

## **Myofascial Release in Combination with Trigger Point Therapy and Deep Breathing Training improves Low Back Pain**

Jan Vagedes, MD,<sup>1</sup> Christopher Marc Gordon,<sup>2</sup> Daniela Beutinger,<sup>1</sup> Martina Schwaemmle,<sup>1</sup> Frank Andrasik, PhD,<sup>3</sup> Richard Gevirtz, PhD,<sup>4</sup> Robert Schleip, PhD,<sup>5</sup> Niels Birbaumer, PhD,<sup>1</sup> & Martin Hautzinger, PhD<sup>1</sup>

<sup>1</sup>University of Tuebingen, Germany ; <sup>2</sup>Center for Integrative Therapie, Stuttgart, Germany;

<sup>3</sup>University of West Florida, USA; <sup>4</sup>Alliant International University, San Diego, USA;

<sup>5</sup>University of Ulm, Germany; Email: Jan.Vagedes@med.uni-tuebingen.de

**BACKGROUND:** Low back pain is one of the most common reasons patients seek treatment. It accounts for considerable medical expenditures and morbidity. Numerous treatments have been developed, with varied success. We report initial findings from a trial to evaluate whether Myofascial Release in Combination with Trigger Point Therapy and Deep Breathing Training can enhance effectiveness of more conventional care--Core Stabilization Exercises--designed to strengthen deep muscles, such as the transverse abdominus, the multifidus, and muscles of the pelvic floor.

**METHODS:** One hundred nine patients (70 female, 39 male; mean age = 53; range = 20-69), were screened for inclusion (pain present a minimum of 3 months and with a rating of 4 or greater on a 10-point scale, musculoskeletal/ mechanical in nature, e.g. pseudo-radicular pain down leg or elsewhere etc.) and exclusion (acute herniated disc, acute local or generalized inflammations, radicular pain, presence of significant psychiatric disorder or progressive neurological changes, etc.) criteria. They were randomized into 1 of 4 experimental conditions: Grp 1: Core Stabilization Exercises (CSE) alone (n = 25), Grp 2: CSE combined with Deep Breathing Training (DBT) in order to increase heart rate variability (n = 30), Grp 3: Myofascial Release combined with Trigger Point Therapy (MRTP) (n = 27), and Grp 4: MRTP combined with DBT (n = 27). Each patient received ten 45-minute sessions, scheduled biweekly. Patients receiving DBT were taught to achieve a rate of 5-6 breaths/ min, with equally spaced inhalation and exhalation cycles, and were provided a CD, to practice with at home 15 mins twice/ day, which helped pace their breathing. Each therapist received intensive training to ensure fidelity of treatment (3-10 days, depending on preliminary knowledge). The Brief Pain Inventory-Short Form (BPI) provided the key outcome measures. Our primary measure of outcome was the degree of pain reported on a "0" (no pain) to "10" (pain as bad as you can imagine) point scale assessing the sensory dimension as a sum score of the four questions: pain at its worst, at its least and on the average in the last 24 hours as well as pain right now. The BPI provides the reactive dimension as well (degree to which pain interferes with function; e.g., general activity, mood, life enjoyment, walking ability, etc., rated on a 0-10 scale). The average rating of the reactive dimension served as our secondary measure of outcome. Heart rate variability was collected to verify if patients receiving breathing training responded as intended and to see the influence of two modalities of bodywork (CSE, MRTP)

**RESULTS:** 2-way ANOVAs (condition x trial: pre vs. post-treatment), with appropriate post-hoc tests revealed the following: For pain (sensory dimension), Grp 4 was significantly improved relative to Grp 1 ( $p = .018$ ,  $\eta^2 = .03$ ). Grps 2 & 3 fell midway, but were not significantly different from the Grp1 controls. For the reactive pain dimension, Grp. 4 differed from Grp 1 and the average of Grps 2 & 3 ( $ps = .025$  and  $.035$  respectively,  $\eta^2 = .05$ )). Grp 4 revealed the most consistent pattern of individual improvement as well, with superior pain reduction on 10 of 12 measures ( $p = .013$ ).

**CONCLUSIONS:** In our study Myofascial Release in combination with Trigger Point Therapy and Deep Breathing Training led to greater improvements than traditional/ conventional care for low back pain (reductions in the Sensory Dimension: Grp1=5%, Grp2= 26%, Grp3= 32%, Grp4=36%; Reactivity Dimension: Grp1=15%, Grp2=21%, Grp3=20%, Grp4=51%). Six month follow-up will be completed shortly. While all of the active treatments produced clinically significant pain and functional reductions, the combination of MRP and DBT was superior for almost all measures. Given the known effect of sympathetic nervous tone on pain receptors, an increase in parasympathetic tone through manual therapy and breathing training is one possible mechanism for the observed results. This is further supported by the increase in heart rate variability found in the manual therapy only group.