

core **304** on the abutment to receive soft tissue when the abutment is mounted on a separate two-stage dental implant. The core **302** has an outer surface **306** with a treatment **308** as explained above with implant **10**.

By another approach, the treatment areas mentioned herein are zones, and each implant may have a number of zones where each zone has a treatment selected to accomplish a different purpose. In one form, there are at least two distinct zones along the longitudinal axis of the implant, whether the zones are adjacent or spaced from each other. In one case, one or more zones may be placed within bone and its treatment is selected for bone growth, while other zone or zones extend within soft tissue and their treatment is selected for soft tissue growth (or to establish a barrier as mentioned above). The zones in bone may be particularly selected to grow cortical or cancellous bone. In one form, the implant **10** may have a number of axially spaced partial or full rings for bone growth for example. In the illustrated example, implant **200** may also have one or more zones **214** for soft tissue growth and one or more porous or treated zones **216** (shown in dashed line on FIG. **6**) for bone growth. Similarly, abutment **300** may have one or more of the zones and may be supported with an implant that has one or more of the zones.

It will also be understood that the combination of a porous exterior portion intentionally covering a treated area of an interior portion may be used on endosseous implants other than dental implants including implants along the length of a bone, or an implant at joints such as for knees, hips, shoulders, elbows, the spine, and so forth.

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. An implant device comprising:
 - a head portion at a coronal end of the implant, the head portion having an interior portion extending apically from the head portion;
 - an exterior portion that receives the interior portion, the exterior portion forming an exterior surface of the implant and being made of a porous material defining radially uniform passages extending entirely and radially through the exterior portion;
 - an anchor portion at an apical end of the implant, the anchor portion comprising a bore that engages an apical end of the interior portion and an outer surface having a thread; wherein the exterior portion is retained on the interior portion between the head portion and the anchor portion when the anchor portion is engaged with the interior portion;
 - wherein the interior portion includes an outer surface with a treated area being adjacent to the exterior portion and accessible from the exterior surface through the passages, the treated area having a treatment for direct attachment to bone or soft tissue; and
 - wherein the outer surface of the interior portion includes at least one generally longitudinally extending flute, the at least one generally longitudinally extending flute extending around less than a total circumference of the interior portion.
2. The implant device of claim **1** wherein the treatment comprises at least roughening of the outer surface.

3. The implant device of claim **1** wherein the treatment comprises at least coating the outer surface with a bio-reactive material.

4. The implant device of claim **1** wherein the treatment comprises the treated area having at least one of:

- threads,
- annular grooves,
- surface recesses,
- at least one bio-compatible coating, and
- at least one porous coating.

5. The implant device of claim **1** wherein the treatment at the treated area is different than a treatment applied to the head portion.

6. The implant device of claim **1** wherein the treatment is only applied to the interior portion.

7. The implant device of claim **1** comprising at least two treatment areas axially spaced along the implant device wherein one treatment area is disposed to extend through soft tissue and another of the treatment areas is disposed to extend through bone.

8. The implant device of claim **1** wherein the implant comprises a dental implant placed in a mandible or maxilla.

9. The implant device of claim **1** wherein the exterior portion comprises metal.

10. The implant device of claim **1** wherein the exterior portion comprises tantalum.

11. An implant device, comprising:

- a longitudinal axis generally defined by the implant device;
- a head at a coronal end of the implant, the head having a core extending apically from the head;
- a collar that receives the core and is configured for placement in a bore in bone and having a porous material, the collar comprising radially uniform passages formed by the porous material and extending entirely and radially through the collar;
- an anchor at an apical end of the implant, the anchor comprising a bore that engages an apical end of the core; wherein the collar is retained on the core between the head and the anchor when the anchor is engaged with the core;
- wherein the core received within the collar includes a non-circular outer periphery in a cross-section extending perpendicular to the axis to engage the collar and rotatably secure the collar to the core, the core comprising a surface having a treated area covered by the collar and treated for direct attachment to bone or soft tissue; and
- wherein the non-circular outer periphery includes at least two concave curved surfaces that adjoin at a junction forming a peak that engages the collar.

12. The implant device of claim **11** wherein the head comprises at least one flat surface configured to engage a coronal end of the collar.

13. The implant device of claim **11** wherein the peak forms an edge for cutting into the collar.

14. The implant device of claim **11** wherein the core has an outer surface forming at least one generally longitudinally extending flute.

15. The implant device of claim **14** wherein the outer surface comprises a plurality of the flutes circumferentially arrayed around the core.

16. The implant device of claim **11** wherein the treated area is roughened or has at least one coating of bio-compatible material.

17. A method of forming an implant device, comprising:

- treating a core for direct engagement with bone or soft tissue, the core extending from a
- head of the implant device;