



**Fund “Nauka” Project № 22015 Resume – Competition-Based Session 2022:**

“Long-term rehabilitation results in patients with orthopedic implants of the upper and lower extremities”

**Project leader:** Chief. assist prof. Stoyan Ivanov Ivanov, MD, PhD

**The aim** of the present study is to analyze and compare the effects of application of physical therapy modalities in patients with orthopedic implants of upper and lower extremity. For this purpose, the clinical effectiveness of two physiotherapy complexes in patients with orthopedic implants of the upper and lower extremity will be monitored and compared at four points in time; reporting, analyzing, and comparing short- and long-term treatment effects in the eight groups using measurement indicators. The contingent of the study are patients aged 20 to 80 years with orthopedic implants who meet the inclusion criteria.

All enrolled patients will be randomly assigned to treatment groups using an online-generated randomization sequence. **Methods** that are going to be used for tracking the signs are questionnaires, centimeter and goniometry evaluation, pain according to VAS (Visual Analogue Scale), at five different periods for patients of the eight groups. Statistical methods will be used to process the data and analyze the results. Patients will be divided initially into groups according to the anatomical area where the implant is placed and the joint contracture – shoulder, elbow, knee, and ankle. Patients from each group will be randomly assigned to one of two treatment groups – kinesiotherapy and MLS laser treatment or kinesiotherapy and deep oscillation treatment.

**Expected results:** patients in all of eight treatment groups will have an improvement according to the results for the measured indicators in the short and long term.