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Muscle activity in the head, face, and neck measured with surface EMG before and after cranial therapy: A case report of 2 patients [Abstract]

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Indexing terms: Chiropractic; TMJ; surface EMG.

Narrative:

Although it's the most common type of craniofacial pain, very few practitioners in the world of dentistry or physical medicine know how to diagnose, let alone manage TMJ pain and dysfunction. Many claim to treat this joint, but with no real diagnosis other than the patient complaining of pain in the area, the vast majority of practitioners will throw their one or two catch-all 'TMJ treatments' at the problem, crossing their fingers in the hope that the patient feels better enough to not complain further.

When one thinks of craniofacial pain, it is commonly thought that most of the pain symptoms come from the muscles themselves, even if they are rarely the root cause. There are in fact reliable ways to measure muscle activity, and one such method is surface EMG. Muscles can be overactive or underactive, which can be accurately measured via the surface EMG analysis. In our small case study, although the chiropractor was confident that he was affecting the muscles and joints of the head and neck, he and his dental colleague decided to put this to the test by measuring muscles of the head, face, and neck before and directly after cranial therapy.

Although it was only performed on two patients, the results were compelling enough to warrant further study and a larger sample of patients. In regards to history, both patients experience various forms of craniofacial and cervical pain and dysfunction, and in their initial EMG scan both had muscle imbalances in almost all muscles tested. Immediately after receiving cranial therapy, almost all muscles that were misfiring (over or underactive) came back into the normal range.

This simple case study is significant for a few reasons. Firstly, very few TMJ treatments have had any research done validating their claims or results, especially utilising an independent and objective form of analysis. Secondly, no chiropractors and only a small minority of dentists utilise this form of analysis, and most will try and correct these muscle imbalances using TENS.

While TENS tends to work well on muscles that are overactive, it tends to create a worsening of symptoms and EMG scores in muscles that are underactive. It is also quite uncomfortable, difficult and time consuming to set up, and takes valuable chair time and manpower to implement. This leads me to the third reason this case study is novel and intriguing: the results strongly point to the importance of co-management in cases of TMJ pain and dysfunction.

A complex joint, it has the potential to create descending patterns of dysfunction on the rest of the body, is influenced by ascending influences as far away as the feet, and highly susceptible to maxillary underdevelopment (especially sagittal), myofunctional processes, and occlusion. By balancing the structures of the head and neck, and relaxing the muscles, the dental practitioner can then find a level a neutral plane on which to begin appliance therapy.

TMJ study is in its infancy, but given the prevalence of this condition and the current practitioner landscape that can only be defined as being akin to the 'wild west', any research into objective methods of addressing these dysfunctions are a welcome reprieve.

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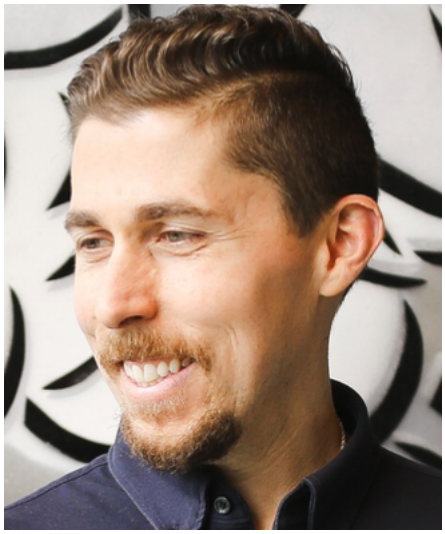
About the practitioner



Jason Scoppa, DC, CSCP, CCSP, PAK has been practicing in the Seattle area since 2012. Having graduated from Palmer Chiropractic College in California, Dr Scoppa went on to earn post graduate certifications in SOT and SOT craniopathy through SOTO-USA, Applied Kinesiology through the ICAK, and Sports Medicine 1989 through the ACBSP. He has completed hundreds of hours of postgraduate coursework in the areas of TMJ, myofunctional therapy, airway, appliance therapy, expansion techniques, cranial facial growth and development, craniofacial pain, and and Cranial-Dental co-management.

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