

# Urinary System

## urethra

4cm in females

20cm in males

## kidney

functional unit of = nephron

Surrounded by capillaries

secretion - Capillary to Neuron

reabsorption - Neuron to Capillary

blood flow / filtration

afferent arteriole

to

efferent arteriole

from

they attach to glomerulus

filters through Bowman's capsule

Waste movement out of blood

to proximal convoluted tubule

to descending limb

to ascending limb

around loop of Henle

to descending limb

to distal convoluted tubule

Collecting duct tubule

Ends Nephron

Minor Calyx

Major Calyx

Renal Pelvis

Ureter

Counterflow

Water reclamation

Affect at collecting tubule

via ADH

antidiuretic hormone

made in hypothalamus

stored in posterior pituitary

ureters

to bladder

urethra

internal urethral sphincter

external urethral sphincter

## Functions

Eliminate Waste

Nitrogenous Waste

Creation of peptides (short proteins) and proteins produces

ammonia + CO<sub>2</sub> = urea

Urination = Micturition

Regulate

Blood contents

pH

Water = blood volume and pressure

Manufacture

Renin

angiotensinogen + renin = angiotensin I

+ ACE (angiotensin converting enzyme) = angiotensin II

+ cortisone = aldosterone = kidney to urinate potassium and increase sodium to raise blood pres.

Erythropoietin (EPO)

Tells red bone marrow to make blood

## Urine

Normal

Water

Nitrogenous Waste

Electrolytes

Pigments

Abnormal

Proteins

Ketones

Glucose

Blood

Pus