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AbstractBook

(20.9 vs. 19.7 kg, $p=0.03$) and arms lean mass (3.8 vs. 3.5 kg, $p=0.02$) than women with normal uric acid. Significant positive correlations were found between uric acid levels and lean mass: for total lean mass – $r=0.23$, $p=0.007$, for trunk lean mass – $r=0.21$, $p=0.01$, for legs lean mass – $r=0.22$, $p=0.01$, for arms lean mass – $r=0.22$, $p=0.009$.

Conclusion: Study results demonstrated presence of relationships between uric acid and some parameters of body composition in patients with CAD aged 90 years or older. Future research is advisable to clarify the pathogenetic mechanisms of these relationships.

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AUTOMATION OF BONE STRENGTH ASSESSMENT BASED ON CT DATA

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Objective: The study proposes a method for constructing a finite element (FE) ensemble based on computed tomography (CT) data. The purpose of the work is to implement a technique for static calculation of porous structures based on a three-dimensional isoparametric linear FE.

Methods: According to CT data, a weighted function can be constructed, according to which the local stiffness matrix integration is realized (1). Experiments were performed on six 15-20 kg male Vietnamese swine. The protocol of the experiment was approved by the Animal Care Committee of Kazan State Medical University (protocol #5 of 20 May 2020). Segmentation of the area was performed by constructing a regular grid. Elements with a low content of bone material were removed (2). The local main values and directions, and stresses by Mises were calculated. The reliability of the results was based on a local energy error (3). The bone samples were also subjected to a full-scale experiment (three-point bending).

Results: The maximum values of the energy error corresponded to the boundary FEs with a low bone fraction. The minimum energy error (20%) and the maximum Mises stress (500 MPa) correspond to the loaded area. In the region of maximum Mises stresses, the first main component reached a maximum (400 MPa), and the third reached a minimum (-400 MPa), which explains the crack formation. The relative error in forces was 3-15%.

Conclusion: The method of constructing a FE ensemble based on CT data was considered. The proposed method allows us to take into account the structural properties directly with less computational costs and a simplified process of segmentation.

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STUDIES ON INCREASED DENTINE HYPERSENSITIVITY IN MENOPAUSAL PATIENTS

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Exogenous triggers can include thermal, tactile or osmotic changes. While extreme triggers can cause pain in all teeth, the term hypersensitivity represents the painful response to a stimulus that does not cause pain under normal conditions [1,2,3,4]. The response to a stimulus varies from person to person due to differences in pain tolerance, environmental factors and patient psychology.

Vasomotor changes in menopause lead to vascular changes in the dental pulp, initially resulting in increased dentine hypersensitivity [5,6,7,8,9,10].

Dental hypersensitivity is not associated with large tissue loss, but may be associated with dental erosion lesions, leading to a concomitant pulpal response [9,10].

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