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Write short note on urinalysis ;

A urinalysis is a test of your urine. A urinalysis is used to detect and manage a wide range of disorders, such as urinary tract infections, kidney disease and diabetes.

A urinalysis involves checking the appearance, concentration and content of urine. Ab Urinalysis can reveal diseases that have gone unnoticed because they do not produce striking signs or symptoms. Examples include diabetes mellitus, various forms of glomerulonephritis, and chronic urinary tract infections. normal urinalysis results may point to a disease or illness.

The process of urinalysis :

The first part of a urinalysis is direct visual observation. Normal, fresh urine is pale to dark yellow or amber in color and clear. Normal urine volume is 750 to 2000 ml/24hr.

Turbidity or cloudiness may be caused by excessive cellular material or protein in the urine or may develop from crystallization or precipitation of salts upon standing at room temperature or in the refrigerator. Clearing of the specimen after addition of a small amount of acid indicates that precipitation of salts is the probable cause of turbidity.

A red or red-brown (abnormal) color could be from a food dye, eating fresh beets, a drug, or the presence of either hemoglobin or myoglobin. If the sample contained many red blood cells, it would be cloudy as well as red. A dipstick is a paper strip with patches impregnated with chemicals that undergo a color change when certain constituents of the urine are present or in a

certain concentration. The strip is dipped into the urine sample, and after the appropriate number of seconds, the color change is compared to a standard chart to determine the findings.

The glomerular filtrate of blood plasma is usually acidified by renal tubules and collecting ducts from a pH of 7.4 to about 6 in the final urine. However, depending on the acid-base status, urinary pH may range from as low as 4.5 to as high as 8.0. The change to the acid side of 7.4 is accomplished in the distal convoluted tubule and the collecting duct.

Specific gravity of urine is determined by the presence of solutes represented by particles of varying sizes, from small ions to larger proteins. Urine osmolality measures the total number of dissolved particles, regardless of their size. The most common method of measurement is freezing point depression. A refractometer measures the change in direction of a light path (refraction) based upon particle concentration and size in a fluid. Larger particles such as glucose and albumin will alter refraction to a greater degree. The urine dipstick measurement of specific gravity is an approximation that is most sensitive to cationic concentration in urine. Therefore, dipstick specific gravity is altered by very high or low urine pH, but not large particles like proteins.

Hematuria is the presence of abnormal numbers of red cells in urine due to: glomerular damage, tumors which erode the urinary tract anywhere along its length, kidney trauma, urinary tract stones, renal infarcts, acute tubular necrosis, upper and lower urinary tract infections, nephrotoxins, and physical stress. Red cells may also contaminate the urine from the vagina in menstruating women or from trauma produced by bladder catheterization. Theoretically, no red cells should be found, but some find their way into the urine even in very healthy individuals. However, if one or more red cells can be found in every high power field, and if contamination can be ruled out, the specimen is probably abnormal.