

# Bridges between Dr Janet Travell, Myofascial Trigger Points and Chiropractic

Scott Cuthbert

Janet Travell, MD (1901-1997) was the physician who, from the 1940's onwards, contributed the most to our understanding of myofascial trigger point (MTrP) muscle pain. She authored more than 100 scientific articles, wrote poetry, an autobiography, could work on her Ford Model T's engine, and was three-time campus tennis champion at Wellesley College, besides graduating at the top of her Cornell University Medical class in 1926. Travell became Senator John F. Kennedy's physician in 1955 and noted *'He suffered greatly from war wounds and failed surgeries. When he first came to me he had been on crutches so long he had calluses under his arm pits.'* Travell relieved Kennedy of his pain and crutches. Once he became President, Kennedy chose Travell as his personal doctor – the first female White House Physician.

Dr. Travell first began to take an interest in muscle pain when she herself was suffering from a painful shoulder as a result of having strained some muscles during her medical work. As she said in her autobiography *Office Hours: Day and Night*: (1)

... chiropractic is indebted to Dr Janet Travell' for her pioneering work on trigger points in muscles. Here, Scott Cuthbert presents a relevant and fascinating overview of her role which led to collaboration with Simon for their seminal textbook.



"Poking around at night in the muscles over my shoulder blade, trying to give some 'do it yourself' massage, I was astonished to touch some spots that intensified, or reproduced my pain, as though I had turned on an electric switch. It was my first introduction to the enigmatic trigger area. No nerve existed, I knew, to connect those firing spots directly with my arm. I was baffled, but I did not discard the observation on the grounds that I could not explain it."

Source: *Office Hours* (the typescript of her autobiography is among the treasures of George Washington University's Travell Collection) is an inspiring guide to Dr. Travell's pioneering spirit and the personal background to many of her publications.

In 1936 Dr. Travell was fortuitously appointed to work at Sea View Hospital on Staten Island, New York. This hospital specialized in the treatment of tuberculosis, so the patients remained in bed for long periods of time. These patients suffered from severe pain in their shoulders and arms. As Dr. Travell says in her autobiography, *'When I examined them by systematic palpation of the scapula and chest muscles, I easily uncovered the presence of trigger areas. I knew what to look for'*.

Travell and her cardiologist colleague Rinzler also drew attention to the fact that tender points, or what they were then calling trigger areas, may develop in the muscles of the chest wall as a secondary event in patients with cardiac pain; they reported that it was possible to relieve the pain either by injecting procaine into them, or by spraying the overlying skin with ethyl chloride. (2) In another paper, (3) they showed how closely the pattern of pain referral from trigger areas in muscles of the chest wall might simulate that of ischemic heart disease. Sixty years later, the clinical recognition of this common source of cardiac-type pain has largely disappeared. Atrial fibrillation and arrhythmia can also be treated effectively by treating with trigger point pressure a point in the pectoralis muscle on the lower-right anterior chest wall. (4)

By the early 1950s, Travell had recognized a large number of these muscle-organ-gland interactions and gave a detailed description of them at a meeting of the American Medical Association. In the following year Travell (5) published an account of them in a classic contribution to the field entitled *The Myofascial Genesis of Pain*. Finally, 31 years later, Travell and her colleague David G. Simons (6) had gained enough experience in the diagnosis and management of these MTrP syndromes that they were able to publish the first authoritative textbook, which are classics on the subject.

### Travell and Chiropractic

The chiropractors Raymond Nimmo (1904-1986) and George J. Goodheart, Jr. (1918-2008) also developed an understanding of muscle pain that was based on the ideas of Travell; each of these physicians knew the other and admired the other's work. (7)

Dr. Goodheart was a speaker with Dr. Travell at the Rowe-Smith Memorial Seminar in San Antonio Texas in March 1978. In the Rowe Smith seminar both Drs. Travell and Goodheart were presented with a patient suffering temporomandibular disorder (TMD). The patient could only open their mouth slightly. Dr. Travell treated the patient with spray-and-stretch techniques and helped him with pain reduction and mouth-opening (to the width of two fingers, with the accepted normal being three fingers of the non-dominant hand), but the patient's mouth was still somewhat painful on opening. Dr. Travell then curtsy'd to Dr. Goodheart as though to say, *'Your turn.'* Dr. Goodheart then treated the patient; after his assessment and treatment, the patient could open their mouth to the normal three-finger width and without pain.

Dr. Travell and Dr. Goodheart were then given strong applause from the crowd after their ministrations, with Dr. Travell and Goodheart offering an identical curtsy in unison to the gathered assembly of dentists.

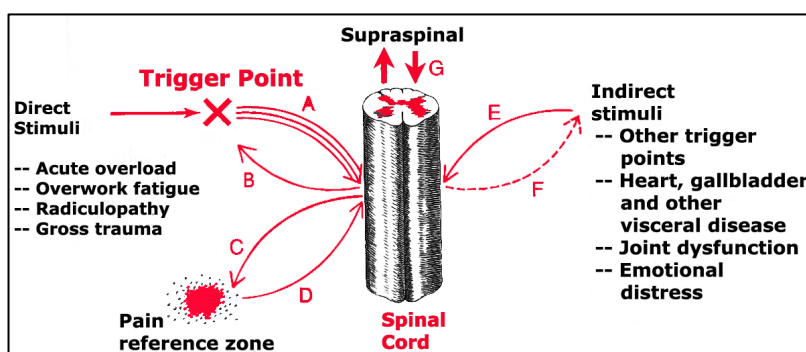
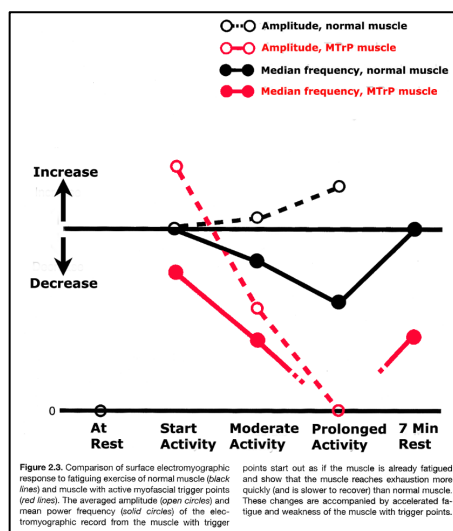
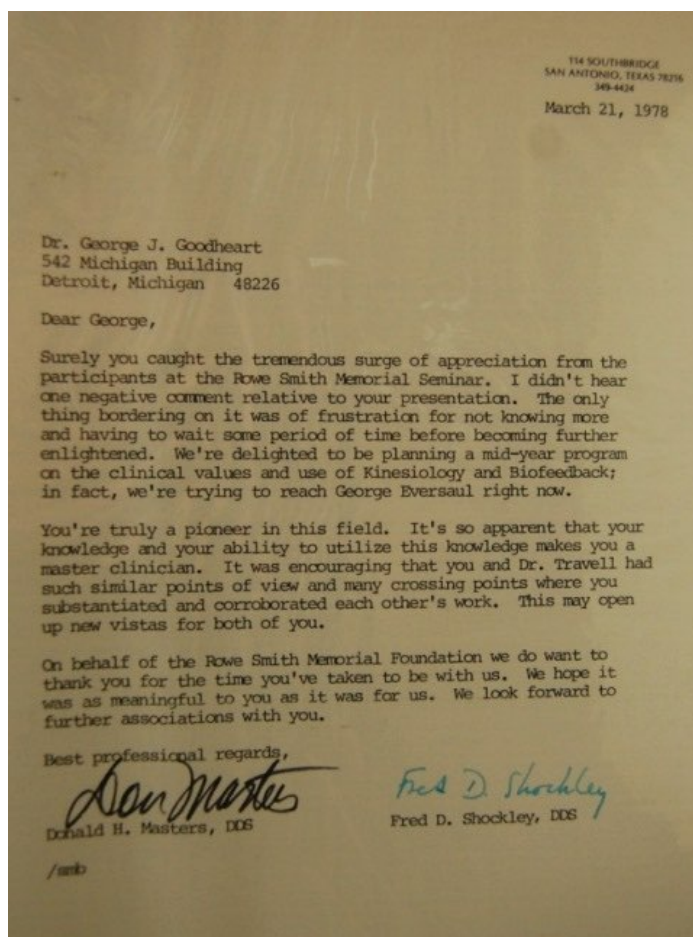
Dr. Travell told the audience (mostly dentists) that she understood that Dr. Goodheart had found another method for the diagnosis of muscular dysfunctions and myofascial trigger points.

Goodheart was congratulated for his presentation with Travell at The Rowe-Smith Memorial Lecture. Photographs courtesy of the Palmer Chiropractic College Library, Davenport, Iowa. (The George J. Goodheart, Jr., D.C. Archive.)

Critically important is that according to Travell and Simons, an active trigger point will inhibit the function of the muscle in which it is housed as well as those which lie in its target zone of

referral. (4) Therefore the weak muscle may be where the MTrP resides or in a muscle which experiences referred pain from the MTrP, or both.

"Although weakness is generally characteristic of a muscle with active myofascial trigger points, the magnitude is variable from muscle to muscle, and from subject to subject. EMG studies indicate that, in muscles with active trigger points, the muscle starts out fatigued, then fatigues more rapidly, and finally becomes exhausted sooner than normal muscles." (8)



Simons et al (4) also suggest that the weakness resulting from MTrPs must be evaluated both statically and dynamically, confirming a suggestion of Goodheart's for the diagnosis of MTrPs, using a chiropractic test called the '*muscle stretch reaction*.' (10) In static testing, a single muscle is being evaluated as the patient attempts a voluntary contraction, and the process is under cortical control. In dynamic testing, which involves muscular effort before or after a functional movement (as in the muscle stretch reaction followed by the manual muscle test, or MMT) and where a degree of coordinated muscular effort is required, there is a greater degree of '*vulnerability to reflex inhibition*' involving trigger points. (4)

It has been suggested that identification of MTrPs via palpation requires significant skill in the physical examination of the muscle. (11) Effective diagnosis of MTrPs with palpation alone is fraught with difficulty. Although the diagnostic criteria of Simons et al (4) have been used in many studies in the past decade, further research is needed to test the reliability, sensitivity and specificity of the diagnostic criteria currently recommended by authoritative sources. (12) A number of studies have shown the inter-examiner reliability of MTrP examinations to be poor to marginal. (13, 14, 15) Sciotti et al (16) have demonstrated (under double blind circumstances and using pressure algometry) that with careful pre-training, the reliability of inter-examiner examinations for MTrPs in at least the trapezius muscle is good.

Travell and Simons (17) note that, anatomically and functionally, a number of muscles in the body are difficult to differentiate by palpation and by the referred pain induced by palpatory assessment. Many muscles have overlapping target zones of referred pain as well. The pain patterns of sacroiliac joint dysfunction, for example, can be confused with trigger points of the gluteus medius muscle. Additionally, the pain patterns arising from the lumbar facet joints can be mistaken for gluteal trigger points. They also warn that pains of vascular origin and that of trigger points may be confused.

Another diagnostic challenge is the presence of both a joint dysfunction affecting the muscles, in addition to trigger points in the muscles that are functionally related to the joint. These deleterious interactions can persist because one problem may exacerbate the other if they are treated separately, or one at a time. Both problems must be identified and appropriately treated. Lowe (18) specifically evaluated the relationship between joint subluxations and MTrPs. Lowe measured the relative amount of EMG activity in paraspinal muscles in normal, slightly subluxated, and severely subluxated joints in response to pressure on a distant MTrP. The production of additional pain by pressure on a distant MTrP notably increased the EMG activity in muscles of severely subluxated segments as compared to normal segments. Lowe's study indicates that joint subluxations of the spine can increase the responsiveness of motor neurons in adjacent muscles from nociceptive input from distant MTrPs.

Finally, the palpation of tenderness in a muscle '*indicates absolutely nothing about the source or cause of the tenderness being measured. The tenderness may be due to MTrPs, to tender points of fibromyalgia, to bursitis, to severe spasm, etc. Therefore, by itself, tenderness cannot serve as a diagnostic criterion. The cause of the tenderness must be determined by other diagnostic observations.*' (4) It should be noted that this line of reasoning is entirely consistent with the chiropractic approach using the MMT.

Another diagnostic criterion for the presence of MTrPs (the referred pain patterns upon pressure to the suspected MTrP) is also challenging. Hsieh et al (19) showed that referred pain in the expected pattern is not a specific finding of MTrPs either. Referred pain can frequently be elicited from normal muscles with the application of sufficient palpation pressure in patients with no pain complaint. (20)

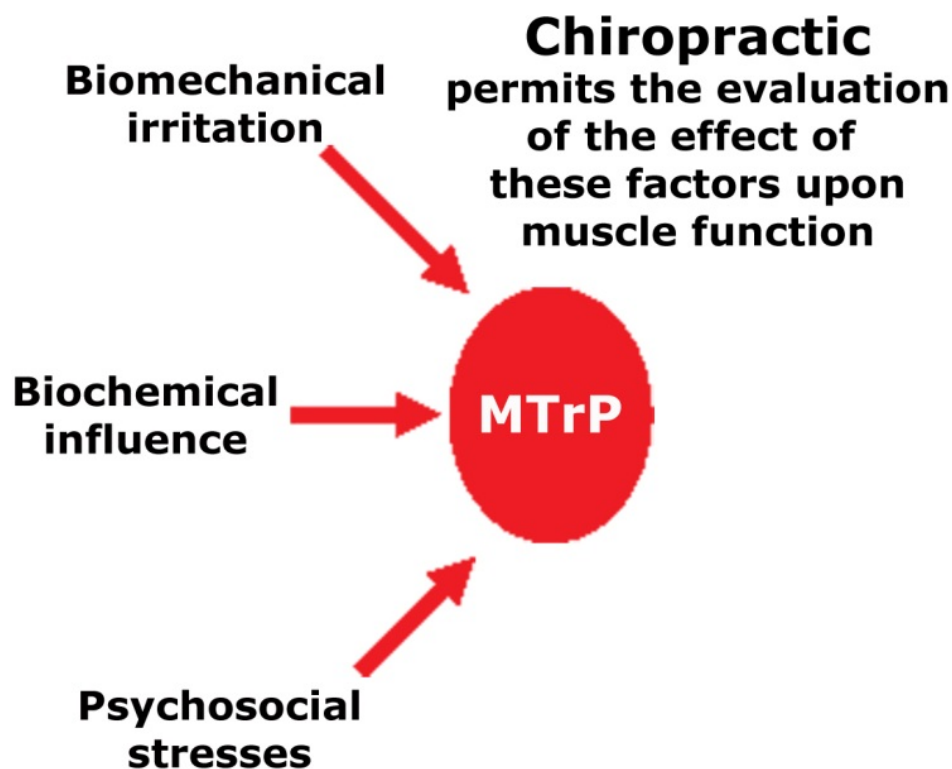


The lack of general agreement in the literature as to the criteria and reliability of the methods for MTrP diagnosis suggests that this field should be open to improved methods of examination for the presence of MTrPs.

One method of chiropractic diagnosis for MTrPs can be of great value to the examiner. It is called the '*muscle stretch reaction*'. The general muscle stretch reaction testing procedure is simple. Test the muscle by the usual method to determine its strength. If the test appears normal, stretch the muscle to its full range of motion and apply slight additional stretch at the end. Immediately re-test it. In the presence of a positive stretch reaction, the muscle which previously tested strong will now dramatically weaken, and palpation will usually find a taut band in the muscle, the Locus In Quo of the MTrP.

First, it uses a fairly objective test to detect a significant muscle impairment resulting from MTrPs. (4, 21) Second, it confirms whatever palpatory findings may be present for MTrPs which can be vague, complex, or slight. (8, 22) Third, on reexamination it demonstrates for the examiner and the patient that treatment to the MTrP eliminated the muscle weakness that was previously generated by stretching or using the muscle with the MTrP within it.

Finally, according to Simons et al., (4) the basic reason why therapy provides only temporary relief for MTrPs is because perpetuating factors have not been adequately addressed. Systemic perpetuating factors for MTrP problems encompass many conditions that compromise muscle energy metabolism. Travell & Simons (4, 6) presented these metabolic, structural, and psychosocial factors in both editions of their classic textbook. Each of these factors of dysfunction has been given specific chiropractic treatment approaches, making the comprehensive treatment of these '*perpetuating factors*' of MTrPs especially amenable to treatment using chiropractic methods. (21)



Travell and Simons' concepts regarding MTrPs have converged with D.D. Palmer's and the chiropractic profession's concept of the triad of health. (23) The evaluation of the multiplicity of factors that create and sustain MTrPs has been shown to be fundamental to successful treatment of this complex and widespread disorder. This convergence in many ways resembles the methods used in chiropractic for spinal joint dysfunctions, viscerosomatic reflex stimulation, soft-tissue manipulation, and nutritional evaluation and treatment. Possessed with a better understanding of the effect of MTrPs upon the function and strength of muscles, clinicians can expect that Dr. Janet Travell's approach will continue to develop with chiropractic methods and vice versa.

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### About the author

Dr. Scott Cuthbert is the author of *Applied Kinesiology Essentials: The Missing Link in Health Care* (2013), and *Applied Kinesiology: Clinical Techniques for Lower Body Dysfunctions* (2013). All illustrations in this article appear in the book and are reproduced with permission. Dr. Cuthbert is a 1997 graduate of Palmer Chiropractic College (Davenport) and practices in Pueblo, CO. He has published Index Medicus clinical outcome studies and literature reviews, and 50 peer-reviewed articles on chiropractic approaches.

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