

Dental implant

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Editorial

A dental implant is a surgical component that interfaces with the bone of the jaw or skull to support a dental prosthesis such as a crown, bridge, denture, facial prosthesis or to act as an orthodontic anchor. The basis for modern dental implants is a biologic process called osseointegration, in which materials such as titanium form an intimate bond to bone. The implant fixture is first placed so that it is likely to osseointegrate, then a dental prosthesis is added. A variable amount of healing time is required for osseointegration before either the dental prosthesis (a tooth, bridge or denture) is attached to the implant or an abutment is placed which will hold a dental prosthesis/crown.

Success or failure of implants depends on the health of the person receiving the treatment, drugs which affect the chances of osseointegration, and the health of the tissues in the mouth. The amount of stress that will be put on the implant and fixture during normal function is also evaluated. Planning the position and number of implants is key to the long-term health of the prosthesis since biomechanical forces created during chewing can be significant. The position of implants is determined by the position and angle of adjacent teeth, by lab simulations or by using computed tomography with CAD/CAM simulations and surgical guides called stents. The prerequisites for long-term success of osseointegrated dental implants are healthy bone and gingiva. Fixture. Where the prosthesis is fixed, the crown, bridge or denture is fixed to the abutment either with lag screws or with dental cement. Where the prosthesis is removable, a corresponding adapter is placed in the prosthesis so that the two pieces can be secured together.

Since both can atrophy after tooth extraction, pre-prosthetic procedures such as sinus lifts or gingival grafts are sometimes required to recreate ideal bone and gingival. The final prosthesis can be either fixed, where a person cannot remove the denture or

The risks and complications related to implant therapy divide into those that occur during surgery (such as excessive bleeding or nerve injury), those that occur in the first six months (such as infection and failure to osseointegrate) and those that occur long-term (such as peri-implantitis and mechanical failures). In the presence of healthy tissues, a well-integrated implant with appropriate biomechanical loads can have 5-year plus survival rates from 93 to 98 percent and 10 to 15 year lifespans for the prosthetic teeth. Long-term studies show a 16- to 20-year success (implants surviving without complications or revisions) between 52% and 76%, with complications occurring up to 48% of the time.