A cap comprising one or more pads. The cap is wearable by itself or inside of a separate piece of protective headgear. The pads of the cap provide protection to a user’s head, and/or fill in spaces inside a piece of protective headgear, such that the protective headgear properly fits on the user’s head.
PADDED SKULL CAP

BACKGROUND

[0001] 1. Field of the Invention

[0002] The present invention relates generally to headgear, and in particular to a cap configured to absorb impact forces and/or create a snug fit for helmets or other protective headgear.

[0003] 2. Background

[0004] Individuals wear protective headgear in many situations. For example, protective helmets are often worn by individuals while biking, skateboarding, playing sports such as baseball or football, or while at construction sites. Such protective headgear can be important in providing impact protection and reducing the chances of injury. However, if the protective headgear is not sized properly to the individual, it can leave the individual at risk. For example, a football helmet that is too large can wobble as an athlete runs, potentially moving protective panels of the helmet away from the sensitive areas of the athlete’s head that the helmet is designed to protect, or moving the helmet to a position on the athlete’s head that obscures vision. As another example, a helmet that is too large can more easily fall off an individual’s head, leaving the head completely exposed.

[0005] This problem can arise when protective headgear is provided by an entity such as a team, league, school, or company. The entity may have an inventory of headgear of many different sizes, however the specific headgear given to each individual may not properly fit the exact size and shape of that individual’s head. For example, a little league baseball team may have a selection of batting helmets, but the heads of some team members may be larger or smaller than the batting helmets owned by the team. As another example, when it is a player’s turn to bat, the team’s batting helmets that properly fit that player’s head may already be in use by other players who are on base and the batter may be forced to use an ill-fitting batting helmet.

[0006] Other times, ill-fitting pieces of protective headgear can be selected intentionally. For example, parents who do not want to buy their child a new football helmet every few years as the child’s head grows may buy the child a football helmet that is a size too big, with the expectation that the child will grow into it. While this approach can be economical, it can leave the child at risk of a head injury due to the helmet initially not fitting properly.

[0007] What is needed is a cap having one or more deformable protective pads. In some embodiments, the cap can be worn by an individual underneath another piece of protective headgear, such that the deformable protective pads fill in spaces that would otherwise be between the protective headgear and the individual’s head, thereby creating a snug fit for the protective headgear on the individual’s head. In other embodiments, the cap can be worn by itself to provide a measure of head protection.

BRIEF DESCRIPTION OF THE DRAWINGS

[0008] FIG. 1 depicts an exemplary embodiment of a cap.

[0009] FIG. 2 depicts a cross section of a first embodiment of a cap.

[0010] FIG. 3 depicts a cross section of a second embodiment of a cap.

[0011] FIG. 4 depicts a cross section of a third embodiment of a cap.

[0012] FIG. 5 depicts an exemplary embodiment of a pad.

[0013] FIG. 6 depicts a first exemplary arrangement of pads within a cap.

[0014] FIG. 7 depicts a second exemplary arrangement of pads within a cap.

[0015] FIG. 8A depicts a piece of protective headgear too large for a user’s head.

[0016] FIG. 8B depicts a user wearing a cap.

[0017] FIG. 8C depicts a user wearing a cap inside a piece of protective headgear.

DETAILED DESCRIPTION

[0018] FIG. 1 depicts a cap 100. The cap 100 can comprise a casing 102. The casing 102 can be comprised of a flexible and/or stretchable material. In some embodiments, the casing 102 can comprise synthetic fibers. By way of a non-limiting example, the casing 102 can comprise spandex or other elastane material, such as Lycra®. In other embodiments, the casing 102 can comprise nylon, mesh, fabric, plastic, or any other type of flexible and/or stretchable material. In some embodiments, the casing 102 can comprise a 2-way stretch material. In other embodiments, the casing 102 can comprise a 4-way stretch material. In still other embodiments, different portions of the casing 102 can comprise materials having different stretch directions. In some embodiments the casing 102 can comprise a plurality of pieces of material coupled together with stitching, fusing, adhesives, or any other connection method, while in other embodiments the casing 102 can be a single piece of material.

[0019] In some embodiments, the casing 102 can have a concave, substantially hemispheric shape, such that the casing 102 can be worn on and around the top of an individual’s head, similar to a skull cap. In other embodiments, the casing 102 can have any other shape that can fit at least a portion of an individual’s head.

[0020] The casing 102 can comprise one or more bands 104 proximate to the edges of the casing 102. In some embodiments, the bands 104 can be integral with the casing 102 or be inside the casing 102. In other embodiments, the bands 104 can be one or more separate pieces coupled with the casing 102 using stitching, fusing, adhesives, or any other connection method. In some embodiments, the band 104 can be an elastic band or other elongated elastomeric member that encircles the edges of the casing 102, such that the band 104 provides a snug fit around a user’s head when the cap 100 is worn, while also allowing the band 104 to be stretched when the cap 100 is put on and removed from the user’s head, or to be stretched to fit the cap 100 onto differently sized heads. In alternate embodiments, the bands 104 can be cords, thread, string, or other elongated materials that can be tied or secured tightly around a user’s head when the cap 100 is worn. In some embodiments, the interior-facing side of the band 104 can be textured such that it provides gripping characteristics against a user’s head. In other embodiments, the band 104 can have any type of texture or be smooth.

[0021] FIGS. 2, 3, and 4 depict cross sections of embodiments of the cap 100. The casing 102 can comprise one or more pockets 106. In some embodiments, the pockets 106 can be separate pieces coupled with the casing 102 via stitching, fusing, adhesives, or any other connection method, as shown in the cross sections depicted in FIGS. 2 and 3. In some embodiments, the pockets 106 can be on the inner surface of the cap 100, as shown in the cross section of FIG. 2. In other embodiments, the pockets 106 can be on the outer surface of
the cap 100, as shown in the cross section of FIG. 3. In alternate embodiments, the pockets 106 can be integrated with the casing 102. By way of a non-limiting example, the casing 102 can comprise two layers that can be sewn or otherwise fixed together to form one or more pockets 106 between the two layers, as shown in the cross section depicted in FIG. 4. In still other embodiments, the pockets 106 can be coupled with the casing 102 using one or more corresponding connectors, such that the pockets 106 can be selectively removable from the casing 102. By way of a non-limiting example, in these embodiments the pockets 106 can be selectively attached to the casing 102 using hook and loop fasteners, snaps, buttons, or any other type of connector, such that a user can remove pockets 106, add pockets 106, and or rearrange the positions and/or orientations of pockets 106 on the casing 102.

[0022] In some embodiments, the pockets 106 can have at least one open edge or slit, such that a user can access the interiors of the pockets 106 through the open edge. In some of these embodiments, the open edge of the pockets 106 can be closed with a connection mechanism 108, such as a zipper, snap, button, hook and loop fastener, elastic, or any other connector, as shown in FIG. 2. In other embodiments, the connection mechanism 108 can be absent, such that the open edge remains open. In alternate embodiments, the pockets 106 can be permanently closed, such that a user cannot access the interiors of the pockets 106.

[0023] FIG. 5 depicts an exemplary embodiment of a pad 110. Although in some situations and/or embodiments any or all of the pockets 106 can be empty, the pockets 106 can be configured to accept and/or house one or more pads 110. The pads 110 can be rectangular, square, circular, semi-circular, polygonal, curved, or have any other shape. In some embodiments, the pads 110 can be shaped to follow the contours and/or shape of the casing 102. The pads 110 can have any desired size and thickness. The pads 110 can be comprised of a flexible, deformable, and/or compressible material. The flexible, deformable, and/or compressible aspects of the pads 110 can provide the cap 100 with protective qualities. By way of a non-limiting example, when the cap 100 strikes, or is struck by, another object, the pads 110 can at least partially absorb the impact forces and thereby at least partially reduce the impact forces transferred to a wearer’s head when the cap 100 is worn.

[0024] In some embodiments, the pads 110 can be comprised of memory foam or any other type of low-resilience polyurethane foam. In other embodiments, the pads 110 can be comprised of a flexible material such as polyols, polymeric polyols, open cell foam, neoprene, foam rubber, visco-elastic material, or any other flexible, compressible, and/or deformable material. In still other embodiments, the pads 110 can comprise an outer covering that is filled with gel, beads, stuffing, or any other material, such that the shape of the pads 110 can be deformed and/or compressed. In some embodiments, the pads 110 can comprise cooling gel and/or be configured to act as a heat sink.

[0025] In some embodiments the pads 110 can be removable from the pockets 106, such that the pads 110 can be removed and/or replaced with different pads 110. By way of a non-limiting example, a pad 110 can be exchanged with a different pad 110 having a different thickness. In other embodiments, the pads 110 can be permanently housed within the pockets 106. In alternate embodiments, the pockets 106 can be absent, and the pads 110 can be permanently or removably coupled directly to the casing 102. By way of non-limiting examples, in alternate embodiments the pads 110 can have protrusions configured to slide into grooves in the casing 102, or the pads 110 can be coupled with the casing 102 via adhesives, snaps, hook and loop fasteners, or any other connection method.

[0026] The cap 100 can have any desired number of pockets 106 filled with pads 110, in any desired configuration. In some embodiments, the cap 100 can comprise a single pocket 106 and a concave pad 110 with substantially the same size and shape as the casing 102 shown in FIG. 1, such that the pad 110 can be centrally located within the pockets 106. In other embodiments, one or more pockets 106 can be positioned such that pads 110 can be inserted into the pockets 106 and removably coupled directly to the casing 102.

[0027] As discussed above, a user can wear the cap 100 to provide protection to the user’s head. A user can also wear the cap 100 to provide added thickness to the user’s head so that the user’s head better fits into a piece of protective headgear. By way of a non-limiting example, FIG. 8A depicts a situation in which a user’s head 800 is too small to properly fit into a piece of protective headgear 802, such as a football helmet. As can be seen from FIG. 8A, gaps 804 can be left between the protective headgear 802 and the user’s head 800 when the user’s head 800 is too small for the protective headgear 802.

[0028] As discussed above, in some embodiments the pads 110 can be removable, such that pads 110 can be exchanged for different pads 110. By way of a non-limiting example, a user can choose to remove a 0.25 inch thick pad 110 from a pocket 106, and replace it with a 0.75 inch thick pad 110 in order to fit the cap 100 into a larger piece of protective head-
gear 802 or to fill a larger gap 804. In some embodiments, the pockets 106 can be large enough and/or stretch to accommodate two or more pads 110 inserted into the pockets 106. By way of a non-limiting example, a user can choose to insert a second 0.25 inch pad 110 into a pocket already containing a 0.25 inch pad 110 to double the depth of the padding.

Compared to wearing protective headgear 802 alone, the impact force absorption qualities of the pads 110 can provide additional protection to a user when the cap 100 is worn within a piece of protective headgear 802. The pads 110 can also assist in creating a proper fit for the protective headgear 802 on the user’s head 800. In situations in which a separate piece of protective headgear 802 is not worn, the cap 100 can be worn alone to provide at least some protection to a user’s head 800.

In some embodiments, a kit can be provided that comprises a casing 102 and a plurality of pads 110. The plurality of pads 110 can include pads 110 of different sizes, thicknesses and/or shapes, such that a user can select which pads 110 to use with the casing 102. In some embodiments, the casing 102 can comprise one or more pockets 106 as discussed above, while in other embodiments the kit can comprise one or more removable pockets 106 that a user can selectively couple with the casing 102 at desired locations.

Although the invention has been described in conjunction with specific embodiments thereof, it is evident that many alternatives, modifications and variations will be apparent to those skilled in the art. Accordingly, the invention as described and hereinafter claimed is intended to embrace all such alternatives, modifications and variations that fall within the spirit and broad scope of the appended claims.

What is claimed is:

1. A cap, comprising:
   a casing having one or more pockets;
   one or more pads inserted into said one or more pockets;
   wherein said casing has a substantially concave hemispheric shape wearable on the top of a user’s head.
2. The cap of claim 1, wherein said casing comprises a band encircling the edges of said casing.
3. The cap of claim 2, wherein said band is elastic.
4. The cap of claim 1, wherein said one or more pads are compressible.
5. The cap of claim 4, wherein said one or more pads comprise memory foam.
6. The cap of claim 1, wherein said one or more pads are configured to deform to at least partially fill one or more gaps inside a head cavity of a piece of protective headgear that is worn over said cap.
7. The cap of claim 1, wherein said one or more pads are removable from said one or more pockets.
8. The cap of claim 7, wherein said one or more pads are exchangeable with one or more pads of a different thickness.
9. The cap of claim 1, wherein said casing comprises a single pocket and a single pad is inserted into said single pocket, said single pad having a substantially concave hemispheric shape configured to cover the top of a user’s head.
10. The cap of claim 1, wherein said casing has a center pocket extending along the top of said casing from the front of said casing to the back of said casing, and a center pad is inserted into said center pocket.
11. The cap of claim 1, wherein said casing has one or more side pockets and a side pad is inserted into each of said one or more side pockets.
12. The cap of claim 1, wherein said casing has a plurality of pockets on all sides of said casing, and one of said pads is inserted into each of said plurality of pockets.
13. The cap of claim 1, wherein said casing is flexible.
14. A cap, comprising:
   a casing having a concave, substantially hemispheric shape wearable on the top of a user’s head; and
   one or more compressible pads coupled with said casing.
15. The cap of claim 14, wherein said one or more compressible pads are selectively removable from said casing.
16. The cap of claim 14, wherein said one or more compressible pads comprise memory foam.

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