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(54) **SPHERICAL HAND EXERCISER WITH
OFF-CENTER WEIGHTED CORE**

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(71) Applicant: **Jeffrey Scott Anderson**, Safety Harbor,
FL (US)

(72) Inventor: **Jeffrey Scott Anderson**, Safety Harbor,
FL (US)

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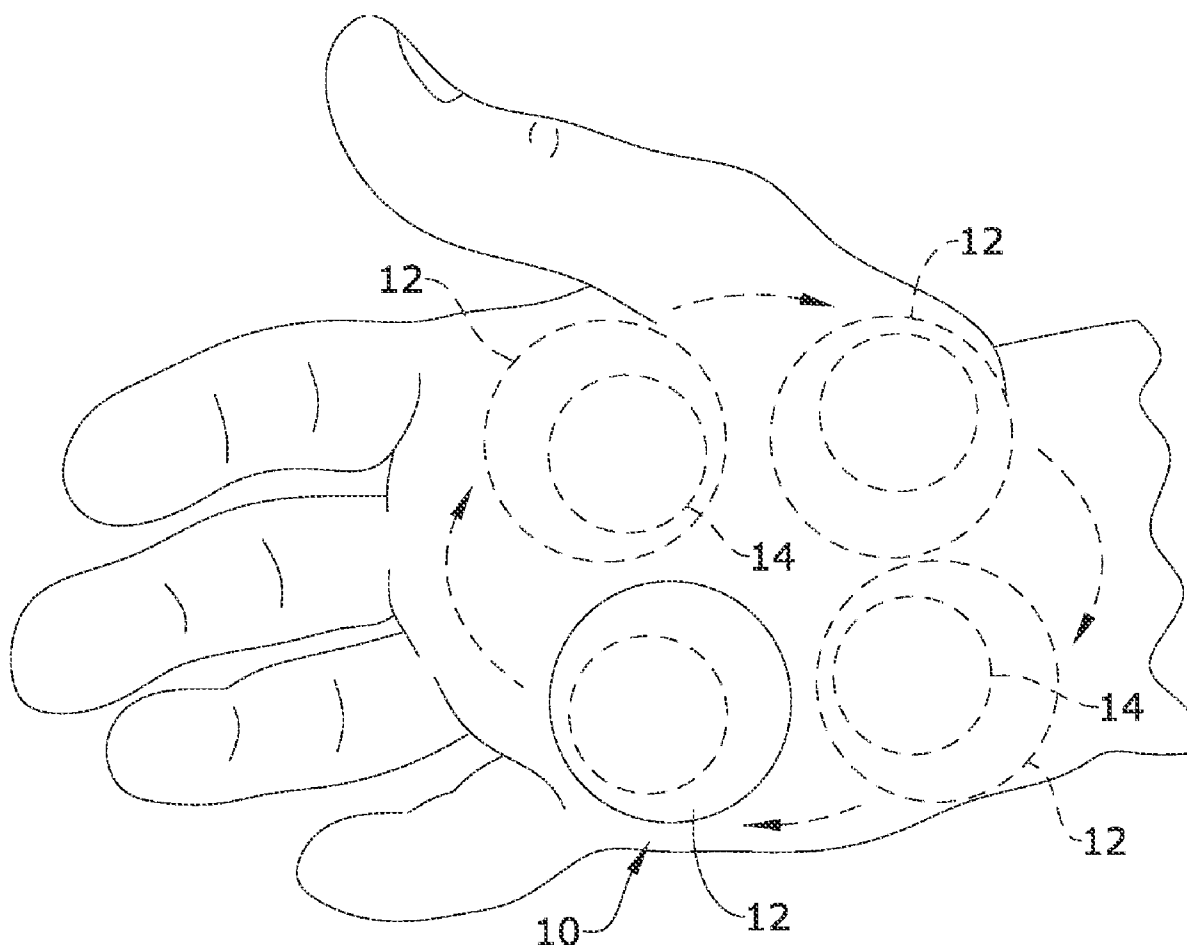
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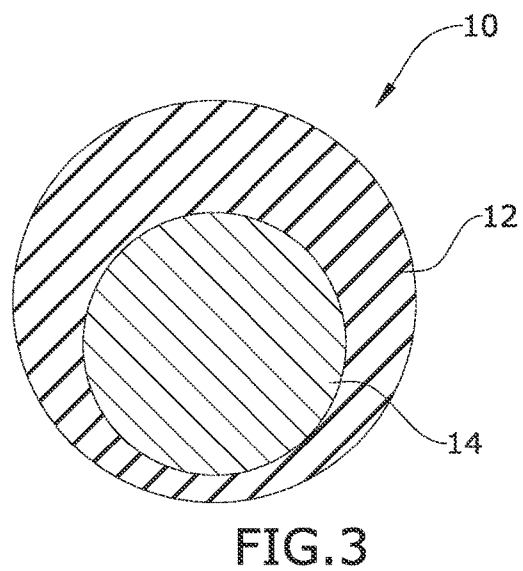
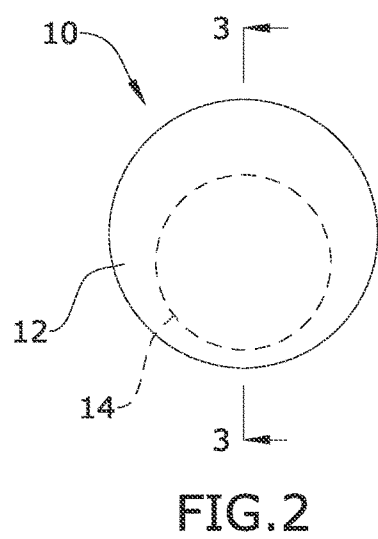
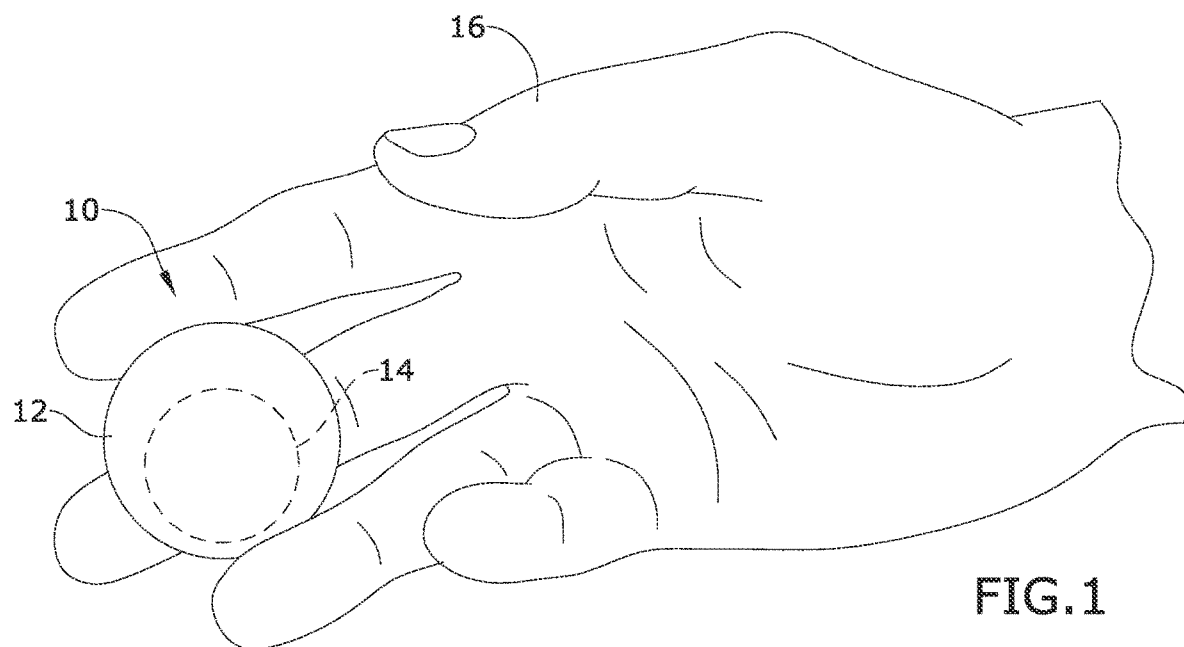
Related U.S. Application Data

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16, 2021.

ABSTRACT

A spherical hand exerciser has a resilient, non-slip exterior with an off-center cavity and a weighted core housed within the cavity. A method of performing physical therapy with the exerciser includes grasping at least one exerciser; and manipulating it around the hand and fingers. The offset placement of the weighted core works stabilizer muscles of the fingers, hand, wrist, and forearm during manipulation, increasing the synergy and workable range of motion of both the flexor and the extensor muscles, allowing for faster learning and better effects.





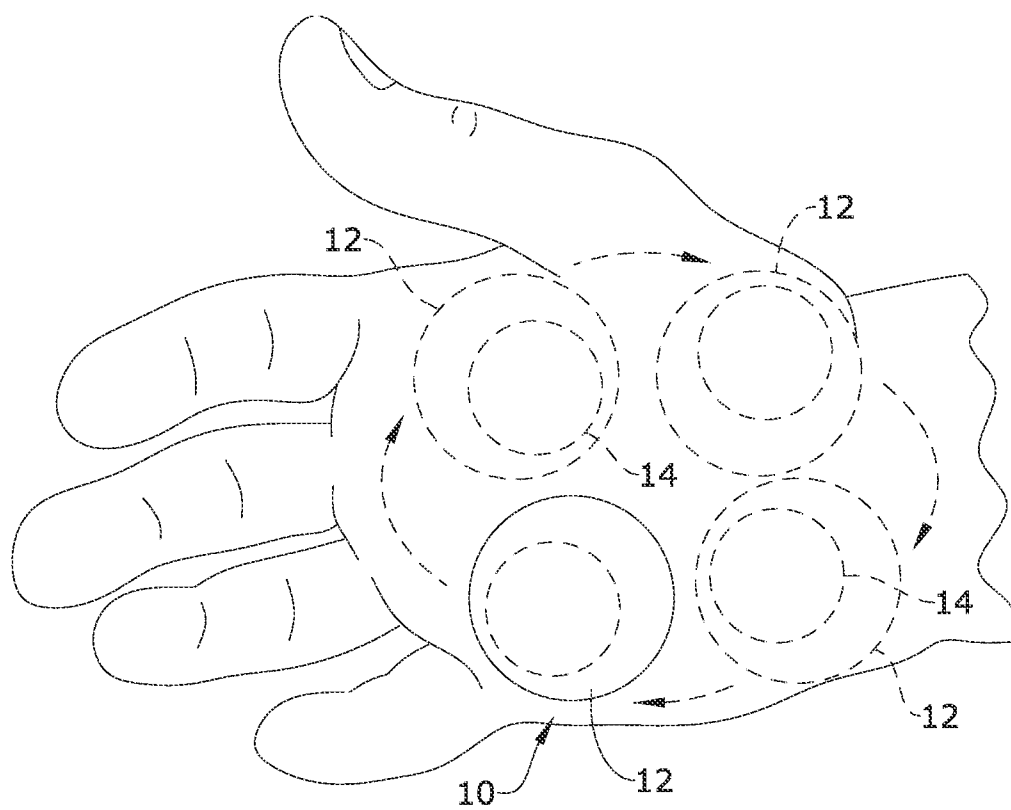


FIG. 4

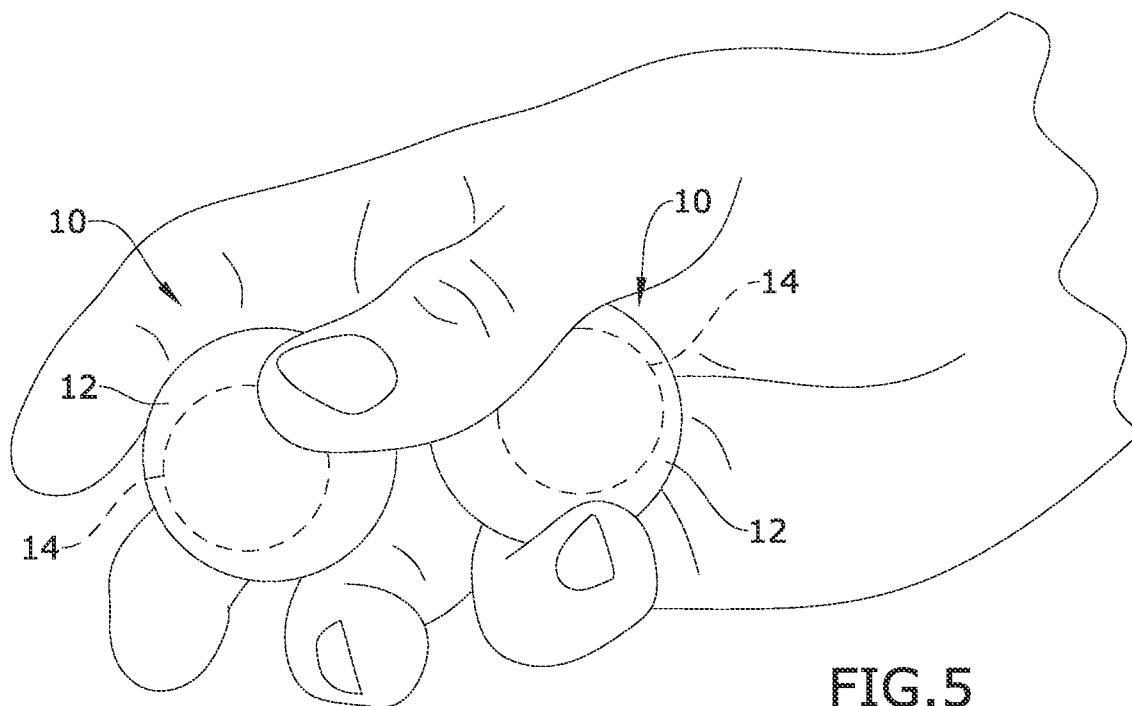


FIG. 5

SPHERICAL HAND EXERCISER WITH OFF-CENTER WEIGHTED CORE

CROSS-REFERENCE TO RELATED APPLICATION

[0001] This application claims the benefit of priority of U.S. provisional application No. 63/233,564, filed Aug. 16, 2021, the contents of which are herein incorporated by reference.

BACKGROUND OF THE INVENTION

[0002] The present invention relates to exercise balls and, more particularly, to a spherical hand exerciser with an off-center weighted core.

[0003] Hand and wrist strength, finger range of motion and dexterity are all negatively affected by age and repetitive motion activities (e.g., typing, writing, sports, etc.)

[0004] Most hand exercisers only train either the flexor or the extensor muscles, not both. Hand exercise balls have always been made of hard materials (i.e., metal or stone) which limit their use and effectiveness and their symmetrical, evenly weighted designs fail to effectively stimulate stabilizer muscles to best integrate the effects throughout the worked region and functions.

[0005] Singular modality exercisers (flexor or extensor muscle-activating) don't effectively train the hand, fingers, wrist, and forearms to work naturally in unison and don't work stabilizer muscles effectively. In addition, the hard materials make them very slippery and difficult to handle, thereby decreasing the available range of motion effects for users and risking damage to floors or other surfaces upon impact while continuing to roll away from the user unimpeded by any braking aid.

[0006] As can be seen, there is a need for a soft, non-slip hand exerciser effective to extend exercise range of motion and train both flexor and extensor muscles in unison, while simultaneously stimulating stabilizer muscles.

SUMMARY OF THE INVENTION

[0007] In one aspect of the present invention, a spherical hand exerciser with an off-center weighted core comprises a resilient, non-slip exterior with an off-center cavity formed therein; and a weighted core housed within the off-center cavity.

[0008] In another aspect of the present invention, a method of performing physical therapy comprises providing at least one spherical hand exerciser; grasping the spherical hand exerciser; and manipulating the spherical hand exerciser around a hand and fingers.

[0009] The offset placement of the weighted core requires additional recruitment of stabilizer muscles of the fingers, hand, wrist, and forearm during manipulation, increasing the synergy, dexterity, and workable range of motion of both the flexor and the extensor muscles, allowing for faster learning and better effects.

[0010] These and other features, aspects and advantages of the present invention will become better understood with reference to the following drawings, description, and claims.

BRIEF DESCRIPTION OF THE DRAWINGS

[0011] FIG. 1 is a perspective view of an exercise and massage ball according to an embodiment of the present invention, shown in use;

[0012] FIG. 2 is another perspective view thereof;

[0013] FIG. 3 is a sectional view thereof, taken along line 3-3 in FIG. 2;

[0014] FIG. 4 is a perspective view thereof, shown in use; and

[0015] FIG. 5 is a perspective view thereof, shown in use.

DETAILED DESCRIPTION OF THE INVENTION

[0016] The following detailed description is of the best currently contemplated modes of carrying out exemplary embodiments of the invention. The description is not to be taken in a limiting sense but is made merely for the purpose of illustrating the general principles of the invention, since the scope of the invention is best defined by the appended claims.

[0017] Broadly, one embodiment of the present invention is a non-slip hand-exerciser ball having a soft, non-slip polymer exterior surrounding an off-centered solid metal core or interior weight.

[0018] The inventive ball is easy to manipulate and effective at training the hand, fingers, wrist, and forearm in unison as they naturally work together. The offset placement of the core uniquely recruits and strengthens stabilizer muscles of the fingers, hand, wrist, and forearm during manipulation, increasing the synergy and workable range of motion of both the flexor and the extensor muscles, allowing for faster learning and better effects. The metal core provides additional weight for easy manipulation with the palms and fingers of the working hand and to stimulate various muscles, ligaments, tendons, and pressure points in the hand for overall development of strength, mobility, and general health of the hands, wrist, arms, and other associated body systems. Muscles, joints, and ligaments are naturally stretched and exercised at the same time, increasing strength, range of motion, dexterity, and tactile sensation while often relieving pain related to aging joints and repetitive motion injuries and illnesses. In addition, if dropped, the soft polymer exterior is unlikely to damage impact surfaces and its off-weighted design naturally brings it to rest quickly on its own.

[0019] The outer layer of the exercise ball may be, for example, an inorganic synthetic polymer that provides a non-slip function enabling easy manipulation and movement in the hand, thereby extending the exercise range of motion to provide better effects.

[0020] The weighted core, such as a metal ball, is placed slightly off-center inside of the soft exterior to provide a slight variety of weight-distribution as it is used, further activating supporting muscles, ligaments, and tendons required to maintain shifting balance within the exercise ranges.

[0021] The inventive ball may be dimensioned and shaped for easy manipulation in a user's hand, with a cavity having a predetermined size and location for off-center placement of the weighted ball core.

[0022] The materials of manufacture are not particularly limited. The exterior material may be a polymer, e.g., an inorganic synthetic polymer such as silicone. Other synthetic materials, such as organic polymers, and texture features (like nubs or patterns) may be used to provide different tactile sensations and easier usage. The weighted

core may be made with metal. For example, the metal may be steel. Other metals may be used to provide additional health benefits (like copper).

[0023] The inventive ball may be manufactured by placing a polymer material (e.g., silicone) in a vulcanizing machine to be liquified, and then pouring the liquified polymer into a molding machine to form two halves of the outer layer of the ball, with a slightly off-center cavity in the center. A metal ball may be placed in the cavity and the two halves re-heated to fuse them together around the metal ball.

[0024] To use the ball (or multiple balls), the user may manipulate the ball(s) in the hand, performing a variety of exercises that may include the use of the hand, fingers, wrist, arms, shoulders, and other supporting muscles. The ball(s) may be rolled around in the palm of the hand, on top of the hand, passed from hand-to-hand, and/or manipulated around the hand in various ways and directions using the fingers. The ball(s) may also be manipulated with a user's foot (or feet) to strengthen and stimulate the muscles, ligaments, tendons and pressure points of the feet, toes, ankles, leg, and other supporting body systems. The ball(s) may also be used as a massage device when rolled individually or together on the body's muscles.

[0025] Referring to FIGS. 1 through 5, an exercise ball 10 according to an embodiment of the present invention comprises a malleable polymer exterior 12 surrounding a weighted core 14. As best shown in FIG. 3, the weighted core 14 is positioned off-center within the polymer exterior 12. A single ball 10 may be manipulated by a user's hand 16,

including the user's fingers, as illustrated in FIG. 1. Alternatively, multiple balls 10 may be manipulated within the palm and fingers of the user's hand 16, as illustrated in FIGS. 4 and 5.

[0026] It should be understood, of course, that the foregoing relates to exemplary embodiments of the invention and that modifications may be made without departing from the spirit and scope of the invention as set forth in the following claims.

What is claimed is:

1. A spherical hand exerciser with an off-center weighted core, comprising: a resilient, non-slip exterior with an off-center cavity formed therein; and a weighted core housed within the off-center cavity.
2. The spherical hand exerciser of claim 1, wherein the weighted core comprises a metal ball.
3. The spherical hand exerciser of claim 1, wherein the resilient, non-slip exterior comprises an inorganic polymer.
4. The spherical hand exerciser of claim 1, further having dimensions effective for manipulation within a user's hand.
5. The spherical hand exerciser of claim 1, wherein the resilient, non-slip exterior has a predetermined texture.
6. A method of performing physical therapy, comprising: providing at least one spherical hand exerciser of claim 1; grasping the at least one spherical hand exerciser; and manipulating the at least one spherical hand exerciser around a hand and fingers.

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