Electrical stimulation in the bone repair of defects created in rabbit skulls [Estimulación Eléctrica en la Reparación Ósea de Defectos Creados en Cráneos de Conejos]

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Electrical stimulation has been used in different conditions for tissue regeneration. The aim of this study was to analyze the tissue response of defects created in rabbit skulls to electrical stimulation. Two groups were formed, each with 9 New Zealand rabbits; two 5 mm defects were made, one in each parietal, with one being randomly filled with autogenous bone extracted as particles and the other maintained only with blood clotting. The rabbits were euthanized at 8 weeks and 15 weeks to then study the samples collected histologically. In the 8-week analysis bone formation was observed in the defects in the test and control filled with bone graft, whereas the defects with clotting presented a very early stage of bone formation with abundant connective tissue. At 15 weeks an advanced stage of bone regeneration was identified in the defects with bone graft, whereas no significant differences were found in the electrically stimulated defects. In conclusion, electrical stimulus does not alter the sequence of bone formation; new studies could help establish patterns and influences of the stimulus on bone regeneration.

Bone graft

Bone regeneration

Electrical stimulus