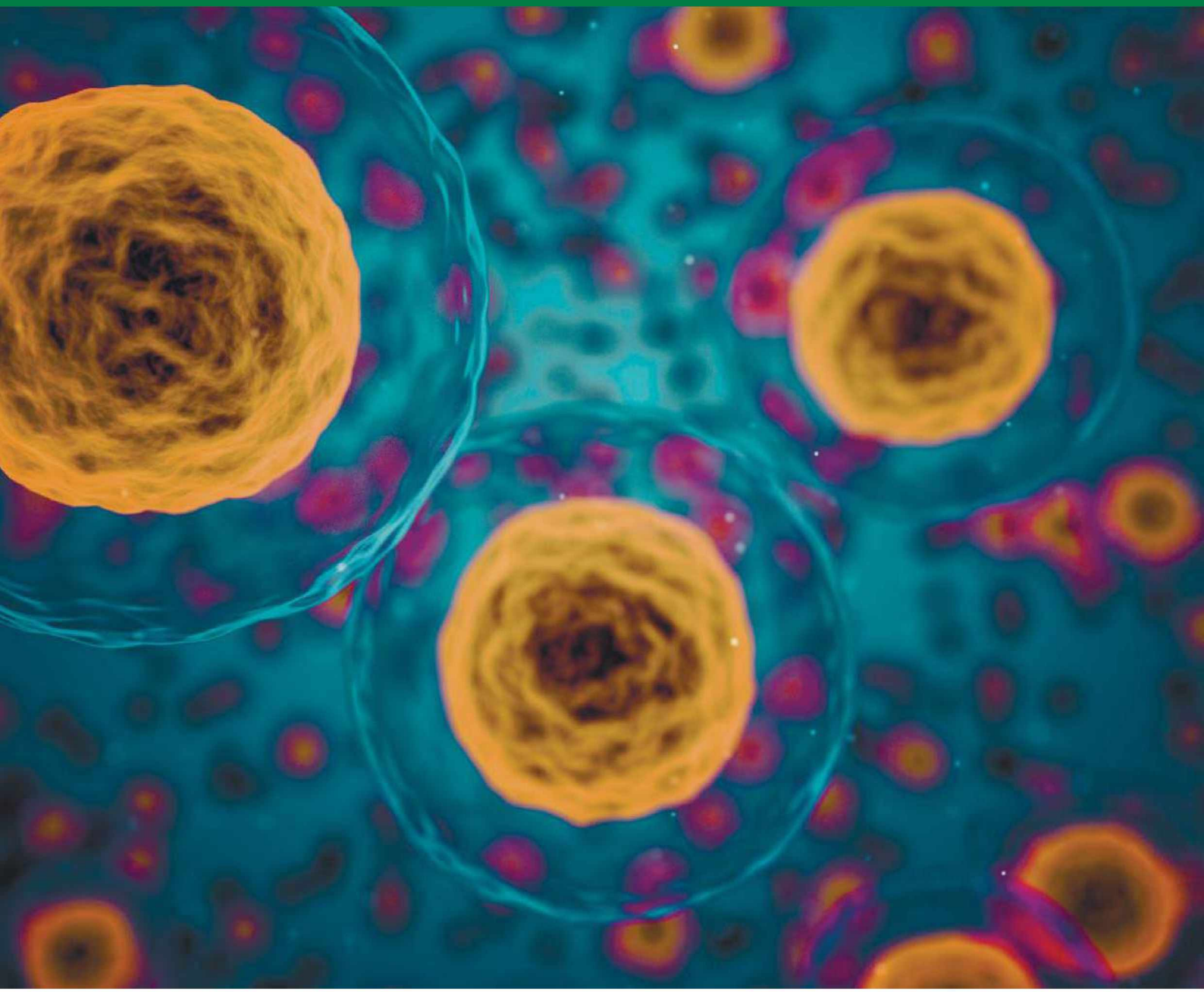
Kharkiv National Medical University

INTERNATIONAL SCIENTIFIC INTERDISCIPLINARY CONFERENCE ISIC - 2021



application of fluoride varnish and the placement of pit and fissure sealants on newly erupted permanent molars and premolars.

The members of the second group collected information on oral health from school hygiene doctors and nurses had been trained to inform and educate children about oral hygiene, although mostly passively.

The condition of 514 molars was examined in a 144 persons, 270 in a first and 244 in a second group. The caries lesion of molars in a 1 group was 14% and in 78% cases there were fissure sealants. The same time the pit and fissure sealants were not registered in participants in a second group, the caries of molars was reveled in 83% cases.

Conclusion . Comprehensive active prevention of caries produces better results than the passive one.

Andrienko K.Yu.

THE EXPEDIENCY OF USING TENSION AND DEFORMATION THEORIES TO ASSESS THE QUALITY OF COMPLETE REMOVABLE DENTURES

Department of Prosthetic Dentistry
Kharkiv National Medical University
Kharkiv, Ukraine
Scientific advisor: MD, professor Yanishen I.V.

In the analysis of investigations in prosthetics by removable dentures, special attention is paid to the influence of biomechanical properties on the tissues of the prosthetic area, and as a consequence - the distribution of masticatory pressure.

One of the tasks of high-quality orthopedic sonstruction is that the load from the antagonist teeth in the state of occlusion is transmitted on the basis of the prosthesis clearly along its vertical axis, and in sagittal movements.

The aim of our investigation was to improve the quality of prosthetic treatment of edentulous patients by modeling the structural elements of removable dentures using the idea of finite element techniques.

Material and methods. Orthopedic treatment of patients with complete adentia was performed on the base of the Orthopedic Dentistry Department which is situated in the University Dental Center of Kharkiv National Medical University.

We performed orthopedic treatment of 52 patients aged from 45 to 70 years (mean age 57.5 ± 4.1) by complete removable dentures for the upper and lower jaws. To determine the degree of distribution of masticatory pressure and deformation we took into account and processed data on physical and mechanical characteristics of orthopedic materials, as well as geometric parameters of the oral cavity, such as mucosal thickness, cortical bone thickness. The relative change in the volume of the material, the volume deformation due to thermal expansion, the elastic volume deformation, the data of the elastic potential and the theory of elasticity were determined by mathematical calculation.

Results. Due to the determination of tension and deformation data of removable orthopedic constructions and, as a result, improving the quality of orthopedic treatment of patients, we can note the feasibility and direct relationship between the use of mathematical calculation of material volume, volume deformation, potential data and elasticity theory as auxiliary element in the manufacture of removable dentures.

As it was shown, the greatest compressive tension occur in the contact zone of the upper and lower jaw dentures with the results of the values for PM1 - (302,2E ± 0,7 mm / mm); PM2- (329,4E ± 0,7 mm / mm); M1 - (320,1E ± 0,7 mm / mm); and M2- (438,6E ± 0,7 mm / mm). At the same time in the area of the alveolar process there are an order of magnitude lower stress, the values for PM1 was (101,0E ± 0,7 mm / mm); PM2 - (107,2E ± 0,7 mm / mm); M1 (110,3E ± 0,7 mm / mm); and M2 (147,3E ± 0,7 mm / mm); indicating a uniform distribution of external load over the area of the alveolar process.

Conclusion. Prospects for further research should be based upon the development of a computer program taking into account the deformation and tension during stages of complete removable dentures manufacturing in the clinic of orthopedic dentistry.