ORTHOPEDIC SUPPORT SOCK

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ABSTRACT
An orthopedic support sock having a plurality of first pads secured to the outer side of its bottom and a plurality of second pads secured on selected portions of the sock and the first pad to customize the support for the foot of a wearer.
ORTHOPEDIC SUPPORT SOCK

CROSS-REFERENCE TO RELATED APPLICATION

This application claims priority of U.S. Provisional Patent Application Ser. No. 61/080,085 filed Jul. 11, 2008, which is incorporated herein by reference.

FIELD OF THE INVENTION

The present invention relates generally to an orthotic foot support system, and in particular to an orthotic foot support system comprising a pair of socks and multiple layers of padding attached to the underside of the socks.

BACKGROUND OF THE INVENTION

The utility of orthotic devices adapted to be supported in a shoe so as to distribute the pressure of the foot over the entire plantar surface of the foot and thus distribute pressure away from a particular site of pain is well recognized. The best currently available system involves a customized orthotic made using a plaster mold of a foot, typically by a podiatrist or orthotist. These may be made in the office of the specialist or through use of mail order foot imprints used by the specialist to design a custom orthotic. Alternatively, a variety of cushion pads which may be applied directly to the plantar surface of the foot are available. Finally, there are various shoe inserts available which are not customized for particular patients. Another alternative is the sock which has a gel layer incorporated into the bottom surface of the sock to directly cushion the foot.

SUMMARY OF THE INVENTION

The invention is directed to an orthotic foot support system comprising a pair of socks. A first layer of padding is attached to the underside of the socks, and a second layer of padding attached to the underside of the first layer of padding. The underside of the sock or padding comprises the region of the sock or padding that is furthest away from the bottom of the user’s foot. The first layer of padding comprises a plurality of smaller pads placed adjacent to each other to form a larger pad. The second layer of padding also comprises a plurality of smaller pads.

BRIEF DESCRIPTION OF THE DRAWING

FIG. 1 is an illustration of a preferred embodiment of the orthopedic support sock.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

The present invention is directed toward a novel orthotic comprising pads or cells applied to the underside of a sock that may be drawn over the foot in a conventional manner. While the present invention is discussed hereafter in the context of its preferred embodiments, this is not intended to be a limitation upon the use thereof but rather to afford an intuitive and illustrative usage setting.

The preferred embodiment of the invention comprises three layers, and is depicted in FIG. 1. The first layer of the orthotic comprises a conventional sock 2 that is drawn over a person’s foot. The second layer of the orthotic comprises a padding 4 that is applied to the bottom surface of the first layer 2 with either a permanent or pressure-sensitive adhesive. This padding 4 may be designed in a variety of embodiments. In one embodiment, the padding comprises a plurality of smaller hexagonal shaped pads 6 that are positioned adjacent to one another to form a larger pad. These smaller hexagonal pads 6 may be individually removed from the larger pad in order for the user to customize the orthotic to his foot. The removal of the smaller hexagonal pads 6 creates spaces 8 in the larger pad that comprises the second layer of the orthotic. This allows for the accommodation and comfort for any painful portions of the user’s foot. In other embodiments, the smaller pad may be shaped in some other non-hexagonal shape. The padding may also be tapered or skived at the edges. Adherent wings or tabs may be attached at the periphery of the second layer to give additional adherence and conformity to the shape of the sock on the foot.

The third layer 10 of the orthotic comprises a plurality of pads 12 attached to the bottom of the second layer 4. These pads may be positioned under portions of the foot such as the heel, the toes and the arch. In the preferred embodiment, four such pads are attached to the bottom of the second layer 4. In one embodiment, these pads may be interlocking. These pads should be rough enough so as to provide friction that will prevent the user from skidding while wearing the orthotic, but also be smooth enough so as to allow the user to slide his foot and sock in and out of a shoe with ease. In one embodiment, the underside of this padding comprises a layer of Teflon.

In alternative embodiments, additional layers of padding may be introduced. The order of the padding may also be adjusted, for example, with the third layer adhered directly to the underside of the sock, and the second layer adhered to the third layer. Additional layers may be adhered to either the second or third layers, or directly to the sock itself.

The invention is further directed toward a novel method of determining the positioning and design of the above-described pads. Pad placement may be determined by direct examination of the plantar surface of the foot for regions enduring relatively high and relatively low amounts of pressure. Alternatively, the user may stand on a template material, to create an imprint of their foot. Those regions of the template material in which the user’s foot has created deeper indentations represent relatively high pressure points. It may be beneficial, for example, to remove one, or a plurality of the smaller hexagonal pads 6 from the second layer padding 4 in regions proximate to high pressure points of the foot. It may also be beneficial, for example, to increase the thickness of the second or third layer padding in regions proximate to low pressure points of the foot. In this way, pressure is distributed away from the high pressure points. In one embodiment, this method may comprise stepping on a surface with a wet foot. The areas that are the most wet would indicate high pressure points, whereas with minimal to no wetness would represent low pressure points.

A variety of methods may be used to attach the three layers of the orthotic to each other. In one embodiment, an adhesive such as glue may be used. In another embodiment, interlocking mesh fabric such as Velcro may be used.

While the above description discloses the preferred embodiments of the invention, it will be appreciated that numerous modifications and other embodiments may be devised by those skilled in the art. For example, it will be appreciated that features of the embodiments disclosed above can be used in various combinations and permutations. Therefore it will be understood that the appended claims are
intended to cover the foregoing—and all other—modifications and embodiments that come within the spirit and scope of the present invention.

1. An orthotic foot support system comprising:
   a pair of socks; and
   a first layer of padding attached to the underside of the socks;
   wherein the underside of the sock or padding comprises the region of the sock or padding that is furthest away from the bottom of the user’s foot; and
   wherein the first layer of padding comprises a plurality of smaller pads placed adjacent to each other to form a larger pad;

2. The orthopedic foot support system of claim 1 further including a second layer of padding attached to the underside of the sock and the first layer of padding.

3. An orthotic foot support system comprising:
   a pair of socks; and
   a first layer of padding attached to the underside of the socks;
   a second layer of padding attached to the underside of the first layer of padding;
   wherein the underside of the sock or padding comprises the region of the sock or padding that is furthest away from the bottom of the user’s foot;
   wherein the first layer of padding comprises a plurality of smaller pads;
   wherein the second layer of padding comprises a plurality of smaller pads placed adjacent to each other to form a larger pad.

4. The orthotic foot support system of claim 1, comprising at least one additional layer of padding.

5. The orthotic foot support system of claim 2, comprising at least one additional layer of padding.

6. The orthotic foot support system of claim 1, wherein at least one of the smaller pads of the first layer of padding is removed thereby creating a gap in the first layer of padding.

7. The orthotic foot support system of claim 2, wherein at least one of the smaller pads of the second layer of padding is removed thereby creating a gap in the second layer of padding.

8. The orthotic foot support system of claim 1 wherein the smaller pads of the second layer of padding are positioned in regions proximate to at least one of the following regions of the supported foot:
   the heel of the foot;
   the toes;
   the arch of the foot.

9. The orthotic foot support system of claim 2 wherein the smaller pads of the first layer of padding are positioned in regions proximate to at least one of the following regions of the supported foot:

10. A method of forming a customized orthotic foot support system having a pair of socks, a first layer of padding attached to the underside of the socks, a second layer of padding attached to the underside of the first layer of padding; wherein the underside of the sock or padding comprises the region of the sock or padding that is furthest away from the bottom of the user’s foot; wherein the first layer of padding comprises a plurality of smaller pads placed adjacent to each other to form a larger pad; and wherein the second layer of padding comprises a plurality of smaller pads, the method comprising:
   standing on an impressionable surface so as to create an imprint of the foot on the surface;
   examining said imprint for regions with relatively deep indentations, and for areas with no indentations or relatively shallow indentations, wherein the regions with deep indentations are associated with high pressure points on the corresponding region of the foot, and the regions with no indentations or relatively shallow indentations are associated with relatively low pressure points on the corresponding region of the foot;
   removing at least one of the smaller pads of the first layer of padding so as to create a gap in the first layer of padding, said removed smaller pad being proximate to at least one of the high pressure points of the foot, as indicated by the indentations of said imprint.

11. A method of forming a customized orthotic foot support system having a pair of socks, a first layer of padding attached to the underside of the socks, a second layer of padding attached to the underside of the first layer of padding; wherein the underside of the sock or padding comprises the region of the sock or padding that is furthest away from the bottom of the user’s foot; wherein the first layer of padding comprises a plurality of smaller pads; and wherein the second layer of padding comprises a plurality of smaller pads placed adjacent to each other to form a larger pad, the method comprising:
   standing on an impressionable surface so as to create an imprint of the foot on the surface;
   examining said imprint for regions with relatively deep indentations, and for areas with no indentations or relatively shallow indentations, wherein the regions with deep indentations are associated with high pressure points on the corresponding region of the foot, and the regions with no indentations or relatively shallow indentations are associated with relatively low pressure points on the corresponding region of the foot;
   removing at least one of the smaller pads of the second layer of padding so as to create a gap in the second layer of padding, said removed smaller pad being proximate to at least one of the high pressure points of the foot, as indicated by the indentations of said imprint.

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