



From The Inbox . . .

I was so relieved to find a website dedicated to TMJ disorders. I have been experiencing neck pain, eye pain, headaches, dizziness, and jaw pain for almost four months now. Aside from all of this, I have Fibromyalgia, Chronic Pain Disorder, and Interstitial Cystitis.

In March I started getting neck pain. I used some moist heat and anti-inflammatory medication as needed. A few weeks later, my jaw was locking up on me. It was also popping whenever I yawned or chewed my food. I was literally beside myself. I asked my doctor to X-ray my neck, due to the severity of the pain. He told me I have some mild arthritis, but nothing that would cause me the discomfort I've been experiencing.

I do not have any dental insurance, so my care will be very limited. I can however, refer to your website for advice on how to do my best with self care treatments at home. I am thankful that this exists, for I was afraid I was going crazy with all of these symptoms. ♦

Elaina

2013 Was A Very Good Year... Looking Forward To 2014

We are delighted to have this opportunity to wish you all the best during the holiday season and a new year filled with good health and happiness. We also want to say **Thank You for your constant support and highlight The TMJ Association's (TMJA) accomplishments over the past year and our plans for 2014.**

I am happy to report that our advocacy efforts continue to yield results that bode well for all TMJ patients. After years of asking that attention be focused on the Temporomandibular Joint, on May 3rd three Institutes of the National Institutes of Health (NIH) came together to organize a Round Table Discussion on the structure and function of the jaw joint as it functions normally and what happens when things go wrong. Discussion topics included factors important in the onset and transition to chronic TMJ pain, specific molecular biomarkers of disease, new methods of measuring joint function, and future research directions. In other words, real science! The recommendations that resulted from this meeting were developed into an initiative (of the National Institute of Dental and Craniofacial Research (NIDCR)) that will guide future research on the jaw joint – quality research so desperately needed by TMJ patients. Studying the many aspects of the TM joint will bring scientifically based knowledge to the field that will guide professionals in their diagnostics and treatments of this joint.

Throughout the year we remained active in the Chronic Pain Research Alliance of which TMJA is a founding member. We continue our advocacy with regard to the Trans-NIH Overlapping Conditions Committee to fund research projects which will include studying conditions that often accompany TM Disorders – chronic fatigue syndrome, chronic headache, endometriosis, fibromyalgia, interstitial cystitis, irritable bowel syndrome, and vulvodynia. We need research to nail down what these conditions have in common and what makes them unique.

While we are pleased at the progress made, you and we know that our job is not done. We need so much more! We still have many unanswered questions including: Why does it seem that the jaw joint is so hard to treat? Why are many patients worse after they've had jaw joint surgery than they were before? Why are people with joint replacements in other parts of the body doing so much better than those with TMJ replacements? Why don't we have the quality of research that other joints have? Why do most TMJ patients have one or more of a cluster of overlapping conditions? Why does TMD have such a significant impact on women. And more?

We have been asking ourselves these questions for the past 25 years. And we know that you share our concerns and more importantly, the urgency for answers and solutions. This was reflected in a survey of our website visitors this summer.

Almost 80 percent of respondents want more scientific research conducted on TMD. This priority was echoed by the scientists and policy makers whom we interviewed as we were planning our 2014 priorities. This convinced us that **advocating for and promoting scientific research must remain our #1 priority.** Until we have scientifically validated diagnostics, treatments and greatly improved scientific understanding of TM Disorders we will continue to receive hit-and-miss, trial-and-error therapies. So we will continue to ask these questions until you get the answers you need for better medical care.

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The TMJ Communiqué

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NIH Releases A Research Agenda On Overlapping Pain Conditions

Last summer, the National Institutes of Health convened a first-ever federal workshop on overlapping pain conditions. The conditions discussed were: temporomandibular disorders, fibromyalgia, endometriosis, chronic fatigue syndrome, chronic headache, interstitial cystitis/painful bladder syndrome, irritable bowel syndrome, and vulvodynia.

Basic and clinical researchers as well as patient advocates were invited to discuss this emerging field of study and to develop research recommendations to advance the state of the science.

The meeting resulted from the urging of congressional leaders and the four members of the Chronic Pain Research Alliance: The TMJ Association, the Chronic Fatigue and Immune Deficiency Syndrome Association of America, the Endometriosis Association, and the National Vulvodynia Association.

For two days, the group heard epidemiological evidence that a number of chronic pain conditions frequently are found together in the same patient and many of these conditions occur predominantly or exclusively in women. Among recommendations for advancing research in these conditions are to:

1. Develop standardized ways to classify patients with overlapping pain conditions.
2. Search for common mechanisms of disease.
3. Define risk factors for the course of disease (onset, progression, exacerbation, etc.)
4. Develop research diagnostics and outcome measures.

We are grateful to Christin Veasley of the National Vulvodynia Association for providing a detailed summary, which is available online at: <http://www.painresearchforum.org/forums/discussion/25398-us-national-institutes-health-releases-first-federal-plan-advance-research> ♦

TMJA Annual Update *continued from page 1*

In 2014 we will continue to promote quality research:

- We will continue to educate our federal elected officials about the need for increased research funding on TMD, and work with agencies of the National Institutes of Health to ensure that funding increases and that the research is of the highest quality.
- We are planning the Seventh Science Meeting of The TMJ Association in September 2014.
- We will explore raising money to fund research on TMD. Grants of \$20,000 to a young investigator will enable that person to carry out a research project, which if successful, can enable the investigator to apply to the NIH for a larger grant to continue this project. Seed grants will attract more scientists to this field and we desperately need them.
- The TMJA will explore traditional and innovative avenues to transfer the state-of-science, evidence-based information about TMD to not only medical and dental schools, practicing physicians and dentists but to other health care providers, such as nurses and physical therapists. More about this in our next communication.

In summary, progress is being made. You have reason for hope. The amount and quality of research around TMD is improving. However, we need more funding, we need more scientists, we need much more research, and as important – we need the people treating TMD to practice according to evidence based on already established science. Professional education, in addition to our innovative scientific meeting, will be a major focus for your TMJ Association in 2014.

Please feel free to pat yourself on the back because we couldn't have accomplished what we did without your financial and moral support.

It is now that we ask you to send as generous a contribution as you can so that we are able to continue this work until Temporomandibular Disorders are something you only read about in history books. ♦

Donald M. Birk,
TMJA Board Chair

Exploring The Temporomandibular Joint: NIH Sponsors Round Table

For many years the TMJA has asked agencies of the National Institutes of Health (NIH) to convene a meeting to assess what we know about the TM joint and to determine gaps in our knowledge. On May 3, 2013, the NIH held a scientific Round Table of experts to do just that. The following is a summary of the meeting.

The Mysterious Joint. Some things we do know about the Temporomandibular Joint. It's the most complex joint in the body enabling movement in 3 dimensions: forward and back, side to side, and up and down. Also, it's paired. Unlike other joints in the body your two TMJs work as a team, coordinating their motions. Finally, the composition of the soft tissue of the joint differs from soft tissue of other joints. But otherwise the joint remains mysterious, an orphan in terms of study—excluded by scientists who investigate other joints in the body, and not much adopted by dental researchers either. The TMJ Association has for years asked the National Institutes of Health (NIH) to address this problem, with the result that a workshop to explore what is and what is not known about the joint was convened on May 3. Three agencies of the NIH—the National Institute of Dental and Craniofacial Research (NIDCR), the National Institute of Arthritis and Musculoskeletal and Skin Diseases, and the National Institute of Biomedical Imaging and Bioengineering sponsored the workshop. They invited thirteen experts, most from bioengineering and orthopedic research, to address the structure and function of the bone, muscle, cartilage and other components of the joint, and the various tools available to measure joint properties. The intent of the meeting was to have selected attendees present data followed by open-ended discussions about what research needs to be done, formulated as recommendations.

What we learned. There were lots of interesting observations—and just as many provocative questions. An initial presentation summarized that TM disorders are common, more prevalent in women, and often resolve by themselves. Persistent cases are predominantly myofascial in type and it was suggested that this type might also be associated with the comorbid pain conditions many TMD patients experience. It's not clear why TMD cases fall off after age 50—a time when arthritic problems in other joints are likely to increase. What was clear was that at this time

there are no effective TMD treatments. A video showed the position of the cartilaginous disc atop the upper end of the mandible (the condyle) in normal movement and under various forms of displacement; the latter considered a pathological change in categorizing forms of TMD. Yet some people have displaced discs over their lifetimes and they never experience pain. Much of the discussion stressed the dynamics of the joint: how it is affected by the amount of loading put on it, a factor which in turn affects the quality of the bone, muscles, ligaments, and blood supply of the joint. Alternatively, limited use of the joint because of disease and pain may further exacerbate problems by weakening bone and muscles, the continued invasion of inflammatory markers, and so on, in a vicious cycle.

It was not clear which comes first in TM disease: cartilage degeneration, followed by bone loss, or vice versa. Another issue was the effect of periodontal disease and the serious consequences it might have on jaw bone quality. But under the right conditions bone and cartilage can regenerate and much talk was directed at the class of molecules and cascade of events needed to encourage building of healthy new tissue and how such processes can be mediated using bioengineering techniques. The group decried the lack of good models of human jaw development and disease as well as the need for greater refinements in instruments to measure jaw mechanics and more detailed biomedical imaging.

However complex the dynamics of the TM joint may be, what was heartening was the dynamic quality of the meeting itself. The invited researchers engaged in lively discussions raising questions they had not considered before and discussing ideas with investigators outside their chosen fields. That point was made by Dr. Lawrence Tabak, Principal Deputy Director of the NIH and former NIDCR Director, who joined the gathering late in the day to compliment the organizers. He emphasized that if progress is to be made in understanding the TM joint in health and disease it will depend upon the cross-collaboration among researchers in the dental, musculoskeletal and bioengineering worlds. The outcome of the meeting was a set of research recommendations that is being circulated widely and is available on the NIDCR's website <http://www.nidcr.nih.gov/NewsAndFeatures/Announcements/TMJRoundtable.htm>. ♦

Joan Wilentz, TMJA

TMD: Why It's Not Just A Pain In The Jaw

Dr. William Maixner and colleagues at the University of North Carolina at Chapel Hill (UNC), School of Dentistry, currently involved in the multi-center Orofacial Pain Prospective Evaluation and Risk Assessment (OPPERA) study of TMD, have taken a second look at an earlier study that inspired the more ambitious OPPERA investigation. The smaller study, conducted between 2005 and 2009, explored genetic risk factors for TMD and collected multiple measurements and questionnaire data from several hundred women with and without TMD.

The team's second look divided the study group into: women without TMD and no other pain condition (the controls) and TMD patients with either 1) TMD only, 2) TMD plus one other comorbid pain condition, and 3) TMD plus 2 or more comorbid conditions.

The seven comorbid conditions studied were TMD, fibromyalgia, chronic fatigue syndrome, interstitial cystitis, chronic pelvic pain, frequent headaches, and frequent low back pain. The presence of one or more of these comorbid conditions with TMD was

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based on patients' self-reports. The UNC researchers' hunch was that the more comorbid pain conditions TMD patients reported, the more likely would they find dysregulation in the functioning of major physiological systems or "domains" in the body. The domains they chose were sensory, autonomic, inflammatory and psychological "based on evidence of system contributions to pain amplification and on availability of data being collected." They then took the various measurements they had collected in the earlier study, arrayed them across the various domains (e.g., measures of blood pressure and heart rate would go into the autonomic domain, measures of inflammatory markers in the bloodstream would go into the inflammatory domain), and devised statistical means of determining when the measurements for a particular domain added up to dysregulation. Then they looked at how these measures varied across their categories of subjects in the study. Among their findings:

- Dysregulation in multiple system domains, particularly in the sensory and psychological domains, were associated with increased likelihood of being a painful TMD case in general.
- Dysregulation in individual system domains selectively contribute to the increased odds of being a TMD case with different levels of comorbid conditions.
- Patients with TMD showed dysregulation only in the sensory domain.
- In patients with just one comorbid condition, there was dysregulation in the psychological domain.
- In TMD patients with two or more other pain conditions, there was dysregulation in sensory and psychological domains and a trend toward greater dysregulation in the autonomic domain.

Overall, the researchers emphasized that there was great heterogeneity (differences) in the pain profiles they were able to draw for their subjects. They describe their research as a "work in progress," dependent on the kinds of data available from the earlier study and limited by its small size. (In particular among TMD cases there were only 14 who reported TMD only.) But their main point was that given the complexity of TMD and other chronic pain conditions, treatment strategies would be better served by taking into account the contribution of major physiological systems and their interactions in the experience of chronic pain. **In terms of TMD, stop looking at the teeth, the muscles of mastication and the jaws as the be-and-end-all of TMD chronic pain and dysfunction, and see what else is going on in the body.** ♦

Joan Wilentz, TMJA

Source: Chen H, Nackley A, Miller V, Diatchenko L, Maixner W. Multi system Dysregulation in Painful Temporomandibular Disorders. J Pain. 2013 May 28. doi:pji: S1526-5900(13)00960-7. 10.1016/j.jpain.2013.03.011.

Metal Allergies & Temporomandibular Disorders

Two articles in the British Journal of Oral and Maxillofacial Surgery report: 1) a high number of metal allergies in Temporomandibular Disorders (TMD) patients needing total replacement of their TM joints and 2) one year follow-up data comparing patients with metal allergies treated with all titanium total joint replacements (considered non-allergenic) with non-allergic patients treated with standard cobalt-chromium replacements joints.

Allergies. Two investigators from Nottingham University Hospitals, A. J. Sidebottom and K. Misty, used patch tests to detect metal allergies in all patients needing a total joint replacement between March 2004 and August 2012. Of these 101 patients, a startling 39 percent tested positive for allergy to one or more metals and were given all titanium prostheses. The investigators report that as of six months follow-up, no patient showed signs of an allergic rejection.

Titanium vs. Cobalt-chromium. Dr. Sidebottom and two other colleagues, S. Sah and O.T Hussain, studied all patients who had joint replacements with one-year follow-up in the period from March 2003 and February 2011. Of these 55 patients, 40 had the standard cobalt-chromium prosthesis, while 15 had all-titanium. The most common disease in both groups was osteoarthritis. Judged on the basis of pain relief, improved mouth opening, and diet scores, both groups of patients benefited with no significant differences between groups. No patient developed a hypersensitivity reaction, and no all-titanium prosthesis failed (at least as of one-year follow-up). ♦

Metal Hypersensitivity To TMJ Implant Materials

Hypersensitivity to TMJ implant materials is an issue that we are frequently hearing from TMJ patients. Given this concern we contacted Marco Caicedo, Ph.D., Senior Scientists and COO at Orthopedic Analysis in Chicago, IL. Orthopedic Analysis is an independent diagnostics company dedicated to the quantitative analysis of immune responses to biomaterials. We thank Dr. Caicedo for writing this article for us.

What is a Metal Hypersensitivity? Metal hypersensitivity (or metal sensitivity) can be defined as an immune reaction that is triggered by specific cells of the body's immune system in response to certain metals (like: nickel, cobalt, and chromium). While metal hypersensitivity can be considered a type of allergy, it does not induce the immediate allergy symptoms that occur when exposed to seasonal or household allergens like pollen, animal dander, mold, etc. Metal hypersensitivities have a delayed onset from the time of exposure to the materials and are not caused by specific antibodies or histamine release that lead to the classical indications of a common allergy like itching, watery eyes, or sneezing. Metal hypersensitivity requires a first-step sensitization stage where specific cells of the immune system (T lymphocytes) recognize, activate, proliferate and form immunological memory upon contact with sensitizing agents like metals. Immunological memory occurs once the immune system is exposed for the first time to a new antigen (virus, fungus, or chemical). Once immunological memory has been formed, a secondary exposure to metal leads to all the classical inflammatory symptoms of delayed type hypersensitivity, which are described below as compared with an immediate type hypersensitivity which you would get from a food allergy or bee sting. ♦

(To learn more about this topic, read the full five page article at http://www.tmj.org/site/pdf/Metal_Hypersensitivity.pdf)