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### QUESTIONS

- 1 . Critically examine the renal function of desert dwellers and the anatomical bases of their unique adaptation
2. write extensively on the clinical importance of the glomerular filtration barrier

### ANSWERS

1 Desert dwellers are animals that live in desert, Where there is little supply of water or vegetation.

The Renal of function of these animals are different from other animals that live where there is water In Renal physiology, there are two types of nephrons

The Cortical nephrons and the juxtamedullary nephrons

Cortical nephrons are those that have a short loop of henle and are found mostly in the cortex part of the nephron.They don't go deep into the medulla.

While juxtamedullary are those that have longer loop of henle and they go deep into the medulla In animals like us .There is more cortical nephrons to juxtamedullary that's why we produce diluted urine and excrete a lot of water

In histology the desert dwellers possess more of juxtamedullary nephrons and longer loops of henle which results in the production of concentrated urine.

They are able to adapt to their environment because they possess thicker medulla which contains many juxtamedullary nephrons....these animals get little water from their environment and if they keep excreting like normal humans they'll die but due to their high number of juxtamedullary nephrons and long loop of henle , when urine is being formed and it gets to the loop of henle. Because for dessert dwellers theirs is long and the urine will be there over time and gets concentrated Resulting in little water being excreted,It helps in conservation of water.

How their anatomical basis helps them survive. They have thicker medulla with plenty Juxtamedullary nephrons which has long loop of henle

2.The clinical importance of glomerular filtration :

Damage to the glomerulus by disease can allow passage through the glomerular filtration barrier of red blood cells, white blood cells, platelets, and blood proteins such as albumin and globulin. Underlying causes for glomerular injury can be inflammatory, toxic or metabolic.These

can be seen in the urine (urinalysis) on microscopic and chemical (dipstick) examination. Examples are diabetic kidney disease, glomerulonephritis, and IgA nephropathy.

Due to the connection between the glomerulus and the GFR, the GFR is of clinical significance when suspecting a kidney disease, or when following up a case with known kidney disease, or when risking a development of renal damage such as beginning medications with known nephrotoxicity.

The glomerulus also filters plasma to produce glomerular filtrate, which passes down the length of the nephron tubule to form urine.