the cannulated alignment guide (80). An elongate member (85) can be removably fixedly attached to the first insertion tool end (82) proximate the bore (36) in the sacroiliac joint implant (6). The second insertion tool end (83) can be forcibly advanced in the cannulated alignment guide (80) to advance the elongate member (~~81~~85) to pass through the bore (36) to dispose the elongate member (~~81~~85) in transverse relation to said articular surfaces (16) correspondingly engaged with sacroiliac joint implant (6). As a non-limiting example, the elongate member (~~81~~85) can have a spiral thread (84) coupled to the external surface and by rotation of the second end (83) of the insertion tool (81) the elongate member (85) can be drawn through the bore (36) of the sacroiliac joint implant (1) in transverse relation to said articular surfaces (16) correspondingly engaged with sacroiliac joint implant (6). By further operation of the elongate member (85) the articular surfaces (16) of the sacroiliac joint (1) can be drawn against the external surfaces of the sacroiliac joint implant (6).

Now referring primarily to Figure 32, embodiments of the invention can further comprise a coupling element (87) connected to the first end (11) of the sacroiliac joint implant (6). As a non-limiting example, the coupling element (87) can be disposed in fixed relation to the first end (11) of the sacroiliac joint implant (6) by threaded engagement of a fastener portion (88); however, the invention is not so limited and the fastener portion (88) can be connected to the first end (11) of the sacroiliac joint implant (6) by any method such as welding, spin welding, adhesive, or the like. The coupling element (87) can further provide a coupling portion (89) configured to join with a numerous and wide variety of cross sectional geometries of spanning members (90). As a non-limiting example, the coupling portion (89) can be configured as cylindrical cup (91) pivotally coupled to the fastener portion (88). A spiral thread can be coupled to the internal surface of the cylindrical cup (91) to rotationally receive a spirally threaded body (92). The side wall (93) of the cylindrical cup (91) can include a pass through element (94) in which part of a spanning member (90) can be received. The part of the spanning member (90) received within the pass through element (94) can be placed in fixed relation to the cylindrical cup (91) by rotational engagement of the spirally threaded body (92).

Now referring primarily to Figure 33, as a further non-limiting example, each of a pair of sacroiliac joints (1) can receive an embodiment of the sacroiliac joint implants (6), above-described, each having a coupling element (87) coupled to the first end (11). Each of the coupling elements (87) can receive the opposed ends (95) of a spanning member (90).

VI. CLAIMS

I claim:

1. A sacroiliac joint implant for implantation in a sacroiliac joint including articular surfaces of the sacroiliac joint formed by a sacrum and an ilium, the sacroiliac joint implant comprising:

an elongate body including a length disposed between a first end and a second end and adapted to non-transversely locate between the articular surfaces of the sacroiliac joint to dispose the sacrum and the ilium in substantially immobilized relation;

a first radial member extending along a longitudinal axis of the elongate body and adapted to non-transversely locate between the articular surfaces of the sacroiliac joint;

a second radial member extending along the longitudinal axis of the elongate body and disposed in substantially opposed relation to the first radial member and adapted to non-transversely locate between the articular surfaces of the sacroiliac joint;

a third radial member extending along the longitudinal axis of the elongate body and adapted to extend into the bone of the ilium, wherein the third radial member is disposed in substantially perpendicular relation to the first radial member; and

a fourth radial member extending along the longitudinal axis of the elongate body and adapted to extend into the bone of the sacrum, wherein the fourth radial member is disposed in substantially opposed relation to the third radial member.

~~2. The sacroiliac joint implant as described in claim 1,~~

~~wherein the sacroiliac joint implant has a configuration which avoids substantial alteration of a natural positional relation of the sacrum and the ilium when the sacroiliac joint implant is implanted in the sacroiliac joint space; and~~

~~wherein the elongate body has a configuration of sufficient dimension to avoid deformation when the sacroiliac joint implant is implanted in the sacroiliac joint space.~~

~~3. The sacroiliac joint implant as described in claim 1,~~

~~wherein the sacroiliac joint implant has a configuration which substantially avoids driving apart the sacrum and the ilium when the sacroiliac joint implant is implanted in the sacroiliac joint space; and~~

~~wherein the elongate body has a configuration of sufficient dimension to avoid deformation when the sacroiliac joint implant is implanted in the sacroiliac joint space.~~

~~4. The sacroiliac joint implant as described in claim 1, wherein the sacroiliac joint implant has a configuration which returns the sacrum and the ilium to a normal positional relation to correct a degenerative condition of the sacroiliac joint when the sacroiliac joint implant is implanted in the joint space.~~

2~~5~~. The sacroiliac joint implant as described in claim 1, wherein the elongate body includes a configuration in cross section selected from the group consisting of: circular, oval, triangular, square, and rectangular.

3~~6~~. The sacroiliac joint implant as described in claim 1, wherein the elongate body includes a generally cylindrical external surface.

4~~7~~. The sacroiliac joint implant as described in claim 1, wherein each of the first and second radial members include a pair of opposed surfaces disposed in substantially parallel relation a thickness apart adapted to engage the sacrum and the ilium only within a region defined by the articulating surfaces to dispose the sacrum and the ilium in substantially immobilized relation.

5~~8~~. The sacroiliac joint implant as described in claim 1, further comprising an axial bore which communicates between the first end and the second end of the elongate body.

6~~9~~. The sacroiliac joint implant as described in claim 4~~7~~, further comprising one or more aperture elements in one or more of the first radial member, the second member, the third radial member, the fourth radial member, or in the elongate body.

7~~10~~. The sacroiliac joint implant as described in claim 1, further comprising a coat coupled to at least a portion of an external surface of the sacroiliac joint implant capable of biocompatible osseointegration with bone of the ilium or the sacrum.

~~8~~11. The sacroiliac joint implant as described in claim ~~9~~6, further comprising one or more biologically active agents mixed with an amount of biocompatible biodegradable or osseointegratable material located within one or more of the aperture elements which promotes bone growth.

9. The sacroiliac joint implant as described in claim 1, wherein the elongate body further includes an amount of curvature between the first end and the second end.

10. The sacroiliac joint implant as described in claim 1, wherein at least one of the first radial member and second radial member radially extend a greater distance than at least one of the third radial member and the fourth radial member.

11. The sacroiliac joint implant as described in claim 1, wherein at least one of the first, second, third and fourth radial members includes a tapered end near the first end of the elongated body.

12. The sacroiliac joint implant as described in claim 11, further comprising an anti-migration element extending transverse to the elongated body near the first end of the elongated body.

13. The sacroiliac joint implant as described in claim 1, wherein the first, second, third and fourth radial members and the elongated body are formed from a single piece of biocompatible material.

14. The sacroiliac joint implant as described in claim 1, further comprising a coupling element configured to connect to the sacroiliac joint implant and a spanning member securable to the coupling element and configured to allow for the coupling of a lumbar spine to a pelvis.

15. The sacroiliac joint implant as described in claim 14, wherein the coupling element includes a fastener portion configured to be received in the sacroiliac joint implant and the coupling portion is pivotally coupled to the fastener portion and configured to connect to the spanning member.

16. The sacroiliac joint implant as described in claim 1, wherein the first radial member includes an angle element that angles outwardly from the elongate body at the second end.

17. The sacroiliac joint implant as described in claim 1, further comprising an anti-migration element attached to the first end of the elongate body.

18. The sacroiliac joint implant as described in claim 17, wherein the anti-migration element includes an end cap.

19. The sacroiliac joint implant as described in claim 17, wherein the anti-migration element includes a tapered element on an external surface of the first radial member.

20. The sacroiliac joint implant as described in claim 17, wherein the anti-migration element includes a tapered terminal end.

21. The sacroiliac joint implant as described in claim 17, wherein the third radial member and the fourth radial member have a lesser height than the first radial member and the second radial member.

22. The sacroiliac joint implant as described in claim 1, further comprising a radial member cross piece disposed at the first radial member and arranged in substantially perpendicular relation to an external surface of the first radial member.

23. The sacroiliac joint implant as described in claim 1, wherein, in extending along the longitudinal axis of the elongate body, one or more of the first radial member, the second radial member, the third radial member and/or the fourth radial member extends along the elongate body of the sacroiliac joint implant.

24. The sacroiliac joint implant as described in claim 1, wherein one or more of the first radial member, the second radial member, the third radial member and/or the fourth radial member is discontinuous as it extends along the longitudinal axis of the elongate body of the sacroiliac joint implant.

25~~12~~. The sacroiliac joint implant as described in claim 1, further comprising

an elongate member; and

one or more passages extending transversely across the length of ~~in~~ the elongate body dimensioned to allow the elongate member to pass therethrough in transverse relation to the articular surfaces.

26~~13~~. A system for fixating a sacroiliac joint, the system comprising:

an alignment tool comprising a portion, an alignment guide, and an insertion tool, the portion of the alignment tool including an end configured to mate with the first end of the sacroiliac joint implant, the alignment guide coupled to the portion of the alignment tool, and the insertion tool engaged with the alignment guide; and

the sacroiliac joint implant as described in claim ~~12~~25, wherein the first end of the sacroiliac joint implant is configured to mate with the end of the portion of the alignment tool,

wherein the engagement of the insertion tool with the alignment guide is such that the elongate member when advanced via the insertion tool is received in the one or more passages such that the elongate member passes in transverse relation to the articular surfaces while the end of the portion of the alignment tool is mated with the first end of the sacroiliac joint implant and the sacroiliac joint implant is located in the sacroiliac joint space.

27~~14~~. The system as described in claim ~~13~~26, wherein the sacroiliac joint implant further includes an axial bore which communicates with the first end of the elongate body, the end of the portion of the alignment tool being configured to fixedly mate with the axial bore.

28~~15~~. The system as described in claim ~~13~~26, wherein the elongate member includes a spiral thread coupled to an external surface of the elongate member.

2916. The system as described in claim ~~13~~26, wherein the alignment tool includes a fixed or adjustably fixed configuration that aligns the alignment guide with the one or more passages.

3017. The system as described in claim ~~13~~26, wherein the alignment guide includes a cannulated alignment guide.

3118. The system as described in claim ~~17~~30, wherein the insertion tool is slidingly engaged with the cannulated alignment guide.

~~19. The sacroiliac joint implant as described in claim 1, wherein the elongate body further includes an amount of curvature between the first end and the second end.~~

~~20. The sacroiliac joint implant as described in claim 1, wherein at least one of the first radial member and second radial member radially extend a greater distance than at least one of the third radial member and the fourth radial member.~~

~~21. The sacroiliac joint implant as described in claim 1, wherein at least one of the first, second, third and fourth radial members includes a tapered end near the first end of the elongated body.~~

~~22. The sacroiliac joint implant as described in claim 21, further comprising an anti-migration element extending transverse to the elongated body near the first end of the elongated body.~~

~~23. The sacroiliac joint implant as described in claim 1, wherein the first, second, third and fourth radial members and the elongated body are formed from a single piece of biocompatible material.~~

~~24. The sacroiliac joint implant as described in claim 1, further comprising a coupling element configured to connect to the sacroiliac joint implant and a spanning member securable to the coupling element and configured to allow for the coupling of a lumbar spine to a pelvis.~~

~~25. The sacroiliac joint implant as described in claim 24, wherein the coupling element includes a fastener portion configured to be received in the sacroiliac joint implant and the~~

~~coupling portion is pivotally coupled to the fastener portion and configured to connect to the spanning member.~~

3226. A system for fixating a sacroiliac joint, the system comprising:

an elongate member;

an alignment tool comprising a portion, an alignment guide, and an insertion tool, the portion of the alignment tool including an end configured to mate with the sacroiliac joint implant, the alignment guide coupled to the portion of the alignment tool, and the insertion tool engaged with the alignment guide; and

the sacroiliac joint implant as described in claim 1, wherein the sacroiliac joint implant is configured to mate with the end of the portion of the alignment tool,

wherein the engagement of the insertion tool with the alignment guide is such that the elongate member when advanced via the insertion tool is caused to pass in transverse relation to the sacroiliac joint and the elongate body of the sacroiliac joint implant while the end of the portion of the alignment tool is mated with the sacroiliac joint implant and the sacroiliac joint implant is located in the sacroiliac joint.

3327. A system for fixating a sacroiliac joint, the system comprising:

a sacroiliac joint implant for implantation in the sacroiliac joint , the sacroiliac joint implant comprising an elongate body including a first end, a second end and a length disposed between the first end and the second end, the elongate body being adapted to non-transversely locate within the sacroiliac joint;

a coupling element configured to connect to the sacroiliac joint implant;

a spanning member securable to the coupling element; and

a second coupling element engageable with the spanning member.

3428. The system as described in claim 2733, wherein at least a portion of the spanning member is in the form of a plate, the portion configured with at least one aperture configured to allow passage of at least a part of the second coupling element.

3529. The system as described in claim 2834, wherein the second coupling element includes a fastener element configured to pass through an aperture and the fastener element is further configured to be disposed into the bone of the sacrum or ilium, or both.

3630. The system as described in claim 2733, wherein the system is configured to allow for the coupling of a lumbar spine to a pelvis.

3734. The system as described in claim 2733, wherein the system is configured to allow for the coupling of a pair of sacroiliac joint implants.

3832. The system as described in claim 2733, wherein at least two of the following form a unitary construction: the implant; first coupling element; second coupling element; or the spanning member.

3933. A system for fixating a sacroiliac joint, the system comprising:

a sacroiliac joint implant comprising an elongate body including a first end, a second end and a length disposed between the first end and the second end, the elongate body being adapted to non-transversely locate in the sacroiliac joint to substantially immobilize the sacroiliac joint;

an elongate member; and

an alignment tool comprising a portion, an alignment guide, and an insertion tool, the portion of the alignment tool including an end configured to mate with the sacroiliac joint implant, the alignment guide coupled to the portion of the alignment tool, and the insertion tool engaged with the alignment guide,

wherein the engagement of the insertion tool with the alignment guide is such that the elongate member when advanced via the insertion tool is caused to pass in transverse relation to the sacroiliac joint and the elongate body of the sacroiliac joint implant while the end of the

portion of the alignment tool is mated with the sacroiliac joint implant and the sacroiliac joint implant is located in the sacroiliac joint.

4034. The system of claim ~~33~~39, wherein:

the sacroiliac joint implant further comprise one or more passages extending transversely across the length of ~~in~~ the implant dimensioned to allow the elongate member to pass in transverse relation to the sacroiliac joint; and

the engagement of the insertion tool with the alignment guide is such that the elongate member when advanced via the insertion tool is received in the one or more passages such that the elongate member passes in transverse relation to the sacroiliac joint while the end of the portion of the alignment tool is mated with the sacroiliac joint implant and the sacroiliac joint implant is located in the sacroiliac joint.

4135. The system as described in claim ~~33~~39, wherein the alignment tool includes a fixed or adjustably fixed configuration that aligns the alignment guide with the one or more passages.

4236. The system as described in claim ~~33~~39, wherein the sacroiliac joint implant further includes an axial bore which communicates with the first end of the elongate body, the end of the portion of the alignment tool being configured to fixedly mate with the axial bore.

4337. The system as described in claim ~~33~~39, wherein in the elongate member includes a spiral thread coupled to an external surface of the elongate member.

4438. The system as described in claim ~~33~~39, wherein the alignment guide includes a cannulated alignment guide.

4539. The system as described in claim ~~38~~44, wherein the insertion tool is slidingly engaged with the cannulated alignment guide.

~~40. The sacroiliac joint implant as described in claim 1, wherein the first radial member includes an angle element that angles outwardly from the elongate body at the second end.~~

~~41. The sacroiliac joint implant as described in claim 1, further comprising an anti-migration element attached to the first end of the elongate body.~~

~~42. The sacroiliac joint implant as described in claim 41, wherein the anti-migration element includes an end cap.~~

~~43. The sacroiliac joint implant as described in claim 41, wherein the anti-migration element includes a tapered element on an external surface of the first radial member.~~

~~44. The sacroiliac joint implant as described in claim 41, wherein the anti-migration element includes a tapered terminal end.~~

~~45. The sacroiliac joint implant as described in claim 41, wherein the third radial member and the fourth radial member have a lesser height than the first radial member and the second radial member.~~

~~46. The sacroiliac joint implant as described in claim 1, further comprising a radial member cross piece disposed at the first radial member and arranged in substantially perpendicular relation to an external surface of the first radial member.~~

~~47. The sacroiliac joint implant as described in claim 1, wherein, in extending along the longitudinal axis of the elongate body, one or more of the first radial member, the second radial member, the third radial member and/or the fourth radial member extends along the elongate body of the sacroiliac joint implant.~~

~~48. The sacroiliac joint implant as described in claim 1, wherein one or more of the first radial member, the second radial member, the third radial member and/or the fourth radial member is discontinuous as it extends along the longitudinal axis of the elongate body of the sacroiliac joint implant.~~

4649. A sacroiliac joint implant for implantation in a sacroiliac joint including articular surfaces of the sacroiliac joint formed by a sacrum and an ilium, the sacroiliac joint implant comprising:

an elongate body including a length disposed between a first end and a second end and adapted to non-transversely locate between the articular surfaces of the sacroiliac joint to dispose the sacrum and the ilium in substantially immobilized relation;

a first radial member extending along a longitudinal axis of the elongate body;

a second radial member extending along the longitudinal axis of the elongate body and disposed in substantially opposed relation to the first radial member; and

an end cap supported on the first end of the elongated body and extending along the first radial member and the second radial member.

4750. The sacroiliac joint implant as described in claim 4946, wherein the first radial member and the second radial member are adapted to non-transversely locate between the articular surfaces of the sacroiliac joint and the sacroiliac joint implant further comprises:

a third radial member extending along the longitudinal axis of the elongate body and adapted to extend into the bone of the ilium, wherein the third radial member is disposed in substantially perpendicular relation to the first radial member; and

a fourth radial member extending along the longitudinal axis of the elongate body and adapted to extend into the bone of the sacrum, wherein the fourth radial member is disposed in substantially opposed relation to the third radial member.

4851. The sacroiliac joint implant as described in claim 5047, wherein, in extending along the longitudinal axis of the elongate body, one or more of the first radial member, the second radial member, the third radial member and/or the fourth radial member extends along the elongate body of the sacroiliac joint implant.

4952. The sacroiliac joint implant as described in claim 5047, wherein one or more of the first radial member, the second radial member, the third radial member and/or the fourth radial member is discontinuous as it extends along the longitudinal axis of the elongate body of the sacroiliac joint implant.

5053. The sacroiliac joint implant as described in claim 4946, wherein the end cap is at least one of disk-shaped or tapered in a direction of the longitudinal axis of the elongate body.

5154. The sacroiliac joint implant as described in claim 4946, further comprising an elongated member and wherein the end cap includes an opening configured such that the elongated member is receivable through the opening.

5255. The sacroiliac joint implant as described in claim 4946, further comprising a bone growth stimulation system including a portion of the bone growth stimulation system supported on the sacroiliac joint implant.

5356. The sacroiliac joint implant as described in claim 4946, further comprising a plurality of anti-migration elements defined on a surface of the sacroiliac joint implant.