

TWELFTH INTERNATIONAL MEDICAL CONGRESS

Migration of Young Doctors
The Continuous Medical Education of Doctors

6 – 10 September 2023
Thessaloniki, Greece

Sofia, Bulgaria
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(SEEMF)**

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SOUTHEAST EUROPEAN MEDICAL FORUM

e-mail: seemf.congress@gmail.com

Website: www.seemfcongress.com

Tel./fax.: +359 2 854 87 82

© Издателство: Сдружение "Югоизточно-европейски медицински форум",
2023г.

© Publisher: Southeast European Medical Forum, 2023

ISBN 978-619-7544-29-9

QUANTITATIVE AND FEM ANALYSIS OF DAMAGE TO THE ARTICULAR CARTILAGE OF THE OSTEOARTHRITIC KNEE

Nikola Prodanovic - University of Kragujevac, Faculty of Medical Sciences, Department of Surgery, Kragujevac, Serbia, Clinic for Orthopedics and Traumatology, University Clinical Center Kragujevac, Kragujevac, Serbia, Suzana Petrovic Savic - University of Kragujevac, Faculty of Engineering, Department of Production Engineering, Kragujevac, Serbia, Ivan Stojadinović - University of Kragujevac, Faculty of Medical Sciences, Department of Surgery, Kragujevac, Serbia, Clinic for Orthopedics and Traumatology, University Clinical Center Kragujevac, Kragujevac, Serbia, Đorđe Kolak - Department of Surgery, Kragujevac, Serbia, Clinic for Orthopedics and Traumatology, University Clinical Center Kragujevac, Kragujevac, Serbia, Uros Radivojcevic - Practice for Plastic, Reconstructive and Aesthetic Surgery R CLINIC PLUS, Kragujevac, Serbia, Tijana Prodanovic - University of Kragujevac Faculty of Medical Sciences, Department of Pediatrics, Kragujevac, Serbia, Neonatal Intensive Care Unit, Center for Neonatology, Pediatric Clinic, University Clinical Centre Kragujevac

The aim of the work was to analyze the volume of damage to the tibial plateau of a varus deformed osteoarthritic knee. Based on radiographic diagnostics, the analyzed knee corresponded to the third stage of the Kellgren-Lawrence classification, where the varus deformity was 15 degrees. After total knee arthroplasty, the resected tibial plateau was analyzed. The scan of the tibial plateau was performed using an Artec Spider 3D scanner, and the point cloud reconstruction was performed using Geomagic Design X software. The volume model of the tibial plateau was generated in Catia V5 R21 software. Within this software, the boundary zone of the damaged and undamaged part of the tibial plateau separated by the 3D spline was detected. Filling the boundary zone with a NURBS surface provides an approximation of the original shape and volume of the undamaged plateau. In the results, the total area of damage to the volume of the tibial plateau is defined and is 2023.6mm², while the area of damage alone is 1208.9mm². In addition to the surface parameters, the value of the damaged volume was determined, which is 1.74 ml, that is, the total mass of the damaged cartilage is 0.012 kg. Analyzing the volume damage of the tibial plateau as well as the FEM analysis of the same can be of high importance in terms of establishing the correlation of radiographic and intraoperative findings in degenerative damaged knees.

SERUM MELATONIN CONCENTRATION IN HEALTHY SUBJECTS

Dimitar Terziev, MD, PhD - MHAT "St. Panteleimon", Plovdiv, Bulgaria; Second Department of Internal Medicine, Gastroenterology Section, Faculty of Medicine, Medical University, Plovdiv, Bulgaria

Background: Melatonin is a derivative of tryptophan that is synthesized and secreted by the pineal gland mainly at night. It is assumed that, in addition to light and age, other factors such as treatment with certain medications, electric or magnetic fields, foods containing melatonin, physical exertion, affect melatonin secretion. The biological action of melatonin is related to the synchronization of circadian rhythms, the regulation