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NURSING SCIENCE

200 LEVEL

PHYSIOLOGY ASSIGNMENT

DISCUSS THE COMPONENTS /COMPOSITION OF URINE

WHAT IS URINE?

Urine is a liquid produced by the kidneys transported to the bladder by the Ureter which is temporarily stored in the bladder until time of mitriction which is excreted through the urethra Urine excretion to remove waste products from the bloodstream. Human urine is amber in color and variable in chemical composition. Urine is secreted by the renal tubules, it accumulates in the urinary bladder and is excreted via the urethra. While it is composed of 91 to 96 percent water, it contains many other components, both solid and liquid.

Some components of urine is as follows

Human urine consists primarily of water (91% to 96%), with organic solutes including urea, creatinine, uric acid, and trace amounts of enzymes, carbohydrates, hormones, fatty acids, pigments, and mucins, and inorganic ions such as sodium (Na+), potassium (K+), chloride (Cl-), magnesium (Mg2+), calcium (Ca2+), ammonium (NH4+), sulfates (SO42-), and phosphates (e.g., PO43-).1﻿

The chemical representation of the components of urine is listed below:

Water (H2O): 95%

Urea (H2NCONH2): 9.3 g/l to 23.3 g/l

Chloride (Cl-): 1.87 g/l to 8.4 g/l

Sodium (Na+): 1.17 g/l to 4.39 g/l

Potassium (K+): 0.750 g/l to 2.61 g/l

Creatinine (C4H7N3O): 0.670 g/l to 2.15 g/l

Inorganic sulfur (S): 0.163 to 1.80 g/l

Lesser amounts of other ions and compounds are present, including hippuric acid, phosphorus, citric acid, glucuronic acid, ammonia, uric acid, and many others. Total solids in urine add up to around 59 grams per person. Note compounds you ordinarily do not find in human urine in appreciable amounts, at least compared with blood plasma, include protein and glucose (typical normal range 0.03 g/l to 0.20 g/l). The presence of significant levels of protein or sugar in urine indicates potential health concerns.2﻿

PH AND SPECIFIC GRAVITY OF URINE

The pH of human urine ranges from 5.5 to 7, averaging around 6.2. The specific gravity ranges from 1.003 to 1.035. Significant deviations in pH3﻿ or specific gravity4﻿ may be due to diet, drugs, or urinary disorders. If your urine ph and sg is more than the above you need to see a doctor.

CHEMICAL ELEMENTS PRESENT IN URINE.

The element abundance depends on diet, health, and hydration level, but human urine consists of approximately:

Oxygen (O): 8.25 g/l

Nitrogen (N): 8/12 g/l

Carbon (C): 6.87 g/l

Hydrogen (H): 1.51 g/l

CHEMICALS THAT AFFECT URINE COLOR

Human urine ranges in color from nearly clear to dark amber, depending largely on the amount of water that is present. A variety of drugs, natural chemicals from foods, and diseases can alter the color. For example, eating beets can turn urine red or pink (harmlessly). Blood in the urine may also turn it red. Green urine may result from drinking highly colored beverages or from a urinary tract infection. Colors of urine definitely indicate chemical differences relative to normal urine but aren't always an indication of illness.

