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## The effectiveness of vitamin-c towards increased osteoblasts activity after tooth extraction

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Tooth extraction is a way to remove the tooth from its place in the oral cavity due to the dental caries, severely damaged and cannot be restored. Tooth extraction traumatize to the tooth supporting tissue (alveolar bone), which resulted in the emergence socket (hole) on the alveolar bone. Alveolar bone healing process after tooth extraction involves the osteoblasts activity. Osteoblasts are the cells which are responsible for depositing calcium and phosphate into bone matrix (osteoid) and worked for bone mineralization process, so that the socket area can be covered with new bone. One of the factors that may affect bone healing is vitamin C (ascorbic acid). Vitamin C has the ability towards bone formation because it is able to stimulate the growth and differentiation of osteoblasts in a way to stimulates alkaline phosphatase which is a marker of osteoblast formation. In addition, vitamin C can activate prolil hydroxylase enzyme which serves for the formation of collagen. Collagen is the main component of the extracellular matrix of all soft tissue, tendons, ligaments and bone matrix. Vitamin C may also increase the collagen synthesis of type I, and osteocalcin. Then, osteoblasts synthesizes osteocalcin which binds to the hydroxyl-apatite and it is found in bone. Vitamin C can maintain a balance between the differentiation of osteoblast and osteoclast which activities directly affect the early stages of bone repair. Vitamin C works by suppressing the osteoclasts activity and stimulate the osteoblasts growth to form new bone and increase bone formation.

### Biography

Amalia Rahmaniar Indrati is a student in the Bachelor program on Dentistry Faculty, University of Jember, Indonesia. She was the winner of oral session (Dentistry field) on International Student Congress of (Bio) Medical Sciences (ISCOMS) on June, 2014 in the University of Groningen, The Netherlands. She has published more than 10 research papers in the research competition and has been a leader in research student organization on Dentistry Faculty, University of Jember from 2014 until 2015.

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