Who Supports the TMJA?

Shock: my first reaction to the life-altering discovery that I have Temporomandibular Disorders (TMD) due to two different dental procedures during within months of each other. Where was I to turn? I could hardly move my head or open my mouth, floss my teeth, chew my food or sleep. I didn't know what to do.

After weeks of waiting and monitoring my condition, the shock began to subside and I started to look for help—but from whom? A physician, dentist, chiropractor, lawyer, or a physical, occupational, speech, or massage therapist? Who could I trust to help me make the initial decisions at this vulnerable stage?

I gratefully realized that the first order of business was the need for emotional support so that I could make clear decisions without fear or intimidation. Fortunately I was not in a state-of-emergency, though in great discomfort; I was functioning.

I played around in Google and found The TMJ Association (TMJA). I called the Association and spoke to the President, Terrie Cowley. Talk about down to earth and approachable! Her care and concern gave me a "shot in the arm." I called the two support contacts she recommended who had TMD; they also offered understanding and support. I read the TMJA's website and Terrie invited me to participate in a conference call regarding how TMJA patients make their health care decisions. I learned a lot from the others on the call.

As I think about the many ways the TMJA supported me, I wonder...who supports the TMJA? It is easy to forget that those who support us need our support in return. This is the perfect time to show how much we care about the Association. By making a contribution to the TMJA you'll not only be helping the Association, but also yourself and the millions of other TMJ sufferers!

Sue

TMJA Annual Update

On behalf of Members of The TMJ Association (TMJA) Board and the Scientific Advisory Board I wish you the best holiday season and good health and happiness in 2013. What follows is a brief summary of how the TMJA has moved forward in 2012.

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And the need for drugs. We took the opportunity to advocate for TMD treatments before the FDA. Within the Prescription Drug

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Standing Together for TMD

STANDING BY YOU, AND TAKING A STAND.

Since 1986, The TMJ Association (TMJA) has stood by you—the patients and families affected by Temporomandibular Disorders (TMD), friends, scientists, and medical professionals. We’ve addressed your concerns and listened to stories of hope as well as despair. From our beginning, we knew that supporting our patients also required taking a stand to advocate for research and greater awareness of TMD. You want answers, and so do we. You want a cure, and so do we.

Donate to help The TMJA Association continue to stand strong for YOU.

MAKING A DIFFERENCE FOR OVER 25 YEARS

The “road to recognition” is long and arduous, but The TMJ Association has and continues to pave the way, serving as the essential link between patients and the research and policies that impact lives. And we’re making headway for you!

We lead the nation in providing the most up-to-date information for you about TMD and fight tirelessly for policies that will positively impact you or your loved ones’ quality of life. We share the latest research with you, have petitioned the Food and Drug Administration to ensure the safety and efficacy of the devices you receive, and work closely with the National Institutes of Health so the best science this country has will be directed towards TMD.

Two messages we recently received from patients illuminate why we do what we do...

Dear TMJA, Thank you for the excellent recent newsletters online and in print. I want to thank you again for everything I have learned from you about TMD and all the support over the years. I don’t want to imagine what my life would have been life without it. Keep up the fantastic work and congratulations on your achievements." Kristina, S. Paul, MN

… and why we must continue…

"I am writing to you because I can no longer take this pain. My entire family is in limbo as I try to suffer through. The issue being that it is considered cosmetic surgery and not an issue that will change my life. I am eating nothing healthy at all. The pain is keeping me up at night and furthermore I am eating about 40 Tylenol every 2-3 days. PLEASE HELP ME!" Erin, Joplin, MO

YOU CAN BE PART OF THE SOLUTION

We have stood beside you, and we have taken a stand. But you deserve more—more answers, more research towards a cure and treatment. We are committed to improve the quality of health care and lives of everyone affected by TMD, but we simply cannot accomplish our mission without your generous support.

• Make a financial contribution

100% of your donation goes towards advocacy efforts for TMD patients. Send us a check, money-order on line or via US mail.

• Corporate Match Program

Does your company offer to match your charitable contributions? Check with the Human Resources department at your workplace today!

• Raise money for the TMJA by using the internet!

GoodSearch is a search engine (akin to Google or Yahoo) that donates one penny every time you search. Visit their website and choose “The TMJ Association” as the cause you would like to help! Happy searching!

• Share our mission with a friend

Help your friends/family understand what you’re going through by inviting them to join us on Facebook, Twitter, and even register to receive the TMJA’s e-newsletter, TMJ News Bites.

• Donate your time and talents

Do you (or someone you know) have experience in marketing, fundraising? Do you know someone who understands TMD and is interested in helping us achieve our mission? Would you be willing to offer your expertise pro bono? We’d love to have you on board! Send us an email at info@tmj.org indicating your interest.

• Honor, memorial and legacy gifts

In lieu of gifts for special occasions give a gift to the TMJA in honor or memory of someone in your life. Please also consider a planned gift to the TMJA in your Will or Trust. This gift will enhance our capacity to continue to serve you and the TMJ Association. By making a contribution to the TMJA you’ll not only be helping the Association, but also yourself and the millions of other TMJ sufferers!

Sue

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The TMJ Association, Ltd. does not provide referrals.

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The TMJA Communiqué necessarily reflects the opinions of The TMJA Association, Ltd.

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User Fee, there is a Patient-Focused Drug Development initiative to highlight patient needs for disease areas in need of therapies by featuring each in an FDA-sponsored public meeting. We asked the FDA to add TMJ to these conditions. This highlighted disease areas will have the attention of companies and improve the public perception of the disease. We asked the FDA to add TMJ to these conditions.

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The TMJA Annual Update

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Terrie Cowley, President, recently visited Cornell’s Ithaca, NY campus and took part, as a member of a panel, in one of a series of periodic design reviews. She remarked: “It is amazing how far and fast these highly motivated students have advanced in understanding the problems of TMJ patients. This program, strongly driven and self-directed by the students and their advisers, has produced three new companies. Two of these companies have received University of Maryland Match Funds, and the third is housed in the McGovern Center Family Center for Venture Development in the Life Sciences, an endowed new business incubator.”

The director of the McGovern Center, Louis Walzer, hopes that ideas from this design effort may become bases for new business ventures in his program. Of the design projects currently underway, one, utilizing a new non-pharmacological approach to patient-directed management of acute pain, is now moving into the prototype construction and proof of principle stage. If pre-clinical evaluation proves promising, this may be the first fruit of this new engineering initiative. For further information, please contact Prof. Jonathan Black at j2245@cornell.edu.

A New Engineering Initiative at Cornell University

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In 2011, the Board of Directors of The TMJ Association (TMJA) entered into an agreement with Prof. Jonathan Black, Cornell University, to provide advocacy support to a new education and research program focusing on engineering opportunities in the treatment of TM Joint Disorders (TMJD). Prof. Black, Adj. Professor of Biomedical Engineering, observed: “It seemed like a good idea to take a new look at TMJD, from an engineering perspective, and see if there are any overlooked opportunities.” Under his direction, the team needs to delineate the relationship of brain function and structure and TMJ symptoms, as well as the effect of treatment on these brain alterations.

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Eye Study Suggests Autonomic Nervous System Dysfunction in TMD

It’s common knowledge that the pupils of your eyes dilate in darkness—to absorb as much light as is available—while they contract in bright light so as not to overwhelm the system. Pupils also dilate in response to various stressors, including the muscle activity involved in clenching your teeth. These eye responses are regulated by branches of the autonomic (also called the sympathetic) nervous system (ANS). The sympathetic branch dominates in “fight or flight” stress responses, while the parasympathetic branch dominates in vegetative states, for example, when you are digesting your dinner. “Dominates” is the key verb here, since in the case of the eyes, the two branches interact through complex excitatory and inhibitory pathways to the nerves controlling pupillary muscles. Based on reports that some TMD patients suffer deregulation of the ANS, particularly the sympathetic branch, a team of Italian scientists led by Anna Monaco at the University of the AQUA, conducted a pilot study comparing eye responses of Temporomandibular Disorders (TMD) patients and controls in various responses to conditions of light and darkness.

The scientists recruited 20 TMD women patients under 30 and matched them with 20 healthy controls also under 30. Their study used a pupillometer to measure pupil size in the volunteers under four conditions, tested in random order: 1) when the jaw was at rest and the eyes were exposed to infrared light (stimulating darkness); 2) when the jaw was at rest and the eyes were exposed to yellow-green light; 3) when the teeth were put into forced occlusion (stimulating clenching) and the eyes exposed to infrared light and 4) when teeth were clenched and eyes exposed to yellow-green light.

The results showed some interesting differences between TMD patients and controls. Under infrared conditions, the control group showed significantly larger pupil sizes when teeth were clenched compared to when their jaws were at rest, while TMD patients showed just the opposite: their pupil sizes were significantly smaller when teeth were clenched compared to when their jaws were at rest. Under infrared conditions, the scientists also found a significant difference in the ratio of clenched-to-resting position pupil sizes between the groups, again illustrating that controls respond to the forced muscle condition by enlarging pupil size while the TMD patients’ pupils decreased in size.

The scientists also found significant differences under resting conditions when they looked at the ratio of pupil sizes in light compared to dark conditions. The figure was 0.662 for the control group (the pupil was about 2/3 as large for the controls in light conditions compared to darkness) while for the patients the light/dark ratio was 0.485 (their pupils under light conditions were smaller than their pupils in darkness). The interpretation was that TMD subjects show greater activation (or less inhibition) of pupillary muscles under conditions of specific stimulation (presence or absence of light) and less activation or greater inhibition of contraction under the stressful condition of teeth clenching. They suggest that this could mean an impairment of the sympathetic branch of the ANS under conditions of stress. Bolstering this speculation are findings that some TMD symptoms (such as headache) are improved by drugs aimed at selectively targeting the sympathetic branch. The authors readily admit that their study was small and should be replicated along with further research. If additional studies confirm these results, pupillometry testing could emerge as a safe non-invasive means of diagnosing dysregulation of the ANS.

DeCODE-ing TMD

The group’s findings add weight to the observation that there are distinct subsets among TMD patients. There were 76 TMD patients with WPT and 83 without WPT. No control subject met the criteria for WPT. Overall, TMD patients reported an average of 1.7 comorbid pain conditions compared to 0.3 reported for controls. However, TMD patients with WPT having multiple pain conditions was much higher (odds ratio 8.3) than for TMD patients without WPT (odds ratio of 3.3). With regard to the 7 named pain conditions, the researchers found that 22% of participants reported 2 or more comorbid conditions outside the orofacial region. The figures represent 4% of control subjects with 59% of patients with WPT and 27% of TMD patients without WPT. The average age of subjects reporting multiple pains was higher than for those reporting none or 1.

NIH Workshop Focused on TMD and Overlapping Conditions

The focus of The TMJ Association’s (TMJA) last three scientific meetings has been on Temporomandibular Disorders (TMD) and pain conditions that a patient might get before or after being diagnosed with TMD. The recommendations from these meetings and advocacy action by members of the Chronic Pain Research Alliance (CPRA) have prompted the National Institutes of Health (NIH) to form a trans-NIH committee to address these conditions. On August 13-14, 2012 the trans-NIH committee sponsored A Workshop on Chronic Overlapping Pain Conditions at the NIH campus in Bethesda, Maryland. The meeting was open to the research community. If you would like information about the meeting, please go to: http://www.nidcr.nih.gov/NewsAndFeatures/Calendar/CalendarListing08132012.htm.

TMD, Comorbid Pain and Widespread Palpation Tenderness

One of the most active and productive research teams studying TMD is a group at the University of North Carolina at Chapel Hill, the investigators have conducted a secondary analysis of data collected in a pre-OPPERA study in development for the treatment of TMD. Now, with colleague Linda Diatchenko, a team of investigators have conducted a secondary analysis of data collected in a pre-OPPERA study in development for the treatment of TMD.

In that study women TMD patients in an age range of 18 to 60 years were compared with a matched group of TMD-free women controls. The women were characterized with regard to clinical symptoms, pain intensity and current activity (for example, applying a heat stimulus to the forearm and determining at what temperature it becomes painful) and a set of psychological and physical characteristics using a battery of tests. Included in the data were measurements of widespread body pain palpation tenderness (WPT) in response to a measured force of 5 pounds applied to 18 body sites outside the orofacial region. The aim of the study was to determine the relationship between the presence of WPT and multiple comorbid pain conditions (looking in particular at conditions: fibromyalgia, chronic fatigue, irritable bowel, intestinal cystitis, chronic pelvic pain, frequent headaches and frequent low back pain) in TMD patients and controls.

The group’s findings add weight to the observation that there are distinct subsets among TMD patients. There were 76 TMD patients with WPT and 83 without WPT. No control subject met the criteria for WPT. Overall, TMD patients reported an average of 1.7 comorbid pain conditions compared to 0.3 reported for controls. However, TMD patients with WPT having multiple pain conditions was much higher (odds ratio 8.3) than for TMD patients without WPT (odds ratio of 3.3). With regard to the 7 named pain conditions, the researchers found that 22% of participants reported 2 or more comorbid conditions outside the orofacial region. The figures represent 4% of control subjects with 59% of patients with WPT and 27% of TMD patients without WPT. The average age of subjects reporting multiple pains was higher than for those reporting none or 1.

TMD and Multiple Pain Conditions

Other findings indicated that TMD patients with WPT were more sensitive to experimental pain produced by applying increasing levels of pressure both in cranial and non-orofacial regions than TMD patients without WPT. On the other hand it is of interest that there were no essential differences in the TMD pain characteristics when comparing TMD patients with or without WPT. As the authors conclude, “These findings are of substantial clinical significance as they emphasize the importance of integrating bodily pain assessment and psychological assessment in the evaluation of TMD patients and may guide the development of individualized management programs for specific TMD groups.”


TMJA President, Terrie Cowley, and the other members of the CPRA participated in the panel discussions addressing patients’ concerns regarding the state of diagnosis and treatments of these conditions as well as research directions to advance understanding of these complex disorders. Conditions addressed at the workshop include chronic fatigue syndrome, chronic headache, endometriosis, fibromyalgia, intestinal cystitis, irritable bowel syndrome, low back pain, Temporomandibular Disorders, and vulvodynia.

The goals of the workshop were to:

1. Determine the state-of-the-science in chronic overlapping pain conditions;
2. Develop a coordinated research strategy in order to identify standard features of chronic overlapping conditions that will drive the development of research diagnostic criteria;
3. Improve and develop new research strategies to identify underlying mechanisms of etiology; trajectories of disease; risk factors for disease onset, progression and reversal; and outcome measures for these conditions.

We will share the final workshop recommendations with we when you receive them. By Joan Wilentz.
I'm going to suggest something radical."

“We could reshape your nose with conventional surgery, but"

"...tal and Craniofacial Research, grant #R13DE019079."

"...surgical research, programmatic rec-

"onging noises (but not meeting SB criteria) were common in both groups: 78.3% for patients; 59.7% for con-

"Within the patient group those found to be bruxers reported less pain and less interferences with daily ac-

The authors conclude: “Our study should lay to rest any remaining beliefs regarding a relationship between SB and the course of myofascial TMD. There may be other reasons for treating SB (for example, tooth wear) that the treatment decision should not be based on a concern for maintaining or exacerbating a chronic, painful myofascial TMD condition.”

“We asked Dr. Raphael to comment on her study. Her re-

"When your dentist tells you that your facial pain is somehow ‘your fault’ because you are grinding your teeth, you now know that it is simply not true. Many people grind their teeth at night and the skepticism that you cannot account for your pain. If anything, people who suffer from the most severe TMD pain are actually the least likely to grind their teeth at night. If you are thinking about getting treatment for sleep grinding to help reduce your pain, think again: It is likely to be a waste of time, energy and money.”

DeCODE-ing TMD

According to the New York Times, on December 10, 2012 the biotechnology giant, Amgen, said it was acquiring deCODE Genetics for its "breakthrough genetics platform" to help discover treatments for diseases including TMD. DeCODE, a privately held company in Iceland has studied the local population to identify genetic variations linked to schizophrenia, cancer and numerous other diseases." Dr. Kari Stefansson, a neurologist who had taught at the University of Chicago and Harvard, realized that Iceland, his native country, would be an ideal place to perform studies in an attempt to detect genetic variants that raise or lower the risk of diseases. “Iceland has good medical and genealogical records and a population that is not very diverse genetically.” The National Institutes of Dental and Craniofacial Research has awarded a grant to Dr. Jeffrey Gulcher of deCODE to investigate pain syndromes including TMD. We are extremely happy that the deCODE team has taken up the TMD challenge!

The following information is from the abstract that accompanied the grant application submitted by deCODE.

Free TMJA Brochure

Our brochure, A Resource Guide for Temporomandibular Disorders is available as a downloadable PDF on our website. You may also request hard copies by mail. We encourage you to share this brochure with your friends, health care professionals and family as it is a great educational resource for everyone.

TMJ Bioengineering Conference:
Facilitating a Multidisciplinary Approach to TMD

We thank Megan K. Murphy, Ph.D. Candidate and Boaz Arzi, DVM, DAVDC at Department of Biomedical En-

"...ing the field of Temporomandibular Joint (TMJ) research while strengthening the continuity among clinicians, scientists, and bioengineers. The conference drew an array of national and international experts and facilitated exciting discussions regarding degeneration and regeneration of the TMJ, keynote lectures by Dr. Louis Mercuri, Dr. Marcus Tesche, and Dr. Mark Wong provided a review of the status of current therapies, the progress of Temporomandibular Disorders (TMD) research, and future directions aiming to improve therapies for TMD patients.

TMJ3 attendees ranged from TMD researchers, general dentists, oral and maxillofacial surgeons, basic biologists, and even included a veterinary oral specialist. The diversity of knowledge present at the conference facilitated multidisciplinary discussions regarding many aspects of TMD. Discussion topics included the role of tissue engineering in treating TMD and whether a replacement joint is strategically necessary for TMD function and reducing patient pain once the disc has lost function. Researchers discussed whether a scaffold-based or scaffoldless approach would be ideal for engineered joint replacement. Additionally, attendees discussed the role of imaging in diagnostics and treatment planning for TMD patients, and the need for further efforts in modeling and understanding the biomechanics of the joint.

Attendees joined from all over the world to present state of the art TMD research and treatment planning. Presentation topics included possible molecular mediators in TMD pathogenesis, TMJ modeling in health and in disease, surgical approaches intended to restore joint function, and the role of stem cells and tissue engineering in developing therapies. Topics extended to animal models for disease progression and pain, and comparative pathological aspects of TMD.

In concluding the meeting, attendees agreed that unlike other joints in the body, we still know very little about the TMJ. There remains a great deal of basic information about the makeup of TMJ tissues and their function that needs to be elucidated. This basic information is invaluable to understanding etiologies and helping patients cope with these debilitating disorders. For example, we are just beginning to characterize the joint capsule and discal attachments, shedding light on the contribution of these structures to mechanical stability and joint motion, but also to pain. Moving forward in our research efforts, it would be extremely helpful if the National Institute of Health could place the TMJ high on its list and provide funds for basic TMJ studies.

The TMJ Bioengineering Conference, yet again, facilitated a productive cross-disciplinary approach to understanding disorders of the TMJ toward its objective of providing the best possible therapies for TMD patients. The union and synergy of TMJ researchers, biologists, and clinicians appropriately guides future directions for the field, keeping in mind all aspects of the disorder from form and function to mechanisms of pain. We look forward to TMJ4 and invite all individuals with an interest in the TMJ to participate.

"We could reshape your nose with conventional surgery, but I’m going to suggest something radical."
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According to the New York Times, on December 10, 2012 the biotechnology giant, Amgen, said it was acquiring deCODE Genetics for its "‘headline genetics’ in detecting genes responsible for complex diseases.” Amgen, a privately held company in Iceland has studied the local population to identify genetic variations linked to schizophrenia, cancer and numerous other diseases.” Dr. Kari Stefansson, a neurologist who had taught at the University of Chicago and Harvard, realized that Iceland, its native country, would be an ideal place to perform studies in an attempt to detect genetic variants that raise or lower the risk of diseases. “Iceland has good medical and genealogical records and a population that is not very diverse genetically.” The National Institutes of Dental and Craniofacial Research has awarded a grant to Dr. Jeffrey Gulcher of deCODE to investigate pain syndromes including TMD. We are extremely happy that the deCODE team has taken up the TMD challenge!

The following information is from the abstract that accompanied the grant application submitted by deCODE.

Abstract: This project proposes to generate new knowledge on the basic pathophysiology of chronic neuropathic pain by determining genetic differences between patients who develop chronic neuropathic pain after initial tissue injury versus those who do not despite having the same acute tissue injury. The researchers will use the unique genetic resources gathered and developed at deCODE Genetics for whole genome sequence-based human pain genetics studies to uncover high risk variant of low frequency significantly associated to conversion of TMD to chronic neuropathic pain.

Free TMJA Brochure

Our brochure, A Resource Guide for Temporomandibular Disorders is available as a downloadable PDF on our website. You may also request hard copies by mail. We encourage you to share this brochure with your friends, health care professionals and family as it is a great educational resource for everyone.

TMJ Bioengineering Conference: Facilitating a Multidisciplinary Approach to TMD

We thank Megan K. Murphy, Ph.D. Candidate and Boaz Arzi, DVM, DAADTC at Department of Biomedical Engineering and Veterinary Radiological Sciences University of Education, University of California, Davis for writing this summary article for the TMJ Communique.

The third Temporomandibular Joint Bioengineering Conference (TMJ3) was held this past September at the University of Pittsburgh. Conference chair, Dr. Alejandro Almarza, and organizers, Dr. Michael Detamore, Dr. Kyrtocos Athanasiou, and Dr. Jeremy Mao, composed a meeting seeking to advance the field of Temporomandibular Joint (TMJ) research while strengthening the continuity among clinicians, scientists, and bioengineers. The conference drew an array of national and international experts and facilitated exciting discussions regarding degeneration and regeneration of the TMJ, keynotes by Dr. Louis Mercuri, Dr. Marcus Tesche, and Dr. Mark Wong provided a review of the status of current therapies, the progress of Temporomandibular Disorders (TMD) research, and future directions aiming to improve therapies for TMD patients.

TMJ3 attendees ranged from TMD researchers, general dentists, oral and maxillofacial surgeons, basic biologists, and even included a veterinary oral specialist. The team recruited 124 women patients diagnosed with myofacial (muscle-based) TMD from NYU’s dental school clinics and matched controls with a control group of 46 women who were either acquaintances of the patients or recruit- ed from other NYU clinics and well-matched in age and other demographics. Neither group was initially recruited based on whether they believed that they bruxed or not. Here’s what the investigators found:

- In follow-up interviews 55.3% of the TMD group said they were told that they were sleep bruxers (SB) compared to 14.6% of controls. But actual PSG measurements showed much lower and very similar rates of SB in both groups: patients 9.7%; controls 10.9%.
- Grinding noises (but not meeting SB criteria) were common in both groups: 78.3% for patients; 59.7% for controls.
- Overall, both groups spent an average of less than one minute per night in SB episodes, less than 2 minutes in total activity involving the chewing muscles.
- Within the patient group those found to be bruxers reported less pain and less interferences with daily activities than the non-bruxing patients.

The authors conclude: “Our study should lay to rest any remaining beliefs regarding a relationship between SB and the course of myofacial pain.” It is likely to be other reasons for treating SB (for example, tooth wear) that the treatment decision should not be based on a concern for maintaining or exacerbating a chronic, painful myofacial TMD condition.”

We asked Dr. Raphael to comment on her study. Her response: “When your dentist tells you that your facial pain is somehow ‘your fault’ because you are grinding your teeth, you now know that it is simply not true. Many people grind their teeth for the first time at any age, and if you have that activity going on you should not have to worry that activity cannot account for your pain. If anything, people who suffer from the most severe TMD pain are actually the least likely to grind their teeth at night. If you are thinking about getting treatment for sleep grinding to help reduce your pain, think again: It is likely to be a waste of time, energy and money."


Joan Wilentz

In concluding the meeting, attendees agreed that unlike other joints in the body, we still know very little about the TMJ. There remains a great deal of basic information about the maladies of TMJ’s and their functional needs that needs to be elucidated. This basic information is invaluable to understanding etiologies and helping patients cope with these debilitating disorders. For example, we are just beginning to characterize the joint capsule and discal attachments, shedding light on the contribution of these structures to mechanical stability and joint motion, but also to pain. Moving forward in our research efforts, it would be extremely helpful if the National Institute of Health could place the TMJ high on its list and provide funds for basic TMJ studies.

The TMJ Bioengineering Conference, yet again, facilitated a productive cross-disciplinary approach to understanding disorders of the TMJ toward its objective of providing the best possible therapies for TMD patients. The union and synergy of TMJ researchers, biologists, and clinicians appropriately guides future directions for the field, keeping in mind all aspects of the disorder from form and function to mechanisms of pain. We look forward to TMJ4 and invite all individuals with an interest in the TMJ to participate.

"We could reshape your nose with conventional surgery, but I'm going to suggest something radical."
Eye Study Suggests Autonomic Nervous System Dysfunction in TMD

It’s common knowledge that the pupils of your eyes dilate in darkness—to absorb as much light as is available—while they contract in bright light so as not to overwhelm the system. Pupils also dilate in response to various stressors, including the muscle activity involved in clenching your teeth. These eye responses are regulated by branches of the autonomic (also called the “nervous”) system (ANS). The sympathetic branch dominates in “fright or fight” stress responses, while the parasympathetic branch dominates in vegetative states, for example, when you are digesting your dinner. “Dominates” is the key verb here, since in the case of the eyes, the two branches interact through complex excitable and inhibitory pathways to the nerves controlling pupillary muscles. Based on reports that some TMD patients suffer deregulation of the ANS, particularly the sympathetic branch, a team of Italian scientists led by Anna Monaco at the University of L’Aquila, conducted a pilot study comparing eye responses of Temporomandibular Disorders (TMD) patients and controls in various conditions of light and darkness.

The scientists recruited 20 TMD women patients under 30 and matched them with 20 healthy controls also under 30. Their study used a pupillometer to measure pupil size in the volunteers under four conditions, tested in random order: 1) when the jaw was at rest and the eyes were exposed to infrared light (dilating conditions); 2) when the jaw was at rest and the eyes were exposed to yellow-green light; 3) when the teeth were put into forced clusclusion (dilating the pupils) and the eyes exposed to infrared light and 4) when teeth were clenched and eyes exposed to yellow-green light.

The results showed some interesting differences between TMD patients and controls. Under infrared conditions, the control group showed significantly larger pupil sizes when teeth were clenched compared to when their jaws were at rest, while TMD patients showed just the opposite: their pupil sizes were significantly smaller when teeth were clenched compared to when their jaws were at rest. Under infrared conditions the scientists also found a significant difference in the ratio of clenched-to-resting position pupil sizes between the groups, again illustrating that controls respond to the forced muscle condition by enlarging pupil size while the TMD patients’ pupils decreased in size.

The scientists also found significant differences under resting conditions when they looked at the ratio of pupil sizes in light compared to dark conditions. The figure was 0.662 for the control group (the pupil was about 2/3 as large for the controls in light conditions compared to darkness) while for the patients the light/dark ratio was 0.485 (their pupils under light conditions were about 1/2 as large for the size they were in darkness). Under yellow-green light the ratio was 0.391 (their pupils were about 3/5 as large for the size they were in darkness).

The Interpretation.

The scientists speculate that TMD subjects show greater activation (or less inhibition) of pupillary muscles under conditions of specific stimulation (presence or absence of light) and less activation or greater inhibition under the stressful conditions of teeth clenching. They suggest that this could mean an imperfect alignment of the sympathetic branch of the ANS under conditions of stress. Bolstering this speculation are findings that some TMD symptoms (including pain) are improved by drugs aimed at regulating selective parts of the sympathetic branch. The researchers admit that their study was small and should be replicated along with further research. If additional studies confirm these results, pupilometry could emerge as a safe new non-invasive means of diagnosing dysregulation of the ANS.

by Joan Wilentz


NIH Workshop Focused on TMD and Overlapping Conditions

The focus of The TMJ Association’s (TMJA) last three scientific meetings has been on Temporomandibular Disorders (TMD) and pain conditions that a patient might get before or after being diagnosed with TMD. The recommendation from these meetings and advocacy action by members of the Chronic Pain Research Alliance (CPRA) has prompted the National Institutes of Health (NIH) to form a trans-NIH committee to address chronic pain conditions. On August 13-14, 2012 the trans-NIH committee sponsored a workshop on Chronic Overlapping Pain Conditions, at the NIH campus in Bethesda, Maryland. The meeting was open to the research community. If you would like information about the meeting, please go to: http://www.nidcr.nih.gov/NewsAndFeatures/Calendar/CalendarListing08132012.htm.

The group’s findings add weight to the observation that there are distinct subsets among TMD patients. There were 76 TMD patients with WPT and 83 without WPT. No control subject met the criteria for WPT. Overall, TMD patients reported an average of 1.7 comorbid pain conditions compared to 0.3 for controls. However, TMD patients compared to controls, the odds of TMD patients with WPT having multiple pain conditions was much higher (odds ratio 8.3) than for TMD patients without WPT (odds ratio of 3.3). With regard to the 7 named pain conditions, the researchers found that 22% of participants reported 2 or more comorbidity conditions outside the orofacial region. The figures represent 4% of controls suffering from 59% of TMD patients with WPT and 27% of TMD patients without WPT. The average age of subjects reporting multiple pains was higher than for those reporting none or one.

Other findings indicated that TMD patients with WPT were more sensitive to experimental pain produced by applying increasing levels of pressure both in cranial and non-cranial regions than TMD patients without WPT. On the other hand it is of interest that there were no essential differences in the TMD pain characteristics when comparing TMD patients with or without WPT. As the authors conclude, “These findings are of substantial clinical significance as they emphasize the importance of integrating bodily pain assessment and psychologi- cal assessment in the evaluation of TMD patients and may guide the development of individualized manage- ment programs for specific TMD groups.”

by Joan Wilentz

User Fee, there is a Patient-Focused Drug Development initiative to highlight areas in need of therapies by featuring each one in an FDA-sponsored public meeting. We asked the FDA to add TMD to these conditions. These highlighted disease areas will have the attention of companies and the public and the public's attention to the need for research leading to the development of treatment options. To date, the FDA has not one drug labeled for use in TM Disorders and in the Device Division, only total joint devices. None of the pain management options currently available are labeled for TMD Disorders. We hope that change will come.

About TMJ devices. As a TMJ implant patient, this subject will always be one I passionately care about. In two months it will be two years since the FDA issued an order to the TMJ device manufacturers to submit protocols for conducting postmarket surveillance studies on TMJ. One information about the safety of the devices, local states we have not been informed that any manufacturer has satisfied all requirements of this order. I've met with the FDA on this issue and have voiced our concern that the order has not been met this year we launched, TMJ-EnGamma implant patient communication center which provides an avenue for patients to share experiences. Implant patients and those considering a device may join by contacting us at info@tmj.org.

The mystery of the jaw joint. The third Temporomandibular Joint Bioengineering Conference was held in Boston last September. One again, the attendees went home into the body, we still know little about the "TMJ". We hope to change that too.

Terrie Cowley, President & Co-Founder

The TMJ Association, Ltd.

A New Engineering Initiative at Cornell University

Our thanks to Dr. Jonathan Black for providing our readers with the following update.

In 2011, the Board of Directors of The TMJ Association (TMJA) entered into an agreement with Prof. Jonathan Black, Cornell University, to provide advisory support to a new education and research program focusing on engineering opportunities in the treatment of TM Joint Disorders (TMJD). Prof. Black, Adj. Professor of Biomedical Engineering, observed, “It seemed like a good idea to take a new look at TMJ from an engineering perspective, and see if there are any overlooked opportunities.” Under his direction, the need for the TMJ to advance the relationship of brain function and structure and TMD symptoms, as well as the effect of treatment on these brain alterations. +

Finally, Moayedi and colleagues reported altered connectivity to prefrontal regions, including a decrease in connectivity to the dorsolateral prefrontal cortex (DLPFC) and increased connectivity to the ventrolateral prefrontal cortex (VLPFC) in patients compared to controls. The DLPFC and VLPFC are both implicated in various aspects of cognitive function (all aspects of perception, thinking, reasoning, and remembering), and these abnormalities could be related to the difficulty that some people with TMD have in performing a cognitive task, finding the same laboratory previously reported.

While this study advances our understanding of structural brain abnormalities associated with TMD, future research will need to clarify the relationship of brain function and structure and TMD symptoms, as well as the effect of treatment on these brain alterations.


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Standing Together for TMD

STANDING BY YOU, AND TAKING A STAND.

Since 1986, The TMJ Association (TMJA) has stood by you—the patients and families affected by Temporomandibular Disorders (TMD), friends, scientists, and medical professionals. We’ve addressed your concerns and listened to stories of hope as well as despair. From our beginning, we knew that supporting our patients also required taking a stand to advocate for research and greater awareness of TMD. You want answers, and so do we. You want a cure, and so do we.

Donate to help The TMJA Association continue to stand strong for YOU.

MAKING A DIFFERENCE FOR OVER 25 YEARS

The “road to recognition” is long and arduous, but The TMJ Association has and continues to pave the way, serving as the essential link between patients and the research and policies that impact lives. And we’re making headway for you!

We lead the nation in providing the most up-to-date information for you about TMD and fight tirelessly for policies that will positively impact you or your loved ones’ quality of life. We share the latest research with you, have petitioned the Food and Drug Administration to ensure the safety and efficacy of the devices you receive, and work closely with the National Institutes of Health so the best science this country has will be directed towards TMD.

Two messages we recently received from patients illuminate why we do what we do...

Dear TMJA, Thank you for the excellent recent newsletters online and in print. I want to thank you again for everything I have learned from you about TMD and all the support over the years. I don’t want to imagine what my life would have been like without it. Keep up the fantastic work and congratulations on all your achievements.” Kristina, St. Paul, MN

...and why we must continue...

“I am writing to you because I can no longer take this pain. My entire family is in limbo as I try to suffer through. The issue being that it is considered cosmetic surgery and not an issue that will change my life. I am eating nothing healthy as I do not have the ability to chew properly. The pain is keeping me up at nights and furthermore I am eating about 4 Tylenol every 2-3 days. PLEASE HELP ME!” Erin, Joplin, MO

YOU CAN BE PART OF THE SOLUTION

We have stood beside you, and we have taken a stand. But you deserve more—more answers, more research towards a cure and treatment. We are committed to improve the quality of health care and lives of everyone affected by TMD, but we simply cannot accomplish our mission without your generous support.

• Make a financial contribution

100% of your donation goes towards advocacy efforts for TMD patients. Send us a check, money-order on line or via US mail.

• Corporate Match Program

Does your company offer to match your charitable contributions? Check with the Human Resources department at your workplace today!

• Raise money for the TMJA by using the internet!

GoodSearch is a search engine (akin to Google or Yahoo) that donates one penny every time you search. Visit their website and choose “The TMJ Association” as the cause you would like to help! Happy searching!

• Share our mission with a friend

Help your friends/family understand what you’re going through by inviting them to join us on Facebook, Twitter, and even register to receive the TMJA’s e-newsletter, TMJ News Bites.

• Donate your time and talents

Do you (or someone you know) have experience in marketing, fundraising? Do you know someone who understands TMD and is interested in helping us achieve our mission? Would you be willing to offer your expertise pro bono? We’d love to have you on board! Send us an e-mail at info@tmj.org indicating your interest.

• Honor, memorial and legacy gifts

In lieu of gifts for special occasions give a gift to the TMJA in honor or memory of someone in your life. Please also consider a planned gift to the TMJA in your Will or Trust. This gift will enhance our capacity to continue to change the face of TMD!

• Donate your vehicle

Give your well loved vehicle a new home. Contact the TMJA for more details.

Who Supports the TMJA?

Shock: my first reaction to the life-altering discovery that I have Temporomandibular Disorders (TMD) due to two different dental procedures within months of each other. Where was I to turn? I could hardly move my head or open my mouth, floss my teeth, chew my food or sleep. I didn’t know what to do.

After weeks of waiting and monitoring my condition, the shock began to subside and I started to look for help—but from whom? A physician, dentist, chiropractor, lawyer, or a physical, occupational, speech, or massage therapist? Who could I trust to help me make the initial decisions at this vulnerable stage?

I gratefully realized that the first order of business was the need for emotional support so that I could make clear decisions without fear or intimidation. Fortunately I was not in a state-of-emergency, though in great discomfort; I was functioning.

I played around in Google and found The TMJ Association (TMJA). I called the Association and spoke to the President, Terrie Cowley. Talk about down to earth and approachable! Her care and concern gave me a “shot in the arm.” I called the two support contacts she recommended who had TMD; they also offered understanding and support.

I read the TMJA’s website and Terrie invited me to participate in a conference call regarding how TMJA patients make their health care decisions. I learned a lot from the others on the call.

As I think about all the many ways the TMJA supported me, I wonder...who supports the TMJA? It is easy to forget that those who support us need our support in return. This is the perfect time to show how much we care about the Association. By making a contribution to the TMJA you’ll not only be helping the Association, but also yourself and the millions of other TMD sufferers! Sue*

TMJA Annual Update

On behalf of Members of The TMJA Association (TMJA) Board and the Scientific Advisory Board I wish you the best holiday season and good health and happiness in 2013. What follows is a brief summary of how the TMJA has moved forward in 2012.

The prominence of pain. As you know from reading our publications, pain related to Temporomandibular Disorders (TMD) has been foremost among our activities for the past several years. This has been intentional, for the vast majority of TMD patients seek care because of pain. As you’ve also read, many times TMD pain does not exist alone, but is accompanied by other bodily pain conditions, which like TMD, predominantly affect women. This August, the National Institutes of Health held a follow-up meeting to our 2010 TMJA Association meeting focusing on these overlapping pain conditions (page 5) to explore what we know and what research is needed to alleviate these multiple pains.

Joining forces. The TMJA is a member of the Chronic Pain Research Alliance and our mission is to see that research is directed to the conditions that overlap with TMD. We were pleased to be the catalyst for the August NIH meeting and the Senate HELP Committee Hearing on Pain in America: Exploring Challenges to Relief. Most recently, the TMJA along with the CFIDS Association of America and the National Vulvodynia Association submitted a proposal to the Sanofi’s Challenge.

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Read more at www.tmj.org