

Curriculum Vitae

Fernando Gustavo Exposto, DDS, MSc, PhD, DABOP

Contact details: Department of Dentistry and Oral Health, Aarhus University, Vennelyst Boulevard 9 DK-8000 Aarhus C, Aarhus, Denmark. **E-mail:** fernando.exposto@dent.au.dk

Current employment

Assistant Professor, Section for Orofacial Pain and Jaw Function, Department of Dentistry and Oral Health, Aarhus University

Previous employment

- Postdoctoral fellow, Section for Orofacial Pain and Jaw Function, Department of Dentistry and Oral Health, Aarhus University (2019 – 2021)
- PhD fellow, Section for Orofacial Pain and Jaw Function, Department of Dentistry and Oral Health, Aarhus University (2016 – 2019)
- Resident, Division of Orofacial Pain, College of Dentistry, University of Kentucky (2013 – 2015)
- Dentist, Portugal and England (2007 – 2013)

Education and qualifications

- Doctor of Philosophy (Health Sciences), HEALTH, Aarhus University, Denmark (2019)
- Master of Science (Headache Disorders), Copenhagen University, Denmark (2018)
- Diplomate American Board of Orofacial Pain (2016)
- Certificate in Orofacial Pain, College of Dentistry, University of Kentucky, Lexington, KY, USA (2015)
- Master of Science (Dentistry), Danube University, Krems, Austria (2011)
- DDS, Instituto Universitário Egas Moniz, Lisbon, Portugal (2007)

Research interests and expertise

- Mechanisms of chronic orofacial pain and primary headaches
- Mechanisms of referred pain

Grants

- Is CGRP key to understanding the relationship between TMD and headache?. Danish Dental Association, 35.000,- kr. (2023). Main Applicant
- Can referred pain predict postoperative pain after removal of mandibular wisdom teeth?. Danish Dental Association, 36.000,- kr. (2022). Main Applicant
- The role of masticatory myalgia in tension-type headache. Danish Dental Association, 25.000,- kr. (2020). Main Applicant

- Localization of referred muscle pain following noxious stimulation. Danish Dental Association, 28.000,- kr. (2018). Co-applicant
- Phenotyping tension-type headache patients. Danish Dental Association, 87.800,- kr. (2017). Co-applicant
- Phenotyping of tension-type headache patients. AU Health Fully financed PhD fellowship, 1.770.000,-kr. (2016). Main Applicant

Academic awards and honours

- TMD Award: Danish Society for Clinical Oral Physiology (2021)
- 1st Place IADR Neuroscience Group Young Investigator Award, International Association for Dental Research (2019)
- Philip A. Spiegel IASP Congress Trainee Scholarship, International Association for the Study of Pain (2018)

Academic activity

- Chairman of the Danish Society for Clinical Oral Physiology since 2021
- Organizer of the Annual Meeting of the Danish Society for Clinical Oral Physiology since 2021
- Affiliated to Scandinavian Center for Orofacial Neurosciences (SCON) since 2015

Editorial work and peer-review

- Editorial Board Member of Scientific Reports since 2022.
- Manuscript reviewer for various journal including: Clinical Oral Investigations, European Journal of Oral Sciences, European Journal of Pain, International Journal of General Medicine, Journal of Applied Oral Science, Journal of Clinical Medicine, Journal of Oral Rehabilitation, Journal of Orofacial Pain and Headache, Journal of Pain Research, Scientific Reports, The Clinical Journal of Pain, The Journal of Headache and Pain
- Abstract reviewer 98th International Association of Dental Research (IADR) Meeting – INFORM group.

Teaching experience

- Pregraduate clinical teaching in Orofacial Pain since 2017 (Dentistry, AU)
- Lecturer in Orofacial Pain since 2017 (Dentistry, Dental Hygiene and Clinic Dental Technology, AU)
- Lecturer in the PhD course What is pain and how should it be measured? since 2019
- Lecturer in several postgraduate courses on Orofacial Pain since 2020
- Organizer of the Annual Pain Theme Day since 2020 (Dentistry, AU)
- Section responsible for the course General Clinic since 2023 (Dentistry, AU)
- Responsible for the course Is a PhD for you? since 2023 (Dentistry, AU)
- Responsible for the course Preclinical Function and Rehabilitation since 2023 (Dentistry, AU)

- Lecturer in the course Organ and Oral Physiology since 2024 (Dentistry, AU)

Supervision and mentorship

- PhD Supervision: 3 students
- MSc Projects: 20 students
- Guest researcher mentorship: 12 guest researchers

Bibliometric data

- Peer-reviewed papers: 38
- Book chapters: 7
- Scopus: h-index 12. Citations: 417.
- Google Scholar: h-index 14. Citations: 671.

National and International Collaborations

- Aarhus University Hospital, Denmark. Senior Consultant Neurologist Sonja Antic
- Aarhus University, Denmark. Clinical Professor Hatice Tankisi
- Aarhus University, Denmark. Professor Mario Vianna Vettore
- Aarhus University, Denmark. Associate Professor Francesca Fardo
- University of Minnesota, USA. Assistant Professor Estephan Moana-Filho
- Campinas State University, Brazil. Assistant Professor Yuri Martins Costa
- Egas Moniz School of Health & Science, Portugal. Assistant Professor Andre Almeida
- University of Hamburg, Germany. Professor Arne May
- Sacre-Coeur Hospital, University of Montreal, Canada. Research Associate Alberto Herrero Babiloni
- Osaka Dental University, Japan. Professor Akiko Shimada
- King Juan Carlos University, Spain. Professor César Fernández de las Peñas
- University of Copenhagen, Denmark. Associate Professor Henryk Schytz
- University of Valencia, Spain. Associate Professor Francisco Javier Puertas

Publications

Journal Publications

1. Novaes IC, Ardestani SS, Nascimento AM, Conti PCR, Bonjardim LR, Svensson P, **Exposto FG**, Costa YM. Capsaicin-induced secondary hyperalgesia differences between the trigeminal and spinal innervation. Sci Rep. Accepted 2024.
2. Svensson P, **Exposto FG**, Costa YM. Jaw muscle and joint psychophysics – relevance for clinical orofacial pain practice and research. A narrative review. J Oral Fac Pain Headache. Accepted 2024.

3. Nascimento AMS, Ardestani SS, Novaes IC, Conti PCR, Bonjardim LR, **Exposto FG**, Svensson P, Costa YM. Expectation of analgesia increases the inhibitory response of conditioned pain modulation in healthy participants who are non-inhibitors. *Eur J Pain* 2024. <https://doi.org/10.1002/ejp.4747>
4. Renner N, Costa YM, Castrillon EE, **Exposto FG**. Reliability of an intraoral extension for intraoral palpation and assessment of mechanical sensitivity of the temporal tendon. *J Oral Rehab* 2024 51(9): 1848-1861.
5. Sago T, Costa YM, Ferreira DM, Svensson P, **Exposto FG**. Referred sensations in the orofacial region are associated with a decreased descending pain inhibition and modulated by remote noxious stimuli and local anesthesia. *Pain* 2023 164(10): 2228-2238.
6. Salis B, Svensson P, **Exposto FG**. Referred sensation location can be altered by a strong heterotopic nociceptive stimulus: Implications for clinical pain conditions. *Pain* 2023 164(5): e242-e250.
7. Herrero Babiloni A, Bouferguene Y, **Exposto FG**, Beauregard R, Lavigne GJ, Moana-Filho EJ, Arbour C. The prevalence of persistent post-traumatic headache in adult civilian traumatic brain injury: a systematic review and meta-analysis on the past 14 years. *Pain* 2023 164(12): 2627-2641.
8. Boscato N, **Exposto FG**, Costa YM, Svensson P. Effect of standardized training in combination with masseter sensitization on corticomotor excitability in bruxer and control individuals: a proof of concept study. *Sci Rep* 2022;12(1):17469.
9. **Exposto FG**, Huang M, Haasnoot T, Koutris M, Lobbezoo F, Bendixen KH, Svensson P. Location of mechanically-evoked referred sensations within the trigeminal region are not altered following a heterotopic painful stimulus. *Sci Rep* 2022 12(1): 21181.
10. Benbow T, Teja F, Sheikhi A, **Exposto FG**, Svensson P, Cairns BE. Peripheral N-methyl-D-aspartate receptor activation contributes to monosodium glutamate-induced headache but not nausea behaviours in rats. *Sci Rep* 2022;12(1):13894.
11. Yang S, **Exposto FG**, Mahmoodi S, Svensson P. Mechanical sensitivity changes in pericranial muscles after local anesthesia and experimentally induced pain in the temporalis tendon: Implications for headache and facial pain. *Cephalalgia* 2022:3331024221094294.
12. Benbow T, Ekbatan MR, Yue Wang GH, Teja F, **Exposto FG**, Svensson P, Cairns BE. Systemic administration of monosodium glutamate induces sexually dimorphic headache- and nausea-like behaviours in rats. *Pain* 2022;163(9):1838-1853.
13. Boscato N, **Exposto FG**, Nascimento GG, Svensson P, Costa YM. Is bruxism associated with changes in neural pathways? A systematic review and meta-analysis of clinical studies using neurophysiological techniques. *Brain Imaging Behav* 2022;16(5):2268-2280.
14. Herrero Babiloni A, **Exposto FG**, Peck CM, Lindgren BR, Martel MO, Lenglet C, Bereiter DA, Eberly LE, Moana-Filho EJ. Temporomandibular disorders cases with high-impact pain are more likely to experience short-term pain fluctuations. *Sci Rep* 2022;12(1):1657.

15. **Exposto FG**, Castrillon EE, Exposto CR, Costa DMF, Gøkhan MA, Svensson P, Costa YM. Remote physical examination for temporomandibular disorders. *Pain* 2022;163(5):936-942.
16. Moleirinho-Alves PMM, de Almeida A, **Exposto FG**, Oliveira R, de Pezarat-Correia PLC. Effects of therapeutic exercise and aerobic exercise programs on pain, anxiety and oral health-related quality of life in patients with temporomandibular disorders. *J Oral Rehabil.* 2021 Aug 9. doi: 10.1111/joor.13239.
17. **Exposto FG**, Renner N, Bendixen KH, Svensson P. Pain in the temple? Headache, muscle pain or both: A retrospective analysis. *Cephalalgia* 2021:3331024211029234.
18. **Exposto FG**. Orofacial pains resembling presentations of primary headaches: an overview of the newest member of the orofacial pain family. *Tandlægebladet* 2021:125.
19. de Caxias FP, **Exposto FG**, Turcio K, dos Santos DM, Svensson P. Nerve Growth Factor-induced sensitization of the sternocleidomastoid muscle and effects on trigeminal muscle sensitivity and pain profiles. A randomized, double-blind and controlled study. *J Oral Facial Pain Headache. J Oral Facial Pain Headache.* 2021 Winter;35(1):7-16. doi: 10.11607/ofph.2593.
20. **Exposto FG**, Bendixen KH, Ernberg M, Bach FW, Svensson P. Assessment of pain modulatory and somatosensory profiles in chronic tension-type headache patients. *Pain Med* 2021. *Pain Med.* 2021 Mar 4;pnab084. doi: 10.1093/pm/pnab084.
21. Costa YM, De Koninck BP, Elsaraj SM, **Exposto FG**, Herrero Babiloni A, Kapos FP, Sharma S, Shimada A. Orofacial pain education in dentistry: A path to improving patient care and reducing the population burden of chronic pain. *J Dent Educ* 2021;85(3):349-358. *** All the authors are equal contributors and are listed in alphabetical order.**
22. Zhang Y, **Exposto FG**, Grigoriadis A, Lobbezoo, F, Koutris M, Zhang J, Wang L, Svensson P. A comparison of pain-generated functional outcomes in experimental models of delayed-onset of muscle soreness and nerve growth factor injection of the masticatory muscles. *J Oral Facial Pain Headache. J Oral Facial Pain Headache.* 2020 Fall;34(4):311-322. doi: 10.11607/ofph.2623.
23. Herrero Babiloni A, **Exposto FG**, Bouferguene Y, Costa Y, Lavigne GJ, Arbour C. Temporomandibular Disorders in Traumatic Brain Injury Patients: A Chronic Pain Condition Requiring Further Attention. *Pain Med.* 2020 Dec 25;21(12):3260-3262. doi: 10.1093/pm/pnaa234.
24. Svensson P, **Exposto FG**. Further Evidence for Overlaps Among Chronic Pain Conditions—But No News About Causal Relationships. *J Oral Facial Pain Headache* 2020; Suppl.c2:s6 - s8.
25. Costa YM, **Exposto FG**, Castrillon EE, Conti PCR, Bonjardim LR, Svensson P. Local anaesthesia decreases nerve growth factor induced masseter hyperalgesia. *Sci Rep* 2020;10(1):15458.
26. Kapos FP, **Exposto FG**, Oyarzo JF, Durham J. Temporomandibular disorders: a review of current concepts in aetiology, diagnosis, and management. *Oral Surgery*, 2020, 13(4), pp. 321–334.

27. Herrero Babiloni A, Lam J, **Exposto FG**, Beetz G, Provost C, Gagnon DH, Lavigne GJ. Interprofessional Collaboration in Dentistry: Role of physiotherapists to improve care and outcomes for chronic pain conditions and sleep disorders. *J Oral Pathol Med* 2020;49(6):529-537.
28. **Exposto FG**, Arima T, Svensson P. Sleep Disorders and Chronic Orofacial Pain. *Curr Sleep Medicine Rep* (2019) 5:104–111. DOI: 10.1007/s40675-019-00152-z.
29. Costa Y.M, **Exposto FG**, Kothari M, Castrillon EE, Conti PCR, Bonjardim LR, Svensson P. Masseter corticomotor excitability is decreased after intramuscular administration of nerve growth factor. *Eur J Pain*. 2019 Jun 13. doi: 10.1002/ejp.1438.
30. **Exposto FG**, Bendixen KH, Ernberg M, Bach FW, Svensson P. Characterization and predictive mechanisms of experimentally induced tension-type headache. *Cephalalgia* 2019 Mar. DOI: 10.1177/0333102419840779
31. Castrillon EE, **Exposto FG**. Sleep Bruxism and Pain. *Dent Clin North Am*. 2018 Oct;62(4):657-663. doi: 10.1016/j.cden.2018.06.003.
32. **Exposto FG**, Udagawa G, Naganawa T, Svensson P. Comparison of masseter muscle referred sensations following mechanical and glutamate stimulation: a randomized, double-blind, controlled, crossover study. *Pain*. 2018 Aug 22. doi: 10.1097/j.pain.
33. Masuda M, Iida T, **Exposto FG**, Baad-Hansen L, Kawara M, Komiyama O, Svensson P. Spatio-temporal Effects of Standardized Palpation on Referred Sensations and Pain from the Masseter Muscle in Healthy Individuals. *Int J Oral-Med Sci* 17(1):9-17, 2018. doi: 10.5466/ijoms.17.9
34. **Exposto FG**, Masuda M, Castrillon EE, Svensson P. Effects of nerve growth factor experimentally-induced craniofacial muscle sensitization on referred pain frequency and number of headache days: A double-blind, randomized placebo-controlled study. *Cephalalgia*. 2018 Jan 1:333102418758481. doi: 10.1177/0333102418758481. PubMed PMID: 29528692.
35. Masuda M, Iida T, **Exposto FG**, Baad-Hansen L, Kawara M, Komiyama O, Svensson P. Referred Pain and Sensations Evoked by Standardized Palpation of the Masseter Muscle in Healthy Participants. *J Oral Facial Pain Headache*. 2018 Mar 21. doi: 10.11607/ofph.2019. PubMed PMID: 29561916.
36. Álvarez-Méndez AM, **Exposto FG**, Castrillon EE, Svensson P. Systematic Mapping of Pressure Pain Thresholds of the Masseter and Temporalis Muscles and Assessment of Their Diversity Through the Novel Application of Entropy. *J Oral Facial Pain Headache*. 2017 Fall;31(4):362–371. doi: 10.11607/ofph.1927. Epub 2017 Oct 10. PubMed PMID: 29019473.
37. Castrillon EE, **Exposto FG**, Sato H, Tanosoto T, Arima T, Baad-Hansen L, Svensson P. Entropy of Masseter Muscle Pain Sensitivity: A New Technique for Pain Assessment. *J Oral Facial Pain Headache*. 2017 Winter;31(1):87-94. doi:10.11607/ofph.1756. PubMed PMID: 28118425.

38. Kline RH, **Exposto FG**, O'Buckley SC, Westlund KN, Nackley AG. Catechol-O-methyltransferase inhibition alters pain and anxiety-related volitional behaviors through activation of beta-adrenergic receptors in the rat. *Neuroscience* 2015;290:561-569.

Book Chapters

1. Herrero-Babiloni A, **Exposto FG**, Svensson P and Lavigne GJ. Sleep Bruxism. In: Kushida C, editor. *Encyclopedia of Sleep*. Elsevier Publishing. 2021
2. Svensson P and **Exposto FG**. Patients with temporomandibular disorders. In: Melsen B, editor. *Adult Orthodontics*. Wiley-Blackwell. 2021
3. Sessle BJ, Baad-Hansen L, **Exposto FG**, Svensson P. Orofacial Pains. In: Lynch M, Craig KD, Peng PHW, editors. *Clinical Pain Management: A Practical Guide*. Blackwell Publishing. 2021
4. Yang S, Costa YM, Svensson P, **Exposto FG**. Apresentações primárias, secundárias e faciais de dores de cabeça. In: Fonseca J, Almeida AM, Oliveira T, editors. *Disfunção Temporomandibular: Recomendações e Guidelines de Abordagem da SPDOF*. SPDOF Publishing 2021
5. **Exposto FG**, Castrillon EE, Svensson P. Bruxismo e Cefaleias. In: Almeida AM, Dias R, Fonseca J, editors. *Bruxismo do Diagnóstico à Reabilitação*. Publicações SPDOF 2018.
6. Kumar A, **Exposto FG**, You HJ, Svensson P. Pathophysiology of TMD pain. In: Fernández-de-las-Peñas C, Mesa-Jiménez J, editors. *Temporomandibular Disorders: Manual Therapy, Exercise and Needling*. Handspring Publishing 2018.
7. **Exposto FG**, Svensson P, Arendt-Nielsen L. Temporomandibular Disorder Comorbidity. In: Giamberardino MA, Martelletti P, editors. *Comorbidities in Headache Disorders*. Cham: Springer International Publishing, 2017

Invited Lectures

“Orofacial pain disorders for ENT”, **Wednesday morning rounds, ENT department, Regionshospitalet Gødstrup, Denmark. December 2024**

“Management of patients with comorbid headache and TMD”, **International Association for Dental Research Webinar, November 2024**

“Overlap between TMD and primary headaches”, **1st National Meeting of Physiotherapy and Pain, Madrid, Spain. October 2024**

“Orofacial pain disorders for Rhinologists”, **National meeting of the Danish ENT Academy (DENTA), Copenhagen, Denmark. September 2024**

“Clinical assessment of comorbid headache and orofacial pain patients”, **Postgraduate Course in Orofacial Pain, CESPU, Porto, Portugal. July 2024**

“Acquired bite-changes”, **Dental Grand Rounds, Department of Dentistry and Oral Health, Aarhus University, Aarhus, Denmark. June 2024**

“What dentists need to know about headaches”, XXXIV Annual Meeting of the Spanish Society of Craniomandibular Disfunction and Orofacial Pain, Seville, Spain. May 2024

“Masticatory Muscle Pain”, Orofacial Pain Residency TMD seminar; University of Kentucky, Lexington, Kentucky. April 2024

”Do We Understand the Nature of Myofascial Trigger Points?”, American Academy of Orofacial Pain 48th Annual Meeting, Phoenix, Arizona. May 2024

“Mechanisms of Orofacial Pain Referral”, American Academy of Orofacial Pain 48th Annual Meeting, Phoenix, Arizona. May 2024

“Orofacial pain disorders”, VI International Congress on Physiotherapy and Pain, Valencia, Spain. April 2024 (plenary)

“Clinical assessment of comorbid headache and orofacial pain patients”. VI International Congress on Physiotherapy and Pain, Valencia, Spain. April 2024 (workshop)

“Clinical assessment of comorbid headache and orofacial pain patients”, Continuing education course, dinTandlæge, Denmark. May, April and March 2024

“Diagnosis and management of TMD”, Selskabet for Odontologisk Praktik, Sorø, Denmark. March 2024

“Orofacial headaches”, Meeting of the Danish Society for Clinical Oral Physiology, Copenhagen, Denmark. January 2024

“Myofascial orofacial pain”, Meeting of the Danish Society for Clinical Oral Physiology, Copenhagen, Denmark. January 2024

“Orofacial pain disorders”, What is pain and how should it be measured?, PhD course, Health, Aarhus University, Aarhus, Denmark. November 2023

““What Headaches are Important For My Orofacial Pain Practice”, Orofacial pain residency, Andre Bello University, Chile. October 2023

“Hovedpine 101”, Vestfyns Odontologiske Selskab, Middelfart, Denmark. June 2023

“Masticatory muscle pain”, II International UNIPRO Congress, Porto, Portugal. June 2023

“What you need to know about headaches”, Danish Health Authority course on Clinical Oral Physiology, Aarhus, Denmark. April 2023

“Diagnosing TMD”, Danish Health Authority course on Clinical Oral Physiology, Aarhus, Denmark. April 2023

“Masticatory Muscle Pain”, Orofacial Pain Residency TMD seminar; University of Kentucky. March 2023

“Orofacial pain cases”, Meeting of the Danish Society for Clinical Oral Physiology, Copenhagen, Denmark. January 2023

“Assessment of TMD and headache patients”, Postgraduate Course in Orofacial Pain, CESPU, Porto, Portugal. Mar 2022

“Masticatory Muscle Pain”, Orofacial Pain Residency TMD seminar; University of Kentucky. February 2022

“Evaluation of TMD and headache patients”, Annual Scientific Meeting of the Danish Society for Oral Physiology. Jan 2022

“What dentists need to know about headaches”, Aarhus International Short-Term Course in Orthodontics, Aarhus, Denmark. September 2021

“Assessment and controversies in patients with TMD and headaches”, Brazilian Society for Orofacial Pain, May 2021

“Masticatory Muscle Pain”, Orofacial Pain Residency TMD seminar; University of Kentucky. April 2021

“What you need to know about headaches”, Danish Health Authority course on Clinical Oral Physiology, Aarhus, Denmark. August 2020

“Somatosensory characterisation and predictive mechanisms of tension-type headache”, 45th Annual Scientific Meeting of the American Academy of Orofacial Pain. May 2021

“Masticatory Muscle Pain”, University of North Carolina Pain Group Deep Dive Seminars. May 2020

“Management of Orofacial Pain”, Masters Degree in Craniomandibular Disfunction and Orofacial Pain, San Pablo University. May 2020

“Risk Factors for the Development of painful TMD”, Collège National d'Occlusodontologie - 37^{èmes} journées internationales, Arras, France. March 2020

“Evaluation of TMD and headache patients”, Portuguese Society of Orofacial Pain annual workshop, Porto, Portugal. November 2019

"Sleep and Headache", Meeting of the Danish Society for Clinical Oral Physiology and Temporomandibular Disorders, Copenhagen, Denmark. January 2019

"Headaches 101", 26th International Meeting in Dentistry, ISCSEM, Lisbon, Portugal, 2018

"What Headaches are Important For My Orofacial Pain Practice", 1st Autumn Meeting Day of the Portuguese Society of Orofacial Pain, Faro, Portugal, 2017

“Catechol-O-methyltransferase inhibition alters pain and anxiety-related volitional behaviors in the rat”, University of Kentucky CCTS Meeting, Lexington, KY, 2015

"The Etiology and Management of Acquired Malocclusions”, 26th Annual UK Orofacial Pain Alumni Symposium, University of Kentucky, Lexington, KY, June 2014

"The Etiology and Management of Acquired Malocclusions", Dental Grand Rounds, College of Dentistry, University of Kentucky, KY, January 2014

"Bruxism and Periodontal Disease," International Conference on Occlusion, University of Vienna, Austria, June 2012.