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PARAMAGNETIC NANOPARTICLES IN THE REGENERATION OF THE REDUCED ALVEOLAR BONE DENSITY

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One of the trends in the treatment of reduced bone density is in oral implantology through the use of new biomaterials with paramagnetic properties. In this in vivo study the effect of Ca / Co-HAp nanoparticles (calcium/cobalt-hydroxiapatite) in the regeneration of the reduced alveolar bone density in experimental animals was examined by analyzing both the biochemical and histochemical markers and through analysis of alveolar bone density. The research was carried out on female Westar rats, aged 6-8 weeks, whom have been implanted nanobiomaterial in reduced alveolar bone density. Good results in regeneration of reduced bone density were achieved in six weeks after implantation of the nanoparticles with paramagnetic properties. Biochemical markers of osteogenesis showed statistically significant rise. Histological analysis revealed high level reparatory skills of the biocomposite implanted in the bone defect, while x-ray analyses evidenced rise of bone density. Implantation of Ca/Co-Hap enables rapid new formation, thus becoming the material of choice for accelerated reduced bone density regeneration.

Keywords: biomaterials, nanoparticles Ca/Co-Hao, osteoporosis, alveolar bone, regeneration.