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ISSN: 2161-1122
Dentistry

Opinion Article

Terminology for Generic Root Form Components

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ABOUT THE STUDY

Endosteal implants known as "root form" implants are made to use a vertical bone column, much like the root of a natural tooth. Although numerous names have been used, the term "root form" was recognised by the American Academy of Implant Dentistry and the 1988 National Institutes of Health consensus statement on dental implants.

The most popular root form design allows only the implant body to be placed during bone healing because the abutment and implant body are independent components. The implant abutment must be attached during a separate surgery. The goal of the design and surgical approach is to achieve clinical rigid fixation, which equates to a tiny direct bone-to-implant interface, without any appreciable intervening fibrous tissue over the implant body after healing.

The two-piece implant systems have been surgically treated using one stage, two stages, and instantaneous restoration over the years. The implant body is positioned below the soft tissue during the two-stage surgical procedure until the first bone healing has taken place. The soft tissues are reflected during a second step of surgery to affix a permucosal device or abutment. The implant body and the permucosal part above the soft tissue are both implanted during a one-stage surgical procedure until initial bone maturation has taken place. The permucosal portion is subsequently replaced by the implant's abutment without the requirement for additional soft tissue surgery. The implant body and the prosthetic abutment are placed during the initial operation using the quick restoration technique.

Within two weeks following the surgical visit, a restoration is then placed to the abutment (frequently out of occlusal contacts in partially edentulous patients). It is also possible to choose an implant body made specifically for a certain surgical technique. For instance, the implant manufacturer might have previously linked a permucosal piece to the implant body to enable a one-stage surgical procedure. For the one-piece implant to be implanted and repaired during the initial operation, an implant body may also have a prosthetic abutment, which may be a component of the implant body. The former was the initial idea that was first presented.

Based on design, there are three main categories of root form body endosteal implants: cylinder, screw, or combination. Cylinder root form implants rely on a surface condition or coating to facilitate microscopic bone retention. The surface is often either covered in a rough substance (such as hydroxyapatite or titanium plasma spray) or has a macro retentive pattern (e.g., sintered balls). In most cases, cylinder implants are tapped or pushed into a prepared bone site. They can have tapered implants or cylinders with parallel walls. For first bone fixation, screw root forms have the macroscopic retentive features of a thread and are threaded into a slightly smaller prepared bone site. They could be coated, textured, or machined.

V-thread, buttress (or reverse buttress) thread, and power (square) thread designs are the three fundamental screw-thread geometries. The most common threaded implant designs are parallel cylinder or tapered. There are numerous implant designs in this category that may be made by combining self-tapping characteristics, variable thread pitch, depth, and angle, micro or macro thread features, and other features. Due to the bone's surface characteristics, the threaded implants may also have a tiny link to the bone. Macroscopic characteristics of both the cylinder and screw root types can be found in combination root forms. Through various surface treatments, the combination root form designs may also benefit from microscopic retention to bone (machined, textured, and the addition of coatings). A press-fit surgical method (like the cylinder implants) and a macroscopic implant design for occlusal loading are typically used in combination implant designs (as a series of plateaus or holes in the body). The methods of insertion, healing, surgical needs, surface properties, and interface have all been used to characterise different root morphologies.

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Received: 21-Jun-2022, Manuscript No. DCR-22-17705; **Editor assigned:** 24-Jun-2022, Pre QC No. DCR-22-17705 (PQ); **Reviewed:** 08-Jul-2022, QC No. DCR-22-17705; **Revised:** 18-Jul-2022, Manuscript No. DCR-22-17705 (R); **Published:** 25-Jul-2022, DOI: 10.35248/2161-1122.22.12.589.

Citation: Tayebi V (2022) Terminology for Generic Root Form Components. J Dentistry. 12:589.