

On behalf of all of us at The TMJ Association (TMJA) we wish you a pleasant Thanksgiving time surrounded by family and friends.



We appreciate your interest in what we do and your loyalty to the TMJA. We are also grateful for the financial support you may have contributed to us in the past. [We ask that you consider the TMJA in your 2019 gift giving.](#) We are grateful for all contributions - large and small. Because we have never been an organization of bounty we have always treated your gifts frugally and will continue to do so. Please help us to help the 35 million people affected by temporomandibular disorders by *changing the face of TMJ!*

Premorbid and Concurrent Predictors of TMD Onset and Persistence

Abstract

BACKGROUND: Multiple risk factors predict temporomandibular disorders (TMD) onset, but temporal changes in risk factors and their contribution to risk of TMD have not been evaluated. The study aims were to (a) describe changes occurring in premorbid TMD risk factors when re-measured at TMD onset and 6 months later, and (b) determine if measures of change improve accuracy in predicting TMD incidence compared to premorbid measures alone.

METHODS: In this observational prospective cohort study at four university research clinics, 3,258 community-based, 18- to 44-year-olds without TMD were enrolled. During the 3-year median follow-up, 260 incident cases of first-onset TMD were identified, and 196 TMD-free subjects were selected as matched controls. Six-months later, 147 of 260 incident cases (56.6%) were re-examined revealing 72 (49%) with 'persistent TMD' and 75 (51%) whose condition had resolved ('transient TMD'). Virtually all (126) of the 127 re-examined controls remained without TMD. Questionnaires and clinical measurements evaluated risk factors from clinical, health, psychological and behavioural and neurosensory domains.

RESULTS: Most risk factors across all four domains increased with TMD onset, remained elevated in the persistent group and declined in the transient group (i.e., significant ANOVA interactions, $p < .05$). Accuracy in predicting first-onset TMD, quantified as area under the receiver operating characteristic curve was 0.71 (95% CL 0.68, 0.73) using only premorbid measures of risk factors, which increased to 0.91 (95% CL 0.89, 0.94) after addition of change measures.

CONCLUSIONS: TMD pain onset and persistence appear to be determined by enduring characteristics of the person as well as mutually interactive with temporally evolving variables.

SIGNIFICANCE: TMD is known to be a complex disorder, in which onset and persistence are associated with disease-related variables in multiple domains, including environmental exposure, clinical, psychological, health status, and pain processing variables. Using a more dynamic approach in order to capture change across time, many aspects of those domains were found to worsen prior to the reporting of pain, with bidirectional influences between domains and pain emergence likely. TMD onset appears to represent the cumulative effect of multiple system dysregulation.

Source: <https://www.ncbi.nlm.nih.gov/pubmed/31421009>

Brain Responses in CFS and TMD to Autonomic Challenges: An Exploratory fMRI Study

Abstract:

INTRODUCTION: Dysfunction of the autonomic nervous system (ANS) is seen in chronic fatigue syndrome (CFS) and temporomandibular disorders (TMD). Both conditions have poorly understood pathophysiology. Several brain structures which play a role in pain and fatigue, such as the insular cortex and basal ganglia, are also implicated in autonomic function.

OBJECTIVES: ANS dysfunction may point to common neuro-physiological mechanisms underlying the predominant symptoms for both CFS and TMD. No studies to date have investigated the combination of both conditions. Thus our aim was to test whether CFS patients with or without TMD show differences in brain responses to autonomic challenges.

METHODS: In this exploratory functional imaging study, CFS patients who screened positive for TMD ($n=26$), patients who screened negative for TMD ($n=16$) and age-matched control participants ($n=10$) performed the Valsalva manoeuvre whilst in a 3T MRI scanner. This manoeuvre is known to activate the ANS.

RESULTS: For all three groups, whole-brain F-test showed increased brain activation during the manoeuvre in superior and inferior frontal gyri, left and right putamen and thalamus, and insular cortex. Furthermore, group contrasts with small-volume correction showed that CFS patients who screened positive for TMD showed greater activity in the left insular cortex compared to patients who screened negative, and in the left caudate

nucleus compared to controls.

CONCLUSION: Our results suggest that increased activity in cortical and subcortical regions observed during autonomic challenges may be modulated by fatigue and pain. ANS dysfunction may be a contributing factor to these findings and further work is required to tease apart the complex relationship between CFS, TMD and autonomic functions.

Source: <https://www.ncbi.nlm.nih.gov/pubmed/31461628>

General Medical Practitioners' Knowledge of Assessment and Management of TMD in the UK

Abstract

Background: The management of temporomandibular joint disorders (TMDs) is a challenge for General Medical Practitioners (GMPs). They are increasingly approached by patients for advice on TMD, but little is known about how this disorder is dealt with in primary health care.

Objective: To determine the level of awareness regarding TMD assessment and management among GMPs.

Method: A postal questionnaire survey containing questions on aetiology, signs and symptoms, diagnosis and treatment of TMD was conducted in the city of Leicester, East Midlands, England.

Result: 124 responses were analysed. The majority (88%) of GMPs consider themselves to have a low level of knowledge of TMD. Very few (5%) were aware of current guidelines on TMD management. None could respond correctly to approximate prevalence of TMDs.

Overall 74 % including both GMPs with experience of less than 5 years (32 %) and more experienced (42 %), knew the correct clinical features. Group analysis did not show any statistically significant association between experience and knowledge of TMD clinical features (Chi-square statistics 3.78, $p = 0.5$). Most GMPs (95%) believed they had 2 to 4 TMD patients in their practice. The majority (89%) referred TMD patients to General Dental Practitioners (GDPs) whilst 11 % considered an oral and maxillofacial practice more appropriate. A combination of non-surgical therapies was employed by 34% for treating TMD. Very few GMPs (6%) have updated their TMD knowledge but 97% showed interest in receiving further education.

Conclusion: Respondent GMPs in the East Midlands of England, demonstrated limited knowledge of TMD and most lacked confidence in contemporary management. Appropriate educational opportunities during post graduate training as well as continuing professional development (CPD) activity would improve the knowledge and awareness of TMD among GMPs.

Source and full article: <https://bmjopen.bmj.com/content/bmjopen/6/11/e012691.full.pdf>

A Functional Substitution in the L-aromatic Amino Acid Decarboxylase Enzyme Worsens Somatic Symptoms via a Serotonergic Pathway

Abstract

OBJECTIVE: Heightened somatic symptoms are reported by a wide range of patients with chronic pain and have been associated with emotional distress and physical dysfunction. Despite their clinical significance, molecular mechanisms leading to their manifestation are not understood.

METHODS: We used an association study design based on a curated list of 3,295 single nucleotide polymorphisms mapped to 358 genes to test somatic symptoms reporting using the Pennebaker Inventory of Limbic Languidness questionnaire from a case-control cohort of orofacial pain (n = 1,607). A replication meta-analysis of 3 independent cohorts (n = 3,189) was followed by functional validation, including in silico molecular dynamics, in vitro enzyme assays, and measures of serotonin (5-HT) plasma concentration.

RESULTS: An association with the T allele of rs11575542 coding for an arginine to glutamine substitution in the L-aromatic amino acid decarboxylase (AADC) enzyme was replicated in a meta-analysis of 3 independent cohorts. In a combined meta-analysis of all cohorts, this association reached $p = 6.43 \times 10^{-8}$. In silico studies demonstrated that this substitution dramatically reduces the conformational dynamics of AADC, potentially lowering its binding capacity to a cofactor. In vitro enzymatic assays showed that this substitution reduces the maximum kinetic velocity of AADC, hence lowering 5-HT levels. Finally, plasma samples from 90 subjects showed correlation between low 5-HT levels and heightened somatic symptoms.

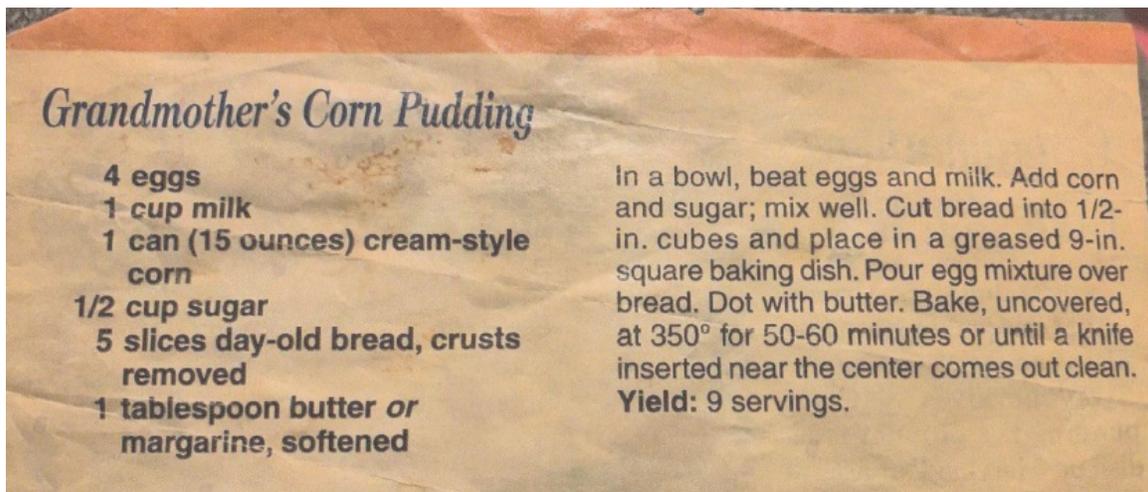
INTERPRETATION: Using functional genomics approaches, we identified a polymorphism in the AADC enzyme that contributes to somatic symptoms through reduced levels of 5-HT. Our findings suggest a molecular mechanism underlying the pathophysiology of somatic symptoms and opens up new treatment options targeting the serotonergic system. ANN NEUROL 2019;86:168-180

Source: <https://www.ncbi.nlm.nih.gov/pubmed/31177555>

TMJ Patient Approved Holiday Side Dish

My cousin's wife made this for Thanksgiving last year when we went to Maine for Thanksgiving. I could have eaten the entire bowl! Never had anything like it before, and plan on making it for our dinner this year.

Hope you all have a nice holiday.



Researchers Need You! Several Research Opportunities

Online 3-Day Diet Diary Study

We are a team of researchers based at Newcastle University in the United Kingdom, and would like to extend an invitation to take part in some research we are conducting on the effects of temporomandibular disorders (TMD also known as "TMJ") on the diet of sufferers. Briefly, the study comprises of a questionnaire to learn more about you and your TMD, followed by the completion of a 3-day diet history. If you are interested in knowing more about our study, please send an email to us at:

TMD.Diet.Study@newcastle.ac.uk indicating that you would like more information.

In order to help you decide whether to participate, we will respond by attaching a [patient information sheet](#) which contains further details about the proposed study, and then will send a link to an online consent form.

We have an interest in improving the understanding of TMD, and there is currently little known about the impact of TMD on the diet of sufferers. It is hoped this research will lead to improvements in the care offered to sufferers of TMD.

Many thanks in advance for your time,
David Edwards, Charlotte Bowes and Justin Durham

Online Survey Study on Fibromyalgia, Chronic Migraine, Chronic Orofacial Pain, and TMD

The Pain Research Lab at Cincinnati Children's Hospital Medical Center is currently conducting a study to learn more about social and psychological functioning in young adults (ages 18-30) with fibromyalgia, chronic migraine, or chronic orofacial pain or temporomandibular disorder. The study will be done entirely online and consists of completing online surveys for approximately 1 hour. Participants will be compensated via a gift card for \$15 to Target for their participation. If you may be interested, please email: chronicpainstudy@cchmc.org.

University of Minnesota Study on Jaw Pain

A University of Minnesota of School of Dentistry study seeks 18-65 years-old female participants with jaw pain, that is: pain in the jaw and/or temples that changes with jaw function or jaw movements, such as opening/closing or chewing, which is present in the last six months. Purpose of study is to understand how the brain of *patients with jaw pain* processes touch and pain stimulation to their gums, face and hands, compared to pain-free controls.

Research Participation Involves:

- Comprehensive clinical examination
- Sensory/Pain testing using touch, pressure and hot/cold tests
- Brain MRI scanning

Timeline:

- Visit 1: Questionnaire and exam (90 minutes), School of Dentistry Research Clinic
- Visit 2: Questionnaires, exam, impressions of teeth and bite registration (180 minutes), School of Dentistry Research Clinic
- Visit 3: Questionnaires, exam and MRI of the brain (120 minutes), Center for Magnetic Resonance Research, Minneapolis Campus

Major Exclusion Criteria:

- Current pain medications that cannot be stopped 1 day prior to testing
- Conditions/diseases associated with altered pain perception including neurological disorders, multiple sclerosis, trigeminal neuralgia, neoplasia, psychiatric disorders, diabetes, and neoplasm
- Serious injury to hands that prevent testing them
- Substance abuse
- MRI contraindications including claustrophobia and pregnancy

For additional information, including a complete description of the study, please contact Patt by email at tmjstudy@umn.edu or by phone at 612-624-9669. Compensation of up to \$200 is provided upon study completion.

University of Michigan Study of the Brain and TMD

The Headache & Orofacial Pain Effort (H.O.P.E.) Laboratory at the University of Michigan, School of Dentistry, led by Alexandre DaSilva DDS, is a multidisciplinary collaborative effort that investigates the brain as a research and therapeutic target in chronic trigeminal pain disorders. They will be conducting a research study funded by the NIH/NIDCR investigating temporomandibular disorder (TMD).

This study is recruiting individuals who have experienced TMD pain for at least one year, and are 18 – 65 years old. Participants will be compensated for each visit completed, for a total of up to \$650. Study participation will involve a screening visit, fMRI scanning, PET scanning, ten sessions of brain stimulation (tDCS) and follow-up visits with questionnaires. Summary information on the study assessments:

- 1-hour screening visit
- the following week: PET (3 hours; requires an IV and a small needle in one side of jaw muscle) and MRI (1.5 hour; no IV) scans- on separate days

- 2 weeks of non-invasive brain stimulation (M-F; 1 hour each day) - to see if it helps treat TMD pain
- Another set of PET and MRI scans the following week
- Lastly, 1-month and 2-month follow-up visits

[Click here to read the study informed consent form.](#) If you are interested in participating in this study, please contact: contacthope@umich.edu or call (734)763-8469.

University of North Carolina, Duke and University of Los Angeles Study on Chronic Vaginal Pain

Recruiting participants in the Vestibulodynia (VBD) UPDATe Study.

In order to identify the most effective treatments for women with chronic vaginal pain, researchers at Duke University, The University of California, Los Angeles, and The University of North Carolina at Chapel Hill are performing a randomized placebo-controlled blinded clinical trial. This trial hopes to better understand how women experience vestibulodynia pain in order to determine what treatments work best for different women. English-literate women between the ages of 18-50 years are eligible for immediate enrollment if they have VBD and meet certain study criteria. To learn more about the study, meet the research team, and enroll, please visit the [UPDATe Study](#) website.

University of California San Diego Study on Chronic Low Back Pain

The Brain Mechanisms of Pain and Health Laboratory at University of California San Diego (UCSD) is conducting a National Institutes of Health Clinical trial examining the effects of meditation on chronic low back pain. They are looking for patients between 18-65 years of age that have been suffering from chronic low back pain for at least three months. The study requires seven days of patient involvement with one month to complete the study. Patients will be compensated \$400 for completion of the study. For additional information, including a complete description of the study at the Altman Clinical and Translational Research Institute at UCSD, please feel free to contact us at zeidanlab@ucsd.edu or call (858) 246-2028.

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others who understand what
you're going through!**

- The TMJ Association, Ltd.

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CME on Chronic Overlapping Pain Conditions

The Chronic Pain Research Alliance, an initiative of The TMJ Association, in partnership with the International Pelvic Pain Society, is pleased to announce the release of our newly developed Continuing Medical Education (CME) program on Chronic Overlapping Pain Conditions (COPCs) titled, "[A Biopsychosocial Approach to the Clinical Management of Chronic Overlapping Pain Conditions.](#)"

This activity - hosted by the International Association for the Study of Pain (IASP) - is designated for 1 AMA PRA Category 1 Credit. If you are not a current IASP member (or do not have IASP login credentials), please follow the instructions below to access the course free of charge by registering as a non-member. To access the program, visit: <https://www.pathlms.com/iasp/courses/11652>.

If you are interested in obtaining a copy of the course's PowerPoint slide set and corresponding slide notes for teaching purposes, please contact CPRA's Director, Christin Veasley by email (cveasley@cpralliance.org).

Young Investigator Initiative Grant Mentoring and Career Development Program

DEADLINE FOR APPLICATION SUBMISSIONS: January 15, 2020

The United States Bone and Joint Initiative (USBJI) and Bone and Joint Canada are dedicated to increasing research of musculoskeletal diseases. To keep pace with the high and increasing burden of these diseases, a higher level of research performed by young investigators in the musculoskeletal diseases is required, and future levels of research assured. This is particularly important given the current environment for research funding, and academic careers. In response, the Young Investigator Initiative is a grant mentoring program providing 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.

To date 262 participants (60%) have successfully obtained \$486 million in grants for 1,627 new musculoskeletal research studies. Participants consider this program instrumental to their success. They rate highly the one-on-one mentoring with experienced researchers, the opportunity for inter-disciplinary and peer-to-peer exchange, and collaborations established during workshops.

This grant mentoring program and career development program is open to promising junior faculty, senior fellows or post-doctoral researchers nominated by their department or division chairs seeking to pursue a career in clinical or basic research. 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, 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 unique aspect of this program is the opportunity for attendees to maintain a relationship with a mentor until their application is funded.

Apply: <https://www.usbji.org/programs/yii/application-information>

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. [Click here to view the latest National Institutes of Health \(NIH\) funding opportunities for scientists interested in advancing TMJ research.](#) The following NIH research opportunities are currently available:

New Funding Opportunities

- NIDCR Administrative Supplement for Collaborative Science (Notice of Special Interest)
- Notice of Special Interest of NIDCR in Supporting Discovery, Characterization, and Mechanistic Study of Genetic Variants Underlying Dental, Oral, and Craniofacial Diseases and Conditions
- The Intersection of Sex and Gender Influences on Health and Disease (R01)

Additional Funding Opportunities

- Achieving Tissue Robustness Through Harnessing Immune System Plasticity (R21)(R01)
- HEAL Initiative: Translational Development of Devices to Treat Pain (U18)
- HEAL Initiative: Translational Devices to Treat Pain (UG3/UH3)
- HEAL Initiative Translational Devices to Treat Pain (U44I)
- HEAL Initiative: Clinical Devices to Treat Pain (UH3)
- HEAL Initiative: Stimulating Peripheral Activity to Relieve Conditions (SPARC):
- Global Brain and Nervous System Disorders Research Across the Lifespan (R21)
- Research on Chronic Overlapping Pain Conditions (R01)(R21)
- Analytical and/or Clinical Validation of a Candidate Biomarker for Pain (R61/R33)
- Clinical Validation of Candidate Biomarkers for Neurological Diseases (U01)
- Blueprint Neurotherapeutics Network (BPN): Small Molecule Drug Discovery and Development for Disorders of the Nervous System (UH2/UH3) (U44)
- Family-Centered Self-Management of Chronic Conditions (R01)(R21)
- mHealth Tools for Individuals with Chronic Conditions to Promote Effective Patient-Provider Communication, Adherence to Treatment and Self-Management (R01) (R21)
- The Biomarkers Consortium
- Blueprint Neurotherapeutics Network (BPN): Small Molecule Drug Discovery and Development of Disorders of the Nervous System (UG3/UH3) (U44)
- Mechanisms Underlying the Contribution of Sleep Disturbances to Pain (R01) (R21)

Educational Publications

E-Newsletters

TMJ News Bites

[Read Past issues of TMJ News Bites](#) available on our website.

If you're not currently receiving TMJ News Bites and would like to [be on our mailing list](#), [sign up here](#).

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

Chronic Overlapping Pain Conditions Brochure

This brochure addresses Chronic Overlapping Pain Conditions (COPCs), how COPCs are diagnosed, the complexity of the chronic pain experience, and how to work with your health care provider to develop a treatment plan. It is available by [postal mail](#) or as a [PDF on our website](#).

Your Guide to Temporomandibular Disorders Booklet

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 [postal mail](#) or as a [PDF on our website](#), and we encourage you to share it with your friends, health care professionals, and family members.

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. If you would like to receive future issues of COPCs Research Advances, [click here to register](#).



CUTTING EDGE a publication of CHRONIC PAIN Research Alliance
COPCs Research Advances

TMJ Science Journal

Our latest issue of TMJ Science, which includes the summary and recommendations from our 8th scientific meeting—How Can Precision Medicine Be Applied to Temporomandibular Disorders and Its Comorbidities—is now available. We hope you're impressed with how far the science of Temporomandibular Disorders has come.

[We invite you to read this new publication which is available in the publication section of our website as a pdf file.](#)

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.](#)

NIH Brochure on 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>.

TMJ Patient-Led RoundTable

The RoundTable is the first patient-led project under the auspices of the Medical Device Epidemiological Network (MDEpiNet), a public-private partnership developed to bring real world data and patient experiences together with a broad array of experts to conduct studies aimed at improving outcomes for implant patients worldwide.

The following have resulted from the activities of the RoundTable Working Groups:

- [WhitePaper - The TMJ Patient-Led RoundTable: A History and Summary of Work](#)
- [TMD Research Plan](#)
- [TMD and Nutrition Summary](#)
- [TMD Treatments: Review of Meta-Analyses & Systematic Review](#)
- [Update: Dental Education \(Working Group 3\)](#)

More information is also available on the MDEpiNet's website: <http://mdepinet.org/tmj-patient-led-roundtable-crn/>.

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 30 years, we have shared reliable information on TMD with people like you. We invite you to visit our website, www.tmj.org.



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