Contents

Excretory System

Function of excretory system

The function of excretory system is

- Elimination of metabolic wastes produced in the body

Metabolic wastes of organisms

The metabolic wastes of organisms are

- Nitrogenous substances
- Excess Water
- Inorganic salts
- Carbon dioxide
- Hormones

Excretion

Excretion is a process of removal of metabolic wastes.

Process for formation of metabolic wastes

The process for formation of metabolic wastes are

- Metabolic activities

Amino acid

- Amino acid is the end product of protein digestion.
- Amino acid is absorbed from small intestine.

Organisms exhibiting aminotelism

The organisms exhibiting aminotelism are

- Unio
  - Unio are Mollusks.
- Limnae
  - Limnae are Mollusks.
- Asterias
  - Asterias are echinoderms.

Amninotelism

Aminotelism is

- The process of excretion of excess amino acid.

Term for excretion in aminotelism

The term for excretion in aminiotelism is

- Aminotelic excretion

Ammonia

Toxicity of ammonia

The toxicity of ammonia is

- Ammonia is highly toxic.

Solubility of ammonia in water

The solubility of ammonia in water is

- Ammonia is highly soluble in water.

Amount of water needed for excretion of ammonia

The amount of water needed for excretion of ammonia is

- Large

Organisms exhibiting ammontelism

The organisms exhibiting ammonotelism are

- Aquatic arthropods
- Bony fishes
- Freshwater fishes
- Tadpoles of amphibians
- Turtles

Ammontelism

Ammonotelism is

- The process of excretion of excess ammonia.

Term for excretion in ammonotelism

The term for excretion in ammonotelism is

- Ammonotelic excretion

Urea

Toxicity of urea compared to ammonia

The toxicity of urea compared to ammonia is

- Urea is less toxic compared to ammonia.

Solubility of urea compared to ammonia

The solubility of urea compared to ammonia is

- Urea is less soluble in water compared to ammonia.

Magnitude of length of time of presence of urea at the body

The magnitude of length of time of presence of urea at the body is

- Urea can stay in the body for long time.

Organisms exhibiting ureotelism

The organisms exhibiting ureotelism are

- Adult amphibians
- Mammals
- Elasmobranchs
- Marine bony fish
- Aquatic reptiles

Ureotelism

Ureotelism is

- The process of conversion of excess ammonia to urea for excretion.

Term for excretion in ureotelism

The term for excretion in ureotelism is

- Ureotelic excretion

Uric acid

General organisms exhibiting uricotelism

The general organisms exhibiting uricotelism are

- Animals living in arid condition.
- Animals living in dry condition.

Organisms exhibiting uricotelism

The organisms exhibiting uricotelism are

- Insects
- Land crustaceans
- Gastropods
- Land Reptiles
- Birds

Need of uricotelism for organisms

The need for uricotelism for organisms living in arid condition is

- Conservation of water in their bodies.

Source of formation of uric acid

The source of formation of uric acid crystals in uricotelism is

- Ammonia

Toxicity of uric acid

The toxicity of uric acid is

- Uric acid is non toxic.

Solubility of uric acid in water

The solubility of uric acid in water is

- Uric acid is insoluble in water.

Magnitude of time of presence of uric acid

The magnitude of time of presence of uric acid in the body is

- Uric acid is present in the body for very long period of time.

Uricotelism

Uricotelism is

- The process of discharging of uric acid crystals.

Term for excretion in uricotelism

The term for excretion in uricotelism is

- Uricotelic excretion

Excretory organs

Division of major excretory organs in human body

The major excretory organs in the human body are

- Kideneys
- Ureter
- Urinary bladder
- Urethra

Kidneys

Number of kidneys in human body

The number of kidneys in human body is

- 2

Colour of kidney in human body

The colour of kidney in human body is

- Dark Red

Shape of kidney in human body

The shape of kidney in human body is

- Bean shaped

Location of kidney in human body

The location of kidney in human body is

- Either side of the vertebral column

Vertebral location of kidney in human body

The vertebral location of kidney in human body is

- T_{12} to L_3

Mesorchium.

Mesorchium is a double fold of peritoneum

Function of mesorchium in excretory system of human body

Mesorchium attaches kidneys to the dorsal abdominal wall in the human body.

Location of right kidney in human body in terms of level

The location of right kidney in the human body in terms of level is

- Lower than left kidney

Location of left kidney in human body in terms of level

The location of left kidney in human body in terms of level is

- Upper than right kidney

Cause of low level of right kidney

The cause for low level of right kidney is

- The low level of right kidney is for the accommodation of right lobe of liver.

Length of kidney in human body

The length of kidney in the human body is

- 12cm

Width of kidney in human body

The width of kidney in human body is

- 6 cm

Weight of kidney in human male

The weight of kidney in human males is

- 150 gram

Weight of kidney in human female

The weight of kidney in human female is

- 135 gram

Kidney Layers

Number of layers of kidney covering of kidney

The number of layers of covering of kidney is

- 3

Layers of covering of kidney

The layers of covering of kidney are

- Renal capsule
- Adipose capsule
- Renal fascia

Location of renal capsule

The location of renal capsule is

- Inner most region

Colour of renal capsule

The colour of renal capsule is

- White

Strength of renal capsule

The strength of renal capsule is

- Tough

Thickness of renal capsule

The thickness of renal capsule is

- Thin

Histology of renal capsule

The compositional histology of renal capsule is

- Fibrous

Adipose capsule

Location of adipose capsule

The location of adipose capsule is

- Middle region

Contents of adipose capsule

The contents of adipose capsule are

- Fat

Renal fascia

Location of renal fascia

The location of renal fascia ia

- Outermost region

Histology of renal fascia

The histology of renal fascia is

- Fibrous

Hilum

Shape of hilum

Shape of inner surface of kidney

The shape of inner surface of kidney is

- Concave

Shape of outer surface of kidney

The shape of outer surface of kidney is

- Convex

Term for hilum

The other term for hilum is

- Hilus

Function of hilum

Hilum provides area for entry of structures in the kidney.

Structures entering and leaving hilum

The structures entering and leaving hilum are

- Ureter
- Renal vessels
- Lymphatic vessels
- Nerves

Regions of kidney

Number of regions of kidney

The number of regions of kidney are

- 2

Regions of kidney

The regions of kidney are

- Cortex
- Medulla

Cortex

Location of cortex

The location of cortex is

- Outer region

Quantity of cortex in terms of mass

The quantity of cortex in kidney in terms of mass is

- 1/3 of kidney

Color of cortex

The color of cortex is

- Darker

Contents of cortex

The contents of cortex are

- Bowman's capsule
- PCT
- DCT

Structure of cortex for the formation of renal column of Bertini

The structure of cortex for the formation of renal column of Bertini is

- Cortex is extended inwards.
- The extension of cortex occurs between medullary pyramids
- The extension of cortex forms renal column of Bertini

Medullla

Location of medulla

The location of medulla is

- Inner region

Quantity of medulla in terms of mass

The quantity of medulla in terms of mass is

- 2/3rd part of the kidney

Colour of medulla

The colour of medulla is

- Lighter

Contents of medulla

The contents of medulla are

- Loop of Henle
- Collecting tubes
- Duct of Bellini

Arrangement of medulla

The arrangement of medulla in kidney is

- Lobulated

Shape of medulla in kidney

The shape of medulla in kidney is

- Conical pyramid

Number of lobulated pyramids in medulla

The number of lobulated pyramids in medulla is

- 15-16

Arrangement of medullary pyramids with calyces

The arrangement of medullary pyramids with calyces is

- Medullary pyramids are connected with minor calyces.
- Medullary pyramids are connected with major calyces.

Function of major calyces

Major calyces lead to renal pelvis.

Shape of renal pelvis

The shape of renal pelvis is

- Funnel shaped

Function of renal pelvis

Renal pelvis leads to ureter.

Structures outside kidney

Ureter

Colour of ureter

The colour of ureter is

- White

Anatomy of ureter

The ureter is a

- Tube

Length of ureter

The length of the ureter is

- 25 cm

Location of ureter

The location of ureter is

- Either side of vertebral column on posterior region

Arrangement of opening of ureter

The arrangement of opening of ureter is

- The openings are separate.
- The openings are closely packed.

Number of divisional histology of ureter

The number of divisional histology of ureter is

- 3

Divisional histology of ureter

The divisional histology of ureter is

- Fibrous layer
- Muscular layer
- Mucosa

Location of fibrous layer in ureter

The location of fibrous layer in ureter is

- Outermost layer

Location of muscular layer in ureter

The location of muscular layer in ureter is

- Middle layer

Number of layer of muscles present at the middle muscular layer in ureter

The number of layer of muscles present at the middle muscular layer in ureter is

- 2

Types of muscles at the inner muscular layer in ureter

The types of muscles at the inner muscular layer in ureter is

- Longitudinal muscles

Type of muscles at the outer muscular layer in ureter

The types of muscles at the outer muscular layer in ureter is

- Circular muscles

Location of mucosa in ureter

The location of mucosa in ureter is

- Innermost layer

Cellular histology of innermost mucosa of ureter

The types of tissues at the innermost mucosa of ureter are

- Transitional epithelium

Structure of opening of ureter

The structures in opening of ureter are

- Fold of mucous membrane

Function of mucous membranous valve at the opening of ureter

The function of mucous membranous valve at the opening of ureter is

- Prevention of backflow of urine

Function of muscular layer in ureter

The function of muscular layer in ureter is

- Muscular layer creates peristalsis.

Function of ureter

The function of ureter is

- Ureter transports urine from kidney to urinary bladder.

Urinary bladder

Thickness of wall of urinary bladder

The thickness of urinary bladder is

- Thin

Shape of urinary bladder

The shape of urinary bladder is

- Pear

Muscle compositing the urinary bladder

The muscle compositing the urinary bladder is

Term for smooth involuntary muscle compositing the urinary bladder

The term for smooth involuntary muscle compositing the urinary bladder is

- Dertusor muscles

Meaning of detrusor muscles

The meaning of detrusor muscles is

- Muscle that can expel substances.

Anatomy of urinary bladder

The anatomy of urinary bladder is

- Urinary bladder is sac.

Histology of urinary bladder

The histology of urinary bladder is

- Urinary bladder is muscular.
- The muscle compositing urinary bladder are smooth involuntary muscles.

Number of divisional histology of urinary bladder

The number of divisional histology of urinary nladder is

- 3

Types of divisional histology of urinary bladder

The divisions in the divisional histology of urinary bladder are

- Loose connective tissue
- Smooth muscle layer
- Transitional epithelium

Locaation of loose connective tissue in urinary bladder

The locationof loose connective tissue in urinary bladder is

- Outermost

Location of smooth muscle layer in urinary bladder

The location of smooth muscle layer in urinary bladder is

- Middle

Location of transitional epithelium in urinary bladder

The location of transitional epithelium in urinary bladder is

- Innermost

Location of urinary bladder

The location of urinary bladder is

- Floor of pelvic cavity

Located on the floor of pelvic cavity, serves as temporary storage of urine.

Functions of urinary bladder

The function of urinary bladder is

- Urinary bladder stores urine.

Time nature of storage of urine in urinary bladder

The time nature of storage of urine in urinary bladder is

- Temporary

Rugae in urinary bladder

The rugae in urinary bladder are

- Foldings

Source of formation of rugae in urinary bladder

The source of formation of rugae in urinary bladder are

- Transitional epithelium

Condition for formation of rugae in urinary bladder

The condition for formation of rugae in urinary bladder is

- Emptiness of bladder

Number of openings of urinary bladder

The number of openings of urinary bladder is

- 3

Openings of urinary bladder

The openings of urinary bladder are

- Opening of ureter
- Opening of ureter
- Opening of urethra

Bladder trigone

Shape of bladder trigone

The shape of bladder trigone is

- Triangular

Source of formation of bladder trigone

The source of formation of bladder trigone is

- Ureter

Term for bladder trigone

The term for bladder trigone is

- Trigonum vesicae

Magnitude of capacity of urinary bladder in normal condition

The capacity of urinary bladder in normal condition is

- 500 ml

Magnitude of capacity of urinary bladder in fully stretched condition

The capacity of urinary bladder in fully stretched condition is

- 1000 ml

Magnitude of capacity of volume of urinary bladder for stimulation of micturition

The condition of volume of urinary bladder for stimulation of mucturition is

- 300 ml

Urethra

Thickness of wall of urethra

The thickness of wall of urethra is

- Thick

Anatomy of urethra

The anatomy of urethra is

- Tube

Function of urethra

The function of urethra is

- Urethra discharges urine.

Location of urethra in female

The location of urethra in female is

- Between vaginal orifice and clitoris

Length of urethra in female

The length of urethra in female is

- 4 cm

Number of divisions of urethra in male

The number of divisions of urethra in male are

- 3

Types of divisions of urethra in male

The types of divisions of urethra in male are

- Prostatic urethra
- Membranous urethra
- Penile urethra

Length of urethra in male

The length of urethra in male is

- 18 cm

Length of prostatic urethra in male

The length of prostatic urethra in male is

- 2.5 cm

Length of membranous urethra in male

The length of membranous urethra in male is

- 0.5 cm

Length of spongy urethra in male

The length of spongy urethra in male is

- 15 cm

Location of prostatic urethra in male

The location of prostatic urethra in male is

- Covering of prostate gland

Location of membranous urethra in male

The location of membranous urethra in male is

- Between prostatic and penile urethra

Location of spongy urethra in male

The location of spongy urethra in male is

- Spongy urethra passes through penis.

Term of urethra in terms of functioning in male

The term of urethra in terms of functioning in male is

- Urinogenital Duct

Term of urethra in terms of functioning in female

The term of urethra in terms of functioning in female is

- Urinary tract

Number of sphincter in urethra

The number of sphincter in urethra is

- 2

Types of sphincter in urethra

The types of sphincter in urethra are

- External sphincter
- Internal sphincter

Muscle making internal sphincter in urethra

The muscle making the internal sphincter in urethra is

- Smooth muscle

Muscle making external sphincter in urethra

The muscle making external sphincter in urethra is

- Striated muscle

Location of internal sphincter in urethra

The location of internal sphincter in urethra is

- Near the urinary bladder

Function of internal sphincter in urethra

- Internal sphincter compresses urethra
- Internal sphincter retains urine

Nature of control of internal sphincter in urethra

Internal sphincter is under involuntary control.

Nature of control of external sphincter in urethra

External sphincter is under voluntary control.

Nephrons

Shape of nephrons

Convoluted

Anatomy of nephron

Tube

Thickness of nephron

Thin

Amount of urine produced by a nephron

Miniscule

Length of nephron

3.5 cm

Number of nephrons present in kidney

1 million

Tissues for connection of nephrons

Connective tissue

Term for nephrons

Uriniferous tubules

Functional and structural unit of kidney

Nephron

Function of nephrons

Formation of urine

Contents of kidney

- Nephrons
- Blood vessels
- Nerves
- Lymph ducts
- Muscle fibres

Location of the parts of contents of kidney

Connective tissue

Number of parts of nephron

2

Parts of nephron

- Malpighian body
- Renal tubule

Contents of malpighian body

- Bowman's capsule
- Glomerulus

Term for malpighian body

Renal corpuscle

Bowman's capsule

Basis of name for bowman's capsule

- Willian Bowman

Profession of William Bowman

Physiologist

Country of William Bowman

Britain

Size of bowman's capsule

Enlarged

Location of bowman's capsule

Proximal

Number of layers of bowman's capsule

2

Number of walls of bowman's capsule

2

Shape of bowman's capsule

- Cup

Layers of bowman's capsule

- Parietal membrane
- Visceral membrane

Location of visceral layer of bowman's capsule

- Outer
- Capillary endothelium

Type of tissue present in parietal layer

- Squamous epithelium

Function of parietal layer of bowman's capsule

- Surround urinary space

Podocytes

Cells of visceral layer

Contents of podocytes of visceral layer cells

- Cytoplasmic extensions

Shape of cytoplasmic extension of podocytes

- Foot

Location of cytoplasmic extension of podocytes

Capillary network

Term for foot like processes of bowman's capsule

Pedicels

Function of for micro pores of bowman's capsule

Filtration slit

Location of micro pores in bowman's capsule

Between foot like processes

Glomerulus

Network of capillaries

Former structure for formation of glomerulus

Afferent arteriole

Later structure for formation of glomerulus

Efferent arteriole

Contents of capillary endothelial layer in glomerulus

Micro pores

Diameter of pores of capillary endothelial layer in glomerulus

0.1 micron

Function of pores of capillary endothelial layer

Filtration of blood

Renal tubule

Anatomy of renal tubule

Tube

Location of renal tube

Behind malpighian body

Parts of renal tube

Number of parts of renal tubule

4

Parts of renal tubule

- Proximal convoluted tubule
- Loop of henle
- Distal convoluted tubule
- Collecting duct

Proximal convoluted tubule

Abbreviation of proximal convoluted tubule

PCT

Anatomy of PCT

Tube

Shape of PCT

Convoluted

Former structure of PCT

Bowman's capsule

Histology of inner wall of PCT

Cuboidal epithelium

Type of cuboidal epithelium present at PCT

Brush bordered cuboidal epithelium

Contents of cells of PCT at the free edges

Micro villi

Function of brush bordered or micro villi at the free edges of brush bordered cuboidal epithelium

Selective reabsorption

Time for selective reabsorption at PCT

Urine formation

Size of mitochondria of cuboidal cells of PCT

Large

Amount of mitochondria of cuboidal cells of PCT

Numerous

Function of numerous mitochondria in cuboidal cells of PCT

Active transport

Time of active transport of mitochondria in cuboidal cells of PCT

Selective Reabsorption

Main site of selective reabsorption in urine formation

Proximal Convolute Tubule

Loop of Henle

Abbreviation for loop of henle

LOH

Former structure of loop of henle

Proximal convoluted tubule

Anatomy of loop of henle

Tube

Shape of loop of henle

U

Number of limbs in loop of henle

2

Types of limbs in loop of henle

- Descending limb
- Ascending limb

Thickness of descending limb in loop of henle

Thin

Types of tissue lining descending limb in loop of henle

Squamous epithelium

Thickness of ascending limbs in loop of henle

Thick Thin

Type of tissue lining thin part of loop of henle

Squamous epithelium

Type of tissue lining thick part of loop of henle

Cuboidal epithelium

Permeability of water in ascending limb at loop of henle

Impermeable

Permeability of NaCl in ascending limb at loop of henle

Permeable

Presence of vasa recta at the limbs of loop of henle

Vasa recta may or may not be present

Animal having the presence of longest loop of henle

Kangaroo

Distal convoluted tubule

Abbreviation of distal convoluted tubule

DCT

Anatomy of distal convoluted tubule

Tube

Shape of distal convoluted tubule

Convoluted

Type of tissue lining distal convoluted tubule

Cuboidal epithelium

Components absorbed in distal convoluted tubules

- Sodium ions
- Water

Components excreted in distal convoluted tubules

- Potassium ions

Function of distal convoluted tubule

- Absorption
- Excretion

Collecting duct

Abbreviation of collecting duct

CD

Former structure of collecting duct

Distal convoluted tubule

Types of tissue present at collecting duct

- Cuboidal epithelium
- Columnar epithelium

Function of collecting duct

Lead to duct of Bellini

Function of duct of Bellini

Lead to renal pelvis

Types of nephron

Number of types of nephron

2

Types of nephron

- Cortical nephron
- Juxta medullary nephron

Cortical nephron

Amount of cortical nephron

80 - 85 percentage

Size of cortical nephron

Small

Location of cortical nephron

Renal cortex

Length of loop of henle in cortical nephron

Short

Arrangement of loop of henle in medulla in cortical nephron

Shallow

Condition of presence of vasa recta in cortical nephron

Absence

Function of cortical nephron

Control plasma vouume

Time of control of plasma volume in cortical nephron

Normal water intake

Juxta medullary nephron

Amount of juxta medullary nephron

15 - 20 percentage

Size of juxta medullary nephron

Large

Location of juxta medullary nephron

- Cortex
- Medulla

Size of loop of henle in juxta medullary nephron

Long

Arrangement of loop of henle in medulla in juxta medullary nephron

Deep

Condition of presence of vasa recta in juxta medullary nephron

Presence

Function of juxta medullary nephron

Control plasma volume

Time of control of plasma volume in juxta medullary nephron

- Low water intake

Mechanism of urine formation

Activities of urine formation in nephrons

Ultrafiltration

Term for ultrafiltration in physiology of urine formation

Glomerular filtration

Describer of ultrafiltration in physiology of urine formation

Richards

Nature of process of ultrafiltration in physiology of urine formation

Physical

Condition for occurrence of ultrafiltration in urine formation

High pressure

Consequence of pressure of blood in ultrafiltration

Filtration of dissolved substances

Destination of dissolved substances in blood in ultrafiltration

Bowman's capsule

Number of barriers crossed by blood during the process of ultrafiltration

3

Barriers crossed by blood during the process of ultrafiltration

- Capillary endothelium
- Basement membrane
- Visceral epithelium

Source of basement membrane in ultrafiltration

Endothelial cells

Source of visceral epithelium in ultrafiltration

Bowman's capsule

Contents of passage in the barrier layers in the process of ultrafiltration

- Constituents of plasma

Contents that are not passed in the barrier layers during the process of ultrafiltration

- Blood cells
- High molecular weight proteins

Diameter of afferent arteriole entering the Bowman's capsule

Wider than efferent arteriole

Diameter of efferent arteriole exiting the Bowman's capsule

Narrower than afferent arteriole

Consequence of larger diameter of afferent arteriole in Bowman's capsule

- Entry of more blood
- Exit of less blood

Function of hydrostatic pressure of blood in glomerular capillaries

- Drive fluid downwards
- Filtration

Magnitude of hydrostatic pressure of blood in glomerular capillaries

55 mm Hg

Function of osmotic pressure of plasma protein glomerular capillaries

Oppose filtration

Source of osmotic pressure in glomerular capillaries

- Albumin

Magnitude of osmotic pressure of plasma protein in glomerular capillaries

30 mm Hg

Source of capsular hydrostatic pressure in glomerular capillaries

Fluid

Function of capsular hydrostatic pressure created by fluid in Bowman's capsule

- Oppose filtration

Magnitude of capsular hydrostatic pressure created by fluid in Bowman's capsule

15 mm of Hg

Expression for net filtration pressure in Bowman's capsule

Net filtration pressure = Glomerular hydrostatic pressure - Albumen osmotic pressure - Capsular hydrostatic pressure

Magnitude of net filtration pressure in Bowman's capsule

10 mm Hg

Range of net filtration pressure in Bowman's capsule

8 mm Hg - 15 mm Hg

Components of filtration by net filtration pressure in Bowman's capsule

- Filtration of large amount of water
- Filtration of small sized solute

Destination of glomerular filtrate in ultrafiltration

Capsular space

Transit location of glomerular filtrate from capillary endothelium to capsular space

- Podocyte slits

Contents of glomerular filtrate in ultrafiltration

- Glucose
- Amino acid
- Vitamin
- Urea
- Uric Acid
- Ammonia
- Creatinine
- Salts

Glomerular filtrate rate in ultrafiltration

Amount of filtrate formed by both kidneys per minute

Magnitude of glomerular filtrate rate in ultrafiltration in ml per minute

125 ml per minute

Magnitude of glomerular filtrate rate in ultrafiltration in litre per day

180 litre per day

Selective reabsorption

Locations of activities for selective reabsorption in urine formation

- Proximal convoluted tubule

- Loop of henle
- Distal convoluted tubule
- Collecting duct

Source of reabsorption in selective reabsorption in physiology of urine formation

- Glomerular filtrate

Processes of reabsorption in selective reabsorption in physiology of urine formation

- Active transport
- Passive transport

Activities in PCT in selective reabsorption

Relation of glomerular filtrate in PCT to interstitial fluid

Isotonic

Substances absorbed in PCT in selective reabsorption by active transport

- Glucose
- Amino acid
- Water soluble vitamins
- Lactic acid
- Sodium ions
- Nutrients

Process of absorption of nutrients and sodium ions in PCT

Active Transport

Amount of sodium absorbed in PCT in selective reabsorption by active transport

65 percentage

Process of absorption of ions in PCT other than sodium in selective reabsorption

Diffusion

Ions absorbed in PCT other than sodium by diffusion in selective reabsorption

- Potassium ions
- Chloride ions
- Calcium ions
- Magnesium ions

Process of absorption of water in PCT in selective reabsorption

Osmosis

Amount of water absorbed by osmosis in PCT of selective reabsorption

75 percentage

Process of absorption of urea in PCT of selective reabsorption

Passive diffusion

Amount of urea absorbed by passive diffusion in PCT of selective reabsorption

50 percentage

Activities in loop of henle in selective reabsorption

Permeability of descending limb of loop of henle to water

Highly Permeable

Permeability of descending limb of loop of henle to electrolytes

Impermeable

Destination of water in loop of henle in selective reabsorption

Vasa recta

Source of water in loop of henle in selective reabsorption

Interstitial fluid

State of filtrate in descending limb in loop of henle in selective reabsorption

Hypertonic

Permeability of ascending loop of henle to water

Impermeable

Permeability of ascending loop of henle to electrolytes

Permeable

Destination of electrolytes in loop of henle in selective reabsorption

Interstitial fluid

State of filtrate in tubule in loop of henle in selective reabsorption

Hypotonic

Function of highly concentrated interstitial fluid in loop of henle in selective reabsorption

- Draw out water

Sources of water in highly concentrated interstitial fluid in loop of henle

- Collecting duct
- Descending limb

Components of absorption in DCT in selective reabsorption

- Sodium ions
- Calcium ions
- Water

Medium for absorption of sodium ions in DCT of selective reabsorption

Aldosterone

Medium for absorption of calcium ions in DCT of selective reabsorption

Parathormone

Medium for absorption of water in DCT in selective reabsorption

Antidiuretic hormone

Components of absorption in Collecting Duct in selective reabsorption

- Sodium ions
- Water
- Urea

Medium for absorption of water in collecting duct in selective reabsorption

Antidiuretic hormone

Medium for absorption of sodium ions and water in collecting duct of selective reabsorption

Aldosterone

Tubular secretion

Activites in tubular secretion

Functions of tubular secretion

- Disposal
- Control blood pH

Substances disposed in tubular secretion

- Unwanted solute
- Excess potassium ions

Location of tubular secretion

- Proximal convoluted tubule
- Distal convoluted tubule
- Collecting duct

Substances secreted in PCT in tubular secretion

- Creatinine
- Hippuric acid
- Foreign substance
- Pigments
- Drugs
- Penicillin
- Ammonia
- Hydrogen Ions

Source of secretion in PCT in tubular secretion

Interstitial fluid

Product of secretion in PCT in tubular secretion

Filtrate

Substances secreted in DCT in tubular secretion

- Potassium ions
- Hydrogen ions
- Ammonium ions
- Bicarbonate ions

Product of secretion in DCT in tubular secretion

Filtrate

Process of entry of urea in loop of henle

Diffusion

Role of tubular secretion in other animals

- Marine fish
- Desert Amphibians

Structures of kidney absent in marine fish and desert amphibians

- Glomerulus
- Bowman's capsule

Transit during flow of urine to duct of Bellini

Collecting duct

Consequence of flow of urine to pelvis

Excretion

Expression for the relation of urinary excretion

Urinary excretion = Glomerular filtration - Selective reabsorption + Tubular secretion

Urine

Amount of urine discharged per day

1.5 - 2 litre

Range of colour of urine

- Clear pale to deep yellow

Cause of colour of urine

- Urochrome

Odour of fresh urine

- Aromatic

Smell of urine on storage

- Ammonia odour

Cause of smell of urine on storage

- Bacterial metabolism

Chemical class of urine

- Acidic

Slightly acidic around 6 but pH can vary from about 4.5 to 8.

Range of pH of urine

4.5 - 8

pH of Urine

6

Range of specific gravity of urine

1.02 - 1.03

Cause of high specific gravity of urine

- Solutes

Percentage of water in urine

95 percentage

Percentage of solute in urine

5 percentage

Component of largest solute fraction in urine

Nitrogenous waste

Cause of aromatic odour of urine

Urinod

Micturition

Expulsion of urine from urinary bladder

Term for reflex action in micturition

Micturotion reflex

Nervous system responsible for collection of urine in bladder

Sympathetic nervous system

Nervous system responsible for mictutition

Parasympathetic nervous system

Activities in discharge of urine

- Filling of bladder
- Impulse of stretch receptor
- Impulse of parasympathetic motor neuron

Filling of bladder

Conduction of impulse

Structure conducting impulse in bladder

Stretch receptor

Type of nerve conducting impulse in bladder

Afferent nerve

Function of impulse of stretch receptor to the spinal cord

- Activation of micturition center of pons

Signaling of parasympathetic motor neuron

Consequence of signaling of parasympathetic motor neuron in micturition

- Contraction of detrusor muscles

Consequence of relaxation of detrusor muslces

- Relaxation of external sphincter

Consequence of relaxation of external sphincter

- Discharge of urine