SYSTEM AND METHOD FOR PROVIDING A COMPOUND FUNCTION STATIC EXERCISE MACHINE WITH FEEDBACK INFORMATION

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ABSTRACT

An exercise system including a singular piece of exercise equipment that provides structure for at least two static exercises to be performed by a user using the equipment specific to a certain muscle group, the equipment is configurable to provide a proper body positioning of the user during both a primary and a secondary force threshold experienced by the user while performing distinct exercises associated with at least each of the at least two static exercises, a measuring device to determine a force applied by a user, and a visual feedback system to display the force applied when performing the at least two static exercises. A method is also disclosed.
FIG. 5

FIG. 6
FIG. 32

Providing a singular piece of exercise equipment used to perform at least two static exercises directed at a certain muscle group

Configuring the equipment to provide a proper body positioning of the user during both a primary and a secondary force threshold experienced by the user while performing the at least two static exercises

Measuring a force applied by a user while performing the at least two static exercises

Displaying the force applied when performing the at least two static exercises

Circumventing a weak link of a muscular system of the user with the at least two static exercises

FIG. 33

Providing a singular piece of exercise equipment used to perform a pre-exhaustion exercise and a finishing exercise directed at a certain muscle group

Configuring the equipment to provide a proper body positioning of a user during both the pre-exhaustion exercise and finishing exercise

Measuring a force applied by the user while performing the at least two static exercises

Displaying the force applied when performing the pre-exhaustion exercise and finishing exercise

Communicating the measured force applied to a display used for displaying with a wired connection and/or wireless connection
SYSTEM AND METHOD FOR PROVIDING A COMPOUND FUNCTION STATIC EXERCISE MACHINE WITH FEEDBACK INFORMATION

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This application claims the benefit of U.S. Provisional Application No. 61/546,301 filed on Oct. 12, 2011, and incorporated herein by reference in its entirety.

BACKGROUND OF THE INVENTION

[0002] Embodiments relate generally to exercise equipment and, more particularly, to a system and method for providing immediately visually communicating forces applied during exercising during exercising that apply a primary and a secondary force threshold to an individual.

[0003] Static exercise, which is a form of exercise where muscles are exerted at high intensities without movement of the joints, is not a new exercise concept. In its traditional format, it is known generally as isometric exercise, which is a form of exercise in which one’s muscles are used in opposition with other muscle groups, to increase strength, for bodybuilding, physical fitness, or strength training. Static exercise is often applied with maximum effort for brief efforts, such as for approximately 15 to 20 seconds. However, the Inventor has discovered that its traditional brevity and abrupt force application actually increases dangers and lowers benefit to individuals. Such dangers include bodily injury, such as muscle strain, rapid rise in blood pressure, too rapid a strain on an individual, etc., where some of these conditions may result in additional negative medical conditions occurring, based on a condition of the individual doing the 15 to 20 second exercise. Therefore, allusions to isometric exercise are actually minimized.

[0004] This mild association to traditional isometric exercise is further realized since many static exercises are generally attempted with equipment specifically designed for isometric exercises. More specifically, the Inventor has learned that various isometric exercise equipment, some of which has been identified as static exercise equipment, does not provide for a proper body positioning and an arrest of reactionary forces. For example, when performing a pullover, a downward force of the arms is counter-forced by an upward force, or reactionary force, on a user’s pelvis. Hence, a seatbelt is applied around the pelvis to arrest this force. Furthermore, the prior art is not made to specifically incorporate a pre-exhaustion effect when exercising.

[0005] Thus, makers of exercise equipment and individuals wishing to perform static exercises would benefit from equipment that ensures proper body positioning and arrest of reactionary forces during both a primary and a secondary force threshold where such information is immediately communicated to the individual performing the equipment and/or an individual monitoring the performance.

BRIEF DESCRIPTION OF THE DRAWINGS

[0006] A more particular description briefly stated above will be rendered by reference to specific embodiments thereof that are illustrated in the appended drawings. Understanding that these drawings depict only typical embodiments and are not therefore to be considered to be limiting of its scope, the embodiments will be described and explained with additional specificity and detail through the use of the accompanying drawings in which:

[0007] FIG. 1 depicts an embodiment of a user performing a primary exercise of a pre-exhaustion sequence on a pull-over/pulldown static exercise machine;

[0008] FIG. 2 depicts an embodiment of a user performing a pull down exercise on the pullover/pulldown static exercise machine;

[0009] FIG. 3 depicts another embodiment of an aspect of the pullover/pulldown machine;

[0010] FIG. 4 depicts another embodiment of an aspect of the pullover/pulldown machine;

[0011] FIG. 5 illustrates an embodiment of information that may be displayed;

[0012] FIG. 6 illustrates another embodiment of information that may be displayed;

[0013] FIG. 7 depicts another embodiment of an aspect of the pullover/pulldown machine;

[0014] FIG. 8 depicts another embodiment of an aspect of the pullover/pulldown machine;

[0015] FIG. 9 depicts an embodiment of a multi-exercise machine used to perform a static neck extension exercise;

[0016] FIG. 10 depicts an embodiment of the multi-exercise machine used to perform a static neck flexion exercise;

[0017] FIG. 11 depicts an embodiment of the multi-exercise machine used to perform a static compound row exercise;

[0018] FIG. 12 depicts an embodiment of the multi-exercise machine used to perform a static abdominal exercise;

[0019] FIG. 13 depicts an embodiment of a multi-exercise machine;

[0020] FIG. 14 depicts an embodiment of the multi-exercise machine used to exercise a certain muscle group;

[0021] FIG. 15 depicts an embodiment of the multi-exercise machine used to exercise another certain muscle group;

[0022] FIG. 16 depicts an embodiment of the multi-exercise machine used to exercise another certain muscle group;

[0023] FIG. 17 depicts an embodiment of the multi-exercise machine used to exercise another certain muscle group;

[0024] FIG. 18 depicts an embodiment of the multi-exercise machine used to exercise another certain muscle group;

[0025] FIG. 19 depicts an embodiment of the multi-exercise machine used to exercise another certain muscle group;

[0026] FIG. 20 depicts an embodiment of the multi-exercise machine used to exercise another certain muscle group;

[0027] FIG. 21 depicts an embodiment of the multi-exercise machine used to exercise another certain muscle group;

[0028] FIG. 22 depicts an embodiment of the multi-exercise machine used to exercise another certain muscle group;

[0029] FIG. 23 depicts an embodiment of the multi-exercise machine used to exercise another certain muscle group;

[0030] FIG. 24 depicts an embodiment of the multi-exercise machine used to exercise another certain muscle group;

[0031] FIG. 25 depicts an embodiment of the multi-exercise machine used to exercise another certain muscle group;

[0032] FIG. 26 depicts an embodiment of the multi-exercise machine used to exercise another certain muscle group;

[0033] FIG. 27 depicts an embodiment of the multi-exercise machine used to exercise another certain muscle group;

[0034] FIG. 28A depicts an illustration of an embodiment of a static chest exercise machine;

[0035] FIG. 28B depicts another illustration of an embodiment of the status chest exercise machine;
FIG. 29 depicts an embodiment of a static hip adduction/abduction machine;
FIG. 30 depicts an embodiment of a static leg extension machine;
FIG. 31 depicts an embodiment of a leg press machine;
FIG. 32 depicts a flowchart illustrating a method for providing a compound function static exercise machine with feedback information;
FIG. 33 depicts another flowchart illustrating another method for providing a compound function static exercise machine with feedback information; and
FIG. 34 depicts a block diagram illustrating communication of components within the exercise machine.

DETAILED DESCRIPTION OF THE INVENTION

Embodiments are disclosed below initially with respect to a pullover/pull down exercise machine and then other machines, or exercise systems. However, other static, computer-feedback, pre-exhaustion devices are possible using the same inventive elements as disclosed herein. Such other exercise machines may include, but are not limited to, Lateral Raise/Overhead Press (two exercises), Chest Fly (Horizontal Shoulder Adduction/Chest Press (two exercises), Hip Adduction/Hip Abduction/Leg Press (three exercises), Pullover/Pull Down/Lateral Raise/Overhead Press (four exercises), Neck Extension/Neck Flexion/Compound Row (three exercises), Knee Extension/Knee Flexion (two exercises), etc., a few of which are also discussed in detail herein. However, even if not expressly illustrated, those skilled in the art will readily recognize the inventive aspects disclosed herein are also applicable to other pieces of exercise equipment. Thus, though the pullover/pull down exercise machine may be described as a single pre-exhaustion (where two exercises are possible), double and/or triple pre-exhaustion sequences are possible with other similarly designed machines. Furthermore, it is evident that each exercise system disclosed herein has a physical structure which supports the system upon the ground and a user using the system, in various forms.

The Inventor has also determined that proper application of static exercise requires a sustained and graduated effort of about 90 to 120 seconds duration. In addition, special equipment specific for static exercising ensures proper body positioning and an arrest of reactionary forces where effort may be subjectively gauged. As a non-limiting example, effort may be subjectively gauged with multi-stage schemes such as 30 seconds at moderate (~50%) effort, directly and immediately ramping to 30 seconds at ~90% effort, and then directly and immediately ramping to 100% for a final 30 seconds.

Although equipment for performing static exercise presently exists, it does not incorporate the specific enhancements previously described with both primary and secondary force thresholds, and there may be justification for multiple thresholds for display to a user of the equipment. A compound exercise device, one that provides for exercising more than one muscle group, organizes the forces experienced by a user in a manner to facilitate instant (3-5 seconds) transition from a primary (pre-exhaustion) exercise to a secondary (finishing) exercise to circumvent (or emphasize) the weak link(s) of a muscular system.

FIG. 1 shows a user 10 performing a pullover static effort at a mid-range position of positive shoulder extension. This effort directly loads the prime movers of the user’s upper arms, the latissimus dorsi, and the chest musculature. It also loads other stabilizing structures of the trunk, such as the abdominals. Once these primary movers are fatigued, because this is a pre-exhaustion sequence, the user then immediately reaches and applies effort as shown in FIG. 2, using fresh arm and forearm muscles, to fatigue the collective system deeply and thoroughly.

More specifically, as illustrated in FIG. 2, the user 10 performs a Pull Down exercise. This exercise addresses more upper-body muscle mass than is possible in any other exercise; however, it possesses the severe weak link of the gripping muscles. The muscles of the hands and forearms will fatigue well before the stronger, more generally beneficial muscles of the trunk. As explained above, a solution to this is to apply the pre-exhaustion technique as disclosed above with respect to FIG. 1. Such a pre-exhaustion sequence as described above is a forward performance, which involves, pre-exhausting a stronger structure(s) on the user to circumvent a weak link on the user so that the weak link can perform on par with the stronger structure(s) during a secondary exercise. A reverse pre-exhaustion is also possible if so desired for a different emphasis, where pre-exhaustion involves first pre-exhausting the weak link of the user to emphasize its fatigue before performing the secondary exercise.

As further illustrated with respect to FIGS. 1 and 2, the pullover/pulldown exercise machine 12 has a seat 13 upon which the user sits. A gate 14, comprising a pad 15 which is used when performing the pullover, is provided upon which the user may place her arms to perform the pullover exercise. As illustrated in FIG. 3, the gate 14 that supports the pullover pads 15 may be removed to allow the user 10 to select an ideal position for the pulldown exercise.

As illustrated further in FIG. 4, the gate 14 may also facilitate an exit (egress)/entry for the user, such as, but not limited to, at the front of the frame. As is also illustrated, a computer/monitor/display or visual feedback system 20 is provided. The visual feedback system 20 may be located so that the user may view an amount of force applied during each exercise. Those skilled in the art will recognize that while it appears as though only a monitor 22 or display is illustrated, the display/monitor 22 may comprise a processor 24 or the processor may be located remote from the display 22 and have a wired and/or wireless connection to the display 22. Thus the use of the display 22 or monitor herein is provided to also mean the processor 24 hence the term visual feedback system is used. The display 22 may be viewable by an observer, such as, but not limited to, a therapist or observer. In a non-limiting example, the display 22 may be provided where it may be pivoted to a desired location depending on whether the user or observer is observing the display. Depending on the type of exercise equipment 12 since viewing the display may interfere with actually using the equipment, the display 22 may be pivoted to allow entry and egress from the exercise equipment 22. Thus, with respect to the illustrated pullover/pull down machine 12, the computer/monitor 20 may be swung outwardly to remove it from obstruction entry/exit by the user 10.

The term exercise equipment 12 is used to cover all exercise machines or pieces of equipment disclosed herein, and any other which use the invention disclosed herein. Thus, the term exercise equipment and/or exercise machine shall not be viewed as limited to the embodiments disclosed.
FIGS. 5 and 6 illustrate an embodiment of information that may be displayed. The visual feedback system 20 displays to the user the exact force level, such as in pounds-force (not effort) produced. Thus, the user 10 is able to gradually increase force to approach and maintain a visible force threshold, or primary threshold. The user’s recorded performance time may be lengthened or shortened against a higher or lower force threshold. The threshold is always placed at a safe margin from the user’s maximum (most dangerous) force output. Also, a secondary threshold is optionally incorporated, such as, but not limited to, a pain threshold. This allows for illustrating to the user, and/or observer the exact force level where pain is just slightly encountered so that safety is maintained during therapy. In addition, it provides recovery information as the pain threshold moves up or down for improvement assessments of the user. All of this information is saved and stored for retrieval and comparison during subsequent exercise sessions by the user.

FIG. 5 shows results from a user that exercised with the pullover/pull down as described above. The vertical axis 26 is force (pounds-force) and the horizontal axis 28 is time (in seconds). In a first half 30 of the display, the user 10 performs the pullover exercise. The line 32 illustrating force is displayed real-time or nearly real-time to the user 10. Visible is the user’s gradual build to a target force where the target force is sustained with a relative “flattens” to deserve a graduation during the user’s next exercise session. As explained above, the user quickly moves to the pull down exercise, where the transition 34 is visible at mid-christ by the sudden decrease in force. The user gradually builds to the target force without spiking above the target. Further illustrated is moderate dyskinesia which is indicated with a darkened and wider-amplitude line 36. This is evident that the user’s nervous system is being affected in such a way that the nervous firing rate is not balanced against the momentary need of the motor units (pulse modulation). The line 36 is somewhat smoother, and is less erratic, as load time increases.

FIG. 6, as a non-limiting example, the user is a stroke patient who performs the pull down exercise for an entire 180 seconds. Near the end 40 of the timed exercise, this user 10 loses nervous contact with the user’s muscles. The user’s goal is to be able to sustain the force throughout the bout. Note that in this case the weight of the patient’s arm has been tared, such as, but not limited to, reduced to no weight at all, so that an instructor or therapist can know exactly what the force is from only the muscles.

Also visible in FIG. 4 is a measuring device, such as at least one load cell 42. A non-limiting example of the measuring device 42 is an S-beam load cell. The measuring device is used to determine a force being applied by the user 10. As the user 10 applies force, the at least one load cell 42 measures the force and provides the read force to the processor 24, by way of a signal, for viewing on the monitor 22. Although the term “load cell” is used herein to cover any device which can measure a force, this term is not meant to be limiting. It is intended to cover any device which may measure force and communicate it to the processor 24 for eventual display of the force, in any form desired, on a monitor 22. Thus, the load cell 42 may be a transducer which can convert force into an electrical signal or another equivalent device.

The pullover/pull down machine 12 further may provide a seat-height adjustment mechanism that, in this case, may also serve to angle the user’s degree of shoulder extension as the upper arms are placed on the pullover exercise pads. Doing so ensures proper body positioning of the user. In addition, as illustrated in FIG. 7, a pull down handle 44 is vertically adjustable to accomplish the same height adjustment and handle adjustment in this exercise equipment.

As is further illustrated in FIG. 8, a damping device 46, such as but not limited to, a knob, is provided to damp or reduce vibrations that may result from the pull-down-handle-adjustment tubes which may vibrate to the pull down handle and hence be felt by the user. Vibration usually occurs when dyskinesia is experienced. The vibration usually causes excessive noise with the telescoping handle adjustment tubes. The knob 46 dampens this to greatly quiet any rattling.

As discussed above, embodiments disclosed herein may be used with other exercise machines. As a non-limiting example, FIGS. 9-12 disclose illustrations of a static neck extension exercise machine 12. FIG. 10 discloses the exercise machine 12 being used for a static neck flexion exercise. The same machine 12 may be used to perform a static compound row exercise as depicted in FIG. 10. As depicted in FIG. 12, it is used to perform a static abdominal exercise. Load cells 42 may be utilized, such as the S-beam load cell, in a strap 66 which is used for the static neck flexion and extension exercises and as a part of the support structure of the machine 12 to measure load forces for the static compound row and static abdominal exercises. Though not illustrated, the visual feedback system 20 is also provided and located so the user can monitor the forces applied. The exercise machine 12 illustrated in FIGS. 9-12 may also be used for other exercises such as, but not limited to, static internal rotation of the shoulder, static external rotation of the shoulder, etc.

FIGS. 13-27 depict embodiments of a multi-exercise machine with a user performing numerous exercises which may be performed on this single piece of equipment in accordance with inventive aspects disclosed herein. The multi-exercise machine 12 may comprise the exercise equipment 12 illustrated in FIGS. 9-12. Though only a limited number of the exercises are illustrated, those skilled in the art can readily comprehend other exercises which may be performed. For this reason, not every exercise currently known by the Inventor is illustrated.

As illustrated in FIG. 13, the visual feedback system 20 is provided and is configured to be located at a location where the user may view information on the display 22. The monitor 22 or the complete visual feedback system 20 is attached to a mechanism 48 to allow it to be freely rotated to a viewable position by the user and/or instructor. As illustrated, a first vertical post 50 extends upward from the machine with a first horizontal bar 52 that extends from the post 50 towards the seat 14. A second horizontal bar 54 is connected to a distant end of the first horizontal bar 52 with a rotatable or pivotable connector 55. The second horizontal bar 54 has a second vertical post 57 that extends from an end of the second horizontal bar 54 further distant from the connector 55 and supports the visual feedback system 20. The visual feedback system 20 is rotatable, or pivotable about the second vertical post 57.

The adjustable (or configurable) seat 14 is also provided. The height of the seat may be adjusted with an adjusting mechanism 60. In another embodiment, the horizontal position of the seat may also be adjusted. A support pad 62 is also provided. The support pad 62 may be available to support a back or front of the user, depending on the exercise being performed which dictates which direction the user 10 is fac-
ing with respect to the support pad 62. In an embodiment, the height of the support pad 62 is adjustable with a second adjusting mechanism.

[0060] As is also illustrated, such as in FIG. 14, a first securing device 65, such as a seat belt-like device may be provided to ensure the user 10 remains stationary when in a sitting position. If an exercise requires the user’s legs to remain stationary in a certain portion, a second securing device 66 to hold the legs in position is also provided.

[0061] The second securing device 66 may also be used to exercise the neck muscles (see FIGS. 22-24), muscles associated with a torso (FIG. 26), and/or arm muscles (see FIGS. 15-21). Depending on the exercise performed, more than one second securing device 66 is provided. As a non-limiting example, when the user is exercising arms, two second securing devices 66 may be used, one for each arm, such as illustrated in FIGS. 16, 18 and 19. Furthermore, as illustrated in FIG. 16, the second securing device 66 may comprise a handle 67 for the user to grasp.

[0062] Respective vertical, or nearly vertical 70 posts as well as handles 72 are provided. These posts 70 and handles 72 are available to secure the second securing device 66 during a respective exercise and/or for the user to grasp while performing a certain exercise. The posts 70 may further comprise markings 74 so that the user may attach the second securing device 66 at a same location or position on posts 70 during successive performances of a particular exercise, such as illustrated in FIG. 19. The handles 72 may also be used as a location for the user 10 to grasp the exercise machine 12 during an exercise, such as illustrated in FIG. 17. The posts 70 and the handles 72 have at least one load cell 42 connected to a part of posts 70 and or handles 72 so that a load feedback may be determined and then displayed to the user 10.

[0063] In an embodiment, load cells 42 in communication with the posts 70 and handles 72 are only able to read feedback in one direction, or plane. Thus, when performing certain exercises, force feedback is not measurable. As a non-limiting example, when referring to FIG. 16, the load cells 42 are able to read force that may be applied in a front to back direction with respect to a linear relationship of the seat 14 and the pad 62 to the display 22. However, when the user applies pressure during an exercise that is counter to this direction, such as, but not limited to, being perpendicular, or near perpendicular the above linear relationship, force feedback is not able to be read. Thus, as a non-limiting example, no force is read with respect to the exercise being performed in FIG. 27. However, in another embodiment each handle 72 and/or post 70 may have more than one load cell 42 in communication with the handle 72 and/or post 70 so as to read force in a plurality of planes or directions. A controller may be provided to turn on or off the load cells 42 depending on the exercise performed and the load cell 42 that can read a load in the direction associated with the exercise.

[0064] FIGS. 28A and 28B depict an illustration of an embodiment of a static chest exercise machine. It may be a portable device with at least one load cell 42 and the visual feedback system (not shown). Even though not shown with respect to this particular exercise machine, the feedback system 20, as explained previously, is located at a location with respect to the user’s head so that the user may review information on the display while exercising. Handles 72 are also provided to make it easier to hold the exercise machine 12.

[0065] FIG. 29 depicts an embodiment of a static hip adduction/abduction machine. At least one load cell, such as but not limited to an S-beam load cell resides between the two thigh pads 77 for adduction and at least one load cell is resident in the second securing device 66 or belt that circumvents the thighs for abduction. An embodiment of the feedback system 20 is also depicted. The S-beam load cell 42 in the securing device 66 may also be used with the machines disclosed above in the other figure. A wireless or wired communication system may be provided to allow communication of information collected, typically real-time from the load cell to the visual feedback system.

[0066] For each of the exercises disclosed above with respect to a particular machine configuration, arrest of reactionary forces may be measured during both a primary and a secondary force threshold. This may be accomplished by the user performing at least two exercises where the forces applied by the user may be measured and displayed to the user. This may also be considered exercises which represent a compound function.

[0067] FIG. 30 discloses an embodiment of a Static Leg Extension machine. The seat and movement arm are not shown. This machine 12 has a weight stack 80 with only one plate 79 (the so-called “top plate” with no “bottom plates”) that has a “potential” stroke of only about ¼-inch. In either knee flexion or knee extension the user’s knee musculature places force against the centrally located S-Beam Load Cell 42 atop the weight. The load cell 42 is kept snug against an adjustable stop block 81, which, of course, eliminates its potential ¼-inch stroke. An embodiment of this design contains two stack pins 83 (weight stacks normally have one) which reciprocate in opposite directions from one another as they are in a closed circuit that begins at either stack pin 83, travels around a drive wheel 85, which is mounted concentrically to the movement arm and knee joint—and ends at the other stack pin. Steel cylinders 89 are mounted at the bottom of each stack pin 83 to provide minimal tension in the system as the position is optionally changed via a long movement arm handle (not shown).

[0068] With a selector pin engaging the forward (screen left) stack pin 83 as the knee is in the position of choice, a static force readout via a feedback monitor (not shown) is obtained for knee extension. For knee flexion, the rear stack pin is engaged. The adjustability of the stop cock allows for the use of either 2.5 or 3-inch tall S-Beam Load Cells 42. By avoiding engagement of both stack pins 83, the device can be used for knee lubrication in both knee flexion as well as in knee extension.

[0069] FIG. 31 depicts an illustration of an embodiment of a leg press exercise machine. Typically only a leg press exercise may be performed. However, if the intent of the exercise is to develop equal strength in both legs, the leg press exercise machine 12 may be used for a first leg for a given period and then immediately with a second leg for a given period where the measured forces are then displayed.

[0070] As illustrated, a seat 14 is provided. A support 91 is provided to keep the user’s torso in position (such as to prevent the user from rising from the seat). Both the seat 14 and support 91 are adjustable to best suit a height, or length of certain parts of a body, of the user. A pressboard 93 is provided. This is where the user places the user’s feet or feet and exerts a force. A force measuring device is provided, such as, but not limited to, behind the board to measure the force applied. The force is displayed on the monitor 22. In another embodiment, an optional feedback system for a timed static contraction (TSC) exercise is provided. TSC is where the user
contracts against an effectively immobile source of resistance. This is different than a static hold because when performing an exercise based on static hold, the user holds and attempts to hold resist a negative movement.

[0071] FIG. 32 depicts a flowchart illustrating an embodiment of a method for providing a compound function static exercise machine with feedback information. The method 102 in the flowchart 100 comprises providing a singular piece of exercise equipment used to perform at least two static exercises directed at a certain, or distinct, muscle group, at 104, and configuring the equipment to provide a proper body positioning of the user during both a primary and a secondary force threshold experienced by the user while performing the at least two static exercises, at 106. The method further comprises measuring a force applied by a user while performing the at least two static exercises, at 108, and displaying the force applied when performing the at least two static exercises, at 110. The method also comprises circumventing a weak link of a muscular system of the user with the at least two static exercises, at 112.

[0072] A first of one of the at least two static exercises is a pre-exhaustion exercise and a second one of the at least two static exercises is a finishing exercise. Displaying the force applied, at 110, further comprises displaying the force to the user and/or an observer while the user is applying the force. Additionally, playing the force applied is done in real time. The at least two static exercises are performed immediately in succession.

[0073] FIG. 33 depicts another flowchart illustrating another embodiment of a method. The method comprises providing a singular piece of exercise equipment used to perform a pre-exhaustion exercise and a finishing exercise directed at a certain muscle group, at 124, and configuring the equipment to provide a proper body positioning of a user during both the pre-exhaustion exercise and finishing exercise, at 126. The method further comprises measuring a force applied by the user while performing the at least two static exercises, at 128, and displaying the force applied when performing the pre-exhaustion exercise and finishing exercise, at 130. The method further comprises communicating the measured force applied to a display used for displaying with a wired connection and/or wireless connection, at 132. In an embodiment, the pre-exhaustion exercise and the finishing exercise are a singular exercise.

[0074] FIG. 34 depicts a block diagram illustrating communication of components. Though the following has been disclosed above, FIG. 34 illustrates how communication may occur. The measuring device 42, also referred to as the load cells above, is provided. Through either a wired connection 130 or a wireless connection 132, the measuring device 42 communicates its force readings to the visual feedback system 20 which displays the force information. In an embodiment, a controller 134 is also provided. The controller 134 may be activated to command which measuring device, when a plurality of measuring devices are available, provides force information to the visual feedback system. The controller 134 is connected to the measuring device 42 and may also be connected to the visual feedback system 20 so as to display which measuring device is or is not being used.

[0075] While embodiments has been described herein, it will be understood by those skilled in the art that various changes, omissions and/or additions may be made and equivalents may be substituted for elements thereof without departing from the spirit and scope of the invention. In addition, many modifications may be made to adapt a particular situation or material to the teachings of the invention without departing from the scope thereof. Therefore, it is intended that the invention not be limited to the particular embodiment disclosed as the best mode contemplated for carrying out this invention, but that the invention will include all embodiments falling within the scope of the appended claims. Moreover, unless specifically stated, any use of the terms first, second, etc., does not denote any order or importance, but rather the terms first, second, etc., are used to distinguish one element from another.

1. An exercise system comprising:
   a singular piece of exercise equipment that provides structure for at least two static exercises to be performed by a user using the equipment specific to a certain muscle group, the equipment is configurable to provide a proper body positioning of the user during both a primary and a secondary force threshold experienced by the user while performing distinct exercises associated with at least each of the at least two static exercises;
   a measuring device to determine a force applied by a user;
   and
   a visual feedback system to display the force applied when performing the at least two static exercises.

2. The exercise system according to claim 1, wherein a first of one of the at least two static exercises is a pre-exhaustion exercise and a second one of the at least two static exercises is a finishing exercise.

3. The exercise system according to claim 2, wherein the first exercise and the second exercise circumvent a weak link of a muscular system of the user.

4. The exercise system according to claim 1, wherein the structure for at least two static exercise is structure for a pre-exhaustion exercise.

5. The exercise system according to claim 1, wherein the visual feedback system further comprises a processor.

6. The exercise system according to claim 1, wherein the measuring device converts force into a signal and provides it to the visual feedback system.

7. The system according to claim 1, wherein the measuring device is a load cell.

8. The system according to claim 1, wherein the measuring device is in communication with the visual feedback system with a wired connection and/or a wireless connection.

9. The system according to claim 1, wherein the singular piece of exercise equipment further comprises handles and/or ports to provide for the singular piece of exercise equipment being used to exercise more than one of the certain muscle groups.

10. A method comprising:
    providing a singular piece of exercise equipment used by a user to perform at least two static exercises directed at a certain muscle group;
    configuring the equipment to provide a proper body positioning of the user during both a primary and a secondary
force threshold experienced by the user while performing the at least two static exercises; measuring a force applied by a user while performing the at least two static exercises; and displaying the force applied when performing the at least two static exercises.

13. The method according to claim 12, wherein a first of one of the at least two static exercises is a pre-exhaustion exercise and a second one of the at least two static exercises is a finishing exercise.

14. The method according to claim 12, further comprising circumventing a weak link of a muscular system of the user with the at least two static exercises.

15. The method according to claim 12, wherein displaying the force applied further comprises displaying the force to the user and/or an observer while the user is applying the force.

16. The method according to claim 12, wherein displaying the force applied is done in real time.

17. The method according to claim 12, wherein the at least two static exercises are performed immediately in succession.

18. A method comprising:
providing a singular piece of exercise equipment used to perform a pre-exhaustion exercise and a finishing exercise directed at a certain muscle group;
configuring the equipment to provide a proper body positioning of a user during both the pre-exhaustion exercise and finishing exercise;
measuring a force applied by the user while performing the at least two static exercises; and
displaying the force applied when performing the pre-exhaustion exercise and finishing exercise.

19. The method according to claim 18, wherein the pre-exhaustion exercise and the finishing exercise are a singular exercise.

20. The method according to claim 18, further comprising communicating the measured force applied to a display used for displaying with a wired connection and/or wireless connection.