The aim of this study is isolation of chondrocytes from articular hyaline cartilage and their expansion in cell cultures for further transplantation in a cartilage defect.
Materials and methods: The study was performed on 9 New Zealand White rabbit 6 months old. Under sterile conditions, slices of hyaline cartilage were harvested from unbearing area of knee joint, followed by 0,25% tripsină-EDTA treatment for 30 min and 0,6% collagenase for 6 hours. The cells were cultivated in cell culture flasks by 10000 ±500 cell/cm^2 and incubated at 37 ° C with 5% CO2 in DMEM with 10% FBS. The cells were expanded in culture up to 21 days to a confluence of 80%. The cells was counted by a hemocytometer. The chondrocytes were stained with Safranin O and toluidine blue/fast green.
Results:
From approximately 50±10 mg of cartilage were isolated 4x10^5±5x10^4 cells. At staining chondrocytes with Safranin O, the nuclei were black, the cytoplasm gray-green and and cartilage, mucin were orange to red. At staining chondrocytes with toluidine blue/fast green, the nuclei appeared dark blue, the cartilage blue, deep purple and background green.
Conclusion
The method of chondrocytes isolation from hyaline cartilage is efficient and it was confirmed by *in vitro* cell staining with Safranin O and toluidine blue/fast green. Our further purpose is implantation in vitro of expanded chondrocytes on tridimensional scaffold and their transplantation in an osteochondral defect.
Keywords: chondrocyte, isolation, hyaline, cartilage

THE RESULTS OF DEMINERALIZATION OF BONE GRAFTS

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The aim: to develop a fast method of demineralization of cancelous and cortical bone grafts effectively in various sizes for use in restoring bone defects and implement this method in practice of Human Tissue Bank.
Materials and methods: for the study was used bovine bones (tibia and femur). The bones were cut with saws, excluding their heating, bones were deperiostated, washed under running water, dried and degreased. We obtained different shapes of the bones by cutting: circular shape, semilunar shape (used for control), plate and cubic shaped bones. Grafts were distributed into five groups according to the methods of demineralization, dimensions and type of bone. We got nine transplants - bone rings with Ø 4 cm and thickness 5 mm ± 2 mm, 3 specimens for demineralization in acid and 3 by electrolysis. Three grafts were cut by half to control. Each graft weighed 0.75g ± 5g. One plate-shaped (70x20 mm) and one cubic-shaped (1,5 cm2) grafts were demineralized by electrolysis from the start. The acid solution was changed over every 24 hours. The demineralization was determined by X-ray, by weighing-machine and by mechanical method.
Results: complete demineralization of the circular-shaped grafts through the electrolytic solution was obtained on the 4th day, and in the samples demineralized just only by acid solution the complete demineralization was obtained on the 7th day. The superficial demineralization of the plate-shaped cortical graft was obtained on the 3rd day, but final demineralization on the 7th day. Partial demineralization of cancelous cubic-shaped graft was obtained on the 2nd day, but total demineralization was obtained on the 5th day.
Conclusions: electrolysis is a method for accelerating the demineralization. The speed of demineralization depends on the dimensions, and type of bones. Cancelous bone demineralize faster than cortical one.
Keywords: decaltination, demineralization, bone graft

ARTHROSCOPIC TREATMENT OF DEGENERATIVE ARTHRITIS OF THE KNEE (LITERATURE REVIEW AND PROPER EXPERIENCE)

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Study goals: In this review described most important methods of arthroscopic treatment of degenerative arthritis of the knee, surgical technique, classifications, structure. And the results, such reported in a medical literature, as the proper results of our clinic.
Material and methods: At the base of investigated clinical, radio-logical and CT - several groups of knees after different methods of arthroscopic treatment, in dependence of disease study, age, and any another important factors, was any conclusions elected, that may be influence and follow for knee arthritis treatment.
Results: It was obtained optimal several algorithms of arthritis knee examinations, arthroscopic treatment and postoperative