[0033] In another embodiment the force generator is an actuator selected from the group consisting of a rotary hydraulic motor, a linear hydraulic motor, a pneumatic motor, and an electric motor.

[0034] In yet another embodiment the method further comprises the step of attaching at least one position measurement device, the position measurement device being placed on a predetermined position selected from the group consisting of an end effector, a linkage, a force sensor, a force generator, a shoulder, a hip, a neck, and a head.

[0035] In a still further embodiment the generated force compensates for the force due to gravity on the body or part thereof and wherein the generated force is equivalent in magnitude to between about −1 times and about +4 times the force of gravity upon the body or part thereof.

[0036] In another embodiment the generated force is essentially equivalent to a force required for manipulating joint abduction torques of the individual, the joint selected from the group consisting of the shoulder and the hip.

[0037] In another embodiment the interacting instrumented member further comprises a sensor selected from the group consisting of a force sensor, a position sensor, and a motion sensor.

[0038] In an alternativel embdiment the system further comprises an end effector articulatedly attached between the appendage attaching member and the force generator.

[0039] In another alternative embodiment the method further comprises a step of determining the position of the appendage attaching member to generate position data and providing the position data to the computer and the display.

[0040] In still another alternative embodiment the method further comprises the computer further comprising memory means for storing the force input data, the virtual environment, the position data, and the force output data.

[0041] In another embodiment the interacting instrumented member further comprises an electrical stimulator, the electrical stimulator being further releasably connected to an extremity of the body or part thereof. In a preferred embodiment the electrical stimulator stimulates movement in the extremity of the appendage, the extremity being selected from the group consisting of a finger, a thumb, a hand, an elbow, a shoulder, a wrist, a toe, a foot, an ankle, a knee, and a hip. In a more preferred embodiment the stimulated movement results in a propriosensory effect in the individual. In a most preferred embodiment the stimulated movement results in a dermal tactile sensory effect or muscle sensory effect in the individual. In another alternative embodiment the interacting instrumented member comprises a member selected from the group consisting of a splint, a limb support, a hand support, a foot support, and a force-sensing treadmill.

[0042] In another embodiment, the invention provides a system for providing at least one force in at least one plane to a limb or extremety of an individual having a neurological condition, the force resulting in negating the force acting upon the limb or extremety due to gravity and allowing the individual to move the limb or extremety in a desired direction, the system comprising means for supporting the limb or extremety, a device for detecting the force of gravity acting upon the limb or extremety, and a device for negating the force of gravity acting upon the limb or extremety. In one embodiment, the system is a haptic system. In another embodiement, the force further results in allowing the individual to move the limb or extremety to a target site. In a preferred embodiment, the force is provided in at least two planes. In a more preferred embodiment, the force is provided in at least three planes. In another preferred embodiment, the force is provided in a plurality of planes.

[0043] In another embodiment, the system comprises a device for negating the force of gravity acting upon the limb or extremety having at least one degree of freedom. In another embodiment the device for negating the force of gravity acting upon the limb or extremety has at least one degree of freedom. In preferred embodiment the device for negating the force of gravity acting upon the limb or extremety has at least two degrees of freedom. In a more preferred embodiment, the device for negating the force of gravity acting upon the limb or extremety has at least three degrees of freedom. In a most preferred embodiment, the device for negating the force of gravity acting upon the limb or extremety has at least four degrees of freedom.

[0044] The invention also provides a system as recited above further comprising means for supporting the individual, the means selected from the group consisting of a chair, a bed, a back support, and a trunk support.

[0045] The invention also provides a system as recited above wherein the device for detecting the force of gravity acting upon the limb or extremety further comprises a power transfer medium coupled at one end to the device for detecting the force of gravity acting upon the limb or extremety and extending away from the system to a second end coupled to a computer prossesor.

[0046] The invention also provides a system as recited above wherein the device for negating the force of gravity acting upon the limb or extremety further comprises a power transfer medium coupled at one end to the device for negating the force of gravity acting upon the limb or extremety and extending away from the system to a second end coupled to a computer prossesor.

[0047] In one other embodiment, the system as recited above further comprises a device for detecting the force of gravity acting upon the limb or extremety and/or a device for negating the force of gravity acting upon the limb or extremety wherein the device is automated.

[0048] The invention also provides a method of training an individual having a neurological condition using the system as recited above. In one embodiment, the training results in the individual having improved motor neuron activity compared with the motor neuron activity prior to the training, the method of training comprising the steps of: (i) providing a system that provides at least one force in at least one plane to a limb or extremety of an individual having a neurological condition, the force resulting in negating the force acting upon the limb or extremety due to gravity and allowing the individual to move the limb or extremety in a desired direction, the system comprising means for supporting the limb or extremety, a device for detecting the force of gravity acting upon the limb or extremety, and a device for negating the force of gravity acting upon the limb or extremety; (ii) supporting a limb or extremety of the individual using the means for supporting; (iii) requiring the individual to move