

American College of Veterinary Sports Medicine and Rehabilitation

Topic Rubric for the 2024 Core Knowledge Board-certification Examination

The following table provides a detailed outline of the topics and estimated percentage distribution of material to be covered in the 2024 Core Knowledge Examination.

| Percentage Distribution | CORE KNOWLEDGE EXAMINATION |
|-------------------------|---|
| 9%-13% | 1. Tissue-based Pathophysiology <ul style="list-style-type: none">Addresses the anatomy, physiology, biomechanics, pathology, mechanisms of injury, and principles of wound and tissue healingIncludes the following tissue types: Integument, connective tissue, muscle, tendon, ligament, bone, articular cartilage, and synovium |
| 6%-10% | 2. General Medical Issues of Animal Athletes <ul style="list-style-type: none">Addresses the anatomy, physiology, pathology, and medical diagnosis and management of muscular, nervous, respiratory, cardiovascular, gastrointestinal, and lymphatic disorders associated with sports medicine and rehabilitation issues across species |
| 10%-15% | 3. Kinesiology <ul style="list-style-type: none">Addresses topics related to physical examination, gait analysis and lameness evaluationIncludes neurophysiology of proprioception, motor control, and gait mechanismsIncludes the following methodologies: Motion analysis, force plate analysis, pressure mats, and inertial sensors |
| 6%-10% | 4. Exercise Physiology <ul style="list-style-type: none">Addresses general conditioning and training principles, energetics, thermoregulation, electrolytes, fluid balance, and nutrition related to exercise and performance across species |
| 14%-19% | 5. Diagnostic Imaging <ul style="list-style-type: none">Basic principles and applications of radiology, ultrasonography, nuclear scintigraphy, computed tomography (CT), magnetic resonance imaging (MRI), and thermography |
| 7%-11% | 6. Diagnostic Methods <ul style="list-style-type: none">Addresses topics related to clinical and laboratory measures of musculoskeletal and neurologic function and dysfunctionIncludes the following methodologies: Diagnostic local analgesia, clinical pathology, electromyography, goniometry, pain scales, and pressure algometry |

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| 8%-11% | 7. Nociception and Pain Mechanisms, Pharmacology Addresses general concepts and foundational knowledge related to: <ul style="list-style-type: none"> • Neurophysiology of nociception and pathophysiology of pain • Pain management, anti-inflammatories, analgesia • Performance-enhancing drugs, ergogenic substances, nutraceuticals |
| 12%-18% | 8. Physical Rehabilitation Addresses general concepts and foundational knowledge related to: <ul style="list-style-type: none"> • Manual therapy (e.g., massage, stretching, mobilization) • Physical modalities (e.g., thermal, mechanical, electromagnetic, photic) • Therapeutic exercises (e.g., flexibility, proprioception, motor control, strength, endurance) |
| 6%-8% | 9. Intra-articular Medications and Biological Therapies Addresses general concepts and foundational knowledge related to: <ul style="list-style-type: none"> • Intra-articular medications: hyaluronic acid, corticosteroids • Gene therapy, stem cell therapy, platelet-rich plasma (PRP), and interleukin-1 receptor antagonist protein (IRAP) |
| 4%-7% | 10. Surgical Considerations in Veterinary Sports Medicine and Rehabilitation Covers foundational concepts of the biological and biomechanical aspects of general, orthopedic, and neurologic surgery: <ul style="list-style-type: none"> • Biomechanical features of orthopedic injuries • Fundamental issues related to joint immobilization • General principles of fracture fixation and soft tissue repair • Biological features of upper airway surgery • Biological and neurophysiologic outcomes of neurosurgery and related procedures |
| 3%-6% | 11. Integrative Veterinary Medicine <ul style="list-style-type: none"> • Addresses general principles and practice of acupuncture, chiropractic, botanicals, and homeopathy as these fields relate to veterinary sports medicine and rehabilitation |

Reading List for the 2024 Core Knowledge Board-certification Examination

Please note that this is a guideline for a reading list of textbooks and journal articles suggested for preparation for the 2024 Core Knowledge examination with the American College of Veterinary Sports Medicine and Rehabilitation.

Each of the selected textbook chapters and journal articles contain core material pertinent to the development of a working knowledge within the field of veterinary sports medicine and rehabilitation. The applicant will be responsible for material within relevant (or included) chapters and journal articles related to the basic science and clinical practice of veterinary sports medicine and rehabilitation.

Disclaimer: Due to the very diverse knowledge base required of sports medicine and rehabilitation, this reading list is suggested, but not all inclusive. Candidates should use the American College of Veterinary Sports Medicine and Rehabilitation examination rubric for identification of examination topics and the percentage distribution of examination questions within in each topic area as the basis for preparation for the respective examinations.

Selected Core Knowledge Textbooks

1. McArdle WD, Katch FI, and Katch VL. **Exercise Physiology: Nutrition, Energy and Human Performance**. 2023, 9th edition. Lippincott Williams & Wilkins. ISBN: 978-1451191554.
2. DiBartola SP. **Fluid, Electrolyte and Acid Base Disorders in Small Animal Practice**. 2012, 4th edition. Elsevier Saunders. ISBN: 978-1437706543.
 1. INCLUDING the following chapters: 1-17.
3. Dyce KM, Sack WO, and Wensing CJG. **Textbook of Veterinary Anatomy**. 2017, 5th edition. Saunders, Hardcover ISBN: 9780323442640 eBook ISBN: 9780323442619
4. Thrall DE. **Textbook of Veterinary Diagnostic Radiology**. 2018, 7th edition. Elsevier. ISBN 978-0-323-48247-9
5. Einhorn TA, O'Keefe , RJ, and Buckwalter JA .**Orthopaedic Basic Science: Foundations of Clinical Practice**. 2020, 5th edition. American Academy of Orthopaedic Surgeons. ISBN: 978-0892038435.
 1. INCLUDING the following chapters: 1-25
6. Hinchcliff K, Kaneps A, and Geor R. **Equine Sports Medicine and Surgery**. 2014, 2nd edition. Saunders. ISBN 978-0702047718.
 1. INCLUDING the following chapters: 6-13, 31-32, 38-39, 42-46, 62-64.
7. Johnston SA, Tobias KM. **Veterinary Surgery: Small Animal**. 2nd edition. Saunders 2017.. Hardcover ISBN: 978-0323320658 eBook ISBN: 978-0323320658
 1. INCLUDING the following chapters: 1, 3, 4, 6, 7, 10, 13-15, 18, 19, 39-45, 48
8. Auer JA and Stick JA. **Equine Surgery**. 2018, 5th edition. Elsevier Saunders. ISBN: 9780323484206.
 1. INCLUDING the following chapters: 1-2, 4, 7-12, 16-17.
9. Lorenz M, Coates J, and Kent M. **Handbook of Veterinary Neurology**. 2011, 5th edition. Elsevier: Saunders. ISBN: 978-1437706512.

10. McGowan C, Goff L. **Animal Physiotherapy - Assessment, Treatment and Rehabilitation of Animals.** 2016, 2nd Ed. 2016. Blackwell Publishing. ISBN: 978-1-118-85232-3
11. Millis D and Levine D. **Canine Rehabilitation and Physical Therapy.** 2014, 2nd edition. Saunders. ISBN:978-1437703092.
 1. INCLUDING the following chapters: 1-3, 6-31.
12. Gaynor J and Muir W. **Handbook of Veterinary Pain Management.** 2015, 3rd edition. Mosby Elsevier. ISBN: 978-0-323-08935-7.
13. McIlwraith, CW, Frisbie, DD. Kawcak CE, van Weeren PR. **Joint Disease in the Horse.** 2nd edition, 2016. Elsevier. ISBN 978-1-4557-5969-9.
 1. INCLUDING the following chapters: 1,3,8
14. Mocchi M, Dotti S, Bue MD, Villa R, Bari E, Perteghella S, Torre ML, Grolli S. Veterinary Regenerative Medicine for Musculoskeletal Disorders: Can Mesenchymal Stem/Stromal Cells and Their Secretome Be the New Frontier? *Cells.* 2020; Jun 11;9(6):1453.
15. Bogers SH. Cell-Based Therapies for Joint Disease in Veterinary Medicine: What We Have Learned and What We Need to Know. *Front Vet Sci.* 2018; Apr 16;5:70.
16. Di Salvo A, Chiaradia E, Nannarone S, Della Rocca G. Intra-articular use of analgesic/ant inflammatory drugs in dogs and horses. *Res Vet Sci.* 2021;1 Jan;134:159-170.