



September 2022

Did you miss a newsletter?
Re-read or catch up on past issues [here](#).



The Symposium Agenda is Now Available!!

[Preview the sessions](#), opportunities for outdoor and adventure activities, and learn why you need to attend the [6th Symposium](#)!

Registration includes: Hotel stay for arrival on Sunday, November 6 and departure on Thursday, November 10.

Connect & collaborate with Section colleagues

Awards Deadlines EXTENDED!

[Peter Roughley, PhD Award](#)

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

Deadline for submissions: October 14, 2022

Submit Your Application!

ORS Spine Section Travel Fellowship

The fellowship will recognize an applicant and a host PI and provide \$1,500 to support the travel of the applicant for research exchange with the host PI.

Deadline for submissions: October 14, 2022

[Learn more & Submit](#)



*Pictured: **Denise Iliff, BS.***

Graduate Student in the Iatridis-Spine Orthopaedic Research Lab, Icahn School of Medicine at Mount Sinai

Research Section Member Spotlight

This issue features **Denise Iliff BS University of Kansas.**

Undergraduate Degree: *Molecular, Cellular, and Developmental Biology*

Graduate Student in the Iatridis-Spine Orthopaedic Research Lab, Icahn School of Medicine at Mount Sinai

Who do you consider your mentors?

*My PI, **Dr. James Iatridis**, and my direct project manager, **Dr. Alon Lai**, are my current academic mentors. They have both helped me tremendously in my journey through my grad program and in learning how to rigorously conduct academic research. I owe many thanks to both of them for taking the time to teach me all of the critical techniques necessary for my project, how to effectively present scientific work, and for continuously keeping me excited about science!*

What is your specific area of interest in research?

My specific area of interest in research is centered on chronic discogenic back pain.

What are you currently working on?

I am currently working with in vivo models that investigate how injuries to the intervertebral disc and endplates progress to spinal cord sensitization and chronic pain. My main project is to evaluate if vertebral endplate injuries in this model, which progress to Modic-like changes, result in sensitization and inflammation of the spinal cord by measuring substance P (SubP), microglia, and astrocytes in the spinal dorsal horn.

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

The biggest challenge in my research lately has been working with immunohistochemistry (IHC) and optimizing protocols for different antibodies. IHC is a very delicate process, needing high precision of methods, and there always is a learning curve for figuring out the staining process for new antibodies and tissue samples involving extensive use of positive and negative controls.

What are projects are you looking forward to?

In research, I have been particularly interested in the surgery stages of this project since my plans are to apply to medical school and become a future surgeon. I also like the clinical relevance of Modic-like changes in the model because Modic changes are so important in defining the human clinical condition. In my master's program, I'm getting started on the Practice Enhancement Engagement Resilience and Support (PEERS) program, which is a student mental health organization at Sinai. As a wellness advisor in PEERS, I will be facilitating small group sessions for first-year master's students focused on advancing the professional success and personal satisfaction while balancing academic and personal stressors!

What do you like to do outside of your work?

I enjoy the endless facets of art in my free time, through film, music, looking at art in museums/galleries and creating art myself!

What is the last book you read?

The last book I read was Righteous Dopefiend, an ethnography detailing the hardships of addiction and homelessness in Edgewater, CA.

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

If I am working from home, the most unusual item on my desk is usually my cat, Luna. If I am in the lab, it is my hanging embroidery piece of the molecular structure of serotonin.

Journal Article Review

Denise also contributed to this paper review...

[ISSLS PRIZE in Clinical Science 2022: Epidemiology, risk factors and clinical impact of juvenile Modic changes in](#)



paediatric patients with low back pain

G Michael Mallow, David Zepeda, Timothy G Kuzel, J Nicolas Barajas, Khaled Aboushaala, Michael T Nolte, **Alejandro Espinoza-Orias, Chundo Oh**, Matthew Colman, Monica Kogan, Frank M Phillips, Howard S An, Dino Samartzis

European Spine Journal
Volume 31, issue 5
May 2022

Low back pain (LBP) is a common major global health challenge, affecting over 70% of the population at some point during life, a leading cause of disability and costs >\$100B in annual health care expenses. Identifying the sources contributing to the advancement of LBP has been challenging. However, some studies have shown that LBP is strongly associated with intervertebral disc degeneration (IVDD) and can involve subchondral vertebral non-neoplastic marrow lesions in the endplate, or Modic changes (MCs).

MCs are characterized through T1 and T2- weighted magnetic resonance imaging (MRI) assessments and are broken down into four characterization types: inflammatory (type 1), fatty (type 2), sclerotic (type 3), and mixed (type 4). These MCs and their contribution to LBP have been explored in adult populations, but very little is known about their effects on pediatric patients.

The present study examines the epidemiology, risk factors, and clinical relevance of MCs in pediatric/juvenile patients. 207 patients between the ages of 11-20 years of age who presented with a complaint of LBP from 2009-2018 were used for assessment. Medical records from these patients were utilized to gather data on the duration of symptoms, medical intervention and clinic visits. Sagittal lumbar MRIs were analyzed from patients who presented with MCs to identify type and distribution of MCs according to disc space level. Further statistical analyses were conducted to assess phenotype/clinical characteristic discrepancies between groups of patients with and without MCs.

Out of the 207 patients in this study that presented with LBP, 14% had MCs observed from L1 to S1 vertebrae. Of these 14% with MCs, 50% presented with Modic type 2 (most prevalent), 27.1% type 1, 18.8% type 3 and 4.7% mixed. Further statistical analysis showed that there was a significant association between disc space narrowing, presence of Schmorl's nodes, endplate damage, and spondylolisthesis to MCs. Patients with MCs also had

significantly greater chronicity than non-MC presenting patients. These findings point to the importance of early detection of MCs to prevent the advancement of LBP.

This study is one of the first of its kind to explore pediatric/juvenile MCs on a large scale and provides novel insight into the presence and structural phenotypes associated with MC within the pediatric population. Further elucidation is needed to understand the etiology of MCs and provide treatment for pediatric patients with LBP.

Check out these other opportunities...



JOR Spine Early Career Award

Recognition

- Honorarium of \$1,000
- Complimentary registration for the ORS Annual Meeting

Interested individuals should contact the Editorial Office at JORSpine@wiley.com by **October 31, 2022**

[Learn more](#)



View the latest job openings available via the [ORS Career Center](#)



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