

Dental stem cells in tooth engineering

[Health & Medicine](#), [Healthcare](#)



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Background

Tooth loss is one of the key reasons for various oral complications.

Consequences associated with tooth loss are periodontal tissue compromise, bone loss, Speech problems, Esthetics, Facial structure changes and serious illness. Tooth loss can be because of intraoral problems (decay, Periodontitis) and external factors such as accidents. Treatment of missing tooth can be done by using synthetic materials like implants, dentures, Crowns, bone grafts etc. But the usage of these materials does not completely satisfy the needs of natural teeth. In turn it leads to postoperative problems. For example, Bone grafts (hydrogel-hydroxyapatite) are used to increase the bone height leads to fracture of bone, wound infection. In recent advances, Stem cell therapy is one of the therapeutic approaches for tissue regeneration.

Dental stem cells have multipotent capacity which differentiate into multiple varieties of cells. These can possibly be utilized in the treatment of a full scope oral condition. " The potential MSCs for tooth regeneration mainly include stem cells from human exfoliated deciduous teeth (SHEDs), adult

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dental pulp stem cells (DPSCs), stem cells from the apical part of the papilla (SCAPs), stem cells from the dental follicle (DFSCs), periodontal ligament stem cells (PDLSCs) and bone marrow derived mesenchymal stem cells (BMSCs)".

To improve the quality of treatment and complications associated with synthetic materials, stem cells are used to satisfies the needs of natural teeth.

Consideration

Dental stem cells basically derive from the cranial neural crest ectomesenchyme. These cells connect tooth root to bone which is surrounded by periodontal ligament. These cells have higher proliferation rate, so it attaches quickly. As well as it repairs tissue rapidly and creates great plasticity. Dental implant involves screwing and takes long period of time. Even few amounts of bone should be present to make the procedure, whereas dental stem cell application is the best technique because the goal of dentistry is to preserve natural tooth.

Conclusion

Dental stem cells present in the dental pulp which is soft living tissue. Other source to get dental stem cell is periodontal ligaments. To replace the missing tooth few techniques are available such as bridge, removable partial denture, temporary denture, dental implant, among these the new and best one is the dental stem cell technique which is easy to apply.

Recommendation

From the beginning take care of your teeth because prevention is better than cure. Natural tooth and tissues have the best efficiency to function. If you have to go through the process to replace the missing tooth, stem cell application is the best. Stem cell technique has plenty of advantages however it has drawbacks too, it has high cost of application.