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| **Name:** |
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| 8B-3 |
| **Basic Science Question:** |
| What are the different types of grafting materials? |
| **Report:** |
| There are many different grafting materials that are used in dental procedures. A bone graft is necessary when there is a need to replace missing bone like in the case of dental implants. The bone graft ensures strength by integrating itself into existing bone. There are five main catagories of bone grafts that are used in dentistry. Those five catagories include; allograft-based bone grafts, factor-based bone grafts, cell-based bone grafts, ceramic-based bone grafts and polymer-based bone grafts.  An allograft-based bone graft is when the bone is obtained from a human. The bone used in the implant treatment can come from the iliac crest, mandibular symphysis, or the anterior mandibular ramus(Kumar et al. 2013). An autograft-based bone graft falls under this category since it is bone derived from the individual receiving the treatment. Moreover, factor-based bone grafts and cell-based bone grafts, such as growth factors, are made using recombinant DNA technology. Growth factors bind on cell surfaces and stimulate the cell (Vinitha et al. 2013). On the other hand, ceramic-based bone grafts use calcium phosphate, which is very similar to the chemical in human bones calcium hydroxyapatite. Since the two materials are so similar, the human body accepts ceramic-based bone grafts readily. Therefore, ceramic-based bone grafts are the most common(Fathima et al. 2013). Finally, there are the polymer-based bone grafts. These bone grafts can be either natural or synthetic and degradebale or nondegradable (Kumar et al. 2013).  Regardless of bone graft choice, all bone-grafts heal the affected area through osteoconduction, osteoinduction, osteopromotion, and osteogenesis. Both the patients conditions and the dentists prefereance may be influence factors in the choice of bone graft. Through the five catagories; allograft-based bone grafts, factor-based bone grafts, cell-based bone grafts, ceramic-based bone grafts and polymer-based bone grafts and many more, procedures like dental implants are possible. |
| **References:** |
| Kumar P, Vinitha B, Fathima G. 2013. Bone grafts in dentistry. J Pharm Bioall Sci [Internet]. [cited 21 Sep 2020]. 2013;5 Suppl S1:125-7. Available from: http://www.jpbsonline.org/article.asp?issn=09757406;year=2013;volume=5;issue=5;spage=125;epage=127;aulast=Kumar |