

relative to said distal end of said first lever and said second lever, respectively, in a direction substantially normal to said limb.

38. The apparatus of claim 37 wherein said loading transducer includes a piezoelectric actuator.

39. The apparatus of claim 37 further comprising a second loading transducer to alter a force exerted on at least one of said first element of said limb by said first attaching element and said second element of said limb by said second attaching element.

40. The apparatus of claim 39 wherein at least one of said attaching elements comprises a binding having a length arranged to confine at least one of said first and said second levers and said limb.

41. The apparatus of claim 40 wherein said loading transducer is arranged to alter said length of said binding.

42. The apparatus of claim 41 wherein said loading transducer comprises an electroactive polymer.

43. The apparatus of claim 41 wherein said second loading transducer comprises a link connecting a portion of said binding to one of another portion of said binding and said bracing element, said link having a length responsive to said first signal.

44. The apparatus of claim 43 wherein said link comprises a piezoelectric actuator.

45. An adjustable orthotic brace comprising:

- (a) a first lever having a distal end and a proximal end;
- (b) a second lever having a distal end and a proximal end, said proximal end and said proximal end of said first lever hinged for substantially relative rotation of said levers;
- (c) a first attaching element restraining said first lever to a first element of a limb;
- (d) a second attaching element restraining said second lever to said second element of said limb; and
- (e) a transducer arranged for effecting substantially relative rotation of said distal ends of said first and said second levers.

46. The system of claim 45 wherein said transducer comprises an electroactive polymer connected to said first and said second levers and having a dimension alterable to effect rotation of said hinged levers.

47. The system of claim 45 wherein said transducer comprises a piezoelectric actuator connected to said first and said second levers and having dimension alterable to effect rotation of said hinged levers.

48. The system of claim 45 wherein said transducer comprises a pneumatic actuator connected to said first and said second levers and arranged to effect rotation of said hinged levers.

49. The system of claim 45 wherein a rate of actuation of said pneumatic actuator is responsive to said first signal to effect rotation of said hinged levers.

50. The system of claim 45 wherein said transducer comprises a hydraulic actuator connected to said first and said second levers and arranged to effect rotation of said levers.

51. The system of claim 45 wherein said transducer includes a magneto-rheological fluid.

52. The system of claim 45 wherein said transducer includes a polymer-metal composite element.

53. A method of supporting a joint of a limb comprising the steps of

- (a) binding a first lever to a first element of said limb;
- (b) binding a second lever to a second element of said limb, said second element of said limb being connected to said first element by said joint and said second lever being joined to said first lever by a hinge proximal said joint, said hinge facilitating substantially relative rotation of said first and said second levers while substantially resisting other relative motion of said levers; and
- (c) altering at least one of a force and a displacement of at least one of said first lever, said second lever, and said binding of at least one for said first and said second levers in response to at least one of a treatment regimen and a sensed characteristic of at least one of said first and said second levers and said binding.

54. The method of claim 53 wherein the step of altering at least one of a force and a displacement of at least one of said first lever, said second lever, and said binding for at least one of said first and said second levers in response to at least one of a treatment regimen and a sensed characteristic of at least one of said first and said second levers and said binding comprises the step of varying a length said binding in response to sensing a tension of said binding.

55. The method of claim 53 wherein the step of altering at least one of a force and a displacement of at least one of said first lever, said second lever, and said binding for at least one of said first and said second levers in response to at least one of a treatment regimen and a sensed characteristic of at least one of said first and said second levers and said binding comprises the step of varying a resistance to said relative rotation of said levers according to a relationship of said resistance and a sensed rotational position.

56. An adjustable orthotic brace for a limb comprising:

- (a) a sleeve confining a first limb element, a second limb element, and a connecting joint; and
- (b) a plurality of interconnected filaments arranged to confine said sleeve in response to a signal.

57. The apparatus of claim 56 wherein said plurality of interconnected filaments comprises:

- (a) a first filament arranged at a bias to an axis of at least one of said first and said second limb elements; and
- (b) a second filament, said second filament arranged at a bias to an axis of at least one of said first and said second limb elements and to said first filament.

58. The apparatus of claim 54 wherein said plurality of interconnected filaments comprise filaments of an electroactive polymer.

59. The apparatus of claim 56 wherein said plurality of interconnected filaments comprises:

- (a) a first filament arranged substantially circumferentially about least one of said first and said second limb elements; and
- (b) a second filament, said second filament arranged substantially parallel to a longitudinal axis of at least one of said first and said second limb elements.