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## THE EFFECTIVENESS OF MONOPOLAR CAPACITIVE/RESISTIVE 448kHz RADIO FREQUENCY (INDIBA ACTIV) IN PATIENTS WITH TRAPEZIUS TRIGGER POINTS

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Myofascial pain syndrome (MPS) is a common muscle condition characterized by a form of musculoskeletal pain [1]. MPS occurs when a muscle is in repetitive contractions due to continuous movements due to work, exercise or stress [2]. It results in the formation of sensitive tight muscle fibers in the muscle, these sensitive points are called pain trigger points [3]. Clinical symptoms presented by patients due to the syndrome are muscle spasm from trigger points, referred pain, and a hyperirritable nodule in the muscle [4]. The trapezius muscle, especially its upper part, often shows trigger points, resulting in pain and reduced range of motion in the area [5].

The treatment of the syndrome is divided into medicine and physical therapy [6]. Medical treatment can be conservative or surgical [6]. Conservative treatment includes drug therapy, where analgesic, anti-inflammatory and muscle relaxant drugs are administered [6]. The physical therapy approach is divided into two main categories [6,7]. In the first category are the electrotherapeutic agents where they seem to help mainly in reducing pain [8]. Additionally, the category also includes electrophysical agents such as shock waves where they reduce pain [9], conventional/classical ultrasound where it helps to increase the trajectory range [10] and to reduce pain sensitivity-activation [11] and the application of phonophoresis appears to help reduce muscle spasm [1]. In the second category of physical therapy approach is manual therapy such as the dry needling technique as monotherapy [12,13], or with a combination of mobilization techniques is effective in increasing the range of motion [14], as well as Thai massage [15]. Although many therapeutic approaches have been proposed for myofascial pain syndrome to date [6,7], there are no studies on 448kHz radiofrequency treatment.

Indiba Activ is a method of electrotherapy using metal electrodes: capacitive (Capacitive; CAP) and resistive (Resistive; RES) that increases body temperature, enhances tissue oxygenation and the delivery of nutrients, creating vasodilation [16,18]. According to the international literature Indiba Activ appears to be able to induce and maintain thermal adaptations in the skin in healthy individuals [17-19]. It also seems to help repair lesions in injured tissues [20]. In addition, it helps reduce

pain in patients with osteoarthritis [21], in patients with acute lateral tendinopathy of the elbow [22-23], and in patients with chronic pelvic pain syndrome [24]. In addition, treatment with Indiba Activ seems to have good results in increasing strength in elbow tendinopathy [24]. Finally, the application of 448kHz radio frequency seems to have good results in improving blood circulation [25] and improving elasticity of the tendon after injury [26].

In the international literature there are no studies describing the effectiveness of 448kHz radio frequency in patients with trapezoid trigger point and the above data confirm the large research gap that exists for the treatment using Indiba Activ in patients with trapezius trigger point. For this reason, an occasion is given for the realization of the present doctoral thesis on "The effectiveness of monopolar spatial/antistatic radio frequency 448khz (Indiba Activ) in patients with trapezius trigger point". The aim of the research is to study whether Indiba Activ is effective as a monotherapy or in combination with another treatment in reducing pain, increasing functional range of motion and strength and improving the quality of life of patients with trapezius muscle trigger points.

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