

there is more space to maneuver. The coronal end 322 of the implant 320 may be flat to engage the driver 300 or may have a bore similar to bore 60 on the one-piece dental device 20 (FIG. 1) for receiving the driver 300.

Referring to FIGS. 7-10, in order to facilitate the early loading of the implant devices, the implant devices 320 and 340 may be generally or substantially cylindrical and may have a taper so that the coronal end has a larger diameter than the apical end of the implant device to expand the bone as the implant device is inserted to create a relatively strong interference fit. Alternatively, or additionally, implant device 340 is provided with a polygonal portion 342 so that vertices 344 at the edges of sidewalls 346 of the polygonal portion 342 penetrate the usually cylindrical sides of a bore formed by a dental drill. So configured, twisting or rotation of the implant device 340 is resisted. Forming the polygonal portion 342 of the porous metal as described above adds further frictional resistance against the walls of a bore in the jaw. While the polygonal portion 342 may be sized and shaped to resist rotation, it should also be shaped with a width (and number of vertices) that does not create an unmanageable resistance to translating the implant device 340 for vertically inserting the implant 340 into the bore of the jaw. Thus, it will also be understood that the polygonal portion 346 may extend the entire length of the implant 340 or any other length that is advantageous for resisting rotation but that the longer the polygonal shape along the implant 340, the more difficult it may be to insert the implant 340 into a circular bore.

Referring again to FIGS. 9 and 10, in addition to a polygonal portion 328, the implant 320 also has a plurality (but at least one) of annular teeth 326 that taper outward as the teeth extend coronally. This is provided in order to increase resistance to pull-out, which is strengthened further when the teeth are formed of friction-increasing porous metal as described herein. It will be understood that the features shown on implants 320 and 340 may be provided for any of the one-piece dental devices described herein.

While this invention has been described as having a preferred design, the present invention can be further modified within the spirit and scope of this disclosure. This application is therefore intended to cover any variations, uses, or adaptations of the invention using its general principles. Further, this application is intended to cover such departures from the present disclosure as come within known or customary practice in the art to which this invention pertains and which fall within the limits of the appended claims.

What is claimed is:

1. A pre-fabricated one-piece dental prosthetic device, comprising:

a porous portion defining a longitudinal axis and having a first side substantially parallel to the longitudinal axis, the porous portion defining an abutment portion and an implant portion, wherein the implant portion is inserted into and engaging bone when the dental prosthetic device is implanted, and wherein the abutment portion is configured to extend above a transmucosal region of the prosthetic device and receive a prosthesis; and

an outer portion having a color generally replicating the color of natural teeth, the outer portion disposed on at least a portion of the abutment portion, along a portion of the transmucosal region, and to a point along the implant portion at the first side, the outer portion oriented to taper toward the porous portion until an exterior surface of the outer portion intersects the first side of the porous portion, the abutment portion extending above where the exterior surface of the outer portion intersects the first side of the porous portion.

2. The pre-fabricated one-piece dental prosthetic device of claim 1, further comprising an esthetic portion disposed proximal to at least the outer portion, and wherein the porous portion is disposed and arranged for reinforcing the esthetic portion.

3. The pre-fabricated one-piece dental prosthetic device of claim 1, wherein the porous portion being at least in part impregnated with esthetic material having a color generally replicating the color of natural teeth.

4. The pre-fabricated one-piece dental prosthetic device of claim 1, wherein the implant portion includes a bone engaging portion.

5. The pre-fabricated one-piece dental prosthetic device of claim 1, further comprising a core portion, and wherein the porous portion at least partially surrounds the core portion.

6. The pre-fabricated one-piece dental prosthetic device of claim 5, wherein the core portion comprises at least one metal selected from the group consisting of titanium, titanium alloy, stainless steel, zirconium, and cobalt-chromium-molybdenum alloy.

7. The pre-fabricated one-piece dental prosthetic device of claim 5, wherein the core portion comprises porous tantalum having pores at least partially impregnated with esthetic material.

8. The pre-fabricated one-piece dental prosthetic device of claim 1, further comprising an endosseous portion with a proximal portion, and wherein the outer portion at least partially covers the porous portion at the proximal portion to limit gingival tissue growth on the proximal portion.

9. The pre-fabricated one-piece dental prosthetic device of claim 1, wherein the porous portion defines a plurality of pores, and wherein esthetic material substantially fills the pores of the porous portion.

10. The pre-fabricated one-piece dental prosthetic device of claim 1, wherein the porous portion generally extends throughout the prosthetic device.

11. The pre-fabricated one-piece dental prosthetic device of claim 1, further comprising a coronal end portion integrally formed with a bone implant part, and wherein the porous portion is formed at the bone implant part, and wherein the coronal end portion includes the outer portion.

12. The one-piece dental prosthetic device of claim 1, wherein the outer portion has an exterior separate from the porous portion.

13. The pre-fabricated one-piece dental prosthetic device of claim 1, further comprising an esthetic portion disposed proximal to at least the outer portion, and wherein the esthetic portion comprises at least one of a polymer, a composite material, and a ceramic.

14. A pre-fabricated one-piece dental prosthetic device comprising:

an abutment portion extending coronally with respect to a jaw bone and gingiva disposed on the jaw bone and configured to support a prosthetic tooth, the abutment portion having a transmucosal region, the abutment portion oriented to taper in the transmucosal region toward a porous metal matrix until an exterior surface of the abutment portion intersects the porous metal matrix;

an implant portion integrally formed with the abutment portion and inserted into and engaging bone when the dental prosthetic device is implanted;

a post; and

the porous metal matrix disposed adjacent to the post, wherein the post and the porous metal matrix extend from an apical end of the implant portion to above where the exterior surface of the abutment portion intersects the porous metal matrix and above the transmucosal