



YOUR TRUSTED RESOURCE ON TMJ

TMJ News Bites

Issue 1 2021

You may have noticed a lapse since the last issue of *TMJ News Bites*. This past year has been a difficult one, but we continue to work hard to obtain the best scientific research and safe and effective treatments for TMJ patients.

Can You Help?

Your TMJ Association (TMJA) depends on the financial support of individuals for its day-to-day operations. 2020 was a tough fundraising year and we would be most grateful for your financial support (no matter how big or small)! Please click here to [give online](#) or to [learn about other ways you can give](#).

TMJA's Activities/Projects

Celebrating a New Website!

After a challenging year we are happy to report our new website is up. We invite you to visit www.tmj.org. It is mobile-friendly, secure, and has a brand-new look with the most comprehensive and credible information on TMJ.



We welcome your feedback on the new site. You can help educate your friends, family, and health care providers about TMJ by directing them to our website.

We thank all of our donors who helped make this new website possible, the many volunteers who worked with us and Stir Marketing for overseeing this project.

TMJ Patient-led RoundTable Project

In 2016, the TMJA developed the [TMJ Patient-led RoundTable \(RT\)](#) – a patient-centered, public-private collaboration among the federal government, basic and clinical scientists, clinicians, dentists, manufacturers and above all patients. The RT was originally developed to understand why some TMJ patients improve with implant surgery, while others worsen, however it became clear that we need to address the full picture of TMJ - what we know about the biology of the patients, the state of science, the extent of evidence based research underlying treatments and the state of education and knowledge about TMJ among the dental community in order to understand the gaps in these areas that needed to be addressed.

RoundTable working groups continue to address the recommendations that resulted from the [March 2020](#)

[National Academy of Medicine report on TMJ Disorders](#). This is a monumental task but we are working with government agencies, professional groups, and researchers. The patients are playing a critical role in all of these working groups.

Currently we are working on **developing the framework for the first-ever TMJ patient registry** as part of the Medical Device Epidemiology Network in collaboration with the FDA and other federal agencies, scientists, clinicians, dentists, advocates, manufacturers, and other stakeholders. The registry will include patient-reported outcomes along with a separate portal for entering all physician and hospital health records. The goal of the registry is to establish a scientifically valid roadmap that can reliably predict treatment outcomes for individual patients.

Additional RoundTable projects include developing:

- **Patient Reported Outcomes (PROs)** for the TMJ registry using patient focus groups. PROs capture what treatment outcomes patients feel are most important.
- **Core Data Elements.** This is the list of specific information that the TMJ registry will capture and collect from patients, health care providers, and electronic health records.
- **A New Treatment Model of Care for TMJ Patients.** Because TMJ disorders are complex, multisystem conditions, it is important that we incorporate the medical community into the care of TMJ patients going forward.

We will continue to keep you updated on the progress of all of our projects and [welcome your questions and ideas](#). We'd also love to hear from volunteers willing to participate in the RoundTable.

A Patient's Artistic View of TMJ

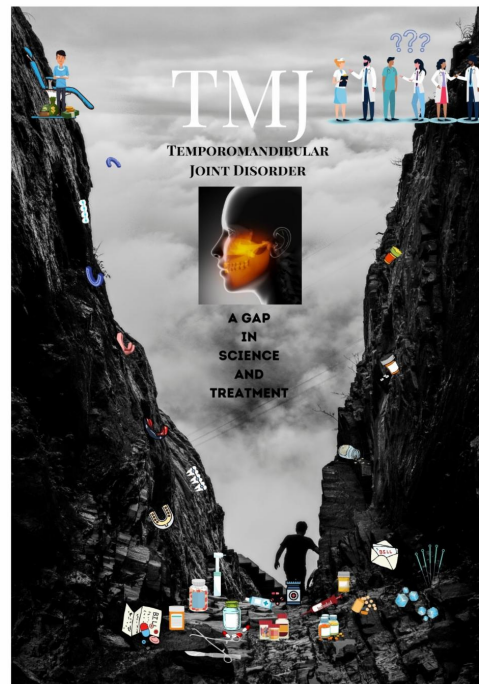
The TMJA thanks Adriana for sharing her artwork and for providing the following statement.

If I was asked to sum up what my 40 year journey with TMJ disorders “looks” like, this is what I see with my mind’s eye.

We are stuck in the proverbial “gap” between dentistry and medicine. The gap in science, standards, protocols, education, collaboration and accountability. We feel trapped in our dark world of pain willing to try whatever is thrown our way that “might” give us some relief.

Dentists and surgeons get richer while we get poorer. We get sent from one medical specialist to another and get one prescription after another. That is what I see with my mind’s eye.

What I want to say now is: We are still years, if not decades, away from bridging the gap. The only people working to narrow the gap is The TMJ Association (TMJA), but they can’t do it alone. [Register with the TMJA](#), advocate for research, evidence-based treatments, and support these efforts with a [contribution today!](#)



Adriana in Canada

Facial Pain: Recognizing & Treating Trigeminal Neuralgia, Temporomandibular Disorders

The *Practice Pain Management* website recently highlighted an Academy of Pain Medicine 2021 virtual meeting session with Alexander Feoktistov, MD and Sean Mackey, MD who addressed two challenging chronic facial pain conditions: trigeminal neuralgia and **temporomandibular disorders**. [Click here to read these highlights.](#)

Developing Patient-Centric Approaches for the TMJ: It's About Time to Ask Patients, "What's Important to YOU About TMJ Treatments?"

This project is an example of how The TMJ Association is collaborating with government agencies, academic researchers, and others. It is heartwarming for us to see scientists who have traditionally worked at the lab bench on human diseases finally communicate with patients having the condition they are researching. We are grateful to the many TMJ patients who responded to the request to participate in the interview process.

Researchers at the University of California, Irvine (UCI) are working toward developing tissue-engineered therapeutics for the temporomandibular joint (TMJ) using patient-centric approaches. Fourth-year Ph.D. candidate Ryan Donahue, under the tutelage of Dr. Kyriacos A. Athanasiou, has been working toward this goal by publishing scientific articles and participating in the NSF Innovation Corps (I-Corps) program at UCI.

"The I-Corps program is a market discovery program that leads innovators through a learning process to discover their place in the market. Central to any medical therapeutic is the patient receiving such a therapeutic and the doctor delivering it. Through this program, we collaborated with The TMJ Association to talk with patients to learn and understand the current needs directly from patients," said Mr. Donahue.

Mr. Donahue and his team interviewed patients from a wide array of backgrounds and types of temporomandibular disorders (TMDs). The program focused on digging into the patient needs by doing personal, individualized interviews. "Typically, we are the ones doing the benchtop science, but it is really rewarding to learn what the clinical needs are from a patient perspective and experience. We were able to get the patient viewpoint about the debilitating pain and lack of function so many TMJ patients experience," said Mr. Donahue. [Read more.](#)

Knee Orthopedics as a Template for the Temporomandibular Joint

Benjamin J. Bielajew, Ryan P. Donahue, M. Gabriela Espinosa, Boaz Arzi, Dean Wang, David C. Hatcher,
Nikolaos K. Paschos, Mark E.K. Wong, Jerry C. Hu, Kyriacos A. Athanasiou

Published: April 14, 2021 in *Cell Reports Medicine*

Abstract Summary: Although the knee joint and temporomandibular joint (TMJ) experience similar incidence of cartilage ailments, the knee orthopedics field has greater funding and more effective end-stage treatment options. Translational research has resulted in the development of tissue-engineered

products for knee cartilage repair, but the same is not true for TMJ cartilages. Here, we examine the anatomy and pathology of the joints, compare current treatments and products for cartilage afflictions, and explore ways to accelerate the TMJ field. We examine disparities, such as a 6-fold higher article count and 2,000-fold higher total joint replacement frequency in the knee compared to the TMJ, despite similarities in osteoarthritis incidence. Using knee orthopedics as a template, basic and translational research will drive the development and implementation of clinical products for the TMJ. With more funding opportunities, training programs, and federal guidance, millions of people afflicted with TMJ disorders could benefit from novel, life-changing therapeutics. [Link to full article \(.pdf\)](#)

A Preliminary Analysis of the Wear Pathways of Sliding Contacts on Temporomandibular Joint Total Joint Replacement Prostheses

Henrique Pinto-Borges, Oscar Carvalho, Bruno Henriques, Filipe Silva, António Ramos and Júlio C. M. Souza

Published: April 22, 2021 in *MDPI Metals*

Abstract Summary: In the last years, several materials and design have been assessed in an attempt to improve the mechanical performance of temporomandibular joint total joint replacement (TMJ TJR) prostheses. However, the wear of the TMJ TJR condyle to the polymer-based fossa component during loading and sliding movements. That promotes the release of debris and risks of toxicity to the surrounding tissues. The purpose of this study was to perform a narrative literature review on the wear of TMJ TJR sliding contacts and potential toxicity of metallic debris to the patients. Previous studies reported a significant deterioration of the sliding contact surfaces of TMJ TJR prostheses. Material loss as a result of wear can cause a TMJ TJR condyle/fossa mismatch and the modification of the contact pressure and chewing loading. As a further consequence of wear, metal particles are released to the surrounding tissues with a high risk of local tissue and systemic toxicity through the bloodstream. The presence of particles induces the stimulation of inflammatory reactions depending on the concentration and size of debris. Thus, CoCr-based condyle release metallic ions and sub-micron particles that can be engulfed by macrophages or internalized by other tissue cells. The wear and material loss of TMJ TJR could be decreased by design optimization and novel materials with low friction and contact pressure. That consequently decrease the amount of metallic ions and particles to the surrounding tissues, preventing peri-prosthetic inflammatory reactions. [Link to pull article \(.pdf\)](#)

Educational Seminar Opportunity

The International Association for the Study of Pain is holding a virtual seminar on Tuesday, May 11, 2021 on – ***Effects of Gonadal Hormones on Serotonergic Modulation of Trigeminal Nociceptors.***

Speaker: Dayna Averitt, PhD, Texas Woman's University

Moderator: Richard Traub, PhD, University of Maryland School of Dentistry

Abstract: Approximately a quarter of the population experiences craniofacial pain mediated by the trigeminal neurosensory system. Many trigeminal pain disorders such as migraine, **TMD pain**, burning mouth syndrome, and trigeminal neuralgia are two-to-four times more common in women. One theory for the prevalence of trigeminal pain disorders in females is hormone modulation of trigeminal pain mechanisms. While there is a rich literature implicating gonadal hormones in the modulation of trigeminal pain, the literature is complex and controversial on whether estrogen enhances or reduces pain.

Within this realm, our recent work has focused on determining the effects of estradiol on serotonergic

neuroimmune modulation of trigeminal nociceptors. In the periphery, serotonin is a pronociceptive and proinflammatory mediator released by a variety of immune cells and activates and sensitizes trigeminal nociceptors. This seminar will present recent findings from our lab that indicate that estradiol modulates serotonergic nociceptive signaling in the trigeminal system that is dependent on the estrous cycle, dosage and timing of estradiol treatment, involves the nuclear estrogen receptors, and that serotonin and estradiol target both macrophages and trigeminal nociceptors to modulate trigeminal pain.

[Click here for more information and how to register.](#)



About The TMJ Association...

Changing the Face of TMJ

The TMJ Association, Ltd. is a nonprofit, patient advocacy organization whose mission is to improve the quality of health care and lives of everyone affected by Temporomandibular Disorders (TMJ). For over 30 years, we have shared reliable information on TMJ with people like you. We invite you to visit our website, www.tmj.org.



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