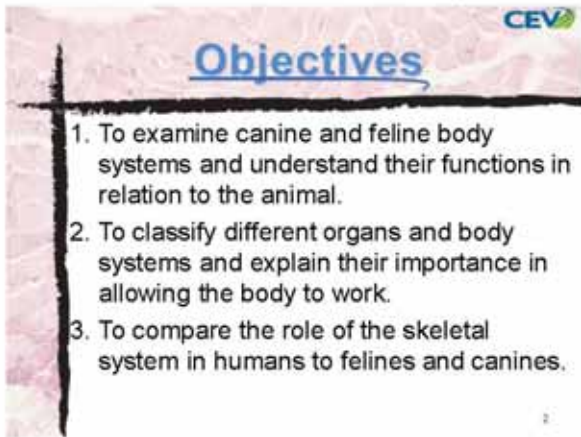
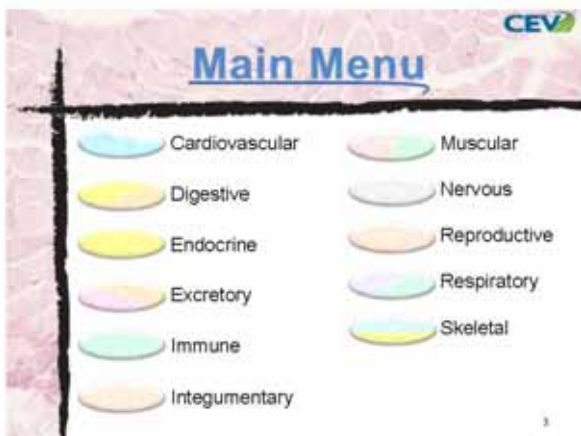


Basic Canine & Feline Anatomy

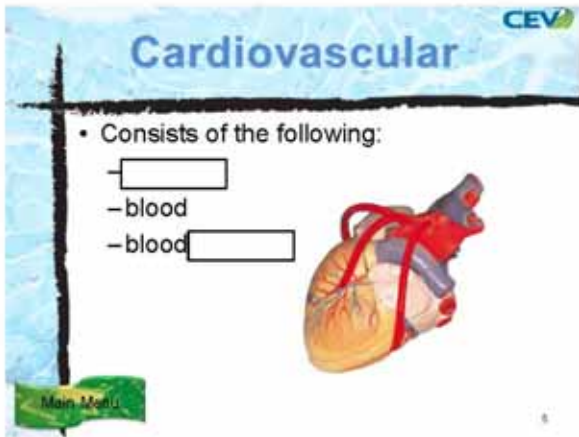


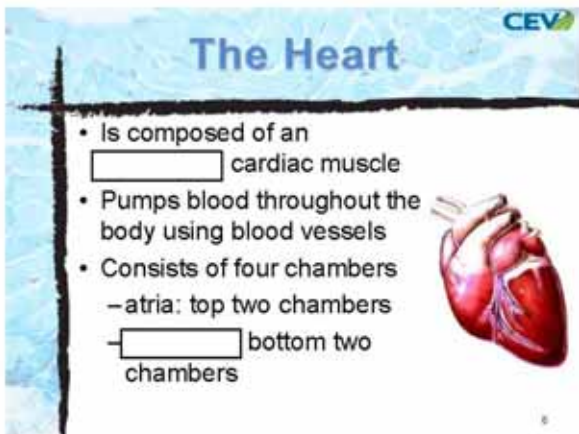




Basic Canine & Feline Anatomy



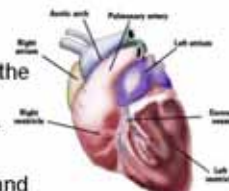




Basic Canine & Feline Anatomy

Blood Vessels

- Are a closed vascular structure in
 - transport blood from the heart throughout the body and back to the heart
- Include arteries, veins and

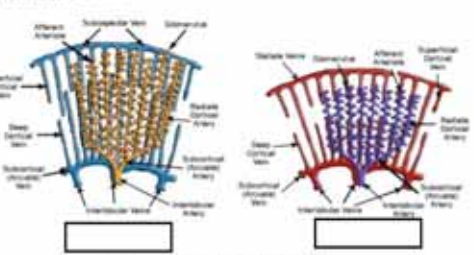


Interesting Fact: Chocolate is poisonous to dogs and affects their hearts when consumed, often resulting in death.

Arteries

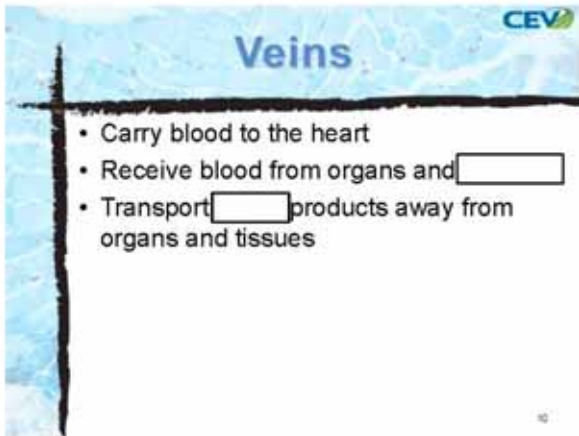
- Carry blood away from the heart
- Obtain blood under high from the ventricles of the heart
- Contain layers which allow them to stretch each time the heart beats therefore more blood is pumped out

Arteries & Veins



Schematic diagrams of the cortical arteries and veins of the feline and canine kidneys

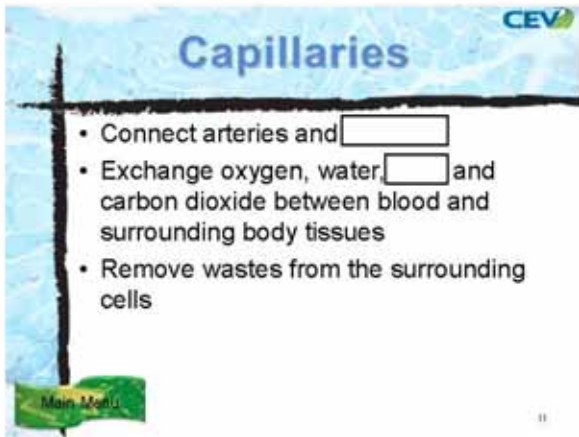
Basic Canine & Feline Anatomy



Veins

- Carry blood to the heart
- Receive blood from organs and
- Transport products away from organs and tissues

CEV



Capillaries

- Connect arteries and
- Exchange oxygen, water, and carbon dioxide between blood and surrounding body tissues
- Remove wastes from the surrounding cells

Main Menu

CEV



DIGESTIVE SYSTEM

Main Menu

CEV

Basic Canine & Feline Anatomy

The Digestive System

- Takes in and digests food
- Eliminates wastes from the body
- Is also known as the tract (GI tract) which can be broken into the upper and lower GI tract

13

The Upper GI Tract

- Includes the following:
 - mouth
 -
 - esophagus
 -

14

The Mouth

- Houses teeth which are used to tear, and chew food
- Includes the salivary glands which produce saliva, breakdown carbohydrates and lubricate the passage of food
- Contains the tongue which manipulates food for chewing and

15


Basic Canine & Feline Anatomy

The Pharynx and Esophagus

- The pharynx:
 - is located in the throat
 - allows the passage of and food
 - directs food to the esophagus
- The esophagus:
 - lies between the pharynx and the stomach
 - allows for the passage of food
 - directs food to the

The Stomach

- Connects the esophagus and the intestine
- Acts as a storage spot for food during a meal
- Secretes many which are used to break down foods



The Lower GI Tract

- Includes the following:
 - intestine
 - large intestine
 -


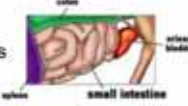


Basic Canine & Feline Anatomy

The Small Intestine

- Is composed of the following:
 - connects the stomach to the jejunum and is where the most chemical digestion takes place
 - jejunum: connects the duodenum to the ileum and absorbs carbohydrates and proteins
 - : absorbs vitamin B12, *bile* salts, water and other products not absorbed by the jejunum


Bile Salts – chemicals which aid in digestion by making vitamins easier to absorb from the small intestine



The Large Intestine

- Is also known as the
- Is composed of the following:
 - cecum: aids enzymes in breaking down molecules into nutrients the body can use
 - colon: extracts water from feces
 - rectum: temporarily feces


Enzymes – proteins produced by living organisms causing or speed up a chemical reaction without being effected



The Anus

- Excretes feces
- Consists of specialized linings which allow it to detect whether the contents are liquid, solid or
- Is surrounded by muscles which allow for the control of stool


Sphincter Muscle – a ring of muscle which contracts to close an opening



Basic Canine & Feline Anatomy

Other Organs of the Digestive System CEV

- Include the following:
 - secretes digestive enzymes
 - liver: produces *bile* to aid in digestion of fats
 - stores bile until needed


Main Menu  **Bile** – a bitter liquid which aids in absorption and digestion 22

ENDOCRINE SYSTEM CEV

Main Menu 23

The Endocrine System CEV

- Consists of organs which excrete to control the body's responses to *stimuli* and functions
- Regulates growth, development and reproduction
- Produces, uses and stores energy
- Works with the nervous system to maintain the body's nutrition, and balance of salt and water


Main Menu  **Stimulus** - an agent, action or condition which causes a response 24

Basic Canine & Feline Anatomy

The Endocrine System

CEV

- Consists of the following glands:
 - pituitary
 -
 - parathyroid
 -
 - pancreas



26

The Pituitary Gland

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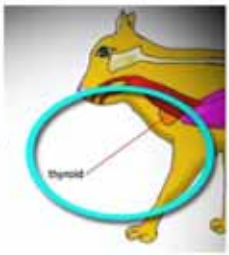
- Is located on the of the brain
- Produces specific hormones to respond to the needs of the body, including the following:
 - growth hormones to stimulate the growth of cells and tissues
 - which stimulates milk production after birth

28

The Thyroid Gland

CEV

- Is located in the neck next to the
- Controls how fast the body burns energy, makes proteins and the of the body to other hormones
- Regulates the rate of metabolism



27

Basic Canine & Feline Anatomy

Parathyroid Glands CEV

- Are located behind the thyroid gland in the neck
- Are responsible for maintaining levels
- Release a hormone to boost calcium levels when they sense the calcium level in blood is too

28


Adrenal Glands CEV

- Are located on top of each
- Release hormones in response to stress or excitement
- Produce the following hormones:
 - regulates salt and water balance in the body
 - cortisol: controls carbohydrate, protein and fat metabolism

29

The Pancreas CEV

- Is located in the upper abdomen
- Secretes which metabolizes sugar
- Releases glucagon and which regulate energy and metabolism in the body



30


Main Menu

Basic Canine & Feline Anatomy




The Excretory System

- Is responsible for the elimination of from the body
- Regulates the amount of water and present in bodily fluids

 Ions – an atom or group of atoms which have a positive or negative electrical charge

The Excretory System


- Includes the following:
 - urinary system
 -
 -
 - lymph nodes



Basic Canine & Feline Anatomy

The Urinary System

- Is comprised of the following:
 - kidneys: filter blood to form and excrete urine as well as regulate fluid and *electrolyte* balance
 - hollow muscular organ which stores urine
 - excretes urine from the body



Electrolyte – a chemical substance which separates into ions and gives cells the energy needed to function

34

The Liver

- Clears blood of drugs and toxic substances
- and alters the chemical structure of foreign material in blood
- Excretes these waste products in the form of



Metabolize – the processing of a specific substance within the living body

35

IMMUNE SYSTEM




36

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The Immune System CEV

- Identifies and kills
- Divides into two categories depending on how specific their functions are, the innate and immune systems



Pathogen – any disease causing agent, such as a virus or bacteria

The Innate Immune System CEV

- Acts as the first line of defense
- Is meaning it tries to prevent everything from coming in
- Is nonadaptive
 - does not have a memory
 - will not learn to keep substances out even after repeated exposure
- Includes skin, fur, saliva, acid and mucus

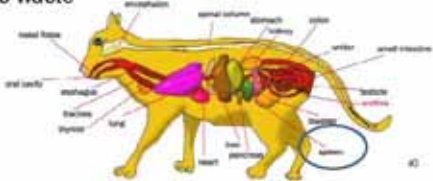
The Adaptive Immune System CEV

- Attacks specific threats to the body
- Designs different methods of attack for different invaders
- Is adaptive
 - has a
 - remembers how to defeat an infection and will be able to overcome it faster if exposed again
- Works with the innate immune system to prevent disease and remember how to treat attacks
- Includes the spleen and lymph nodes

Basic Canine & Feline Anatomy

The Spleen

- Is located in the
- Destroys worn out red and blood cells
 - breaks them down and returns needed iron to the blood while excreting the excess material as waste



Lymph Nodes

- Are scattered throughout the body
- Filter the of particular matter and microorganisms
- Transport to veins to be evacuated

Lymph – a clear fluid containing white blood cells derived from the tissues of the body

INTEGUMENTARY SYSTEM



Basic Canine & Feline Anatomy


The Integumentary System

- Includes the skin, fur, nails and glands of an animal
- Distinguishes, protects and separates an animal from its surroundings
- Communicates to the animal by acting as a for touch, pain, pressure and temperature
- Acts as an innate immune system

43

Skin

- Is composed of the following three layers:
 - epidermis: outermost layer of skin
 - dermis: connective tissue which provides the body with from stress and strain as well as housing sweat glands, hair follicles and nerve endings
 - subcutaneous tissue: provides insulation and storage



Main Menu

44

MUSCULAR SYSTEM




Main Menu

45

Basic Canine & Feline Anatomy


The Muscular System

- Allows an organism to
- Represent endurance in dogs and allows them to jump, run and play
- Is highly evolved in cats and allows swift, movements used for catching prey and escaping predators

 **Fun Fact:** Cats have 32 muscles in each ear

Muscles

- Can be divided into the following:
 - voluntary
 - smooth
 - skeletal



Voluntary Muscles

- Can be controlled by
- Consist mainly of muscle
- Include muscle found in the arms and legs



Basic Canine & Feline Anatomy

Involuntary Muscles CEV

- Contract without control
- Consist primarily of muscle lining organs
- Include muscle found in the stomach, intestine and

49


Smooth Muscle CEV

- Is muscle tissue
- Forms thin layers or sheets of flat muscle
- Cells have one

102

Skeletal Muscle CEV

- Is usually voluntary muscle tissue
- Is connected to a
- Is elongated and striped
- Cells have many



51

Basic Canine & Feline Anatomy

Cardiac Muscle

- Is an muscle tissue
- Is found specifically in the heart
- Has adapted to the rhythmic contractions of the heart

Main Menu

52


NERVOUS SYSTEM

Main Menu

53

The Nervous System

- Is constructed of specialized tissue which controls the actions and reactions of organisms to their
- Coordinates the activity of muscles
- Involves sensory stimulation to evoke *motor response*
- Is divided into the central and nervous systems

 Motor Response – activities which result in muscular reaction

Basic Canine & Feline Anatomy

The Central Nervous System

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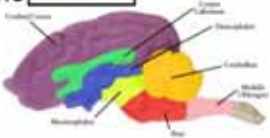
- Includes the following:
 -
 - spinal

95

The Brain

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- Receives from all over the body and tells it how to react
- Houses billions of *neurons*
- Is protected by the



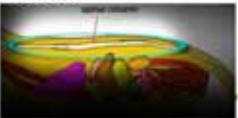
Neurons – impulse conducting cells which carry and transmit electrical signal throughout the nervous system

96

The Spinal Cord

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- Consists of a long bundle of nerve tissue
- Starts at the bottom of the brain and continues down the
- Allows nerves to branch out, forming the nervous system
- Is protected by vertebrae



Basic Canine & Feline Anatomy

The Peripheral Nervous System

- Consists of the following
 - cranial nerves: are located on the brain and carry impulses to the head and neck
 - nerves: extend from the spine and provide information to areas of the body below the neck
 - nerves: responsible for involuntary body functions such as breathing and digestion

REPRODUCTIVE SYSTEM


The Female Reproductive System

- Includes the following:
 - ovaries
 -
 - vagina
 - vulva
 - glands

Basic Canine & Feline Anatomy

The Ovaries

- Are located right behind the
- Contain eggs which are waiting to be fertilized
- Produce hormones such as estrogen and



81

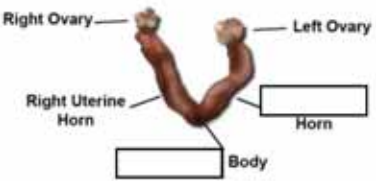
The Uterus

- muscular organ
- Two long, nearly straight horns
- Serves as the site of *implantation* of fertilized eggs and fetus development
- The top two sections are called uterine and extend from each ovary to join with the uterus
 - when pregnant, the fetuses are arranged in a row in both horns

Implantation – the attachment of the early embryo to the lining of the uterus

82

The Uterus




83

Basic Canine & Feline Anatomy

The Vagina

- Is the site where males deposit during reproduction
- Provides a passageway from the outside to the inside of the uterus
- Provides a protected passage for to move from the uterus to the outside during birth



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Mammary Glands


- Run from the groin to the
- Are composed of connective tissue to provide support and
- Provide milk for any offspring



CEV

The Male Reproductive System

- Includes the following:
 - scrotum
 -
 - epididymides
 - deferent ducts
 - prostate gland
 -



CEV

Basic Canine & Feline Anatomy


The Scrotum

- Houses the testicles
- Functions as a temperature regulator for the testicles and
- Lies toward the back of the abdomen between the hind legs in
- Lies just below the anus in cats



Testicles

- Reside in the
- Contain seminiferous tubules which manufacture sperm
- Produce



Testosterone – sex hormone responsible for developing male secondary sex characteristics

The Epididymides


- Are enlarged tubes which lie along the edge of a testicle
- Start at the top of a testicle and end on the
- Store sperm before
- Transport sperm to the deferent ducts



Basic Canine & Feline Anatomy

The Deferent Ducts


- Are muscular tubes which begin at the tail of the epididymides and empty into the
- Transport sperm from the epididymides to the urethra using strong along the muscle wall



70

The Penis

- Is housed within a when not erect
- Acts as the male sexual organ
- Contains specialized connective tissues and blood vessels which allow it to become



Prepuce – protective tubular sheath of skin

71

RESPIRATORY SYSTEM




72

Basic Canine & Feline Anatomy

The Respiratory System CEV

- Takes in
- Eliminates waste gases such as carbon dioxide
- Regulates



73

The Respiratory System CEV

- Includes the following:
 - mouth: oral cavity where air is admitted and released
 - admits and releases air in conjunction with the mouth
 - trachea: tube which transports air gained from the mouth or nose into the body and out
 - transport oxygen into the body and carbon dioxide out of the body

74

Temperature Regulation CEV

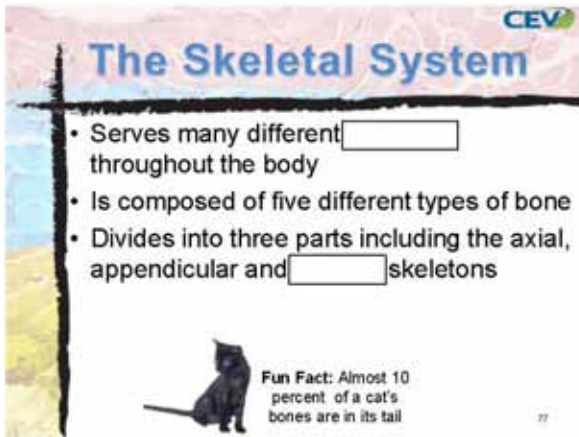
- Must be completed because dogs and cats do not like humans to help cool their body
- Occurs when animals pant, which replaces the warm air in the body for the outside air

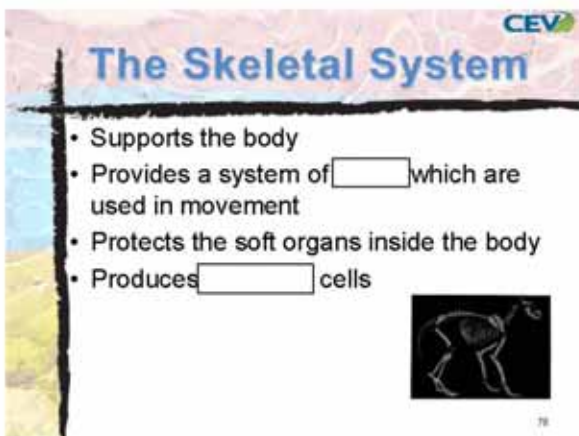
Main Menu

75

Basic Canine & Feline Anatomy







Basic Canine & Feline Anatomy

The Skeletal System

- Is composed of the following five types of bone:
 - long bones: found in the limbs
 - bones: only in the wrist and ankle regions
 - flat bones: found in the pelvis and head
 - bones: found in the vertebral column and parts of the skull
 - sesamoid bones: found in locations where tendons pass over joints, such as the knee

Tendon – tissue which serves to connect muscle with a bone™

The Skeletal Systems

- Include the following:
 - axial skeleton: the bones of the head and trunk, such as the skull and vertebral column
 - skeleton: bones which comprise limbs, such as the femur and tibia
 - skeleton: bones which form part of an organ, such as the ossicles in the middle of the ear

The Canine Skeleton

- Differs from the human body in that it is designed to allow the dog to run fast, hunt and chase
- Is not tightly attached to the shoulder allowing for a higher potential of greater motion and flexibility
- Consists of an average of bones, while the human skeleton consists of 206

Basic Canine & Feline Anatomy

The Feline Skeleton CEV

- Differs from the human body in two major ways:
 - their backbone contains more bones than ours, mainly due to the and their vertebrae are not as tightly connected, allowing for higher flexibility
 - they do not have a

32

Resources CEV

- *College of Veterinary Medicine*. (n.d.). Retrieved March 31, 2009, from Washington State University: www.vetmed.wsu.edu
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- *Intelligent Content Corporation*. (2009). Retrieved March 31, 2009, from Pet Place: www.petplace.com

33

Acknowledgements CEV

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Main Menu

34
