

# TMJA

*The TMJ Association, Ltd.*

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## TMJA's 8th Scientific Meeting

TMJA celebrated its 8th biennial scientific meeting this fall provocatively challenging scientists to answer, "How Can Precision Medicine Be Applied to Temporomandibular Disorders and its Comorbidities?" For three days scientists from fields outside TMD, as well as some of the leaders you have read about in these *News Bites*, addressed this question from multiple points of view. To set the stage, National Institutes of Health (NIH) spokespersons explained exactly what precision medicine was all about. It is the attempt to **customize healthcare, with medical decisions, practices, and/or products being tailored to the individual patient.**

To achieve that goal, a major new program, the **U.S. Precision Medicine Initiative**, under NIH leadership, has been launched to amass health data on a huge sample of volunteers. No less than one million Americans—male, female, old, young, sorted by race, ethnicity, geographic locale and socioeconomic status—will be recruited to work with scientists to provide genetic information, electronic health records, and a range of physiological, lifestyle and environmental data. This will take time, obviously, but the experts say it is an effort that is doable now because of the rapid advances in technology that make genome sequencing cheap and fast, the adoption of electronic health records, and new techniques for gathering personal data on an individual using sensors and devices that could be built into a smart phone app.

That said, attendees at the TMJA meeting heard speakers describe research on many

fronts. Among them: ways in which TMD patients with overlapping pain conditions may be sorted into subsets with common characteristics that permit more selective targets for treatment, new ways of delivering and testing drugs, further fine-tuning of chronic pain pathways, more on interactions between the nervous and immune systems, and new ways of modelling disease using stem cells. This winter, a summary of the meeting and recommendations for future research will appear in *TMJ Science*.

## **TMJA's Activities Highlighted in NIDCR's E-Newsletter**

*National Institute of Dental and Craniofacial Research's October 2016 E-newsletter featured The TMJ Association's two meetings earlier this year.*

### **Two Temporomandibular Disorder Meetings Discuss State of the Science**

Two meetings were held this summer for experts to describe and discuss the state of the science regarding temporomandibular disorder research. On June 16, NIDCR leadership participated in the MDEpinet TMJ Patient RoundTable that was organized by the Food and Drug Administration (FDA) and the TMJ Association to convene clinicians; temporomandibular disease patients and patient advocates; industry representatives; and NIH, FDA, and Agency for Healthcare Research and Quality representatives to discuss TMJ implant performance, surgical outcomes, and adverse events. The meeting was held at FDA headquarters in Silver Spring, Maryland. Dr. Somerman presented "NIDCR TMJ and Pain Research" and NIDCR Acting Deputy Director John Kusiak, PhD, summed up the discussions by proposing future research directions.

On September 11 to 13 in Bethesda, Maryland, directors and other representatives from NIH, other federal agency officials, scientists, clinicians, and patients took part in the Eighth Scientific Meeting of The TMJ Association, "How Can Precision Medicine Be Applied to Temporomandibular Disorders and Its Comorbidities." This meeting explored how precision medicine strategies, such as pharmacogenomics approaches, might be used to inform the management of temporomandibular disorder and associated conditions. Several NIH directors, including Dr. Somerman, spoke at the three-day meeting, which was supported by a grant from NIDCR. In addition, the National Center for Complementary and Integrative Health, National Institute of Arthritis and Musculoskeletal and Skin Diseases, National Institute of Neurological Disorders and Stroke, and NIH Office of Research on Women's Health also contributed funds for the meeting.

## **Are TMD Patients More Pain Sensitive? Maybe. But It's Complicated**

TMD patients come in many different varieties. Some experience pain and dysfunction confined only to the jaw and/or the associated chewing muscles. Other TMD patients have jaw pain plus one or more other painful conditions elsewhere in the body. Scientists have been trying to figure out if these differences in their experience of pain reflect any long-term changes in the brain, in particular a phenomenon called "central sensitization," in which individuals become more sensitive to pain over time. Although "central sensitization" is considered a normal phenomenon, pain sensitive individuals may have brain changes that may make their pattern of central sensitization different than that of individuals without chronic pain.

To test for central sensitization, researchers typically use a 'temporal summation' method, in which volunteers are exposed to a nonpainful stimulus that becomes painful with repeated exposures to it. You might make an analogy to water dripping on rock

that over time eventually penetrates the rock. In the temporal summation method used in the TMD experiment described below, volunteers were exposed to a heated pad placed on their palms for multiple times over a fixed time period. Individuals experiencing central sensitization would feel the heated pad becoming painful over time.

It is widely believed that individuals with fibromyalgia (widespread pain with diffuse tender points that are painful when lightly pressed) and perhaps some other pain conditions, including TMD, experience enhanced central sensitization, demonstrated either by reaching peak pain earlier in the temporal summation test or perhaps by having more lasting 'aftersensations' following removal of the heat. [In a study conducted at New York University by Dr. Karen Raphael in collaboration with other institutions](#), researchers compared experimental pain sensitivity in three groups: patients with only muscle-based TMD (n=100), patients with TMD plus fibromyalgia (n=26), and a matched pain-free control group (n=48). Their surmise was that the TMD patients with fibromyalgia would have different pain sensitivity than TMD patients whose pain was confined to the chewing muscles or normal controls.

**Results:** Surprisingly, when the researchers looked at each individual participant, temporal summation did not often occur as expected, and rates of summation did not differ among participants in different groups. Even at the highest constant temperatures considered safe to test, less than half of participants showed an increase in subjective painfulness of the heated pad over repeated presentations. Participants were more likely to either rate the heat as having a consistent painfulness over time or, for some, even a reduction in painfulness. Examining just those participants who appeared to become centrally sensitized, the rate and pattern of central sensitization did not differ among any of the study groups. However, the subgroups of TMD patients had longer-lasting painful aftersensations than controls when the heated pad was removed. TMD patients with fibromyalgia had similarly painful aftersensations to those TMD patients without fibromyalgia.

**Conclusions:** This study shows that some of the methods used to assess pain sensitivity do not work as researchers expect. However, the problems may be obscured when averaging responses across all participants in a group. Nevertheless, since TMD patients had more lingering painful aftersensations when the heated pad was removed, the researchers were able to support the concept that TMD patients, both those with and without fibromyalgia, have some form of disturbance of central nervous system-managed pain processing mechanisms.

### ***From Functional Pains to Central Sensitivity Syndromes***

*The following article in Medscape refers to TMD and some of its overlapping pain conditions as functional pains and proposes to change that description. Medscape is the leading online resource for physicians and healthcare professionals worldwide, offering the latest medical news and expert perspectives; essential point-of-care drug and disease information; and relevant professional education and CME.*

When a patient presents with pain of no obvious organic origin, they are often labelled as having 'functional' pain. The exact diagnosis is derived from the organ system displaying the predominant symptoms e.g. musculoskeletal pain in fibromyalgia (FM) or visceral pain in irritable bowel syndrome (IBS).

The worldwide prevalence of all functional pain syndromes (FPS) is 15-20%. World Health Organization (WHO) surveys reveal that ~10% of primary care patients develop a chronic pain condition within 12 months of initial registration. Of these, at least 50% continue to have symptoms beyond 1 yr. FPS cause enormous economic burden on society with concurrent ramifications for the individual's family in particular and society

in general. FM alone has been estimated to cost around £4000 per patient per year.

There has been a paradigm shift in the understanding of FPS. The old model of multiple discrete chronic pain conditions is being replaced by a more overarching, although no less complex, state of central sensitivity syndrome (CSS). Evidence is being accrued that FPS represent the phenotypic output of a complex interplay between genetic susceptibility, gene-environment interactions, and environmental triggers.

Four common FPS will be reviewed in this article: FM, IBS, **temporomandibular dysfunction (TMD)**, and chronic cardiac chest pain (CCCP). The pathophysiology and management of each will be examined and the case presented for a shared underlying mechanism called CSS. Once this new mechanism is adopted more widely, it will allow for future novel management options to be developed in a coherent and systematic manner. [Click here to read full article:](#)  
[http://www.medscape.com/viewarticle/870947\\_1](http://www.medscape.com/viewarticle/870947_1)

## TMD and Nutrition

The TMJA has partnered with *Dear Doctor*; a dental patient education magazine on TMJ related articles. Recently *Dear Doctor* featured an article on nutrition entitled, [What to Eat When TMJ Pain Flares Up](#). To read this article, go to:  
<http://www.deardocor.com/articles/what-to-eat-when-tmj-pain-flares-up/>

The article also mentions our booklet, *TMD Nutrition and You*, which was specifically developed to help those with compromised oral function, maintain healthy nutrition despite their oral disability. [Click here to download a free copy of our booklet.](#)

## Meet Kristin...



I've been suffering for 20 plus years with TMJ. I have had a very long journey with my TMJ. I could write a book on everything that I have been through, but I will sum it up. I have had two surgeries on the right side of my jaw with the hopes of making it better. Now I've learned that I need yet another surgery to have the joint replaced in the right side of my jaw. I have severe pain in my jaw and headaches that never go away. I suffer with pain that I can't even describe when I'm trying to eat my food (which has to be cut into little pieces). I feel so helpless. I had never been told just how bad TMJ can get. For years I have seen many doctors who act like it's no big deal. Let me assure you it is a very big deal for someone who suffers from this condition. It has taken over my whole life. My hope is that one day there will be a better outcome for all of us TMJ sufferers. Just wanted to share my story.

## Volunteers Needed

*The TMJA has heard of the following clinical studies seeking qualified candidates to help in research. Read on to see if you are eligible to participate.*

## Genetics of Facial, Jaw and Headache Pain

Chronic orofacial pain represents an economic burden both in the United States and worldwide affecting 5-10% of the population. Researchers at the University of Maryland, Baltimore have developed a novel and comprehensive genetic, behavioral and imaging approach to study the role of genetic variations on pain mechanisms in healthy participants as well as participants with facial, jaw and headache pain.

Who is eligible to participate?

You may qualify if you:

- Are 18-65 years of age.
- Speak and understand English.
- Are either in good health, or you have had headaches, facial pain, and/or jaw pain recently.

This research study requires:

- One screening visit for ensuring eligibility.
- One experimental study session lasting no more than four hours.

Compensation for all sessions and parking vouchers are provided. If you are interested, please email [CollocaLab@son.umaryland.edu](mailto:CollocaLab@son.umaryland.edu) or call 410-706-5975. For more information, please read the [informational flyer](#).

## Comparative Study of Women Considering or Currently Receiving Botox® Injections for TMJ Pain

Are you a woman within the Los Angeles or New York City areas with TMJ pain in facial muscles, who has either:

- a. recently had Botox® injections for your pain or
- b. not had Botox® for your pain but has thought about such treatment?

If either is true for you, you may qualify for an observational research study centrally administered by the New York University College of Dentistry. It is funded by the National Institutes of Health (NIH). The purpose of this study is to understand potential health risks that may be caused by treating "TMJ pain" with Botox® injections. Potentially eligible women must first complete a brief interview via telephone to confirm eligibility. [Click here for further study information and details](#).

## Biobehavioral Pain Management in TMD

Researchers at Johns Hopkins School of Medicine and the University of Maryland Dental School (Baltimore) are looking for volunteers with widespread pain that includes jaw pain (TMD) to participate in a research study to investigate the effect of three different non-drug treatments on pain and sleep symptoms. If you have fibromyalgia and jaw pain you may be eligible. For additional information, please read through the [study information brochure](#) and [patient consent form](#).

## NIH Funding Opportunities

Basic and Clinical Research

In an effort to promote greater understanding of TMD, and to develop safe and effective evidence-based diagnostics and treatments, The TMJ Association promotes and encourages basic and clinical research on Temporomandibular Disorders. [We](#)

[invite you to view a listing of the latest National Institutes of Health \(NIH\) funding opportunities for scientists interested in advancing TMJ research.](#) The following are the newest NIH requests for information and funding announcements:

- [Implementation Science Research to Improve Dental, Oral and Craniofacial Health \(U01\).](#) This Funding Opportunity Announcement (FOA) encourages investigators to submit research grant applications on the use of implementation science strategies aimed at reducing the time between establishment of the evidence base of interventions/policies/practices and widespread uptake and adoption for dental/oral/craniofacial health.
- [Stimulating Peripheral Activity to Relieve Conditions \(SPARC\): Pre-clinical Development of Existing Market-approved Devices to Support New Market Indications \(U18\).](#) This NIH Funding Opportunity Announcement (FOA) is part of the Stimulating Peripheral Activity to Relieve Conditions (SPARC) Common Fund program. This FOA invites applications exclusively for non-clinical tests in animal models to obtain safety and efficacy data that support new market indications for a limited set of neuromodulation devices. Partnering companies (see Device Portal) have agreed to provide neuromodulation technology to investigators supported by the SPARC program. Pre-clinical developments supported by this FOA are expected to generate the necessary safety and efficacy evidence to enable an Investigational Device Exemption (IDE) submission for a future pilot clinical study.

## Young Investigators Urged to Apply for USBJI Career Development and Grant Mentoring Program

The United States Bone and Joint Initiative (USBJI) and Bone and Joint Canada are dedicated to increasing research of musculoskeletal diseases. The USBJI has developed a grant mentoring program to provide early-career investigators an opportunity to work with experienced researchers in our field to assist them in securing funding and other survival skills required for pursuing an academic career.

This program is open to promising junior faculty, senior fellows or post-doctoral researchers nominated by their department or division chairs. It is also open to senior fellows or residents that are doing research and have a faculty appointment in place or confirmed. Basic and clinical investigators, without or with training awards (including K awards) are invited to apply. Investigators selected to take part in the program attend two workshops, 12-18 months apart, and work with faculty between workshops to develop their grant applications. The next workshop is scheduled to take place April 7-9, 2017 in Rosemont, Illinois (Chicago). The unique aspect of this program is the opportunity for attendees to maintain a relationship with a mentor until their application is funded.

Deadline to apply for the Spring 2017 Workshop is [January 15, 2017](#). To apply for this program, please go to their website, [www.usbji.org/programs/yii/call-for-application](http://www.usbji.org/programs/yii/call-for-application)

## Research E-Newsletter

*Cutting Edge - COPCs Research Advances*

*Cutting Edge - COPCs Research Advances*, is an electronic newsletter published by the Chronic Pain Research Alliance, an initiative of The TMJ Association. Developed to keep the medical-scientific community abreast of recent research advances, this

publication contains abstracts of recently published studies on the epidemiology, pathophysiology and clinical management of Chronic Overlapping Pain Conditions. These conditions include **temporomandibular disorders**, chronic low back pain, chronic migraine and tension-type headache, endometriosis, myalgic encephalomyelitis/chronic fatigue syndrome, fibromyalgia, vulvodynia, irritable bowel syndrome and interstitial cystitis/painful bladder syndrome.

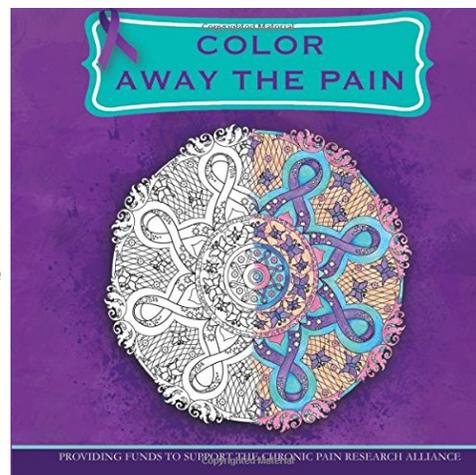


The most current issues are now available for your review at:

[http://www.cpralliance.org/New\\_Findings](http://www.cpralliance.org/New_Findings). If you would like to receive future issues of *COPCs Research Advances*, [click here to register](#).

## Looking for a Fun Holiday Gift Idea?

[Check out this new book by Jack Plaxe, \*Color Away the Pain\*](#). Jack and his team created a new coloring book to raise funds for research and recently contacted us and said his team wanted to support the TMJA's initiative, the Chronic Pain Research Alliance. They will donate 100% of the royalties. Additionally, if you order through [AmazonSmile](#), the TMJA will benefit a second time from your purchase when you select **The TMJ Association** as your charity.



## Educational Brochures on TMD

*Your Guides for Temporomandibular Disorders* - This brochure written by the TMJA is a straightforward, easy-to-read booklet that guides patients in how to make health care decisions. It is available [by mail](#) or as a [PDF on our website](#) and we encourage you to share it with your friends, health care professionals and family members.

*TMJ Disorders* - This brochure is produced and distributed by the National Institute of Dental and Craniofacial Research in partnership with the Office of Research on Women's Health, components of the National Institutes of Health (NIH) in Bethesda Maryland. Part of the U.S. Department of Health and Human Services, NIH is one of the world's foremost medical research centers and the federal focal point for medical research in the United States. This booklet is available in English and Spanish at: <https://www.nidcr.nih.gov/OralHealth/Topics/TMJ/TMJDisorders.htm>.

## Dental Care Guide

*Temporomandibular Disorders, Dental Care and You*

The TMJ Association developed this guide to provide you with oral hygiene self-care tips that you can do at home, as well as suggestions for future dental appointments.

Routine maintenance of your teeth and gums should reduce the risk of dental disease and the need for invasive dental treatments. [Click here to view on our website.](#)

## TOBI

### *Our New Community Partner*

The TMJA was recently invited by TOBI to be one of their community partners and participate in the [TOBI Cares Donation program](#). TOBI is a fashion e-commerce company with over 1.5 million customers worldwide. TOBI will donate 1% of eligible purchases to The TMJ Association.

# TOBI

## Support Our Work

The TMJ Association (TMJA) is the only patient advocacy organization fighting for the best science that will lead to a greater understanding of Temporomandibular and related disorders, as well as safe and effective treatments. We cannot *change the face of TMJ* without YOU.

[Click HERE to make a tax-deductible online contribution today!](#)



## 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 (TMD). For over 25 years we have shared reliable information on TMD with people like you. We invite you to visit our website, [www.tmj.org](http://www.tmj.org).

- If you're not currently receiving *TMJ News Bites* and would like to [be on our mailing list, sign up here](#).
- [Past issues of \*TMJ News Bites\*](#) are also available on our website.

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