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The Way To Health - Is Osteopathy Able to Influence Homeostasis?



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Abstract

Health is a value that people in the western societies start to appreciate when they lose it. Health is an outcome of balanced functioning of all our tissues, organs and systems. Thanks to current neurobiology we have an insight into integrative organization and action of human organism. According to prof. Wilfrid Jänig from Christian-Albrechts University in Kiel (Germany), studies on the integrative action of the autonomic nervous system and neurobiology of homeostasis, bring to light modern neurobiological concepts. ANS is the communication interface between the nervous system and the immune system which constantly monitors and reacts to environmental and/or emotional situation. Also the microbiota-gut-brain axis involves both afferent and efferent autonomic pathways such as the vagus nerve and the hypothalamic-pituitary-adrenal axis in order to regulate various aspects of homeostasis as inflammation for instance. Microbiota-gut-brain axis disorder has been shown to be involved in the pathogenesis of various diseases. The aim of the treatment should be to break the neurogenic inflammatory viscous cycle and facilitate tissue recovery. This can be achieved for example by enhancing the parasympathetic influence on the body. There are some studies indicating the influence of osteopathic manipulative treatment on autonomic function. Osteopathic philosophy gains now a scientific support which can explain why OMT has an effect on homeostasis.

Keywords: Osteopathic manipulative treatment; Autonomic nervous system; Homeostasis; Microbiota-gut-brain axis

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Health is a value that people in the western societies start to appreciate when they lose it. Health is an outcome of balanced functioning of all our tissues, organs and systems. Thanks to current neurobiology we have an insight into integrative organization and action of human organism. According to prof. Wilfrid Jänig from Christian-Albrechts University in Kiel (Germany), studies on the integrative action of the autonomic nervous system and neurobiology of homeostasis, bring to light modern neurobiological concepts that allow understanding of why the healthy system runs so smoothly and why its deterioration has such disastrous consequences" [1]. The ANS is the key to homeostasis which importance has been constantly underestimated. Although it's role in regulating tissue function is obvious and incontestable it is being omitted when it comes to diagnosis and treatment. There is an urgent need to see patient's symptoms as the current state of his homeostasis [2] and ANS. ANS is the communication interface between the nervous system and the immune system which constantly monitors and reacts to environmental and/or emotional situation [1]. Autonomic failure significantly compromises the quality of life. Elspeth M. McLachlan PhD, states that consequences of autonomic disturbance should not be underestimated by those who take

their bodies for granted [1]. Also the microbiota-gut-brain axis involves both afferent and efferent autonomic pathways such as the vagus nerve and the hypothalamic-pituitary-adrenal axis in order to regulate various aspects of homeostasis as inflammation for instance. Microbiota-gut-brain axis disorder has been shown to be involved in the pathogenesis of various diseases such as depression, Parkinson disease, obesity or irritable bowel syndrome [3]. Any tissue damage is associated with autonomic response involving but not limited to plasma extravasations and change of the heart rate - two aspects (sensoric and motor) of the same homeostatic system [4]. Any tissue damage is associated with inflammatory process running at different levels [5]. Fortunately the body has a cleaning system - lymphatic system - that carries fluid containing immune cells to fight the infection and removes dead cells and other waste products from all peripheral tissues. Recently scientists from National Institute of Neurological Disorders and Stroke were able to prove that the central nervous system has a lymphatic system too. Using different dyes they visualized blood and lymphatic vessels in the brain using MRI. They revealed also that the brain's lymphatic vessels contained specific cells and protein markers that are unique to lymphatic vessels and distinguished them from blood vessels [6].

Based on these findings it should be concluded that the aim of the treatment should be to break the neurogenic inflammatory viscous cycle and facilitate tissue recovery. This can be achieved for example by enhancing the parasympathetic influence on the body. There are some studies indicating the influence of osteopathic manipulative treatment on autonomic function [7-9] causing a parasympathetic effect and leading into developing of trophotropic state that promotes healing. Important is that a sham light-touch procedure didn't cause a similar effect. It has been also observed that specific osteopathic techniques enhance functioning of the lymphatic and immune systems [10,11] by increasing the number of circulating leukocytes and IL-8 [12]. Osteopathic treatment has been also suggested to be able to reduce the level of proinflammatory agents [13-15]. These observations suggest that osteopathic treatment may influence both acute and chronic sensitization process through interaction with peripheral tissues. The effect of this interaction is a chain of neurological reactions changing interoceptive process and breaking the low grade inflammatory viscous cycle [16]. It is also important to keep in mind that pure exteroceptive touch conducted by low threshold mechanoreceptors is able to modify the efferent autonomic activity - especially local [1]. The current neuroscience offers a better understanding of the integrity of human body and gives more and more evidence that manual treatment has a profound effect on its physiological function. But the primary goal of osteopathic diagnosis and treatment was always to see the body as a whole, as a unity. The two-way interaction of body, mind and spirit postulated in the osteopathic philosophy gains now a scientific support which can explain why osteopathy has an effect on homeostasis and based on which pathways this can be achieved. The proposed concept of looking at patient's symptoms as a manifestation of their homeostasis or allostasis leads us close to A.T. Still statement that, to find health should be the object of the doctor. Anyone can find disease" [17].

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