions, inorganic and organic compounds (proteins, hormones, metabolites).