WEARABLE RESISTANCE EXERCISE APPARATUS AND METHOD

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Appl. No.: 11/375,829
Filed: Mar. 16, 2006

Publication Classification

Int. Cl.
A63B 21/02 (2006.01)

A wearable resistance exercise apparatus comprises at least one pulley, a cable coupled to the at least one pulley, at least one handle located at the end of the cable and adapted to be gripped by a user, and a wearable support member, wherein the at least one pulley is located on the wearable support member. A tension adjusting device on the wearable support member allows for varying levels of resistance to be set. The apparatus is worn by a user wishing to perform resistance exercises. The user establishes a level of resistance desired for the exercises by manipulating the tension adjusting device. Exercises are performed by gripping the handle and pulling it in a manner intended to stimulate muscle building.
WEARABLE RESISTANCE EXERCISE APPARATUS AND METHOD

FIELD OF THE INVENTION

[0001] This invention relates generally to resistance exercise equipment and, more particular, to a wearable resistance exercise apparatus that employs a resistance pulley system and that can be used to perform resistance exercises when in position on a wearer.

BACKGROUND OF THE INVENTION

[0002] Resistance exercise equipment is a popular tool used for conditioning, strength training, muscle building, and the like. Various types of resistance exercise equipment are known, such as free weights, exercise machines, and resistance exercise bands or tubing. Various limitations exist with the prior art exercise devices. For example, many types of exercise equipment, such as free weights and most exercise machines, are not portable. With respect to exercise bands and tubing, they may need to be attached to a stationary object, such as a closed door or a heavy piece of furniture. This becomes a problem when, for example, the user wishes to perform resistance exercises in a location where such stationary objects are not readily found, such as outdoors. For the prior art devices that do not need to be attached to stationary objects, such as other types of bands or tubing, such prior art systems typically provide only one level of resistance. This is a disadvantage for a user who wishes to increase or decrease the level of resistance for the user’s resistance exercises. For such users, it becomes necessary to acquire more than one set of resistance exercise bands or tubing.

[0003] A need therefore exists for resistance exercise equipment that is portable, that may be used on its own without the need to employ other types of equipment, and that allows for adjustable resistance levels.

[0004] The present invention satisfies these needs and provides other, related advantages.

SUMMARY OF THE INVENTION

[0005] In accordance with an embodiment of the present invention, a wearable resistance exercise apparatus is disclosed. The apparatus comprises, in combination: at least one pulley; a cable coupled to the at least one pulley; at least one handle located at the end of the cable and adapted to be gripped by a user; and a wearable support member, wherein the at least one pulley is located on the wearable support member.

[0006] In accordance with another embodiment of the present invention, a wearable resistance exercise apparatus is disclosed. The apparatus comprises, in combination: a first pulley and a second pulley; a first cable and a second cable, wherein the first cable is coupled to the first pulley and the second cable is coupled to the second pulley; a first handle and a second handle, wherein the first handle is located at the end of the first cable and adapted to be gripped by a user and the second handle is located at the end of the second cable and adapted to be gripped by a user; and a wearable support member comprising a vest, wherein the first pulley and the second pulley are located on the wearable support member.

[0007] In accordance with a further embodiment of the present invention, a method for exercising at least a portion of an upper body of a user is disclosed. The method comprises: providing a wearable resistance exercise apparatus comprising, in combination: at least one pulley; a cable coupled to the at least one pulley; at least one handle located at the end of the cable and adapted to be gripped by a user, and a wearable support member, wherein the at least one pulley is located on the wearable support member; positioning the wearable support member on a user’s upper body; positioning the at least one pulley on a posterior portion of the user’s upper body; and performing an exercise by the user grasping the at least one handle and the user pulling the at least one handle in a manner intended to stimulate muscle building.

BRIEF DESCRIPTION OF THE DRAWINGS

[0008] FIG. 1 is a front view of a wearable resistance exercise apparatus, consistent with an embodiment of the present invention.

[0009] FIG. 2 is a back view of the exercise apparatus of FIG. 1.

[0010] FIG. 3 is front view of a pulley device, consistent with an embodiment of the present invention.

[0011] FIG. 4 is a front, perspective, mirror image view of the pulley device of FIG. 3.

[0012] FIG. 5 is a cross-sectional view of a tension adjusting device, consistent with an embodiment of the present invention.

[0013] FIG. 6 is a bottom view of the pulley device of FIG. 4.

[0014] FIG. 7 is a bottom view of the pulley device of FIG. 4, with a portion thereof being shown in phantom.

[0015] FIG. 8 is a top view of the pulley device of FIG. 4.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0016] Referring first to FIGS. 1 and 2, an embodiment of a wearable resistance exercise apparatus 10 consistent with an embodiment of the present invention is shown. In this embodiment, the exercise apparatus includes the following main components: two pulley devices 20, cables 22 which are coupled to the pulley devices 20, handles 24 which are coupled to the ends of the cables 22, and a wearable support member 12, to which the pulley devices 20 are attached. In this embodiment, the exercise apparatus 10 further includes tension adjusting devices 30, which are coupled to the front of the wearable support member 12. Also in this embodiment, the wearable support member 12 includes front closures 14.

[0017] In this embodiment, the wearable support member 12 is a vest. However, other forms of wearable support members, such as jackets, jumpsuits, or the like may be used. Preferably, the wearable support member 12 is composed of a heavy duty material, so that use of the pulley devices 20 as herein described do not cause the wearable support member 12 to stretch, sag or tear. Preferably, the wearable support member 12 has front closures 14, so that it may be remain securely in position on a wearer during use of the exercise apparatus 10. It may be desired to use side or back closures in addition to or instead of the front closures 14.
In one embodiment, the handles 24 are attached to the cables 22 with fasteners, such as a snap hooks or carabiners. It may be desired to use hollow handles, which may be slipped over the cables 22.

Referring now to FIGS. 3 and 4 and FIGS. 6-8, an embodiment of a pulley device 20, consistent with an embodiment of the present invention is shown. In this embodiment, the pulley device 20 includes a backplate 26 having a plurality of openings (not shown) through which coupling members 28, such as bolts, may be inserted in order to couple the pulley device 20 to the wearable support member 12 (as best seen in FIG. 2). Preferably, the backplate 26 is composed of a rigid material, such as metal, so that it is capable of supporting the weight of the pulley device 20. A tension cable 32 extends from the pulley device 20 to a tension adjusting device 30 (as best seen in FIG. 1).

In this embodiment, the tension adjusting devices 30 are positioned on the front of the wearable support member 12. In this way, the user may rotate the pulley device 20 to adjust tension without removing the wearable support member 12 by rotating the tension adjusting devices 30. However, it may be desired to position the tension devices 30 elsewhere, such as on the back of the wearable support member 12.

Referring now to FIG. 5, the structure of an embodiment of a portion of an exercise apparatus 10 is shown, with particular attention to the tension adjustment feature. A worm screw 34 is provided, with the worm screw 34 being rotatable by a turning of its corresponding tension adjusting device 30 (not shown), with the rotation being communicated through tension cable 32 (not shown). Rotation of the worm screw 34 alters the load on the load spring 36. Where it is desired to increase resistance, the tension adjusting device 30 should be turned in the direction that will cause increased load on the load spring 36. To decrease resistance, rotation should occur in the opposite direction.

An increase in load on the load spring 36 causes anterior movement of a clutch plate 38, which provides increased tension on the corresponding pulley device 20. This will create increased resistance for the user. A decrease in load on the load spring 36 causes posterior movement of a clutch plate 38, which provides decreased tension on the corresponding pulley device 20. This will create decreased resistance for the user.

While the invention has been particularly shown and described with reference to the preferred embodiment thereof, it will be understood by those skilled in the art that the foregoing and other changes in form and details may be made therein without departing from the spirit and scope of the invention. For example, it may be desired for the wearable support member 12 to include only one pulley device 20 to which two handles 24 are attached. It may also be desired for the wearable support member 12 to include only one pulley device 20 to which only one handle 24 is attached. In this latter embodiment, a user would be required to either grasp the single handle 24 with both hands, or exercise using one hand at a time.

I claim:
1. A wearable resistance exercise apparatus comprising, in combination:
   at least one pulley;
   a cable coupled to the at least one pulley;
   at least one handle located at the end of the cable and adapted to be gripped by a user; and
   a wearable support member, wherein the at least one pulley is located on the wearable support member.
2. The apparatus of claim 1 comprising two pulleys, each having a cable with a handle.
3. The apparatus of claim 1, wherein the wearable support member is a vest.
4. The apparatus of claim 3, wherein the vest has at least one closure located on an anterior portion of the vest.
5. The apparatus of claim 1 further comprising a tension adjusting device coupled to the at least one pulley.
6. The apparatus of claim 5, wherein the tension adjusting device is activatable from a position that is remote from the pulley.
7. A wearable resistance exercise apparatus comprising, in combination:
   a first pulley and a second pulley;
   a first cable and a second cable, wherein the first cable is coupled to the first pulley and the second cable is coupled to the second pulley;
   a first handle and a second handle, wherein the first handle is located at the end of the first cable and adapted to be gripped by a user and the second handle is located at the end of the second cable and adapted to be gripped by a user; and
   a wearable support member comprising a vest, wherein the first pulley and the second pulley are located on the wearable support member.
8. The apparatus of claim 7, wherein the vest has at least one closure located on an anterior portion of the vest.
9. The apparatus of claim 7 further comprising a first tension adjusting device and a second tension adjusting device, wherein the first tension adjusting device is coupled to the first pulley and the second tension adjusting device is coupled to the second pulley.

10. The apparatus of claim 9, wherein the first tension adjusting device is activatable from a position that is remote from the first pulley and the second tension adjusting device is activatable from a position that is remote from the second pulley.

11. A method for exercising at least a portion of an upper body of a user, comprising:

- providing a wearable resistance exercise apparatus comprising, in combination:
  - at least one pulley;
  - a cable coupled to the at least one pulley;
  - at least one handle located at the end of the cable and adapted to be gripped by a user; and
  - a wearable support member, wherein the at least one pulley is located on the wearable support member;

- positioning the wearable support member on a user's upper body;

- positioning the at least one pulley on a posterior portion of the user's upper body; and

- performing an exercise by the user grasping the at least one handle and the user pulling the at least one handle in a manner intended to stimulate muscle building.

12. The method of claim 11, wherein the apparatus comprises two pulleys, each having a cable with a handle.

13. The method of claim 11, wherein the wearable support member is a vest.

14. The method of claim 13, wherein the vest has at least one closure located on an anterior portion of the vest.

15. The method of claim 1 further comprising a tension adjusting device coupled to the at least one pulley.

16. The method of claim 15, wherein the tension adjusting device is activatable from a position that is remote from the pulley.

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