

## Bone graft materials:

<b>1</b>	Autograft-bone from intra-oral & extra-oral sites
<b>a.</b>	Intra-oral sites- <ul style="list-style-type: none"> <li>• Cortical bone (osseous coagulum)</li> <li>• Bone Blend of cortical bone &amp; cancellous bone</li> <li>• Bone swaging</li> <li>• Cancellous bone &amp; bone marrow</li> </ul>
<b>b.</b>	Extraoral donor site-iliac autografts
<b>2</b>	Allograft - <ul style="list-style-type: none"> <li>• Freeze-dried bone (FDA)</li> <li>• Demineralized freeze-dried bone (DFDBA)</li> </ul>
<b>3</b>	Bone substitute or synthetic graft material- <ul style="list-style-type: none"> <li>• Hydroxyapatite, bioactive glasses, composites</li> </ul>
<b>4.</b>	Xenografts-bone product from other species-Keil bone-calf/ox bone-Eg: Bio-oss
<b>5.</b>	Non bone graft materials- Sclera, cartilage, POP, Plastic materials, Calcium Phosphate biomaterials, bioactive glass, coral derived materials

### **BIOLOGIC MEDIATORS:**

- PDGF (platelet derived growth factor), bFGF (beta- fibroblast like growth factor), BMP (bone matrix protein), GEM 21S

### **Enamel matrix proteins:**

- Emdogain
- combined techniques

### **Indications for bone graft for regeneration:**

1. Deep intrabony defects (except furcation involvement)
2. Advanced periodontitis with thin gingival where gingival recession might occur if GTR is performed

3. Combined with GTR for space making or facilitating membrane manipulation

**Contraindications:**

1. Considerable gingival recession in the surgical area
2. Extraordinary soft tissue crater in surgical area
3. Insufficient width of keratinized gingiva
4. Advanced furcation involvement

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