



July 2022

Did you know?

The ORS Spine Research Section has an online community group which you can access upon logging into the ORS Member Center. [Learn more](#) and connect with the section community!



Join us for another ORS Virtual Session!

ORS Spine Section Virtual Poster Tour 2022

August 4, 2022

10:00 AM (CENTRAL)

The objective of this [session](#) is to look back and discuss some of the impactful posters of this year's ORS Annual Meeting. The authors will be given a chance to present their posters which will be followed by question answers and discussion.

Organizers: Jeannie Bailey, PhD and Uruj Zehra, PhD

Presenters:

- Donald Aboytes, Washington University in St. Louis
- Harrah R. Newman, University of Delaware
- **Kyle S. Kuchynsky**, Ohio State University
- Vivek P. Shah, University of Kentucky College of Medicine

Register to Attend the Virtual Session



NEW Deadline: July 31, 2022

[ORS PSRS 6th International Spine Research Symposium](#) will provide a forum for discussion of the latest research, medical innovations, and the most advanced scholarship in Spine Research. This symposium will foster a greater understanding of the clinical problems associated with degenerative disc disease and will highlight cutting-edge scientific research in areas of basic biology, epidemiology, disease mechanisms, biomechanics, tissue engineering, and imaging of the intervertebral disc.

Please Note: It is the expectation that authors submitting to the ORS PSRS [Meeting](#) will attend the meeting if accepted.

Submit Your Abstract



It's Not Too Late to Register!

NIAMS Funding Opportunities and Strategies for Spine Researchers

Thursday July 28, 2022

11:00 AM – 12:30 PM (CENTRAL)

Join **Anthony Kirilusha, PhD**, Program Director for the Cartilage and Connective Tissue Program at the National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS) for this [virtual session](#) focused on NIAMS Funding Opportunities and Strategies for Spine Researchers.

Register to enhance your funding mechanisms

ORS 2023: Submit Your Abstracts!



Whether 2023 will be your first meeting, or you're looking forward to coming back again – we can't wait to welcome you to the ORS 2023 Annual Meeting!

Abstract submission for the ORS 2023 Annual Meeting is now open!

Presenting authors, who are ORS Spine Research Section members, will automatically be considered for all applicable awards and grants based on information gathered upon submission of the abstract including [ORS Spine Research Section Podium and Poster Awards](#).

Abstract Submission Deadline: Monday, August 29

Submit Your Abstracts



Pictured: **Remy Walk, MS**

PhD Candidate, Biomedical Engineering, Washington University in St. Louis

Research Section Member Spotlight

This issue features **Remy Walk, MS, Washington University in St. Louis.**

Undergraduate Degree: BS, Mechanical Engineering, Cornell University

Graduate Degree: MS, Mechanical Engineering, Cornell University

Who do you consider your mentors?

*My PI **Simon Tang** has been my main mentor through my PhD and my thesis committee, Matt Silva, **Lori Setton**, Erica Scheller and Yousef Abu-Amar, have been essential in shaping my research.*

What is your specific area of interest in research?

My research has focused on the effect of injury and diabetes on intervertebral disc degeneration with a focus on innervation and vascularization.

What are you currently working on?

I have been working on establishing a tail puncture model as an alternative to lumbar puncture in mice. While mice tail puncture models have been used previously as an IVD degeneration model, there has not been much research into the innervation and vascularization response.

What has been the biggest challenge for you lately in your research?

Adapting histological staining procedures has always been a tedious aspect and recently, I developed a protocol for PGP9.5 and endomucin staining.

What are projects are you looking forward to?

I'm looking forward to utilizing the tail puncture model with genetic mouse models where I've only looked at degeneration with age.

What do you like to do outside of your work?

I like to bake; I am regularly baking sourdough bread.

What is the last book you read?

Magpie Murders by Anthony Horowitz. I'm a murder mystery fan and really enjoyed it so I'm currently reading another book of his, The Word is Murder.

What is the most unusual/unexpected item sitting on your desk right now?

Nothing really that unusual just with the St. Louis Summer I keep a cozy sweater at my desk.



Pictured: Dr. Peter Roughley

Dr. Roughley was particularly gifted in teaching and mentoring individuals, and always willing to instruct and advise his fellow scientists.

Peter Roughley, PhD Award

Now accepting applications!

The [award](#) will recognize a team (mentor and trainee) and provide \$2,000 to support the travel of the student or trainee.

Eligibility

- Mentor:
 - The mentor should be a well-established researcher who has demonstrated an outstanding and sustained commitment to mentorship.
 - The Mentor can be at any career stage beyond their PhD, MD, or DVM with a well-documented and sustained track-record of mentorship, with particular emphasis given to diversity and inclusion.

- The Mentor must also have clearly demonstrated impactful research relevant to the mentees research project; this may be viewed in its broadest sense.
- Mentee:
 - The Mentee must be an ORS and ORS Spine Section member in good standing.
 - The Mentee should be a doctoral candidate or a post-doctoral fellow (PhD, MD or DVM).

Deadline for submissions: September 30, 2022

Submit Your Application!



Journal Article Review

Remy also contributed to this issue's journal article review.

[Percutaneous lumbar annular puncture: A rat model to study intervertebral disc degeneration and pain-related behavior](#)

Richard A. Wawrose, Brandon K. Couch, Malcom Dombrowski, Stephen R. Chen, Anthony Oyekan, Qing Dong, Dong Wang, Chaomin Zhou, Joseph Chen, Karthik Modali, **Marit Johnson**, Zachary Sedor-Schiffhauer, T Keven Hitchens, Tao Jin, Kevin M. Bell, Joon Y. Lee, Gwendolyn A. Sowa, **Nam V. Vo**

JOR Spine
Volume 5, Issue 2
June 2022

With low back pain being a leading cause of disability with approximately 40% of low back pain being diagnosed as primarily due to discogenic pain, substantial research has been done to characterize intervertebral disc degeneration (IVD). Needle puncture models have been used to induced IVD degeneration. Lumbar puncture requires an invasive surgery to expose the IVD. The traumatic effects of the surgery alone could obscure the effects of the IVD injury. This paper sought to develop a minimally invasive lumbar puncture model in rats.

Male Fischer 344 rats (n=20) were used in this study. Rats were 7.5 months old and were euthanized 19-24 weeks post puncture. The experimental group (n = 10)

underwent fluoroscopically guided lumbar puncture where the L2/L3, L3/L4 and L4/L5 IVDs were injured and L1/L2, L5/L6 and L6/S1 served as internal controls. The control group (n = 10) did not undergo any procedure. An additional 7 rats underwent a sham procedure where the needle was inserted up to the point of puncturing the IVD. IVDs were injured with a 23G needle through the AF and NP. Serum samples, MRI and open field were taken at baseline and 1, 6, 12 and 18 weeks post puncture. L2/L3 functional spinal unit was used for H&E stained histological sections for quantitative degeneration grading and immunohistochemistry for MMP13 and aggrecan. L3/L4 GAG content was quantified.

MRI showed degeneration of the injured IVDs. Experimental rats demonstrated behavioral changes associated with pain while no differences between control and sham were detected. Serum neuropeptide Y and RANTES have previously been associated with chronic LBP. Serum NPY increased compared to baseline in experimental rats at 6, 12 and 18 weeks post puncture and was significantly greater than control at 12-weeks post puncture. While no differences between experimental and control rats in RANTES concentrations was observed, RANTES concentration in experimental rats was significantly lower than baseline at 18 weeks post puncture. No differences in serum were noted between sham and control. Histological grading confirmed degeneration of the punctured IVD, indicated increased MMP-13 and reduced aggrecan in the NP of punctured IVDs. In the NP, the punctured IVDs showed a significant increase in GAG/DNA, which is possibly driven by the decrease in DNA/Tissue Weight. In the AF, GAG/DNA was decreased in the punctured IVD. This study demonstrates that lumbar IVDs can be punctured via a purely percutaneous technique to prevent the morbidities associated with open exposures of the IVD.

Congratulations! JOR Spine Receives Impact Factor

*We are excited and very pleased to announce that [JOR Spine](#) has received its first impact factor (IF) of **3.757!***



Journal of Orthopaedic Research®

Volume 40, Issue 7
July 2022

[The function of CD146 in human annulus fibrosus cells and mechanism of the regulation by TGF- \$\beta\$](#)

Jie Du, Wei Guo, **Sonja Häckel**, Sven Hoppe, João P. Garcia, **Mauro Alini**, Marianna A. Tryfonidou, Laura B. Creemers, **Sibylle Grad**, **Zhen Li**

Pages: 1661-1671

[*High fat diet causes inferior vertebral structure and function without disc degeneration in RAGE-KO mice*](#)

Danielle N. D'Erminio, Divya Krishnamoorthy, **Alon Lai**, Robert C. Hoy, Devorah M. Natelson, Jashvant Poeran, Andrew Torres, Damien M. Laudier, Philip Nasser, Deepak Vashishth, **Svenja Illien-Jünger**, **James C. Iatridis**

Pages: 1672-1686

[*Anteroposterior shear stiffness of the upper thoracic spine at quasi-static and dynamic loading rates—An in vitro biomechanical study*](#)

Shun Yamamoto, Luis Dias, John Street, **Peter A. Crompton**, **Thomas R. Oxland**

Pages: 1687-1694



[ORS Career Center](#)

Check out the latest opportunities posted in the ORS Career Center:

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Emory Healthcare

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Cedars-Sinai Medical Center



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