October 2025

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What Webinars Would You Like To See?

After three webinars, we're happy to say that 2025 has been a successful year and we are looking forward to 2026. View the 2025 webinar recordings at the links below.

Rodent Models 101: An Introduction to Genetic and Transgenic Mouse Models
An Introduction to Animal-Free in Virto Models
Animal Models for Tendon Research: Comparative Considerations for Optimizing Translational Validity

To ensure these webinars reflect *your* interests and needs, we'd love to hear from you. What topics would you like us to cover? Do you have ideas or suggestions for speakers, formats, or focus areas for 2026?

Engaging with our community and integrating your input is one of our top priorities, and it's meaningful and rewarding given the challenges and changes we all navigate together.

Provide Your Webinar Ideas

Thank you for helping us shape what's next!

Webinar Recording Now Available

Animal Models for Tendon Research:
Comparative Considerations for Optimizing Translational Validity

This webinar provided an overview of both large and small animal and engineered models for tendon research. The discussion compared and contrasted existing models in the context of replicating the

clinical disease process, in both veterinary and human settings, and showed how selecting an animal model relies heavily on specific research questions.

Organized by: **Bruno Menarim, DVM, MS, PhD**, and **Brad Nelson, DVM, PhD, DACVS**

Sushmitha Durgam, BVSc, PhD, DACVS-L
Associate Professor of Equine Surgery
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The Ohio State University

Keith Baar, PhD
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Department of Physiology and Membrane Biology
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Upcoming Webinar

This webinar aims to bring awareness to the challenges of using aging animal models in musculoskeletal research, with the goal of building greater consensus and clarity in the field. Perspectives on knee osteoarthritis and spine will be featured to review key literature, discuss how variability in age selection complicates cross-study comparisons, and showcase recent work on senescence and intervertebral disc degeneration

Register for Webinar

Section Leader Nomination

The call for 2026 Member Nominations for Section Leadership is now open. Each ORS Section has various leadership positions available. This is a great opportunity for Members to get involved and assist in achieving their Section's initiatives. If you are interested in taking your Section Membership to the next level by nominating yourself or a colleague for a role, please click the button below to fill out the form. If you have more than one nomination, please fill out a form for each. CLICK HERE for position descriptions. Positions are open to ORS Section Members in good standing.

Positions Available* Include:

- Chair-Elect
- Communications Chair

- Membership Chair
- Secretary
- Treasurer
- Education Chair
- Member-at-Large
- JOR Spine Liaison

**Please note that not all positions are available for all sections. See the nomination form for details.*

Submit Your Nomination

JOR Articles of Interest

Research Spotlight: Ligament Changes and Knee Joint Loading in Osteoarthritis

The Impact of Osteoarthritis-Specific Anatomical Features and Gait Patterns on Medial Compartment Loading in the Presence of Ligament Laxity

This new study highlights ligament changes in osteoarthritis (OA) influence on knee joint stress using probabilistic simulations that incorporated OA-related anatomy and gait variations. This research group found that reduced ligament stiffness strains significantly increased medial compartment loading during the late stance phase of walking. This effect was pronounced when posterior tibial translation and external tibial rotation coincided with gait patterns such as decreased ankle dorsiflexion and increased foot eversion, or with movements involving lumbar extension and hip internal rotation. These conditions also shifted the center of pressure within the joint, concentrating stress on vulnerable areas. While gait and anatomy both contributed, ligament stability was the decisive factor, underscoring the need to monitor ligament function in rehabilitation and to design personalized interventions that minimize excessive loading and potentially slow osteoarthritis progression.

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Research Spotlight: Personalizing Knee Replacement with Machine Learning

Machine Learning Model for Selection of Cementless Total Knee Arthroplasty Candidates Utilizing Patient and Radiographic Parameter

The growing use of cementless total knee arthroplasty (TKA) has highlighted the lack of objective criteria for patient selection, prompting researchers to develop a machine learning model that integrates patient characteristics and radiographic data to guide decision-making. Using information from 217 patients, including body mass index, age, gender, and Hounsfield Unit (HU) measurements of tibial bone density derived from CT scans, the team trained an explainable neural network ensemble model designed to predict suitability for cementless TKA. The model demonstrated high performance, correctly identifying 86.4% of cemented cases and 97.4% of cementless cases, with an area under the

curve of 0.94, underscoring its strong predictive value. By providing a data-driven, interpretable framework, this approach offers the potential to standardize selection criteria, improve surgical planning, and advance personalized orthopaedic care, with future refinements expected as larger datasets and automated HU extraction methods are incorporated.

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Inspiration Corner: Embrace the 3Rs

We continue to highlight exciting approaches with this feature in our quarterly newsletter, which highlights exciting approaches and initiatives aligned with the 3R principle. The 3R principle (replace, reduce, refine), introduced by Russell and Burch in 1959, serves as a framework for ethically using animals in research and enhancing scientific quality and integrity in studies involving animals. **Get inspired, stay informed, and begin implementation!**

NIH Clarifies Stance on Animal Testing and NAMs

Brought to you by: Anna E. Rapp, PhD and Annemarie Lang, PhD

Earlier this year, NIH and FDA announced a roadmap to reduce the use of animal testing in favor of New Approach Methodologies (NAMs), which created significant confusion in the scientific community. At first, it seemed that NIH would no longer consider any grant applications containing only animal studies. Such a shift would have made entire lines of research, for example, in developmental biology, impossible. It also overlooked the reality in musculoskeletal research, where promising NAMs are emerging but the complexity of the conditions and diseases we study cannot yet be fully modeled without animal research.

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Improving the Use of Enrichment for Laboratory Rodents

Brought to you by: Kait Link, DVM

In the early 1990s, animal behavior and welfare scientists began to reevaluate the long-standing “Five Freedoms” paradigm, which had shaped welfare thinking since the 1960s. Rather than focusing solely on the absence of negative experiences, the model highlights the importance of promoting positive ones - what David Mellor described as moving “towards a life worth living.” By the early 2000s, this framework had gained wide acceptance.

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One Medicine, One Orthopaedics, One Community

One Medicine, One Orthopaedics, One Community highlights exciting topics and scientists from the field of comparative medicine to foster translational science.

Manual Acupuncture Decreased Systemic Inflammation and Altered Cartilage Transcriptome in the Dunkin-Hartley Guinea Pig Model of Osteoarthritis

Brought to you by: Lynn Pezzanite, DVM, PhD

Osteoarthritis (OA) is a degenerative joint disease affecting 250 million people worldwide, including >50 million adults in the US. With an aging population, the prevalence of OA is projected to increase to nearly 80 million US adults by 2040. Given the alarming fact that all current OA therapeutics remain palliative, further investigation of disease modifying interventions remains a high priority. Researchers at Colorado State University – led by Kelly Santangelo, DVM, PhD, Diplomate American College Veterinary Pathology, and Melinda Story, DVM, PhD, Diplomate American College of Surgery and Sports Medicine, in the Departments of Microbiology, Immunology and Pathology and Clinical Sciences, respectively – are using Dunkin Hartley guinea pigs with spontaneous OA as a uniquely valuable animal model to test alternative therapies. The Dunkin-Hartley guinea pig develops age-related knee OA with histological changes similar to idiopathic human OA, making it an ideal model to screen OA therapeutics at reduced cost compared to larger spontaneous models such as dogs or horses.

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