PROTECTIVE SPORTS EQUIPMENT AND
METHODS OF MAKING SAME

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ABSTRACT

Protective pads for protecting a body part of a person, such as a shin guard for protecting the shin from impacts during sporting activities, and methods of making the same, are disclosed. The protective pad comprises an outer shell and a padding layer connected to the outer shell. The protective pad further comprises at least one padding element located in an interior portion of a lower portion of the protective pad. The at least one padding element is configured to provide a space between the body part and at least one of the outer shell and the padding layer. In this manner, the space provided between the body part and at least one of the outer shell and the padding layer allows the outer shell and the padding layer to absorb and dissipate more of a force resulting from an impact to the protective pad away from the body part.
FIG. 1A (PRIOR ART)

FIG. 1B
PROTECTIVE SPORTS EQUIPMENT AND METHODS OF MAKING SAME

BACKGROUND

[0001] 1. Field of the Disclosure

The disclosure relates to protective equipment, and more particularly to protective athletic equipment having padding to protect persons from impact or other forces involved in contact sports or other activities with a high risk of impact to parts of the body, as well as methods of making such protective equipment. In particular, the disclosure relates to protective pads, such as shin guards, that may be used in a variety of sports such as ice hockey, roller hockey, field hockey, lacrosse, soccer, or other sports or activities in which it may be desirable to protect the shin or other body part from blows or projectiles.

[0002] 2. Technical Background

[0003] Protective gear, such as shin guards, knee guards, elbow guards, and other protective gear for body joints, is commonly used in sports where a participant risks injury from moving objects, or accidental collisions with the ground, obstacles, or other participants. Protective guards also are used in a variety of sports, such as motorcycle racing, motocross, go-kart racing, snowmobiling, and other motor sports; skiing and snowboarding; skateboarding; street luge; mountain biking, BMX racing, and other bicycle competitive sports; hockey, baseball, and other sports where some participants (e.g., hockey players and catchers) risk being hit by high-speed projectiles; and rock climbing, whitewater kayaking, mountain climbing, and other outdoor sports.

[0004] When athletes and other participants in these contact sports such as soccer, hockey, rugby, football, baseball, etc., desire protection for their exposed limbs, they utilize some of the available devices such as padded socks, shin guards, and the like. These devices are meant to protect the shins and sometimes calf areas of the limb by providing a rigid outer shell, and in some cases, a soft material adhered to the rigid body wherein the soft side contacts the user's limb. Conventional protective pads typically include a relatively hard outer shell of a material such as plastic, as well as an inner layer of softer padding material. The hard outer layer is provided to receive the applied force or shock of an impact, and to distribute the force over a large area. The soft padding material, in addition to acting as a cushion for providing comfort to the wearer, usually acts to absorb and dampen the aforementioned forces in order to protect the wearer from the shock of an impact.

[0005] However, despite the padding material, hard shell protective pads do not prevent all injuries or pain from the force of contact. For example, in hockey, the puck may travel at extremely high speeds, up to a hundred (100) miles per hour, and being struck in the shin or other portion of the body, often causes pain and injury even when the puck hits the shin guard. A drawback of using a rigid hard shell cover is its limited ability to absorb and displace energy and its lack of flexibility to the user. Existing body protective equipment may also utilize a relatively significant amount of foam padding for absorbing the energy of blows delivered to the body. Moreover, the rigid hard shell cover typically made of hard plastic, usually overlays the foam padding so as to distribute the force of the blow across a larger area of the foam padding. As is known in the art, distributing the force in this manner permits the foam padding to absorb only a portion of the energy associated with the blow. Depending upon the manner and degree to which the padding conforms to the user's body and the energy dissipating characteristics of the conformal padding material, the force from a sudden impact, which may be vibrational, may not be distributed over the area of the padding. For example, if the padding contacts a bone, such as the shin bone, all of the force of impact may be transmitted to that bone, or the force from a sudden impact may not be distributed over the area of the padding but concentrated in a smaller area, causing pain or injury.

[0006] Thus, the typical shin guard offers some protection for the shin area, although it is now known that the effectiveness of such protection is not optimal. Typical shin guards are effective in absorbing only a percentage of the impact energy and have less than optimal material to absorb large quantities of energy, which might explain the increasing number of fractures and other injuries, even when the user is wearing a shin guard.

[0007] Many people enjoy participating in activities that put their lower legs at risk of injury, including a fracture. For instance, in ice hockey, players are constantly jockeying for the puck with their hockey sticks, and hockey sticks may and do strike other hockey players' lower legs. In addition, ice hockey players may take slap shots up to 100 miles per hour to the lower legs, thus opening up the potential for injury or even a fracture to the lower leg bones. Similar situations occur in field hockey, except with a ball instead of a puck. And there are many occasions where soccer players risk injuring their lower legs, for instance when two players try to kick the soccer ball at the same time, a soccer player collides with the goalkeeper, and one player slide tackles another. Likewise, in baseball, a catcher must squat and catch pitches travelling potentially around 100 miles per hour and if they miss the baseball the potential of the baseball hitting the catcher's lower legs and injuring the lower leg is great. In addition, the umpire who stands behind the catcher is at risk of injuring their lower legs as well if the catcher fails to catch a pitch.

[0008] In particular, hockey pucks can cause shin, foot and ankle injuries even through modern hard-shelled plastic shin guards, in part because the fit of modern hockey shin guards is intentionally tight. The problem is worsened by the use of composite-material hockey sticks, which throw the puck faster than wooden sticks, at speeds up to 100 miles per hour. The unsportsmanlike “slashing” of another player’s feet with a hockey stick can also cause leg injuries.

[0009] With the increasing popularity of soccer and participation in baseball and hockey, and other such sports, especially by youth, preventable injuries should be minimized as much as possible. Thus, there is a need for improved protective sports equipment, particularly shin guards.

SUMMARY

[0010] Embodiments disclosed in the detailed description include protective pads for protecting a body part of a person, and methods of making the same. In one embodiment, the protective pad is a shin guard for protecting the shin from impacts during sporting activities. The protective pad comprises an outer shell and a padding layer connected to the outer shell. The protective pad further comprises at least one padding element located in an interior portion of a lower portion of the protective pad. The at least one padding element is configured to provide a space between the body part of the person and at least one of the outer shell and the padding layer.
In this manner, the space provided between the body part and at least one of the outer shell and the padding layer allows the outer shell and the padding layer to absorb and dissipate more of a force resulting from an impact to the protective pad away from the body part, such as the shin. The padding element results in the outer shell of the protective pad not being in contact with the body part of the person wearing the protective pad. Thus, when the outer shell of the protective pad receives an impact, such as a hockey puck traveling at a high speed, the force of the impact will not be felt on the body part, or at least the force felt at the body part will be greatly reduced. By spacing the outer shell away from the body part, the outer shell and the padding layer can absorb and dissipate more of the force of the impact away from the body part, resulting in less pain and injury to the wearer of the protective pad.

A method of assembling a protective pad for protecting a body part of a person is also disclosed. The method includes the steps of providing an outer shell and connecting a padding layer to the outer shell. The method further comprises positioning at least one padding element in an interior portion of a lower portion of the protective pad such that the at least one padding element is configured to provide a space between the body part of the person and at least one of the outer shell and the padding layer.

Additional features and advantages will be set forth in the detailed description which follows, and in part, will be readily apparent to those skilled in the art from that description or recognized by practicing the embodiments as described herein, including the detailed description which follows, the claims, as well as the appended drawings.

It is to be understood that both the foregoing general description and the following detailed description are exemplary, and are intended to provide an overview or framework to understanding the nature and character of the claims. The accompanying drawings are included to provide a further understanding, and are incorporated in and constitute a part of this specification. The drawings illustrate one or more embodiment(s), and together with the description serve to explain principles and operation of the various embodiments.

FIG. 1A illustrates a front view of an exterior of a prior art shin guard;
FIG. 1B illustrates a front view of an interior of a protective pad according to one embodiment;
FIG. 2 illustrates a padding element located in or at a lower portion of an interior of a protective pad according to one embodiment;
FIG. 3A is a cross sectional view of a lower portion of a protective pad having a padding element according to one embodiment;
FIG. 3B is a cross sectional view of a lower portion of a protective pad having a padding element according to another embodiment;
FIG. 4 is a side view of a protective pad having a padding element positioned on a leg of a person such that the padding element is configured to provide a space between the leg of the person and a shell of the protective pad according to one embodiment;
FIG. 5 is a closer up side view from a lower perspective of the protective pad of FIG. 4;
FIG. 6A is a front view of a padding element being positioned in a pocket located in a lower portion of an interior of a protective pad according to one embodiment; and
FIG. 6B is a front view of a padding element being positioned in a pocket located in a lower portion of an interior of a protective pad according to another embodiment.

Reference will now be made in detail to the present preferred embodiment(s), an example of which is illustrated in the accompanying drawings. Whenever possible, the same reference numerals will be used throughout the drawings to refer to the same or like parts.

Embodiments disclosed in the detailed description include protective pads for protecting a body part of a person, and methods of making the same. In one embodiment, the protective pad is a shin guard for protecting the shin from impacts during sporting activities. The protective pad comprises an outer shell and a padding layer connected to the outer shell. The protective pad further comprises at least one padding element located in an interior portion of a lower portion of the protective pad. The at least one padding element is configured to provide a space between the body part of the person and at least one of the outer shell and the padding layer.

Referring to FIG. 1A, a typical prior art shin guard is shown. FIG. 1A illustrates a front view of an exterior of a prior art shin guard. Referring to FIG. 1A, a protective pad 10 is shown here as a combined shin and knee protective pad, such as of the type worn to play ice-hockey. The protective pad comprises an outer shell 12 which includes a knee shell 14 and a shin shell 16 connected to one another. The connection between the knee shell 14 and the shin shell 16 may occur in a variety of ways. For example, the connection may be pinned, i.e. with one or two pins, or may be through a hinge, or in any other manner. In one embodiment, the knell shell 14 and the shin shell 14 may be a unitary piece, and such is considered to be connected for purposes of this application. The kneel shell 14 may be shaped (e.g. cup-shaped) in such a way to effectively protect a knee. The outer shell 12 is substantially rigid, and can be made for example of an impact resistant plastic. The shin shell 16 may optionally includes a series of vertically spaced ribs 18 so as to reinforce the rigidly of the shin shell 16.

Referring to FIG. 1A, the protective pad 10 further includes at least one attachment means, such as one or more adjustable straps 17A and 17B to secure the protective pad 10 to the body of the wearer. The protective pad 10 may comprise three portions, a top or knee portion 20, a middle portion 24, and a lower, or bottom, portion 26. The top, middle, and lower portions 20, 24, and 26 may be separate pieces, or may be a unitary piece. The protective pad 10 also comprises a shock absorbing padding layer (hereinafter “padding layer”) 22. The padding layer 22 may be formed of a shock absorbing foam material in one embodiment. The padding layer 22 may, in one embodiment, be connected to both the shin shell 16 and the knee shell 14 of the outer shell 12, such as to provide a pivot connection therebetween. Alternatively, the padding layer 22 may comprise two portions, i.e. an upper portion, connected to the knee shell 14 and a lower portion connected to the shin shell 16. The padding layer 22 extends between the outer shell 12 and the body portion of the wearer, and may be connected to the shin shell 16 in two or more spaced apart locations. There may be additional padding layers or padding.
layer portions 28 and 30 disposed on respective sides of the middle portion 24 of the protective pad 10. The additional padding layer portions 28 and 30 may be connected to or part of padding layer 22, or they may be physically separate from padding layer 22. A further alternative connecting means can also be used to connect the padding layer 22 and/or the additional padding layer portions 28 and 30 to the shin shell 16, such as, for example, rivets or an adhesive.

[0029] Referring to FIG. 1B, the padding layer 22 is connected to the knee shell 14 along a plurality of spaced apart locations. Although not shown, a free space or cavity is defined between the padding layer 22 and the knee shell 14. Padding layer portions 32 and 34 are the rear (interior) portions of the padding layer portions 28 and 30 in FIG. 1A. Padding layer portions 32 and 34 extend between the outer shell 12 and the body portion of the wearer, and may be connected to the shin shell 16 in two spaced apart locations, shown here as seam lines 36. The knee shell 14 has a concave interior section 38. Padding layer 39 may provide additional padding around the knee of the wearer and may be configured in such a way around the concave interior section 38 that a space 37 is created between the knee of the wearer and the concave interior section 38 of the knee shell 14. Additional padding layers or padding layer portions 40, 41, 42, and 43 may be provided on the respective sides of the protective pad 10. On the interior side of the protective pad 10 shown in FIG. 1B, the middle portion 24 and the lower portion 26 may have a concave interior portion. In particular, the lower portion 26 may have concave interior portion 44 and the middle portion 45 may have concave interior portion 46.

[0030] The outer shell 12 of the knee shell 14 and the shin shell 16 is provided to receive the applied force or shock of an impact, and to distribute the force over a large area. The soft padding material, in addition to acting as a cushion for providing comfort to the wearer, usually acts to absorb and dampen the aforementioned forces in order to protect the wearer from the shock of an impact. However, as mentioned above, despite the padding material, hard shell protective pads such as outer shell 12 of the knee shell 14 and the shin shell 16 do not prevent all injuries or pain from the force of contact due to its limited ability to absorb and displace energy. Likewise, padding such as padding layers 22, 28, 30, 32, 34, and 40-43 absorb some of the energy of impacts to the body. However, the outer shell 12 of the knee shell 14 and the shin shell 16 overlays the padding layers so as to distribute the force of the blow across a larger area of the padding layers. As is known in the art, distributing the force in this manner permits the padding layers to absorb only a portion of the energy associated with the blow. For example, the padding layers 28, 30, 32, and 34 contacts the shinbone, and all or a significant amount of the force of impact may be transmitted to that bone, causing pain or injury.

[0031] To address this, additional protective padding may be located in or at a lower portion of an interior of a protective pad, such as a shin guard, as illustrated in FIG. 2. As shown in FIG. 2, padding element 46 may be positioned in the concave interior portion 44 of the lower portion 26 of the protective pad 10. In one embodiment, the concave interior portion is configured to receive the at least one padding element.

[0032] In one embodiment, the padding element 46 may have a length 47L. The length 47L of the padding element 46 may be any length necessary to provide appropriate protection to the shin portion of the wearer of the protective pad 10. In one embodiment, the length 47L is at least approximately two (2) inches and may be up to approximately three (3) to five (5) inches, although lengths smaller and greater than this may also be used. The padding element 46 may also have a width 47W. The width 47W of the padding element 46 may be any width necessary to provide appropriate protection to the shin portion of the wearer of the protective pad 10. In one embodiment, the width 47W is at least approximately two (2) inches and may be up to approximately three (3) to five (5) inches, although width smaller and greater than this may also be used. The length 47L and width 47W of padding element 46 may be selected based on the size and shape of the protective pad 10, or on the size and shape of lower section 24 or the concave interior portion 44 of the lower portion 26 of the protective pad 10. In one embodiment, the size and shape of the padding element 46 is configured to contour the size and shape of the protective pad 10, or on the size and shape of lower section 24 or the concave interior portion 44 of the lower portion 26 of the protective pad 10.

[0033] The exact location of where the padding element 46 is positioned is not critical and may vary, depending on the size and shape of the protective pad, or on the personal preference of the wearer of the protective pad 10. Although the padding element 46 in FIG. 2 does not extend to the bottom or lower portion, it may do so in some embodiments. In any event, the location of the padding element 46 should be chosen to provide a space or gap between the protective pad 10 and the shin of the wearer, as shown in FIGS. 4 and 5, and discussed more fully below.

[0034] Further, although only a single padding element 46 is shown in the embodiment of FIG. 2, a plurality of padding elements 46 can be used. In this manner, it is possible to dynamically adjust the size and shape (i.e., length and thickness) of the padding element(s) 46 by adding the appropriate numbers and sizes of the padding element(s) 46.

[0035] Further, the padding element 46 may be positioned outside the padding layers or between the padding layers and the outer shell of the protective pad, as shown in FIGS. 3A and 3B. FIG. 3A is a cross sectional view of a lower portion of a protective pad having a protective padding element according to one embodiment. The protective pad in FIG. 3A could be of the type of protective pad shown in FIG. 1A, 1B, or 2. In particular, the protective pad may have padding layer 48 attached to outer shell 52, which may be made of hard plastic. The padding layer 48 may be of a shock absorbing foam material in one embodiment. In one embodiment, a backing layer 50 may be disposed between the padding layer 48 and the outer shell 52. The backing layer 50 may be an EVA/molded foam layer in one embodiment. In the embodiment shown in FIG. 3A, the padding element 46 is positioned outside the padding layer 48.

[0036] In the embodiment shown in FIG. 3B, the padding element 46 is positioned between the padding layer 48 and the backing layer 50.

[0037] The padding element 46 has a thickness 49. The thickness 49 may be chosen to provide appropriate protection to the shin portion of the wearer of the protective pad 10. In one embodiment, the thickness 49 is at least approximately one (1) inches and may be up to approximately two (2) to four (4) inches, although thicknesses smaller and greater than this may also be used. The thickness 49 may be dependent on the type of material used to make the padding element 49. In any event, the thickness 49 should be chosen to provide a space or gap between the protective pad 10 and the shin of the wearer, as shown in FIGS. 4 and 5.
[0038] FIG. 4 is a side view of a protective pad having a protective padding element positioned on a leg of a person such that the protective padding element is configured to provide a space between the leg of the person and a shell of the protective pad according to one embodiment. FIG. 5 is a closer up side view from a lower perspective of the protective pad of FIG. 4. Although FIGS. 4 and 5 illustrate one embodiment showing a protective pad for the leg and shin, in other embodiments, other body parts may be protected by the protective pad.

[0039] In FIGS. 4 and 5, a protective pad 10 is attached to a leg 54 of a person. In one embodiment, the protective pad 10 is attached via straps 17A and 17B. Referring back to FIG. 2, the protective pad 10 includes padding element 46 located in the concave interior portion 44 of the lower portion 26 of the protective pad 10. In FIGS. 4 and 5, the padding element 46 is located in the concave interior portion 44 of the lower portion 26 of the protective pad 10 such that when the protective pad 10 is attached to the leg 54 of the wearer, the outer shell 12 and the padding layer 30 are separated from a shin portion 56 of the leg 54 by a distance 58. A space 60 will exist between the shin portion 56 of the leg 54 and at least one of the outer shell 12 and the padding layer 30 of the protective pad 10. The distance 58 will correspond to the thickness 49 of the padding element 46, depending on the compressibility of the material of the padding element 46. The padding element 46 results in at least the outer shell 12 of the protective pad 10 not being in contact with the shin portion 56 of the wearer. Thus, when the outer shell 12 of the protective pad 10 receives an impact, such as a hockey puck traveling at a high speed, the force of the impact will not be felt on the shin portion 56, or at least the force felt at the shin portion 56 will be greatly reduced. By spacing the outer shell 12 away from the shin portion 56, the outer shell 12 and/or the padding layer 30 can absorb and dissipate more of the force of the impact away from the shin portion 56, resulting in less pain and injury to the wearer of the protective pad 10.

[0040] The padding element 46 is located in the concave interior portion 44 of the lower portion 26 of the protective pad 10 in FIGS. 2, 4, and 5 above. The padding element 46 may be attached to the concave interior portion 44 of the lower portion 26 of the protective pad 10 in any manner possible. In one embodiment, the padding element 46 is formed as an integral piece of the lower portion 26 of the protective pad 10, either during the manufacturing process or alter. In this embodiment, “integral” includes, but is not limited to, the padding element and the lower portion 26 of the protective pad 10 being a unitary piece. In other embodiments, the padding element 46 may be removably attached to lower portion 26 of the protective pad 10, such as by being sewn, glued, taped, or attached via Velcro or other fastening means.

[0041] In other embodiments, the padding element 46 may be located in a pocket disposed in the protective pad 10 or portion thereof; as seen in FIGS. 6A and 6B. FIG. 6A is a front view of a padding element 46 being positioned in a pocket 62 disposed in a padding layer 64, which is part of a protective pad. In one embodiment, the pocket 62 is configured to receive the padding element 46. In one embodiment, the pocket 62 is configured to be of dimensions that correspond to the length 471, the width 47W, and the thickness 49 of the padding element 46.

[0042] FIG. 6B is a front view of a padding element 46 being positioned in a pocket 62 disposed in the backing layer 50 of the protective pad. In one embodiment, the pocket 62 is configured to receive the padding element 46.

[0043] In addition, a padding element 46 integral to the protective pad may be combined with an additional padding element 46 positioned in a pocket 62 of the type shown in FIGS. 6A and 6B. For example, a padding element 46 of a certain thickness may be formed integral to the protective pad. The padding layer 64 or the backing layer 50 or the protective pad may also include a pocket 62 that is configured to receive an additional padding element 46. In this manner, a user of a protective pad that does not have enough padding for that user may add further padding to customize the protective pad for the particular user.

[0044] It will be apparent to those skilled in the art that various modifications and variations can be made without departing from the spirit or scope of the invention. The various elements described herein are not limited to the embodiments discussed in particular Figures. For example, the outer shell 12, knee shell 14, and shin shell 16 of the protective pad 10 may be made of any suitable material. By way of example, the shell 106 can be constructed from a variety of thermoplastic polymer materials, including rigid and semi-rigid material, such as polyurethanes, polyesters, nylon, thermoplastic olefins, thermoplastic elastomers such as styrene block co-polymers, polycarbonates, polypropylenes, ethylene polymeric materials and the like. In one embodiment, the outer shell 12, knee shell 14, and shin shell 16 of the protective pad 10 may be molded or formed in one piece from a known plastic material using known molding or forming processes. One possible material for the outer shell 12, knee shell 14, and shin shell 16 of the protective pad 10 is a relatively hard plastic such as polycarbonate, but other moldable or formable plastic materials known to those skilled in the art can be used; at least some of the plastic materials commonly used for the shell portions of modern plastic protective equipment should also be suitable. Other materials that may be used include, but are not limited to Sorbothane, Impact Modified Polymethylmethacrylate (IM PMMA), High Molecular Weight High Density Polyethylene (HMW HDPE), Neoprene, latex, Kevlar, 3D braided composites, fiberglass, carbon, and the like. The hardness of the material in a given shell thickness should be sufficient to withstand the forces to which the protective pad is likely to be subjected. For example, if used as a shin guard in hockey, the protective pad should be able to withstand impacts from hockey pucks and hockey sticks without deforming, or cracking. In one embodiment, the thickness of the outer shell 12, knee shell 14, and shin shell 16 may be on the order of one-eighth of an inch (0.125”), although thinner and thicker shells can be used depending on the desired degree of protection and the material used.

[0045] Likewise, the padding layers discussed herein, as well as the padding element 46, may be made from a known protective padding material such as, but not limited to, closed cell foam or cushioning gel material, closed cell foam of ethylene vinyl acetate, and many of the known types used in protective sports equipment padding should be suitable provided they can be cut or formed with a suitable thickness. The padding layers and the padding element 46 can be made of any suitable material or composition or materials that provide the degree of cushioning and protection that is desired. The padding layers and the padding element 46 attenuate impact forces to provide cushioning or protection. By selecting thicknesses, materials, and densities for each of the various padding layers and the padding element 46, the degree of...
impact force attenuation may be varied to impart a desired degree of cushioning or protection. Other materials that may be used include molded dual density foam, polyurethane, neoprene, and EPE, EPP, or EVA foams. Foam alternatives may also be used and include, but are not limited to SKYDEX padding, which is commercially provided by Skydex; as set forth in the website www.skydex.com, or SPACENET, which is commercially provided by Spacenet, as listed in the website www.spacenetmaterials.com. The padding element 46 should be of suitable thickness to space the outer shell and padding layer of the protective pad away from the shin portion of the wearer, such that there is a gap or space above and around the shin of the wearer.

The shapes of the padding layers and the padding element 46 may vary significantly. The padding layers and the padding element 46 may exhibit a common or equal thickness, or they may have different thicknesses. As a related matter, the padding layers and the padding element 46 may be a plurality of separate elements, or they may be interconnected, may be a single element, or may have a variety of other conventional or non-conventional configurations.

Although some of the embodiments disclosed herein were discussed with respect to a hockey shin guard, the invention is not limited to such. The principles disclosed hereby would also be applicable to any protective equipment typically comprised of padding with an outer shell, including but not limited to helmets, shoulder pads, kneepads, elbow pads, and hip pads.

Many modifications and other embodiments of the embodiments set forth herein will come to mind to one skilled in the art to which the embodiments pertain having the benefit of the teachings presented in the foregoing descriptions and the associated drawings. Therefore, it is to be understood that the description and claims are not to be limited to the specific embodiments disclosed and that modifications and other embodiments are intended to be included within the scope of the appended claims. It is intended that the embodiments cover the modifications and variations of the embodiments provided they come within the scope of the appended claims and their equivalents. Although specific terms are employed herein, they are used in a generic and descriptive sense only and not for purposes of limitation.

What is claimed is:

1. A protective pad for protecting a body part of a person, the protective pad comprising:
   - an outer shell;
   - at least one padding layer connected to the outer shell; and
   - at least one padding element located in an interior portion of a lower portion of the protective pad, the at least one padding element configured to provide a space between the body part of the person and at least one of the outer shell and the at least one padding layer.

2. The protective pad of claim 1, wherein the body part is a shin portion of a leg and the at least one padding element is configured to provide a space between the shin portion and the at least one of the outer shell and the at least one padding layer.

3. The protective pad of claim 1, wherein by providing the space between the body part and the at least one of the outer shell and the at least one padding layer, the at least one padding element is configured to allow the outer shell and the at least one padding layer to absorb and dissipate a force of an impact to the protective pad away from the body part.

4. The protective pad of claim 1 wherein the interior portion is concave and configured to receive the at least one padding element.

5. The protective pad of claim 1, wherein the at least one padding element has a width of between approximately two (2) inches and approximately five (5) inches, a length of between approximately two (2) inches and approximately five (5) inches, and a thickness of between approximately one (1) inch and approximately four (4) inches.

6. The protective pad of claim 5, wherein at least one of the width, length, or thickness is chosen to contour to one or more of the size and shape of the protective pad; the size and shape of the lower section; and the interior portion of the lower portion of the protective pad.

7. The protective pad of claim 1 wherein the at least one padding element comprises a plurality of padding elements.

8. The protective pad of claim 1, wherein the at least one padding element is disposed between the outer shell and the at least one padding layer.

9. The protective pad of claim 1 wherein the at least one padding element is positioned outside and proximate the at least one padding layer.

10. The protective pad of claim 8 wherein the at least one padding element is positioned between the least one padding layer and the backing layer.

11. The protective pad of claim 1 wherein the at least one padding element is integral to the lower portion of the protective pad.

12. The protective pad of claim 1 wherein the at least one padding element is removably attached to the lower portion of the protective pad.

13. The protective pad of claim 1, further comprising a pocket disposed in the backing layer, the pocket configured to receive the at least one padding element.

14. The protective pad of claim 8, wherein a first padding element is integral to the lower portion of the protective pad, and wherein the protective pad further comprises a pocket disposed in the backing layer or in the at least one padding layer, the pocket configured to receive a second padding element.

15. A method of assembling a protective pad for protecting a body part of a person, the method comprising:
   - providing an outer shell;
   - connecting a padding layer to the outer shell; and
   - positioning at least one padding element in an interior portion of a lower portion of the protective pad such that the at least one padding element is configured to provide a space between the body part of the person and at least one of the outer shell and the padding layer.

16. The method of claim 15, further comprising:
   - choosing at least one of a width, length, and thickness of the at least one padding element to contour to one or more of: the size and shape of the protective pad; the size and shape of the lower section; and the interior portion of the lower portion of the protective pad.

17. The method of claim 15 wherein positioning at least one padding element further comprises positioning a plurality of padding elements.
18. The method of claim 15, wherein positioning at least one padding element further comprises forming the at least one padding element as an integral piece of the lower portion of the protective pad.

19. The method of claim 15, further comprising disposing a pocket in the at least one padding layer, the pocket configured to receive the at least one padding element.

20. A protective pad for protecting a body part of a person, comprising:

   an outer shell having a concave interior section; and
   at least one padding layer connected to the outer shell, wherein the at least one padding layer is configured to provide padding around the concave interior section such that a space is created between the body part and the concave interior section.