FILLABLE RUCK PLATE

[0001] CROSS-REFERENCE TO RELATED APPLICATIONS

The present international patent application claims priority to U.S. Patent Application No. 18/588,512, filed February 27, 2024, the entire contents of which are incorporated by reference into the present application

TECHNICAL FIELD

[0002] The present disclosure relates to ruck plates, in particular the present disclosure relates to ruck plates that are adapted to be weight adjustable.

BACKGROUND

[0003] Rucking is a form of exercise that involves walking or hiking with a weighted backpack, known as a rucksack or simply a "ruck." Rucking is a versatile and effective way to improve cardiovascular fitness, build strength, and burn calories. The added weight creates resistance, which engages various muscle groups, particularly in the legs, back, and core. Rucking can be adapted to different fitness levels, as the weight and distance can be adjusted to suit a person's capabilities. It's a popular training method among military personnel, but it has gained popularity in the civilian fitness community as well, thanks to its effectiveness in achieving a full-body workout. Additionally, rucking offers the added benefit of being a low-impact exercise, making it accessible to a wide range of individuals.

[0004] When rucking, a person carries a weighted sack or bag while completing various activities, like running, push-ups, etc. Specially designed rucking articles can be worn like a backpack and include compartments for holding weighted plates, or ruck plates.

[0005] Standard ruck plates come in a variety of weights. At times, it may be advantageous to be able to adjust the weight of the ruck, rather than obtain a different ruck. Therefore, there is a need in the field to provide a ruck that is adapted to have its weight adjusted.

SUMMARY

[0006] The present disclosure is directed to ruck plates that are adapted to have variable weights.

[0007] An aspect of the present disclosure is a ruck plate. The ruck plate comprising a front surface having a first side edge, a second side edge, a top edge and a bottom edge; a back surface located opposite of the front surface; the back surface separated from the front surface by a depth of the first side edge; an interior formed between the front surface and the back surface; the interior adapted to receive fill to increase weight of the ruck plate; and an opening adapted to provide access to the interior and through which fill is provided to the interior.

[0008] Another aspect of the present disclosure is a plate for use when rucking. The plate having a front surface having a first side edge, a second side edge, a top edge and a bottom edge, wherein the first side edge, the second side edge, the top edge and the bottom edge form a rectangular shape; a back surface located opposite of the front surface, the back surface separated from the front surface by an interior, the interior adapted to receive fill to increase the weight of the plate; and an opening adapted to be provide access to the interior, the opening located in the top edge and adapted to be closed with a closing mechanism.

BRIEF DESCRIPTION OF THE DRAWINGS

[0009] The foregoing summary, as well as the following detailed description of illustrative embodiments of the present application, will be better understood when read in conjunction with the appended drawings. For illustrating the present application, shown in the drawings are embodiments of the disclosure. It should be understood, however, that the application is not limited to the precise arrangements and instrumentalities shown.

[0010] Figure 1 is a perspective view of the fillable ruck plate.

[0011] Figure 2 is a front view of the fillable ruck plate.

[0012] Figure 3 is a back view of the fillable ruck plate.

[0013] Figure 4 is a side view of the fillable ruck plate.

[0014] Figure 5 is an interior view of the fillable ruck plate.

[0015] Figure 6 is a top view of the fillable ruck plate.

[0016] Figure 7 is a view of the fillable ruck plate with a funnel device extracted from the interior of the fillable ruck plate.

[0017] Figure 8 is a view of the fillable ruck plate with the funnel device extracted and the interior of the fillable ruck plate shown.

[0018] Figure 9 is a view of the fillable ruck plate with fill placed in the interior.

DETAILED DESCRIPTION OF ILLUSTRATIVE EMBODIMENTS

[0019] To facilitate an understanding of embodiments, principles, and features of the present disclosure, they are disclosed hereinafter with reference to implementation in illustrative embodiments. Embodiments of the present disclosure, however, are not limited to use in the described systems or methods and may be utilized in other systems and methods as will be understood by those skilled in the art.

[0020] The components described hereinafter as making up the various embodiments are intended to be illustrative and not restrictive. Many suitable components that would perform the same or a similar function as the components described herein are intended to be embraced within the scope of embodiments of the present disclosure.

[0021] Embodiments of the present disclosure describe ruck plates and in particular ruck plates that are adapted to have a variable weight. The ruck plate is a specially designed, typically flat, and dense object, often made of steel or other durable materials, that is used to add weight to a backpack (rucksack) during rucking exercises. The ruck plate described herein can have fill or other material added to it to provide different weights for a workout.

[0022] Ruck plates are built for endurance training and are crafted to fit into the dedicated compartments of a rucksack. They provide a balanced and stable distribution of weight, allowing individuals to increase the intensity of their rucking workouts and build strength and endurance. The ruck plates described herein can come in various sizes and weights, catering to different fitness levels and goals.

[0023] Referring now to Figs. 1-4, Figure 1 is a perspective view of the fillable ruck plate 10, according to an embodiment of the present disclosure. Figure 2 is a view of the first surface 1 of fillable ruck plate 10. Figure 3 is a view of the rear surface 2 of the fillable ruck plate 4. Figure 4 is a view of the side 4 of the fillable ruck plate 1.

[0024] As shown in Fig. 1, the fillable ruck plate 10 comprises a first surface 1. In the embodiment shown in Fig. 1, first surface 1 is the front of the fillable ruck plate 10. The first surface 1 is substantially flat and can have indicia indicating the weight, manufacturer, or other information regarding the fillable ruck plate 10.

[0025] The fillable ruck plates 10 disclosed herein may be constructed from various materials to enhance durability and functionality during weighted backpack training. These materials include, but are not limited to canvas, plastic, steel, cast iron, rubber-coated steel, and dense plastics or polymers. Canvas material provides a lightweight material that can be made heavier with the addition of fill. Ruck plates made from dense plastics or polymers offer a lighter alternative while still providing weight for effective training and can be made heavier with the addition of fill. Steel plates provide sturdiness and weight, for providing substantial resistance without excessive bulk and can provide a durable container for the fill for additional weight. Similarly, cast iron plates offer durability and density. Rubber-coated steel plates combine durability with protective features, safeguarding both the plate and backpack. The selection of material depends on factors such as weight, durability, cost, and environmental resistance, providing versatility in meeting diverse user preferences and training requirements.

[0026] Additionally, the fillable ruck plate 10 should be formed to provide access to areas of the interior 18 (shown in Figs. 5, 8 and 9, below) of the fillable ruck plate 10. Providing access to the interior 18 of the fillable ruck plates 10 can factor into the selection of materials. For example, in some embodiments it may be easier to form an interior space within the fillable ruck plate 10 if the material used is a type of plastic or made of canvas.

[0027] The empty fillable ruck plates 10 may weigh between 1 lbs. to 10 lbs. (.45 kg to 4.5 kg). In an embodiment, the empty fillable ruck plate 10 may be 1 lb. (.45 kg). In an embodiment, the empty fillable ruck plate 10 may be 3 lbs. (1.35 kg). In an embodiment, the empty fillable ruck plate 10 may be 5 lbs. (2.26 kg). In an embodiment, the empty fillable ruck plate 10 may be 10 lbs. (4.5 kg). In an embodiment the empty fillable ruck plate 10 may be between 1-10 lbs.

[0028] In the embodiment shown in Figs. 1-4, the first surface 1 of the fillable ruck plate 10 has a generally rectangular shape having a top edge 3, a side edge 4, a bottom edge 5, and side edge 6. There are four corners 7a-7d formed at the junctions between top edge 3, side edge 4,

side edge 6, and bottom edge 5. Formed in the top edge 3 is an opening 12 that is adapted to be opened and closed.

[0029] The top edge 3 and the bottom edge 5 both have a width W1. The side edge 4 and side edge 6 both have a height H1 (shown in Fig. 4). Formed in the top edge 3 is an opening 12 that provides access to the interior 18 of the fillable ruck plate 10. The fillable ruck plate 10 has a depth D1 formed between the first surface 1 and the second surface 2.

[0030] In an embodiment, W1 is between 4-10 inches (10.2 cm to 25.4 cm). In an embodiment, W1 is about 9 inches (22.9 cm). In an embodiment, W1 is less than 15 inches (38.1 cm). The width W1 is determined based on the size and weight of the fillable ruck plate 10 that is being used and the ruck sack in which the fillable ruck plate 10 may be placed. Additionally, the width W1 is adapted to accommodate the structure of the fillable ruck plate 10 that enables the fillable ruck plate 10 to be filled. The width W1 of the fillable ruck plate 10 is large enough to provide sufficient space so that the interior 18 can be filled.

[0031] In an embodiment, the height H1 is about 12.5 inches (31.75 cm). In an embodiment, the height H1 is less than 24 inches 61 (cm). In an embodiment, the height H1 is between 8-14 inches (20.3 cm to 35.6 cm). The height H1 is determined based on the size and weight of the fillable ruck plate 10 that is being used and the ruck sack in which the fillable ruck plate 10 may be placed. Additionally, the height H1 is adapted to accommodate the structure of the fillable ruck plate 10 and the material used for fill.

[0032] In the embodiment shown in Figs. 1-4, the first surface 1 has corners 7a-7d. The corners 7a-7d are curved. The curvature of the corners 7a-7d permits the fillable ruck plate 10 to be placed into and out of ruck sacks (not shown) without potentially damaging the interior. The curvature of the corners 7a-7d also avoids having sharp edges that could potentially cause injury during a rucking exercise or cause damage to a ruck sack.

[0033] In an embodiment, the thickness D1 between front surface 1 and the back surface 2 is between 0.5 to 3 inches (1.3 cm to 7.6 cm). In an embodiment, the thickness D1 is between 1 and 2 inches (2.5 cm and 5.1 cm). In another embodiment, the thickness D1 is between 1.1 and 1.4 inches (2.8 cm and 3.5 cm).

[0034] While the first surface 1 of the fillable ruck plate 10 generally has a rectangular shape, other shapes are possible that can be used in accordance with the disclosure contained herein. In an embodiment, the shape of the ruck plate is circular, oval shaped, triangular, pentagonal, hexagonal, or another polygonal shape. In an embodiment, the shape of the ruck plate coincides with the shape of the ruck sack in which the ruck plate is placed. It should be understood that the general overall shape may be modified in accordance with this disclosure, provided the shape of the portions of the fillable ruck plate 10 adapted to contain fillable material is still able to contain fillable material.

[0035] Referring now to Figs. 5-9, shown is a view of the interior 18 of the fillable ruck plate 10 in Fig. 5. The interior 18 of the fillable ruck plate 10 has dividers 11. The dividers 11 separate portions of the interior 18 of the fillable ruck plate 10 into chambers 16. This enables the fill 17 (shown in Fig. 9) to be evenly dispersed throughout the interior 18 of the fillable ruck plate 10.

[0036] In an embodiment, as shown in Fig. 5, there are two dividers 11 shown. In an embodiment, there can be more than two dividers 11. In an embodiment, there may be only one divider 11, or no dividers 11. In the embodiment shown in Fig. 5 the dividers 11 extend along the height H1 dimension of the fillable ruck plate 10. In an embodiment, the dividers 11 are oriented diagonally within the fillable ruck plate 10. In an embodiment, some dividers 11 are oriented diagonally while others are oriented along the height H1 dimension. In an embodiment, the dividers 11 are oriented in a horizontally with respect to the top edge 3. In an embodiment, the dividers 11 are parallel with respect to each other. The dividers 11 help disperse the fill 17 (shown in Fig. 9).

[0037] In the embodiment, such as shown in Fig. 5 the dividers 11 do not extend the entire height H1 of the fillable ruck plate 10. At the area close to the bottom edge 5 and the area close to the top edge 3, the dividers 11 no longer extend and the space is accessible. The space between the dividers 11 and the bottom edge 5 permit the chambers 16 to communicate with each other. In this way, the fill 17 can be dispersed between each of the chambers 16. In an embodiment, the chambers 16 do not communicate with each other and each chamber 16 is isolated. In an embodiment, the dividers 11 may extend only to the top edge 3 or the bottom edge 5. In Figs. 8 and 9, the dividers 11 extend to the bottom edge 5, but not to the top edge 3.

[0038] In an embodiment, the dividers 11 are made from the same material as the rest of the fillable ruck plate 10. In an embodiment, the dividers 11 are made from different materials than the remainder of the fillable ruck plate 10. In an embodiment, the dividers 11 divide the interior 18 into spaces that have equal volume. In an embodiment, the dividers 11 do not divide the space into equal volume. In an embodiment, multiple sized chambers 16 can be formed by more than one divider 11 placed in different arrangements.

[0039] Figure 6 is a top view of the fillable ruck plate 10 and the top edge 3. Fig. 6 shows the opening 12. In Fig. 6 the opening 12 is closed by a zipper 13 that has a pull-tab 14 on the end of it. Other closing mechanisms for closing the opening 12 can be used. For example, the fillable ruck plate 10 can be sealed using buckles, clasps, magnetic fasteners, snaps, and/or seals. The closing mechanism needs to be such that the fill used does not leak out from the fillable ruck plate 10.

[0040] In operation the pull-tab 14 is grabbed and the opening 12 is opened by moving the zipper 13. This operation provides access to the interior 18 of the fillable ruck plate 10. After the fillable ruck plate 10 is filled with the desired material the zipper 13 is then placed back in the closed or sealed position. The pull-tab 14 may have an additional clasp or other type of fastener attached thereto to ensure that the opening 12 is sufficiently closed.

[0041] Figure 7 is a view of the fillable ruck plate 10 with a funnel device 15 pulled from the fillable ruck plate 10. The arrow illustrates the funnel device 15 being removed from the interior 18 of the fillable ruck plate 10. In the embodiment shown in Fig. 7 the funnel device 15 is an integrated part of the fillable ruck plate 10 and is extracted from the interior 18 of the fillable ruck plate 10 when the fillable ruck plate 10 needs to be filled or emptied. The funnel device 15 may be made of plastic or other material that is able to be compressed within the interior 18 of the fillable ruck plate.

[0042] Figure 8 is a view of the fillable ruck plate 10 with the funnel device 15 out in place and the interior 18 of the fillable ruck plate 10 shown. The arrows illustrate the distribution of the fill 17 with the chambers 16. In an embodiment, each of the chambers 16 is separably fillable.

[0043] Fig. 9 is a view of the fillable ruck plate 10 with the fill 17 placed in the interior 18 and filling the chambers 16. Various types of fills 17 may be employed in the creation of weights for different purposes. In an embodiment, the fill 17 is sand. Sand is used for its density and

ability to conform to various shapes and containers. In an embodiment, steel shot or pellets can be used for the fill 17. Steel shot or pellets are a compact and heavy option and can provide a concentrated mass. In an embodiment, lead can be used for the fill 17. Lead, due to its high density, can be used for heavier weights. In an embodiment, synthetic materials like rubber pellets or granules can be used for the fill 17. Synthetic materials can provide an eco-friendly alternative while maintaining considerable weight. In an embodiment, a blend of materials may be used for the fill 17. The blend of materials may comprise any one of the selected fills. In an embodiment, the fill 17 is spherical pellets. Each fill material offers unique properties affecting the weight's density, shape, and environmental impact, catering to diverse needs across fitness, sports, and industrial applications.

[0044] In an embodiment, the front surface 1 of the fillable ruck 10 can have an LCD display screen placed thereon. The LCD display screen may be operably connected to a sensor adapted to determine the weight of the fillable ruck 10. The weight of the fillable ruck 10 can be displayed on the LCD display screen after fill 17 has been added to the fillable ruck 10.

[0045] In addition to solid based fills, fills formed from liquid can be used. It is possible to use different types of fluids to fill the fillable ruck plate 10. For example, water may be used to fill the fillable ruck plate 10. In the event that a liquid is used to fill the fillable ruck plate 10, the fillable ruck plate 10 should be formed so that fluids cannot leak form the fillable ruck plate 10.

[0046] In an embodiment, pre-packaged fill cartridges or packets can be used with the fillable ruck plate 10. Each of the pre-packaged fill cartridges can have a predetermined weight so that the overall weight of the fillable ruck plate 10 can be determined based on the cartridges added.

[0047] Wherever possible, the same or like reference numbers are used throughout the drawings to refer to the same or like features. It should be noted that the drawings are in simplified schematic form and are not drawn to precise scale. Certain terminology is used in the description is for convenience only and is not limiting. Directional terms such as top, bottom, left, right, above, below and diagonal, are used with respect to the accompanying drawings. The words “inwardly” and “outwardly” refer to directions toward and away from, respectively, the geometric center of the identified element and designated parts thereof. Such directional terms used in conjunction with the following description of the drawings should not be construed to

limit the scope of the present disclosure in any manner not explicitly set forth. Additionally, the term "a," as used in the specification, means "at least one." The terminology includes the words above specifically mentioned, derivatives thereof, and words of similar import.

[0048] "Substantially" as used herein shall mean considerable in extent, largely but not wholly that which is specified, or an appropriate variation therefrom as is acceptable within the field of art. "Exemplary" as used herein shall mean serving as an example.

[0049] "About" as used herein when referring to a measurable value such as an amount, a temporal duration, and the like, is meant to encompass variations of ±20%, ±10%, ±5%, ±1%, or ±0.1% from the specified value, as such variations are appropriate.

[0050] Throughout this disclosure, various embodiments of the present invention can be presented in a range format. It should be understood that the description in range format is merely for convenience and brevity and should not be construed as an inflexible limitation on the scope of the present invention. Accordingly, the description of a range should be considered to have specifically disclosed all the possible subranges as well as individual numerical values within that range. For example, description of a range such as from 1 to 6 should be considered to have specifically disclosed subranges such as from 1 to 3, from 1 to 4, from 1 to 5, from 2 to 4, from 2 to 6, from 3 to 6 etc., as well as individual numbers within that range, for example, 1, 2, 2.7, 3, 4, 5, 5.3, and 6. This applies regardless of the breadth of the range.

[0051] Furthermore, the described features, advantages and characteristics of exemplary embodiments may be combined in any suitable manner in one or more embodiments. One skilled in the art will recognize, in light of the description herein, that the exemplary embodiments can be practiced without one or more of the specific features or advantages of a particular embodiment. In other instances, additional features and advantages may be recognized in certain embodiments that may not be present in all embodiments of the present disclosure.

[0052] While the disclosure is described herein, using a limited number of embodiments, these specific embodiments are not intended to limit the scope of the disclosure as otherwise described and claimed herein. The precise arrangement of various elements and order of the steps of articles and methods described herein are not to be considered limiting. For instance, although the steps of the methods are described with reference to sequential series of reference

signs and progression of the blocks in the figures, the method can be implemented in an order as desired.

Claims:

1. A ruck plate comprising:

a front surface having a first side edge, a second side edge, a top edge and a bottom edge;

a back surface located opposite of the front surface; the back surface separated from the front surface by a depth of the first side edge;

an interior formed between the front surface and the back surface; the interior adapted to receive fill to increase weight of the ruck plate; and

an opening adapted to provide access to the interior and through which fill is provided to the interior.

2. The ruck plate of claim 1, wherein the interior has a plurality of chambers formed by dividers located in the interior.

3. The ruck plate of claim 2, wherein each of the plurality of chambers is separably fillable.

4. The ruck plate of claim 2, wherein the each of the plurality of chambers is connected to each other of the plurality of chambers.

5. The ruck plate of claim 1, wherein the interior is adapted to receive fill with a plurality of fill sizes.

6. The ruck plate of claim 1, further comprising a funnel device operably connected to the top edge.

7. The ruck plate of claim 6, wherein the funnel device is adapted to be stored within the interior when not used for filling the interior.

8. The ruck plate of claim 6, wherein the funnel device is collapsible.

9. The ruck plate of claim 1, wherein the interior is adapted to disperse the fill throughout the interior to distribute weight within the ruck plate.

10. The ruck plate of claim 1, wherein the fill is sand, and the sand is located in the interior of the fillable ruck plate.

11. A plate for use when rucking comprising:

a front surface having a first side edge, a second side edge, a top edge and a bottom edge, wherein the first side edge, the second side edge, the top edge and the bottom edge form a rectangular shape;

a back surface located opposite of the front surface, the back surface separated from the front surface by an interior, the interior adapted to receive fill to increase the weight of the plate; and

an opening adapted to provide access to the interior, the opening located in the top edge and adapted to be closed with a closing mechanism.

12. The plate of claim 11, wherein the interior has a plurality of chambers formed by dividers located in the interior.

13. The plate of claim 12, wherein each of the plurality of chambers is separably fillable.

14. The plate of claim 12, wherein the each of the plurality of chambers is connected to each other of the plurality of chambers.

15. The plate of claim 11, wherein the interior is adapted to receive fill with a plurality of fill sizes.

16. The plate of claim 11, further comprising a funnel device operably connected to the top edge.

17. The plate of claim 16, wherein the funnel device is adapted to be stored within the interior when not used for filling the interior.

18. The plate of claim 16, wherein the funnel device is collapsible.

19. The plate of claim 11, wherein the interior is adapted to disperse the fill throughout the interior to distribute weight within the ruck plate.

20. The plate of claim 11, wherein the fill is sand, and the sand is located in the interior of the fillable ruck plate.