EXERCISE SYSTEM AND METHOD FOR ITS USE

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ABSTRACT
An exercise system includes at least a first and second pivot pole assembly for supporting and stabilizing a person engaged in exercise. The pivot pole assemblies each include a base plate which is configured to rest on a floor during the use of the system, and a pole portion which is pivotally connected to the base portion by a universal joint. The assemblies may be configured so as to be connectable to one another, and such connection may be achieved through the bases and/or the poles. The system may incorporate weights attachable to the poles and/or may utilize compressible poles to provide an enhanced effect. Further disclosed are exercise programs incorporating the systems.
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CROSS-REFERENCE TO RELATED APPLICATION


FIELD OF THE INVENTION

[0002] This invention relates generally to exercise equipment, to methods for the use of the equipment, and for instructional programs which incorporate the equipment.

BACKGROUND OF THE INVENTION

[0003] It is often desirable to provide enhanced stability to persons participating in exercise programs including aerobic programs, strength training programs and physical rehabilitative programs. By enhancing user stability, risks of injury are reduced. Also, stabilizing a participant allows for a greater range of motion to be achieved in an exercise program. Many exercise devices such as treadmills, stair steppers, elliptical devices, ski trainers and the like include handgrips or other stabilizing devices. However, many other exercise devices do not include any type of stabilizing assembly. Exercise programs such as yoga, Pilates, calisthenics, aerobics and the like, generally do not rely upon use of any equipment; but, such exercises would also benefit from providing enhanced stability to their participants.

[0004] The prior art has implemented a number of systems for enhancing the stability of a person engaged in exercise. Some of such prior art approaches are disclosed in U.S. Pat. Nos. 5,759,139; 5,244,444; 4,249,727; 7,115,078 and 606, 747.

[0005] As will be explained in detail here, the present invention comprises a simple, easy to use, low cost and relatively lightweight exercise system which includes a pair of assemblies which can stabilize, and at least partially support, a user, through a large range of motions associated with various types of exercise. The system of the present invention is readily adaptable to a number of different users and may be easily configured for incorporation into a large variety of exercise programs. These and other advantages of the present invention will be apparent from the drawings, discussion and description which follow.

BRIEF DESCRIPTION OF THE DRAWINGS

[0009] FIG. 1 is a perspective view of one embodiment of pivot pole assembly which may be used in the present invention;

[0010] FIG. 2 is a perspective view of a detachable weight which may be incorporated into the present system;

[0011] FIG. 3 is a perspective view of an embodiment of the present invention where the base plates of two pivot pole assemblies are configured to be joinable;

[0012] FIG. 4 is an illustration of an embodiment of coupling member as used to join the pole portions of two pivot pole assemblies in accord with the present invention;

[0013] FIG. 5 is an illustration of another embodiment of coupling member which can be used to join two pivot pole assemblies in accord with the present invention;

[0014] FIG. 6 is an illustration of a resistance device which may be incorporated into the present invention;

[0015] FIG. 7 is a cross-sectional view of a portion of a longitudinally compressible pole which may be used in the present invention and;

[0016] FIG. 8 is an illustration of a member for selectively immobilizing the pole portion of the pivot pole assembly relative to the base portion thereof.

DETAILED DESCRIPTION OF THE INVENTION

[0017] The present invention is directed to exercise equipment and comprises a system of exercise equipment which is simple in construction, lightweight, portable and easy to use. As will be explained hereinafter, the system of the present invention may be utilized in conjunction with a variety of exercise programs ranging from high-intensity aerobics exercise to rehabilitative physical therapy programs directed to persons with limited mobility. The system of the present invention may be utilized on its own or in conjunction with other equipment such as treadmills, exercise balls, balance devices, stair steppers and the like.

[0018] The system of the present invention includes at least two pivot pole assemblies. One particular embodiment of pivot pole assembly is shown in FIG. 1 at reference numeral 10. The pivot pole assembly 10 includes a base plate 12 which is configured to rest on a floor or other support surface during the use of the invention. In the illustration of FIG. 1, the base plate 12 is a generally planar member having a rectangular shape; however, it is to be understood that the base plate may be otherwise configured. The base plate may be variously sized; however, in particular embodiments, the length of the base plate will be in the range of 10-20 inches, and its width will be in the range of 3-20 inches. In many instances, the base plate will include a nonslip material such as rubber, suction cups, or the like on at least its bottom surface.

[0008] The system may further include one or more weights which are affixable to the pole. The system may also include a resistance device associated with the base plate and the pole. In yet other instances, the system may include a device for selectively immobilizing the pole relative to the base plate. The pole may include handgrips, lanyards, reflective features and the like, and in some instances, the pole may be made to be detachable from the base plate. The device of the present invention may be used in a variety of exercise programs, and may be incorporated into a kit which includes instructional materials, additional exercise devices, training aids and the like.
In the FIG. 1 embodiment, the second portion of the assembly 10 is comprised of a pole 14 which is pivotally connected to the base portion 12 by a universal joint 16. In the illustrated embodiment, the universal joint 16 is a ball-and-socket joint. However, a universal joint is understood to mean a joint which allows for at least two axis movement of the pole 14 relative to the base plate 12, as is indicated by arrow A; and in that regard, it will be appreciated that a universal joint may be otherwise configured. For example, a universal joint may comprise a multi-hinge arrangement such as a dual yoke joint of the type used in a variety of mechanical applications. Likewise, the universal joint may be comprised of one or more living hinges. As is understood in the art, a living hinge is a hinge which includes no discrete parts which move relative to one another, but relies upon flexing and/or bending of a material, typically a polymeric material, to provide for a hinge action. Therefore, it is to be understood that the term “universal joint” is to be given an expansive interpretation so as to include all devices and members which allow for an action of the pole relative to the plate as is generally indicated by arrow A.

The pivot pole assembly 10 of FIG. 1 further illustrates other, optional, features of the present invention. For example, as is illustrated, the pole 14 includes a handgrip portion 18 at one end thereof, and this handgrip further includes a lanyard 20. Typically, the pole will have a length in the range of 3-5 feet, depending on the height of the user and/or the type of exercise being carried out. As is further illustrated in FIG. 1, the pole 14 has an adjustable length, and in this regard, it is configured as a telescoping pole which includes a locking ring 22 for selectively immobilizing the telescoping portions of the pole 14 relative to another. It is to be understood that other provisions may be made for altering the length of the pole. For example, a telescoping pole may include a detent mechanism comprised of a spring-loaded button operating in cooperation with a series of through holes for selectively immobilizing the pole at various lengths. In yet other instances, length adjustability may be achieved by the use of a number of discrete segments affixable to one another, as for example by threading. Yet other arrangements for providing length adjustability are contemplated within the scope of the present invention as are poles of fixed lengths.

In accord with another feature of the present invention, an optional, selectively positionable, weight 24 is shown in FIG. 1 as being attached to the pole. This weight, which is illustrated in greater detail in FIG. 2, comprises a hinged, dual segment member configured to fit around a portion of the length of the pole and to snap thereonto. As is understood in the art, further fastening mechanisms such as elastic bands, mechanical connectors and the like may be used to aid in retaining the weight. It is also to be understood that other configurations of weight may be used in the present invention. In some instances, the weight may be incorporated into the handgrip. Typically, the weight will be in the range of 1-5 pounds, but other variations are also contemplated. While use of a weight is not necessary in all instances, it has been found that inclusion of a weight can further enhance the utility of the invention by providing increased resistance thereby enhancing the beneficial effect of an exercise carried out using the present system.

As discussed above, the exercise system of the present invention includes two pivot pole assemblies, and in a typical implementation, the pivot pole assemblies will be generally identical. In a typical exercise program, a user will grasp one pivot pole assembly in each hand and execute a series of exercise movements which can include twisting, squatting, bending and the like. The assemblies may be positioned on either side of the user or they may be in front of the user, behind the user, or in some other combination of placements. The user may be standing or seated. As noted above, the system of the present invention may be used in combination with other exercise equipment, and in that regard, the user may be positioned on a treadmill, on a balance board, or on some other type of device. In some instances, the exercise system of the present invention may be used in an aquatic environment. It has been found that the system of the present invention can aid in maintaining a user’s balance, and can also be used to provide increased resistance and enhanced training.

In some instances, it may be desirable to couple the two pivot assemblies together for specific exercise programs. Referring now to FIG. 3, there is shown a first pivot pole assembly 26 and a second, generally similar, pivot pole assembly 28. Each pivot pole assembly includes a pole 30 coupled to a base plate 32 via a universal joint 34. In the FIG. 3 embodiment, the base plates 32a, 32b are configured so as to be mechanically interlockable, and in his regard may include coupling features which include corresponding dovetail tabs and recesses which enable the base plates to be locked together. Other coupling features, as is known in the art, such as hook-and-loop fasteners, may be similarly employed. As illustrated, the coupling features are disposed on two edges of each of the base plates; however, it is to be understood that all edges may be configured to include coupling features. Also, while coupling features are shown as being integral with the base plates, coupling may be also be accomplished by a separate member, such as a coupling bar, affixable to join the two plates together.

In other instances, it may be desirable to couple the pole portions of two pivot pole assemblies together, with or without coupling the bases, and such may be accomplished in various manners. For example, FIG. 4 shows a coupling 36 which is configured to couple two poles 38a, 38b portions of which are shown in FIG. 4) together. The coupling 36 includes a rigid center rod having pole engaging portions 40a, 40b at either end thereof. As illustrated, the coupling member 36 is a rigid member. However, in other instances, the coupling member may be a flexible member such as a length of chain, a hinged member, a jointed member or the like so as to allow for some further degree of motion between the coupled poles.

In yet other instances, the coupling member may be a resilient coupling member as is shown at reference numeral 42 in FIG. 5. The coupling member 42 of FIG. 5 includes a central, resilient portion 44 defined by a coil spring, and further includes couplers 46a, 46b for engaging the poles. The coupler of FIG. 5 may be configured so that the spring is replaceable. In this manner, the degree of resiliency of the coupling may be selectively adjusted. In yet other embodiments, the resilient portion may be comprised of a body of an elastomeric material such as synthetic or natural rubber. In still other instances, the resilient portion may be comprised of a hydraulic cylinder, a pneumatic cylinder, or any other such variable resistance device. The resilient portion of this connector may be exposed, as shown in the figure, or it may be enclosed in a telescoping or otherwise expandable sheath.

The couplers, 46a, 46b are configured to engage, and be retained by, the poles; and various mechanical arrange-
ments for doing so will be apparent to those of skill in the art. For example, the poles may include detent features such as lips or other protrusions which engage corresponding features on the couplers 46a, 46b. In some instances, the poles may include a series of holes, slots, or other such openings which are engaged by corresponding portions of the couplers. Furthermore, such coupling features may also be used to retain other members, such as the weights, illustrated in FIGS. 1 and 2, on the poles.

The coupling member may, in some instances, include one or more handgrips. These handgrips may be integral with, or separately attached to, the coupling member, and in some instances, they may be pivotable. These handgrips may be used with coupling members that have rigid central portions, as in FIG. 4 as well as with those that have flexible or resilient central portions. Also, the coupling member may include rigid portions as well as resilient portions. The couplers (40a, 40b in FIG. 4; 46a, 46b in FIG. 5) may also include a resilient body therein, and in this regard, will allow for relative motion of the central portion of the coupler in relation to the poles. Other such modifications will also be apparent to those of skill in the art.

Yet other modifications and variations of the exercise system of the present invention will be apparent to those of skill in the art. For example, FIG. 6 shows a portion of a pivot pole assembly 48 which incorporates a resistance device for increasing the resistance required to pivot the pole relative to the base plate. In the FIG. 6 embodiment, a pole 50 (a portion of which is illustrated) is coupled to a base plate 52 via a universal joint 54 as previously described. This mechanical arrangement will allow for pivotable action as described above. However, the assembly 48 of FIG. 6 further includes a resistance device comprised, in this instance, of four separate elastic cords 56a-56d which couple the pole 50 to the base plate 52. These elastic cords increase the amount of effort required to pivot the pole 50. Similar resistance could be achieved through the use of springs. Also, while four elastic members are shown, a larger or smaller number may be utilized. In yet other instances, resistance may be provided by other configurations known in the art. For example, resistance of the universal joint 54, itself, may be increased by various known methods such as inclusion of a frictional wedge into the joint, inclusion of a tightenable collar and the like.

As discussed above, the pole portion of the pivot pole assembly may be configured to be length adjustable. However, in accord with a further embodiment of the present invention, the pole portions may be made longitudinally compressible so that in the use of the device, the user may actively vary the length of the pole. Such may be accomplished by the use of telescoping joints, accordion pleated polymeric bodies and other such mechanical arrangements. Referring now to FIG. 7, there is shown a cutaway view of a portion of a longitudinally compressible pole 60 which may be utilized in the present invention. In the FIG. 7 illustration, the pole 60 is comprised of a first segment 62 and a second segment 64 which fit together in a telescoping relationship such that the first segment 62 is free to slide within the interior of the second segment 64. As further illustrated in FIG. 7, a coil spring 66 is disposed within the second segment 64 so that the spring 66 is compressed as the first segment 62 is advanced into the second segment 64. In this manner, the pole 60 is compressible and resilient in the longitudinal direction as indicated by arrow B. It is to be understood that other resilient bodies may be used in substitution for the coil spring 66 and these include bodies of polymeric material as well as mechanical arrangements such as hydraulic or pneumatic cylinders. Use of a longitudinally compressible pole further expands the exercise capabilities of the system of the present invention since such compressibility can allow a user to execute movements including squatting, bending, pushing and pulling, while further enhancing muscle tone. And the pole assembly which includes the longitudinally compressible pole may be used either singly or in combination with other pole assemblies in a variety of exercise programs.

In some instances, it may be desirable to immobilize the pole portion of the pivot pole assembly relative to the base portion. Such immobilization may be advantageous when the equipment is not in use, and also for some specific types of exercise or therapy. This may be readily accomplished by a number of relatively simple arrangements. FIG. 8 is an illustration of a base plate 68 and pole portion 70 of a pivot pole assembly further including a generally funnel shaped immobilizing device 72 which is disposed so as to prevent the pole 70 from pivoting relative to the base plate 68. The immobilizing device 72 fits onto the pole 70 and engages the base plate. When not in use, the immobilizing device 72 may be slid upward on the pole, and may be retained in place by a detent mechanism (not shown) as is known in the art. Other embodiments of immobilizing device including slideable pegs, pins, collars, and the like, will be readily apparent to those of skill in the art.

Other modifications and variations of the exercise system may be implemented. For example, in some instances, the pole portions, or at least a segment of the length of the pole portions, may be disengaged from the remainder of the pole assemblies. In this manner, the disengaged poles may be used for other purposes such as balance poles, trekking poles and the like. In such instances, the poles may include light-reflective tape, paint or other features thereupon to enhance their visibility. In yet other instances, the poles may include features such as cuffs, bands or the like which will allow them to be joined to arms, legs, or other portions of a user’s body.

Also within the scope of this invention are exercise programs which utilize the disclosed exercise system. Such programs may be implemented through use of a kit of materials which can include two or more of the pole assemblies together with instructional materials in the form of a printed manual, audio recording and/or video recording. Such exercise programs may include aerobic programs, strength building programs, as well as flexibility building programs including yoga, tai chi and the like. Such programs may also include rehabilitative programs such as physical therapy programs and occupational therapy programs.

Still other implementations of the present invention will be readily apparent to those of skill in the art in view of the teaching presented herein. The foregoing drawings, discussion and description are illustrative of some specific embodiments of the invention, but are not meant to be limitations upon the practice thereof. It is the following claims, including all equivalents, which define the scope of the invention.

1. An exercise system, said system comprising:
   a first and a second pivot pole assembly, each pivot pole assembly comprising: a base plate which is configured to rest on a floor during the use of the system, and a pole portion which is pivotally connected to the base portion by a universal joint; wherein said first and second pivot
pole assemblies are configured so that they may be mechanically coupled together.

2. The exercise system of claim 1, wherein said system is configured so that the base plate of the first pivot pole assembly may be mechanically coupled to the base plate of the second pivot pole assembly.

3. The exercise system of claim 1, further including a coupler for joining the pole portion of the first pivot pole assembly to the pole portion of the second pivot pole assembly.

4. The system of claim 3, wherein said coupler is a rigid coupler.

5. The system of claim 3, wherein said coupler is a resilient coupler.

6. The system of claim 3, wherein said coupler includes at least one handgrip associated therewith.

7. The exercise system of claim 1, wherein at least one of the pole portions of said first and second pivot pole assemblies is longitudinally compressible.

8. The exercise system of claim 7, wherein said longitudinally compressible pole includes a resilient element disposed and operable to bias said longitudinally compressible pole toward its noncompressed state.

9. The exercise system of claim 1, wherein length of at least one of said pole portions of said first and second pivot pole assemblies is adjustable.

10. The exercise system of claim 1, further including at least one weight which is affixable to the pole portion of at least one of said first and second pivot pole assemblies.

11. The exercise system of claim 1, wherein at least one of said first and second pivot pole assemblies includes a resistance device associated with the base portion and/or the pole portion thereof said resistance device being disposed and operable so as to provide a resistance to movement of said pole portion relative to said base portion.

12. The exercise system of claim 1, wherein in at least one of said first and second pivot pole assemblies, the pole portion thereof may be selectively immobilized relative to the base portion thereof.

13. The exercise system of claim 1, wherein said universal joint comprises a member selected from the group consisting of: a ball-and-socket joint, a double yoke joint, a living hinge, and combinations thereof.

14. The exercise system of claim 1, wherein in at least one of said first and second pivot pole assemblies, the pole portion is selectively detachable from the base portion.

15. The exercise system of claim 1, wherein in at least one of said first and second pivot pole assemblies, the pole portion includes a handgrip.

16. The exercise system of claim 1, further including a body of instructional material describing an exercise program which may be implemented with the use of the first and second pivot pole assemblies.

17. An exercise device comprising:
   a base plate which is configured to rest on a floor during the use of the system; and
   a longitudinally compressible pole portion which is pivotally connected to the base plate by a universal joint.

18. An exercise system which comprises two of the exercise devices of claim 17.

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