

## **The use of photobiomodulation in treatment of fibromyalgia.**

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Fibromyalgia is a syndrome that occurs with complaints of chronic, generalized musculoskeletal pain associated with typical symptoms such as fatigue, sleep disorders, and cognitive disorders without known etiology, sometimes accompanied by headaches, paresthesias, and mood disorders, among other disabling complaints. Fibromyalgia is one of the most prevalent chronic diseases and causes of functional disability in the Brazilian public health system. Photobiomodulation therapy has often been used for pain management and is presented as a non-invasive, low-cost, safe therapy that has benefits in relation to the intensity of pain and quality of life of patients. Besides, new systemic photobiomodulation techniques have been studied recently with the aim of promoting the effects of light on the immune system, pain, and systemic vascular, pulmonary, or musculoskeletal clinical conditions. Based on these premises, this study aims to investigate the clinical effects of the use of transcutaneous vascular systemic photobiomodulation (VPBM) in the treatment of patients with fibromyalgia. Methods: it will be a clinical, unicentric, randomized, controlled, blinded trial that will involve 44 patients with fibromyalgia in clinical follow-up at the Primary Care

Health School, Vila Maria from Universidade Nove de Julho (UNINOVE), Brazil. This study is in accordance with the research ethics guidelines of the University's Research Ethics Committee. The patients will be randomly assigned to one of two groups: an intervention VPBM group (device power 100mW, wavelength 660nm applied transcutaneously at radial artery location during 100s, totaling 10 Joules in each session, 2X per week for four weeks) or a placebo VPBM group (the same device turned off, also twice per week for four weeks). Both groups will also receive the standard treatment for fibromyalgia delivered by the rehabilitation health team of the hospital. The outcomes of pain, quality of life, and functionality will be statistically analyzed by comparing the placebo and treatment groups in pre and post therapy moments with the Visual Analogue Scale of Pain (VAS), the Brazilian Version of the SF 36 Quality of Life Scale, and the Brazilian Version of the Fibromyalgia Impact Questionnaire (FIQ). The data will be statistically analyzed and the results reported and discussed.

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