# CHEMICAL COMPOSITION OF BONE REGENERATE UNDER INFLUENCE OF “OSTEIN”

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**CHEMICAL COMPOSITION OF BONE REGENERATE UNDER INFLUENCE OF “OSTEIN”**

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Key words: rats, bone defects, bone regeneration, biological hydroxyapatite, “Ostein”

**Introduction, aim of the study**
The biogenic material “Ceramic hydroxyapatite” (OC) is widely used for replacement of the removed pathological formations, but still the exact data of it’s influence on bone formation and it’s interaction with new-forming bone tissue has not been presented. Our study therefore is aimed at investigation of chemical composition of bone regenerate under influence of “Ostein” after experimental operations for plastics of bone defects with ceramic hydroxyapatite (OC015).
**Materials, methods**
For the purposes of the study we selected 126 non-linear rats with the initial mass of 130-150 grams and separated them into three groups. First group comprised intact animals, another

groups were operated on for through perforation of both tibiae thus modeling a routine bone tissue removal. In the third group we administered intragastric (via catheter) “Ostein”, a new calcium drug. Upon expiration of each observation term (7, 15, 30, 60, 90 and 180 days) the bones were excised for further analysis.

**Results, conclusions**

During observation the intact animals exhibited decrease of water percentage from 31.69±0.69% to 26.25±0.81%, organic substances also decreased from 27.09±0.31% to 24.08±0.55% and mineral share on the contrary increased 41.22±0.72% to 49.68±0.55% which is fully compliant with previously described age dynamics in bone contents. In the second group regenerate changed similar to the first group: water amount exceeded the same value of the control group and percentage decreased gradually from 41.78±0.43% to 31.80±0.44%, minerals amount was higher than control group values and percentage increased from 33.02±0.39 to 40.20±0.44%. Alongside with this by the 7th day organic substances amount was lower than in control group by 7.01% and by the 15th and the 30th days exceeded control values by 6.70% and 9.82% respectively. In later terms no significant deviations from control values were observed. In the third group dynamic changes were generally the same as in the second yet deviations were expressed in another way. Water amount exceeded the values of the first group only by the 7th and 15th days – by 27.21% and 9.56% respectively that is lower than second group values. Minerals amount was lower than in the control group in the period from the 7th to the 30th day of observation by 11.25%, 15.19% and 11.38% and organic substances amount exceeded the control values in the period from the 15th to the 60th days – by 13.23%, 17.82% and 5.16% respectively which is much higher. Like in the previous group no significant differences from the control group were found in later terms.

The data show that calcium drug “Ostein” used for treatment of bone defects has a positive effect on chemical content of bone regenerate and optimizes regeneration processes though the

data require verification using histological and X-ray scattering methods.