

**THE ROLE OF PROTEIN DEFICIENCY IN THE
HEALING OF MANDIBULAR FRACTURES
(EXPERIMENTAL STUDY ON RABBITS)**

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ABSTRACT

The problem of Protein Malnutrition has been discussed in this research. The effect of protein deficiency on the process of mandibular bone healing was the main focus of this research. In this contrast, three groups, each of eight rabbits, had been considered. The three groups were put on different diet regime for 60 days. Rabbits of the first group put on rich protein diet, the second on restricted protein, and the third was the control group which was put on a normal diet.

The rabbits of all groups were exposed to approximately the same fracture in the mandibular bone by the use of surgical technique. Histopathological characteristics were weekly observed and recorded. The collected data were subjected to the statistical analysis for the purpose of drawing scientific conclusions.

The evaluation of the histopathological changes made by the experts throughout the slides of the histopathology, was turned into a quantitative scale in terms of two variables; the stage of healing, and the inflammatory degree. This procedure was very necessary in order to statistically evaluate the effect of nutrition regime on the healing progress of the fracture. The time factor which was the subject of the evaluation was characterized by the weeks of observing the experimental and control groups of rabbits.

In order to give a reliable scale as to measure the stage of healing and inflammation degree, the healing process was turned into three main stages as mentioned in the study, and the last stage was again categorized into two categories namely; the early and late of the third stage. Meanwhile, the inflammation degree was also subdivided into eight groups according to the presence or absence of the inflammatory cells and the weeks of observation.

Both, the groups of inflammation degree and stages of healing were different but overlapped.

The results of the statistical analysis showed that rabbits of the rich protein group approach the last stage of healing process in earlier time in comparison with other two groups. The difference was clearly significant, indicating the direct effect of the nutrition on the healing process of the mandibular bone fracture. This difference was noticed to be accompanied with earlier presence of a high scatter of inflammatory cells.

On the other hand, rabbits of the control group, although they seems to be not significantly different from the rabbits in the restricted group in terms of the healing process, but still they can show a remarkable difference in approaching the late of the third stage of the healing process.

We have found that the time required to approach the late of the third stage (in weeks) for the rich protein, restricted, and the control group was (5.01, 7.005, and 6.509) respectively.