Scientific Research Publishing

Health, 2018, 10, 998-1005
http://www.scirp.org/journal/health
ISSN Online: 1949-5005
ISSN Print: 1949-4998

# Osteopathy and Emergency: A Model of Osteopathic Treatment Aimed at Managing the Post-Traumatic Stress—Part 1

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**How to cite this paper:** Collebrusco, L., Fabri, S., Furfaro, A., Tanini, I., Lombardini, R., Rizza, A. and Zavarella, P. (2018) Osteopathy and Emergency: A Model of Osteopathic Treatment Aimed at Managing the Post-Traumatic Stress—Part 1. *Health*, **10**, 998-1005.
https://doi.org/10.4236/health.2018.107074

**Received:** June 27, 2018
**Accepted:** July 23, 2018
**Published:** July 26, 2018



## Abstract

The Complementary and Alternative Medicine Education (EDUCAM) School of Osteopathy, following the earthquake that occurred in Amatrice-Italy on August 24th 2016, promoted the project "Una mano per la salute" [One hand for health], aimed at giving therapeutic support to the population affected by this cataclysm. A review of the literature in the osteopathic field has been performed to identify a more functional approach to quickly relieve the inhabitants from the shock they suffered, and to identify the techniques with greater effectiveness on the stress axis. The protocol of ten chosen techniques will then be verified later in a pilot study, to check whether and how a protocol of osteopathic manipulative treatment (OMT) might play a clinically relevant role in the management of subjects exposed to extraordinary exogenous stress and post-traumatic stress disorder (PTSD) prevention, in addition to the psychological therapy treatments in use today.

## Keywords

Post-Traumatic Stress Disorder, Osteopathic Manipulative Treatment, Earthquake, Quality of Life

## 1. Introduction

The trauma generated by an earthquake affects something profound, something that is linked to the identity of the people, to the certainties of a life, to a daily life that no longer exists, to uncertainty on the future. In this type of situation, the response to a traumatic event is of enormous stress; the individual finds

himself having to face an unexpected, painful and dramatically new situation, without being prepared. The stress condition that develops in a person is, at first, normal and physiological. Our body needs a reorganization, both in psychological and physiological terms, and the stress helps us in this, urging the activation of a whole series of actions aimed at restoring the initial condition [1] [2]. In emergency situations, such as those generated by an earthquake, the body reacts through multiple phases and response modes. Because of this plurality, there are multiple modalities from the point of view of psychological support [3] [4]. The use of Osteopathic Manipulation Treatment (OMT) with a minimalist approach, through the research of the Somatic Disfunction (SD), and with the maximalist approach, through the General Osteopathic Treatment (GOT) [5] [6], could be aid in the management of PTSD in addition to today's standard clinical methods of pisocological support. EDUCAM is one of the most important Italian and International Schools of Complementary and Alternative Medicines based in Rome. The goal of EDUCAM is Training, Scientific Research and Professional Start-up in the Health and Wellness Promotion disciplines, following the guidelines of the World Health Organization expressed in the Benchmark (2010 and 2014-2023). The school is associated with Osteopathic European Academic Network and with Jean Monnet Université Européenne (Brussels), which allows the Diplomats to register for the European Registries of Complementary Disciplines. The EDUCAM range of osteopathy, in the desire to bring a contribution of solidarity and closeness to the population of Amatrice, not only activated the project "One Hand for Health", but also immediately activated an in-depth group on the topic, in order to train at the better the students to provide service to the population. The review of the literature in the osteopathic field has made us discover how studies conducted on Vietnam veterans had excellent results on symptoms such as intrusive thoughts, visions, recurring nightmares, thanks to the cranial-sacral approach, and its powerful response to the neurovegetative level. But we would have liked to free our patients also from digestive difficulties, abnormal muscular tensions, and therefore our question was: which and how many structures to engage to achieve these goals? and wich approach is more affective: minimalist (SD) or maximalist (GOT) [7].

## 2. OMT-Minimalist Model (SD) and Massimalist Model (GOT)

### 2.1. Minimalist Model (SD)

Over a century ago Andrew Taylor Still devised a system of disease prevention and treatment through mechanical manipulation known as OMT. The somatic Dysfunction SD is "impaired or altered function of related components of the somatic framework; skeletal, arthroidal, myofascial and related vascular, lymphatic and neural elements" [8]. It contributes to the effect of organic pathology and is catalogued as a disease of musculoskeletal system (ICD-9, code 739). Primary SD is completely reversible when correctly diagnosed and treated with

OMT. Secondary SD also responds to OMT but will recur unless the primary pathology is identified and treated SD is diagnosed by palpation procedures ("ARTT" examination) [9]. OMT consists of a range of direct, indirect, combined, fluid and reflex-based manual techniques that are applied specifically to a joint or non-specifically to a body area [10]. Direct techniques apply thrust, impulse, muscle contraction, fascial loading, or passive range of motion. They engage the restrictive barrier and use an activating force to achieve the tissue response and correct the SD. Indirect, fluid, balancing, or reflex-based techniques do not engage the restrictive barrier. They use fascial massage, fascial and soft tissue loading or unloading, hydraulic pressures, respiration phases and cranial or postural adjustments [11] [12].

### 2.2. Massimalist (GOT)

J.M. Littlejohn, former student of Andrew Taylor Still, devised a system of disease prevention and treatment through mechanical manipulation known as General Osteopathic Treatment (GOT). J.M. Littlejohn studied particularly the relationships between the different levels of the spine and the organs of the body, as well as the adaptation of the human being to the verticality. The GOT aims to support the physiological processes, reducing the allostatic load and thus increasing the individual's ability to respond and adapt to the various internal and external stress factors. This result is obtained using the biomechanical and postural model, the neurological, respiratory and circulatory model as forms of treatment. The goal is to improve the distribution of forces through the continuity of the connective tissue, to reduce energy expenditure during the activities of daily life, to improve respiration and circulatory dynamics, the integrated somato-motor function and the function of the neuro-immune-endocrine system, by relating the different levels of the vertebral column and the organs of the body, as well as the adaptation of the human being to the verticality [13] [14] [15].

The integration between the two OMT models can help in complex chronic clinical situations, such as the management of a post-traumatic stress disorder (PTSD). In these cases usually there is not a single factor responsible for the problem, but a summation of stress factors to which the patient is subjected that causes an altered physiological activity sustained by the mediators of the allostasis which try to respond to the stress imposed by changes in the environment. This compensation activity aims to maintain the "fitness" of physiological systems in response to changing environmental situations. When the stimuli exceed the homeostatic limits, there is an allostatic overload that leads to important pathophysiological consequences with a consequent loss of health. The allostatic overload corresponds to the phase of exhaustion in the Selye's general adaptation syndrome theory [16] [17].

## 3. OMT for PTSD

An increasing body of evidence demonstrates how the increased allostatic load associated with PTSD is associated with a significant body of physical morbidity

in the form of chronic musculoskeletal pain, hypertension, hyperlipidaemia, obesity and cardiovascular disease [18] [19]. The musculoskeletal system was identified as a key element of health, and every illness was the result of anatomical disorders followed by physiological discord, defined as "somatic dysfunction" (SD) [20] [21]. However, when SD occurs, the body will have to work harder to maintain its balance; this additional work is referred as the allostatic load. The SD is assimilable to a state of allostatic overload [22] [23]. In PTSD, OMT focuses on the nervous and circulatory systems, spine, viscera, cranium, thoracic and abdominal diaphragm in order to restore homeostatic balance, normalize autonomic activity in the, promote lymphatic flow aiming to support physiological processes, thus increasing the individual's ability to respond and adapt to various internal and external stressors. Sagittal Plane Symmetry and the Common Compensatory Pattern are observed in the postural examination [10] [23]. The therapist then starts palpation using ARTT diagnostic criteria to search for SD [24]. Attention focuses on sympathetic innervation from the middle thoracic to segments (T5-T10) the collateral sympathetic ganglia (celiac, upper and superior mesenteric). Treatment of the cranial base and general sub-occipital and area releases tension on the vagus nerve, as it passes through the jugular foramen. Assessment continues with the mid-cervicals (C3, C4, C5), where the phrenic nerve arises to supply the thoracic diaphragm, and visceral manipulative treatment with Esophageal Release and Mesenteric Lift [10] [24] [25], chosen to reduce tensions from the thoracic to the abdominal region, and decrease any congestive state by facilitating lymphatic and venous drainage, it also aims to reduce tension in the lumbar spine and in its plexus, to thus enhancinge the antinfallatory function of the vagal nerve. Whereupon, Muscular Energy Tecnique, Lower Thoracic Cage Release (diaphragm), S/C Psoas [10] [24] [25] [26] [27], o Middle Trapezius and General Trunk MioFascial Release, to lower the tone of postural deep musculature, improve the respiratory function and decrease lower back pain; in the end the Deceleration of Sacral Rocking [17] [20] [28] in order to modulate the neurovegetative system through the craniosacral rhythm.

## 4. Discussion

Osteopathy embraces the philosophy that the body has an innate or natural ability to self-regulate and to heal itself. Consequently, osteopaths believe that altered movement/restriction within the moving parts of the body and altered tone, contracture, and elasticity/compliance of the soft tissues are related to physiological and mental/emotional processes and may precede changes in emotional and physiological processes [26]. Osteopathic manipulative treatment (OMT), which is considered a complementary and alternative medicine, is based on concepts and unique approaches that enable the self-healing and self-regulating process within the body [29]. Generally, 1 to 3 treatment sessions will reveal whether an osteopathic approach is helpful and cost effective [30]. Other well controlled studies evaluating new therapeutic options, to be used either alone or

in association with well-established methods of treatment for PTSD, are necessary. The OMT provides the patient with relaxation, normalized autonomic control mechanisms, congestion and symptom relief, and better control over his/her reactions to stress [12] [31].

## 5. Conclusion

The OMT can to be an optimal approach and might represent a promising strategy. Although this therapeutic plan may not be ideal for everyone, the majority of patients could well benefit from its use. The reason why we choose to address our intervention protocol to the structures anatomically connected to the central tendon, which is our primary embryological form, is that these structures are the first to be put in abnormal tension following a shock. It was very impressive for us to verify how bodily structures that are so different from a constitutional, anthropometric, metabolic and energetic point of view, could share the same dysfunctional chain as a result of this extraordinary stress. The sample, although heterogeneous for age, occupation and previous health status, presents a series of common symptoms such as: frequent headaches, neck pain, joint pains in the scapular girdle, gastric reflux, low back pain, stress muscle tension. nervous, colitis and constipation. This diffuse symptomatic picture has oriented us towards the choice of a maximalist approach to the patient. In choosing techniques we tried to combine the Craniosacral with the Visceral and Muskuluskeletal models, through an indirect approach typical of myofascial treatment in order to promote a rebalancing of the deep aponeurosis. Regarding the dosage of the treatment, we believe it is preferable to dilute it in a plurality of 10 techniques and to delay it in 4 OMT treatments, one every 15 days [28] [32] [33]. The OMT therapeutic model through our protocol of therapeutic techniques (**Table 1**) combined with the psychological approaches used to manage

**Table 1.** OMT protocol for PTSD.

| Osteopathy in the cranial field (CR): |
|---|
| • Frontal Lift<br>• Interparietal Sutural opening<br>• Deceleration of Sacral Rocking |
| Myofascial/Musculoskeletal techniques: |
| • ST, upper cervical (C0 - C1)<br>• ME, lower thoracic cage release (diaphragm)<br>• CS, muscle Psoas<br>• MFR, middle Trapezius<br>• MFR, general Trunk |
| Visceral techniques (VIS): |
| • Esophageal Release<br>• Mesenteric Lift |

*Abbreviation*: OMT, Osteopathic Manipulation Treatment. PTSD, post-traumatic stress disorder. CR, osteopathy in the cranial field. ST, soft tissue treatment. ME, muscle energy treatment. CS, counterstrain treatment. MFR: myofascial release technique. VIS, visceral manipulative treatment.

PTSD could lead to a reduction in healthcare costs, moving from a system that leads to a set of integrated interventions that take care of the actual needs of people, and could therefore be productive in a correct allocation of resources. In conclusion, it will take time, organizational skills and specific experiments to radically change the limit of the gap between research and clinical experience [34], through the development of a framework that combines various therapeutic models in addition to what still offers the psychotherapy, such as the treatment of PTSD through Eye movement desensitization and reprocessing (EMDR), [35] [36] [37]. Indeed this represents the ideal path towards a better response for the patient and an improvement in well-being with a higher healthy life expectancy and better use of reduced economic resources.

## Acknowledgements

We would like to thank EDUCAM School, without whom it would not have been possible to undertake the research project, Dr. Oriana D'Emidio, coordinator of the Amatrice health care assistance unit, the diocesan CARITAS for the project location, the mayor of Amatrice Sergio Pirozzi, all the citizens and the Italian armed forces for support in the emergency period.

## Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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