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| **Name:** |
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| **Group:** |
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| **Basic Science Question:** |
| What are the treatment options to fill an edentulous space, and in those that require bone grafts, what is the process of bone regeneration? |
| **Report:** |
| Treatment options for filling an edentulous space include: (1) fixed partial dentures, (2) removable partial dentures, and (3) implant-supported restorations. Fixed partial dentures require significant tooth reduction of abutments and are indicated with suitable abutment teeth, healthy supportive tissues, and short edentulous span (1-2 teeth). Removable partial dentures consist of replacement teeth attached to a metal or acrylic base, and are indicated with multiple edentulous areas, severe periodontitis, or excessive bone loss. RPDs can cause trauma to gingiva, bone resorption, and increased risk of plaque accumulation. Dental implants are prosthetic teeth that provide a base for fixed restorations; they are indicated in edentulous patients with a history of difficult denture wear, or an unfavorable number/location of abutments. Dental implants conserve tooth structure, but require sufficient space in the dental arch, periodontal stability and adequate bone levels.  Treatment Options For Replacing Missing Teeth  Bone grafts may be required prior to implant placement in edentulous patients with inadequate bone levels. Bone grafts regenerate bone through the mechanism of osteoconduction, osteoinduction, and osteogenesis. Osteoconduction is the ability of osteoblasts to lay down new bone on a matrix that serves as the structural framework. Osteoinduction is the process by which growth factors, including bone morphogenetic proteins (BMPs), stimulate mesenchymal stem cells to differentiate into osteoblasts to lay down the bone matrix. Bone grafts provide the mesenchymal stem cells with osteogenic potential to produce new bone by proliferation, osteoid production and mineralization. It is important for bone grafts to have osteoconductive, osteoinductive, and osteogenetic properties to regenerate the bone tissue that will support the dental implant. This will improve the prognosis of implant placement and successfully close the edentulous space.  What is the difference between osteoinduction and osteoconduction? | News |  Dentagama |
| **References:** |
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