CLAIMS

1. An external drive implantation apparatus (100) for bendable collar implants,

the apparatus (100) comprising:

a bendable-collar implant (10) forming a male fastener (29), constructed as a rigid and integral unity including an implant screw (17), a proximal male head drive (23), a distal male screw-top drive (27), and a collar 15) which is disposed intermediate the male drives (23, 27), said distal male screw-top drive (27) being disposed proximal to the implant screw (17),

characterized in that the apparatus (100) further comprises

a drive tool (31) forming a female driver (31), constructed as a rigid and integral unit including a backbone (37) disposed intermediate a proximal female head drive (39) and a distal female screw-top drive (33), wherein the proximal and distal female drives (39, 33) are configured to be operative in mutual association with the proximal and distal male drives (23, 27);

whereby an implantation torque applied by the female drive tool (31) onto the male fastener (29) torques the male drives (23, 27) and the implant screw (17), thereby averting torque of the collar (15).

2. The apparatus (100) of claim 1, wherein:

the female driver (31) further supports a proximal connection piece (35) coupled distally to the backbone (37), wherein the connection piece (35) is configured for rotation by a hand or for connection thereto of a tool.

3. The apparatus (100) of claim 1, wherein:

an exterior dimension of the male screw-top drive (27) is smaller than an exterior dimension of an abutment (13) which is coupled proximally away from the collar (15) and, the female driver (31) is configured to support a matching torque-transmitting geometry for application of torque to and for lateral engagement with the male drives (23, 27).

4. The apparatus (100) of claim 1, wherein the male and the female screw-top drives (27, 33) and the male and female head drivers (23, 29) have the same transmission and engagement geometry.

5. The apparatus (100) of claim 1, wherein the male and the female screw-top drives (27, 33) and the male and female head drivers (23, 29) have a different transmission and engagement geometry.

6. The apparatus (100) of claim 1, wherein after implantation of the implant screw (17), the female drive (31) is further configured to bend the collar (15) into a desired direction, thereby avoiding the need to exchange tools.

7. The apparatus (100) of claim 1, wherein the male screw-top drive (27) is an integral portion of the implant screw (17).

8. A method for constructing an external drive implantation apparatus (100) for bendable collar implants (10) including a bendable collar (15) and an implant screw (17),
the method being characterized by comprising:

constructing a bendable collar implant (10) forming a male fastener (29) supporting a proximal male head drive (23) and a distal male screw-top drive (27), wherein the collar (15) is disposed intermediate the male drives (23, 27), and

constructing a female driver (31) supporting a proximal female head drive (39) and a distal female screw-top drive (33), wherein the proximal and distal female drives (39, 33) are configured to be operative in mutual association with the proximal and distal male drives (23, 27);

whereby the female driver (31) is constructed to apply an implantation torque to the male fastener (29) to simultaneously engage the male drives (23, 27), with the female drives (39, 33), whereby torque of the collar (15) is averted.

9. The method of claim 8, wherein the male and the female screw-top drives (27, 33) are further constructed with a torque transmission and engagement geometry.

10. The method of claim 8, wherein the male screw-top drive (27) is further constructed and integrated as a proximal portion of the implant screw (17).

11. The method of claim 8, wherein:

the implant screw (17) is aligned along an axis (X), and

the female driver (31) is constructed to engage the male head and screw-top drives (23, 27) by lateral engagement motion perpendicular to the axis (X).