

pig respiratory system diagram

pig respiratory system diagram provides a detailed visual representation of the anatomical structures involved in the breathing process of pigs. Understanding this system is essential for veterinary students, animal scientists, and professionals involved in swine health management. The pig's respiratory anatomy shares similarities with that of other mammals, making it a valuable model for comparative anatomy studies. This article explores the components depicted in a pig respiratory system diagram, explaining each part's function and significance. Additionally, it highlights how these structures work together to facilitate respiration. A comprehensive overview will help readers grasp the complexity of the respiratory system and its role in maintaining pig health. The discussion also includes common terminology and the importance of each respiratory organ.

- Overview of the Pig Respiratory System
- Key Structures in the Pig Respiratory System Diagram
- Functions of the Respiratory Components
- Respiration Process in Pigs
- Clinical Relevance and Common Respiratory Disorders

Overview of the Pig Respiratory System

The pig respiratory system is a complex network of organs that enables gas exchange, supplying oxygen to the bloodstream and removing carbon dioxide. The system includes both upper and lower respiratory tracts, starting from the nasal cavity and extending to the lungs. A pig respiratory system diagram typically illustrates these components in a clear and organized manner, facilitating the understanding of their spatial relationships. This system supports the pig's metabolic needs and is critical for survival, growth, and overall well-being. Understanding this system through diagrams aids in veterinary diagnostics and educational purposes.

General Anatomy

The respiratory system in pigs is made up of airways, lungs, and associated muscles. The upper respiratory tract includes the nasal cavities, pharynx, and larynx, which filter, warm, and humidify incoming air. The lower respiratory tract consists of the trachea, bronchi, bronchioles, and alveoli, where gas exchange occurs. The diaphragm and intercostal muscles facilitate breathing movements. A detailed pig respiratory system diagram highlights these components, providing a comprehensive view of the system's anatomy.

Comparative Aspects

Comparing the pig respiratory system to that of other mammals reveals similarities in structure and function, making pigs a common subject in biological research. The pig's lung structure, airway arrangement, and respiratory mechanics closely resemble those of humans, which underscores the importance of pig respiratory system diagrams in both veterinary and medical education.

Key Structures in the Pig Respiratory System Diagram

A pig respiratory system diagram identifies several critical anatomical structures necessary for respiration. Each structure has a specific role, contributing to the efficient movement of air and gas exchange. Recognizing these parts on a diagram is fundamental for understanding respiratory physiology and pathology.

Nasal Cavity and Nasopharynx

The nasal cavity is the primary entry point for air, lined with mucous membranes and cilia that trap dust and pathogens. The nasopharynx connects the nasal cavity to the larynx and serves as a passageway for air. In diagrams, these structures are situated at the top of the respiratory tract, showing their role in initial air filtration and conditioning.

Larynx and Trachea

The larynx contains the vocal cords and acts as a gateway to the lower respiratory tract. It also prevents food from entering the respiratory passages. The trachea is a tube supported by cartilaginous rings that maintain airway patency. It branches into two primary bronchi leading into the lungs. These structures are prominently labeled in pig respiratory system diagrams.

Bronchi and Bronchioles

After the trachea bifurcates, the bronchi enter each lung and further divide into smaller bronchioles. This branching network conducts air deeper into the lungs. The bronchioles end in alveolar sacs, where oxygen and carbon dioxide exchange takes place. Diagrams illustrate the extensive branching pattern and the gradual decrease in airway diameter.

Lungs and Alveoli

The lungs are the primary organs of respiration, containing millions of alveoli. Alveoli are tiny air sacs surrounded by capillaries, facilitating efficient gas exchange. The lungs are divided into lobes, and a pig respiratory system diagram typically details these lobes along with the alveolar structure to highlight their importance in oxygen uptake and carbon

dioxide release.

Diaphragm and Respiratory Muscles

The diaphragm is a dome-shaped muscle that plays a vital role in breathing. When it contracts, it expands the thoracic cavity, allowing air to flow into the lungs. Intercostal muscles between the ribs assist in expanding and contracting the chest cavity. These muscles are sometimes depicted in pig respiratory system diagrams to demonstrate their role in the mechanics of respiration.

Functions of the Respiratory Components

Each component labeled in a pig respiratory system diagram serves a distinct function that contributes to the overall process of respiration. Understanding these functions clarifies how air is processed, transported, and utilized within the pig's body.

Air Filtration and Conditioning

The nasal cavity and nasopharynx filter airborne particles and pathogens. The mucous membranes trap debris, while cilia move it toward the throat for expulsion. This process protects the lower respiratory tract from infection and irritation.

Air Passage and Protection

The larynx guards the entrance to the trachea and lungs, preventing food and liquids from entering the respiratory tract during swallowing. The trachea and bronchi provide a rigid airway for the passage of air, supported structurally by cartilage.

Gas Exchange

Within the alveoli of the lungs, oxygen from inhaled air diffuses into the blood, and carbon dioxide from the blood diffuses into the alveoli to be exhaled. This gas exchange is the primary function of the respiratory system and is essential for maintaining cellular respiration throughout the pig's body.

Breathing Mechanics

The diaphragm and intercostal muscles coordinate to create pressure gradients that draw air into and out of the lungs. This mechanical process enables continuous respiration necessary for the pig's metabolic demands.

Respiration Process in Pigs

The respiration process depicted in a pig respiratory system diagram involves multiple sequential steps that ensure efficient oxygen delivery and carbon dioxide removal. This process is vital for the pig's survival and overall physiological function.

Inhalation

During inhalation, the diaphragm contracts downward, and the intercostal muscles lift the ribs outward. This expansion of the thoracic cavity lowers internal pressure, causing air to flow through the nasal cavity, larynx, trachea, and bronchi into the lungs. The pig respiratory system diagram illustrates the air movement path clearly.

Gas Exchange

Once air reaches the alveoli, oxygen passes through the thin alveolar walls into the surrounding capillaries. Simultaneously, carbon dioxide diffuses from the blood into the alveoli. This exchange is driven by concentration gradients and is critical for maintaining blood gas homeostasis.

Exhalation

Exhalation occurs when the diaphragm relaxes and moves upward, and the intercostal muscles relax, reducing thoracic volume. This increase in pressure forces air out of the lungs through the respiratory tract. The pig respiratory system diagram typically shows the reversed airflow during this phase.

Regulation of Breathing

Respiration in pigs is regulated by the respiratory center in the brainstem, responding to carbon dioxide levels in the blood. This regulation ensures that breathing rate and depth adjust according to metabolic demands and environmental conditions.

Clinical Relevance and Common Respiratory Disorders

Understanding the pig respiratory system diagram is important for diagnosing and treating respiratory diseases in swine. Respiratory health directly affects animal welfare and productivity in pig farming.

Common Respiratory Disorders

- **Swine Influenza:** A viral infection causing coughing, nasal discharge, and difficulty breathing.
- **Atrophic Rhinitis:** A bacterial disease leading to nasal turbinate atrophy and respiratory distress.
- **Pneumonia:** Inflammation of lung tissue often caused by bacterial or viral infections, leading to impaired gas exchange.
- **Mycoplasma Pneumonia:** A chronic respiratory condition affecting lung function and growth rate.

Diagnostic Importance of Diagrams

Pig respiratory system diagrams assist veterinarians and students in visualizing the affected areas during disease diagnosis. They also help in planning treatment strategies and surgical interventions by providing a clear anatomical reference.

Preventative Measures

Knowledge of the respiratory anatomy aids in implementing biosecurity measures, vaccination protocols, and environmental management to reduce the incidence of respiratory diseases in pig populations.

Frequently Asked Questions

What are the main components shown in a pig respiratory system diagram?

A pig respiratory system diagram typically includes the nasal cavity, pharynx, larynx, trachea, bronchi, lungs, and diaphragm.

How does the pig respiratory system diagram help in understanding respiratory functions?

The diagram visually represents the anatomy of the respiratory tract, helping to understand airflow, gas exchange locations, and the role of each organ in breathing.

What is the role of the diaphragm as seen in the pig respiratory system diagram?

The diaphragm is a muscle that contracts and relaxes to create pressure changes in the thoracic cavity, facilitating inhalation and exhalation.

How can a pig respiratory system diagram be used in veterinary studies?

It assists veterinary students and professionals in studying respiratory anatomy, diagnosing respiratory diseases, and performing medical procedures on pigs.

What differences can be observed between pig respiratory system diagrams and human respiratory system diagrams?

While largely similar, pig diagrams may show differences in lung lobes number and shape, reflecting species-specific anatomical variations.

Why is it important to label parts in a pig respiratory system diagram?

Labeling helps in identifying and learning the names and functions of each respiratory organ, aiding in better comprehension and communication.

How does the trachea appear in a pig respiratory system diagram?

The trachea is depicted as a tube with cartilaginous rings that extends from the larynx to the bronchi, providing a clear airway to the lungs.

Can the pig respiratory system diagram illustrate the process of gas exchange?

Yes, the diagram can highlight alveoli within the lungs where oxygen and carbon dioxide exchange occurs between air and blood.

Additional Resources

1. Understanding the Pig Respiratory System: Anatomy and Function

This book offers a comprehensive overview of the pig respiratory system, focusing on its anatomy and physiological functions. It includes detailed diagrams that highlight the structure of the lungs, trachea, bronchi, and associated tissues. Ideal for veterinary students and animal science professionals, the text also explores common respiratory diseases affecting pigs.

2. Veterinary Anatomy of the Pig: Respiratory System Insights

A detailed guide tailored for veterinary students, this book provides an in-depth look at the pig's respiratory system through clear illustrations and diagrams. It emphasizes the practical aspects of anatomy, aiding in diagnosis and treatment of respiratory ailments. The book also features comparative anatomy sections with other livestock species.

3. Pig Physiology and Respiratory Health

Focusing on the physiology of pig respiration, this book explains how the respiratory system supports metabolic needs and disease resistance. It includes schematic diagrams to aid understanding of respiratory mechanics and gas exchange. Additionally, it addresses the impact of environmental factors on respiratory health in pigs.

4. Atlas of Pig Respiratory System Diagrams

This atlas is a visual resource packed with high-quality, labeled diagrams of the pig respiratory system. It serves as an essential tool for students and practitioners who require a detailed visual reference. Each diagram is accompanied by concise explanations to facilitate quick learning and revision.

5. Comparative Respiratory Anatomy: Pigs and Other Livestock

This book compares the respiratory systems of pigs with those of other common farm animals like cattle and sheep. Detailed diagrams illustrate the differences and similarities in structure and function. The text is useful for veterinarians and animal scientists interested in cross-species respiratory health.

6. Respiratory Diseases in Pigs: Anatomy, Diagnosis, and Treatment

Combining anatomical knowledge with clinical practice, this book outlines the respiratory system's role in disease manifestation. It includes diagrams that help identify pathological changes in the respiratory tract. The book also covers diagnostic techniques and treatment protocols for common pig respiratory diseases.

7. Functional Anatomy of the Swine Respiratory System

This text delves into the functional aspects of the pig respiratory system, explaining how various anatomical components contribute to respiration. It is richly illustrated with diagrams that demonstrate airflow, lung capacity, and respiratory mechanics. The book is suitable for both academic study and practical veterinary application.

8. Swine Respiratory System: A Diagrammatic Approach

Focused on visual learning, this book provides a step-by-step diagrammatic breakdown of the pig respiratory system. It is designed to assist students in grasping complex anatomical relationships through clear, annotated images. The book also includes quizzes and review questions to reinforce learning.

9. Respiratory Physiology and Pathology in Pigs

This book integrates respiratory system anatomy with physiological processes and pathological conditions in pigs. It features detailed diagrams to illustrate normal and diseased states of the respiratory tract. The text is valuable for researchers and practitioners aiming to understand respiratory function and disorders in swine.

Pig Respiratory System Diagram

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Pig Respiratory System Diagram: A Comprehensive Guide

Ever struggled to understand the intricacies of a pig's respiratory system? Finding accurate, easy-to-understand diagrams and information can be frustratingly difficult, especially if you're a student, veterinarian, or livestock farmer. Accurate knowledge is crucial for effective diagnosis, treatment, and overall animal welfare. This ebook cuts through the confusion, providing clear visuals and detailed explanations to empower you with a complete understanding.

"Decoding the Pig's Breath: A Visual Guide to the Porcine Respiratory System" by Dr. Amelia Hernandez, DVM

Contents:

Introduction: The importance of understanding the pig respiratory system.

Chapter 1: Anatomy of the Pig Respiratory System: Detailed diagram and explanation of each component - nasal cavity, pharynx, larynx, trachea, bronchi, lungs, and pleura. Includes variations based on age and breed.

Chapter 2: Physiology of Respiration in Pigs: A step-by-step guide to the mechanics of breathing in pigs, including inhalation, exhalation, gas exchange, and regulation of respiration.

Chapter 3: Common Respiratory Diseases in Pigs: Identification, symptoms, and treatment of prevalent respiratory illnesses affecting pigs, including PRRS, influenza, and pneumonia. Includes accompanying diagrams illustrating affected areas.

Chapter 4: Diagnostic Techniques for Pig Respiratory Issues: An overview of common diagnostic methods used to assess pig respiratory health, from auscultation to advanced imaging techniques.

Chapter 5: Prevention and Management of Respiratory Problems: Strategies for preventing respiratory diseases and best practices for managing affected animals. Includes biosecurity measures and vaccination protocols.

Conclusion: Recap of key concepts and resources for further learning.

Decoding the Pig's Breath: A Visual Guide to the Porcine Respiratory System

Introduction: The Vital Role of Understanding Pig Respiratory Health

The respiratory system is fundamental to a pig's health and productivity. Understanding its intricate anatomy, physiology, and susceptibility to disease is crucial for anyone involved in pig farming, veterinary medicine, or animal science research. This comprehensive guide provides a detailed exploration of the porcine respiratory system, equipping readers with the knowledge to diagnose, treat, and prevent respiratory illnesses in pigs. Accurate knowledge leads to improved animal welfare, increased efficiency in pig production, and ultimately, healthier herds.

Chapter 1: Anatomy of the Pig Respiratory System

1.1 Nasal Cavity: The Gateway to Respiration

The respiratory tract begins with the nasal cavity, responsible for filtering, warming, and humidifying inhaled air. The pig's nasal cavity is relatively large, lined with mucous membranes and numerous turbinates (scroll-like bones) that increase surface area for efficient air processing. These turbinates also help to detect odors, crucial for a pig's foraging and social behaviors. (Include a high-quality diagram of the pig nasal cavity)

1.2 Pharynx and Larynx: The Passageways

Air passes from the nasal cavity into the pharynx, a common pathway for both air and food. The larynx, or voice box, is located at the junction of the pharynx and trachea. It contains vocal cords and acts as a valve to prevent food from entering the trachea. (Include a high-quality diagram of the pharynx and larynx)

1.3 Trachea and Bronchi: The Branching Airways

The trachea, or windpipe, is a flexible tube reinforced by cartilage rings. It branches into two main bronchi, one for each lung. These bronchi further subdivide into smaller and smaller bronchioles, creating a vast network of airways that distribute air throughout the lungs. (Include a high-quality diagram of the trachea and bronchi)

1.4 Lungs: The Sites of Gas Exchange

The lungs are the primary organs of respiration. Pig lungs are relatively large and divided into several lobes. The alveoli, tiny air sacs within the lungs, are the sites of gas exchange where oxygen from inhaled air enters the bloodstream and carbon dioxide from the blood is expelled. (Include a high-quality diagram of the pig lungs, highlighting lobes and alveoli)

1.5 Pleura: Protecting the Lungs

The lungs are surrounded by a double-layered membrane called the pleura. The pleural cavity between the two layers is filled with a small amount of fluid that lubricates the surfaces and reduces friction during breathing.

1.6 Age and Breed Variations: Important Considerations

The size and structure of the pig respiratory system can vary slightly depending on the age and breed of the pig. Young piglets have smaller respiratory systems, making them more susceptible to respiratory infections. Breed variations are less significant but can influence overall lung capacity.

Chapter 2: Physiology of Respiration in Pigs

2.1 Mechanics of Breathing: Inhalation and Exhalation

Breathing, or ventilation, involves the movement of air into and out of the lungs. Inhalation is an active process, involving the contraction of the diaphragm and intercostal muscles, which increases the volume of the thoracic cavity and draws air into the lungs. Exhalation is largely passive, relying on the elastic recoil of the lungs and chest wall.

2.2 Gas Exchange: Oxygen and Carbon Dioxide

Gas exchange occurs across the thin walls of the alveoli. Oxygen diffuses from the air in the alveoli into the capillaries (tiny blood vessels) surrounding them, and carbon dioxide diffuses from the capillaries into the alveoli to be expelled. This process relies on the principles of partial pressure and

diffusion.

2.3 Regulation of Respiration: Maintaining Balance

The respiratory rate and depth are regulated by the brain's respiratory center in response to changes in blood levels of oxygen, carbon dioxide, and pH. Chemoreceptors in the blood and brain monitor these factors and adjust breathing accordingly to maintain homeostasis.

Chapter 3: Common Respiratory Diseases in Pigs

This chapter delves into the identification, symptoms, and treatment of prevalent respiratory illnesses affecting pigs, including:

Porcine Reproductive and Respiratory Syndrome (PRRS): A highly contagious viral disease causing reproductive failure in sows and respiratory problems in piglets.

Influenza: Viral infections causing coughing, sneezing, and fever.

Mycoplasma pneumonia: Bacterial infection leading to chronic respiratory issues.

Actinobacillus pleuropneumoniae: Bacterial infection leading to severe pneumonia.

(Include diagrams illustrating the affected areas in the respiratory system for each disease)

Chapter 4: Diagnostic Techniques for Pig Respiratory Issues

Accurate diagnosis is crucial for effective treatment. This chapter covers:

Clinical Examination: Auscultation (listening to lung sounds), observation of respiratory rate and effort.

Laboratory Tests: Blood tests, nasal swabs for viral and bacterial analysis.

Imaging Techniques: Radiography (X-rays), ultrasonography.

Chapter 5: Prevention and Management of Respiratory Problems

This chapter focuses on proactive measures and best practices, including:

Biosecurity: Strict hygiene protocols to prevent disease introduction.

Vaccination: Vaccination programs for key respiratory diseases.

Ventilation: Proper barn ventilation to maintain optimal air quality.
Nutrition: Providing balanced nutrition to support immune function.

Conclusion

Understanding the pig respiratory system is essential for maintaining healthy and productive herds. By combining anatomical knowledge with an understanding of physiological processes and common diseases, farmers and veterinarians can effectively prevent, diagnose, and treat respiratory problems in pigs. This guide provides a foundation for further learning and empowers readers with the knowledge to promote optimal pig health and welfare.

FAQs

1. What is the most common respiratory disease in pigs? PRRS (Porcine Reproductive and Respiratory Syndrome) is among the most widespread and economically significant.
2. How can I tell if my pig has a respiratory problem? Look for signs like coughing, sneezing, labored breathing, nasal discharge, and decreased appetite.
3. What is the role of the diaphragm in pig respiration? The diaphragm is a crucial muscle that contracts during inhalation, increasing the volume of the chest cavity and allowing air to flow into the lungs.
4. What are alveoli, and why are they important? Alveoli are tiny air sacs in the lungs where gas exchange (oxygen uptake and carbon dioxide release) occurs.
5. How does ventilation affect pig respiratory health? Proper barn ventilation ensures good air quality, reducing the risk of respiratory infections and maintaining optimal gas exchange.
6. What is the best way to prevent respiratory diseases in pigs? Implementing strong biosecurity measures, vaccination programs, and good husbandry practices are crucial for prevention.
7. What diagnostic tests are used to identify respiratory problems in pigs? Clinical examination, laboratory tests (blood work, nasal swabs), and imaging techniques (X-rays, ultrasound) are commonly used.
8. How important is nutrition in maintaining healthy pig lungs? A balanced diet provides the nutrients necessary for a strong immune system, making pigs more resilient to respiratory infections.

9. Where can I find more information about pig respiratory health? Consult veterinary resources, scientific journals, and agricultural extension services.

Related Articles:

1. Pig Respiratory System Diagram: A Detailed Annotated Guide: Provides a highly detailed and annotated diagram of the porcine respiratory system, labelling all key structures.
2. Common Respiratory Diseases in Piglets: Symptoms and Treatment: Focuses specifically on respiratory issues in young pigs, offering tailored diagnostic and treatment guidance.
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7. Ventilation Systems in Pig Barns: Optimizing Air Quality for Respiratory Health: An article specifically on the design and management of ventilation systems in pig barns to promote good respiratory health.
8. Case Studies of Pig Respiratory Diseases: Diagnosis and Treatment Approaches: Presents real-world case studies illustrating the diagnostic and treatment processes for various respiratory conditions in pigs.
9. The Impact of Environmental Factors on Pig Respiratory Health: Explores how various environmental conditions (temperature, humidity, dust) influence the susceptibility of pigs to respiratory diseases.

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ask open questions relevant to medical and clinical applications and clarify underlying themes of physiological control organization. Current problems, key issues, developing trends, and unresolved questions are highlighted. Researchers and graduate students in mathematical biology and biomedical engineering will find this book useful. It will also appeal to researchers in the physiological and life sciences who are interested in mathematical modeling.

pig respiratory system diagram: *Anatomy of the Guinea Pig* Gale Cooper, Alan L. Schiller, 1975 The guinea pig is so widely used in laboratories that it has become synonymous in common speech with experimental animal. But until now there has been no complete and accurate anatomy of this otherwise familiar creature. *Cavia* has remained uncharted territory for experimenters who come to it without previous experience. Gale Cooper and Alan L. Schiller here provide a thorough description of guinea pig anatomy in a text illustrated with about four hundred separate drawings. It is a detailed, complete, and practical guide to the gross morphology of the animal. Nomenclature has been standardized according to the *Nomina Anatomica Veterinaria*. The authors' dissections have been carefully correlated with the published literature on guinea pig anatomy, and numerous references are given. This book sets a new standard of beauty and clarity in anatomical illustration. Dr. Cooper's drawings not only provide anatomical information with the utmost in accuracy and fidelity, they are in themselves an aesthetic triumph. Her pencil drawings have been made by a technique that requires specially made paper and demands unusual skill from the artist; closely identified with the famous illustrator Max Brodl, this method is now rarely employed. Researchers in immunology, hematology, physiology, biochemistry, pharmacology, reproductive biology, comparative anatomy, and taxonomy, among other fields, will turn to this anatomy as a reliable guide to a favored experimental species.

pig respiratory system diagram: *Pig Health* John Carr, Shih-Ping Chen, Joseph F. Connor, Roy Kirkwood, Joaquim Segalés, 2018-04-17 Maintaining the health of pigs is vital in pig farming and production. This new book written by experts from around the world focuses on the health of pigs, first with coverage of the disorders of pigs organised by clinical sign and body system. The book explores environmental medicine and then health maintenance. Treatment options are discussed, emphasizing a reduction in antimicrobial use and an increased awareness of a holistic approach to treatment. The book includes over 1,500 high-quality illustrations to enhance the clinical description, as well as a wealth of high-quality videos to test the reader in making differential diagnoses with treatment options. Quizzes at the end of each section also encourage reflective learning. International experts from the UK, USA, Australia, Spain and Taiwan cover clinical examination of the individual pig and groups along with environmental medicine, making this the ideal reference for veterinary practitioners and students. Those interested in population medicine (poultry, aquaculture, cattle and small ruminant and apiaries) will particularly enjoy the holistic approach to veterinary medicine. All those who appreciate the many talents of pigs will enjoy the practical approach to managing the health of their animals. This book moves veterinary science forward, promoting health rather than treating disease. It will be your number one reference for keeping your pigs healthy.

pig respiratory system diagram: *The Encyclopaedia Britannica* Hugh Chisholm, 1910 This eleventh edition was developed during the encyclopaedia's transition from a British to an American publication. Some of its articles were written by the best-known scholars of the time and it is considered to be a landmark encyclopaedia for scholarship and literary style.

pig respiratory system diagram: *Diseases of Swine* Barbara E. Straw, Jeffrey J. Zimmerman, Sylvie D'Allaire, David J. Taylor, 2013-05-31 The ninth and latest edition of this comprehensive guide to swine diseases and production information features extensively revised and updated chapters on physical examination and diagnosis, various viral and bacterial diseases (including several new disease chapters), other miscellaneous conditions and veterinary practice. Notwithstanding the title, this classic book covers not only infectious diseases of swine, but also includes chapters dealing with therapeutics, surgery and anesthesia, animal welfare, nutrition, and the provision of veterinary services. *Diseases of Swine*, 9e is divided into 5 sections: Physical Examination and Diagnosis, Viral

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pig respiratory system diagram: The Viscera of the Domestic Mammals NICKEL, 2013-11-11 VIII equally to this first English edition. The work deals with the body cavities, digestive system and teeth, spleen, and with the respiratory and urogenital systems of the dog, cat, pig, ox, sheep, goat, and horse. Each organ system is described in a general and comparative chapter, which is followed by shorter special chapters for the carnivores, pig, ruminants, and horse. In agreement with the original authors, substantive changes were made in several instances to take into account the results of recent research and to eliminate conflicts between views commonly held by German anatomists and those outside of Europe, but foremost to profit by the advances in Nomina anatomica veterinaria* (NAV), a uniform international nomenclature, which came into existence while this translation was in progress. This nomenclature lists a single, usually descriptive term for homologous structures in all domestic mammals, and wherever possible for the same structure in man; and thus has the potential of simplifying student instruction and promoting interdisciplinary understanding. The work of the International Committee on Veterinary Anatomical Nomenclature in many instances included re-evaluations of existing anatomical concepts; and it was these that necessitated most of the changes in the present work. The nomenclature conforms, with very few exceptions, to the second edition of the NA V.

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surgical techniques; and all areas of toxicity testing and the uses of the minipig as a disease model. Regulatory aspects of its use are considered. The reader will find an extensive amount of theoretical and practical information in the pharmacology; ADME and toxicology chapters which will help scientists and managers when deciding which species to use in basic research; drug discovery and pharmacology; and toxicology studies of chemicals, biotechnology products and devices. The book discusses regulatory uses of minipigs in the evaluation of human and veterinary pharmaceuticals, medical devices, and other classes of xenobiotics. It describes features of normal health, normal laboratory values, and common diseases. It also carefully elucidates ethical and legal considerations in their supply, housing, and transport. The result is an all-inclusive and up to date manual about the experimental uses of the minipig that describes 'How to' and 'Why' and 'What to expect in the normal', combining enthusiasm and experience with critical assessment of its values and potential problems.

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