

AN ABDOMINAL AND LOWER BACK SUPPORT DEVICE FOR A
PREGNANT WOMAN

This invention specifically relates to a device to alleviate the problem of providing back and lower
5 abdominal support for a woman from mid to late pregnancy. It is particularly useful for working women who, in the course of their work duties, need to remain on their feet for protracted periods of time.

In US Patent No. 4,697,592, there is disclosed a
10 support system including underpants formed of resilient material and two bands or belts which are stitched together at mid-points and which are each equipped with adjustable fastening means. It aims to provide a
15 wearer with abdominal and lower back support by means of the bands which could be adjusted to form a continuous loop starting from the lumbo-sacral region of the spine just above the buttocks and ending in the lower abdomen slightly above the pubis.

The above prior art device, while it provides some
20 external, reinforcing support to the abdomen and the lumbo-sacral region of the spine, does not alter the basic weight-bearing structure of a pregnant woman in an upright position. Specifically, it does not seek to help alleviate stress to the affected regions by
25 transferring the awkward and heavy load of the pregnant uterus to other parts of the skeletal structure more suited to weight-bearing in humans.

The present invention overcomes or mitigates the problems associated with the known prior art.

30 According to the present invention there is provided a support device for a pregnant woman, which comprises:

an abdominal support capable of supporting the underpart of a pregnant abdomen which abdominal support
35 is substantially crescent-shaped or semi-circular in shape and the length of which abdominal support is

adjustable;

a back support capable of being worn around the lower back in use and of connection with the abdominal support; and

- 5 at least one shoulder strap connectable to the abdominal support and being capable in use of transferring weight from the abdomen to the shoulder of a wearer, and

- an underpart piece capable of passing from the
10 abdominal support to the back support, which underpart piece is detachable from the remainder of the device.

The underpart piece in use passes from the abdominal support in the front, between the legs of the wearer, to the back support in the rear.

- 15 The abdominal support should be adapted in shape so as to provide maximum support for the pregnant abdomen. The abdominal band is of a crescent or semi-circular shape, as this design maximizes the contact area between the surface of the lower abdomen and the
20 support device, thus helping to spread the pressure and thereby ensure the comfort of the wearer.

- The length of the abdominal support is adjustable and the other dimensions of the abdominal support are preferably adjustable. For this purpose the abdominal
25 support may be provided with adjustment means. The length of the abdominal support could be adjustable, for example, if the abdominal support is connected to the back support by adjustable straps, which cooperate with corresponding attachment means on the back
30 support. Alternatively the attachment means could be provided on the abdominal support with adjusting means provided on the back support.

- Adjustment of the abdominal support could, for example, be accomplished by pulling straps located on
35 the ends of the support through rings provided in the back support being located on both sides of the lower waist when worn. This ensures that adjustment can be symmetrical and that the abdominal support conforms

with the shape of the abdomen at different stages of pregnancy.

Preferably, the abdominal support extends upwards in width from the area of the pubis to a point about an
5 inch below the navel. This allows the fabric of an outer garment being worn to hang freely down from the apex of the abdomen, rendering the support device virtually invisible from the outside.

The device is preferably provided with two
10 shoulder straps which in use pass from the abdominal support over the wearer's shoulders from the front to the back and down to the back support or part of the abdominal support. The shoulder strap(s) and back support may conveniently form a harness with all
15 components connected in such fashion as to form a single piece to facilitate handling.

The back support conveniently takes the form of a belt. The back support should be of sufficient breadth to provide comfortable support. Preferably it is
20 greater than 3.5 to 4 cm in width, e.g. no less than one and a half inches in width. It is preferably made of sturdy semi-elastic material. Both the width and the elasticity of the belt should be aimed at providing comfort to the wearer. The belt's elasticity also
25 helps to keep the support device in place when the wearer sits or reclines. As mentioned above the back support must be capable of connection with the abdominal support and that connection is preferably adjustable. The back support may be provided for this
30 purpose with rings located at the ends of the back support belt preferably made of a material that is strong and with a smooth finish. A smooth finish is important for two reasons: first, it does not cause abrasion or irritation when it remains in direct
35 contact with the skin surface for protracted periods of time; second, it facilitates adjustment of the

abdominal support which passes through these rings. The exact shape of the rings could vary although the preference is for a squarish shape with rounded corners.

- 5 When there are two shoulder straps they are preferably such that, when worn, they are able to be criss-crossed over the back of the wearer for which purpose they may be interconnected at a suitable point. The width of the strap(s) could be increased at
- 10 appropriate pressure points (such as where in use they contact the shoulder) to further prevent discomfort after prolonged wear. In a preferred embodiment a sliding pad is proposed for each shoulder strap. This pad may be made of slightly spongy material to spread
- 15 pressure at the point of contact at the shoulder. It has been found that the strap or straps are advantageously made with semi-elastic materials which provide the requisite strength on the one hand and the desired "give" on the other. Each strap is preferably
- 20 designed so as to be adjustable in terms of length. The mechanism for adjustment could vary. While a simple design that is proposed is a velcro^(RTM) system, others such as that commonly found in brassieres could do just as well. For easy reach by the wearer, it is
- 25 preferable that the adjustment mechanism is located at a point in front of the body and about chest-high - well out of the way of the protruding abdomen. Each shoulder strap for the purpose of transferring weight is connectable to the abdominal support. Any
- 30 convenient means of connection such as those previously mentioned, could be used. In one embodiment the shoulder straps terminate in quick-release metal clasps. When the support device is worn, these clasps are used to secure the shoulder straps to convenient
- 35 points on the upper edge of the abdominal support, these clasps preferably do not have sharp or jagged

edges.

The underpart piece when used obviates the necessity of wearing separate underpants; it also serves the important function of keeping the device in place when the woman sits, reclines, or otherwise adopts posture positions that may result in the abdominal support sliding out of place. The underpart piece may be attached to the lower edge of the abdominal support just above the pubis. Snap buttons may be used as the attachment mechanism which allows for added strength on the one hand and easy removal on the other. For the wearer's comfort, the underpart piece is preferably adjustable in terms of length, for example at the point where it attaches onto the back support. In one embodiment adjustment is accomplished by means of a velcro mechanism. Easy removal of the underpart piece from the device is important for toilet functions and to facilitate washing. The piece is preferably made of slightly stretchable material. For added convenience of the user, more than one underpart piece may be provided with the support device.

To ensure general hygiene, the materials used for all parts of the support system are preferably machine-washable.

Comfort to the wearer would be enhanced if care is chosen with regards to the material used for the device, which should preferably be resilient but lightweight, porous and absorbant.

Where velcro is used throughout the design, it is desirable that the "female" or the "velvet" component of the velcro faces outward from the wearer's body. This is to avoid fabric of the outer garment being snagged by the "male" or the "crochet" component. Velcro is a registered trade mark.

For a better understanding of the present invention and to show how it may be put into effect

reference will now be made to the accompanying drawings in which:

Figure 1 is a sketch of a device according to the invention including its components in a disassembled state;

Figure 2 is a sketch of a front view of a pregnant woman fitted with the device of Figure 1;

Figure 3 is a sketch of the side view of the pregnant woman of Figure 2;

Figure 4 is a sketch of the rear view of the pregnant woman of Figure 2;

Figure 5 is a detail of the abdominal support of the device of Figure 1;

Figure 6 is a detail of the shoulder straps of the device of Figure 1;

Figure 7 is a detail from the front of the underpart of the device when in use; and

Figure 8 is a detail from the rear of the underpart of the device when in use.

The support device (1) shown comprises an abdominal support (2), an underpart piece (3) and a harness (4) formed of two shoulder straps (5a, 5b) and a back support (6). The abdominal support (2) is a substantially crescent shaped body (7) having at each end an attachment strap (8a, 8b). On the outer side (in use) of each attachment strap (8a, 8b) a layer of velcro (9a, 9b) is provided which corresponds, i.e. is able to connect with, one of two layers of velcro (10a, 10b) provided on the outer side (in use) of the body (7) of the abdominal support (2). Towards the lower edge (11) of the body (7) of the abdominal support (2) is provided a series of snap fasteners (12).

The underpart piece (3) is formed from a strip of material which is shaped so as to comfortably fit between the legs (13a, 13b) of a wearer (14). At its front end (15) it is provided with a series of snap

fasteners (16) which cooperate with those (12) provided on the abdominal support (2). At its rear end (17a) the underpart piece (3) is provided with a strip of velcro (17).

5 The back support (6) of the harness takes the form of a belt (18) at each end of which is provided an attachment ring (19a, 19b). The back support (6) is also provided with means for attachment to the underpart piece (3) which in this embodiment takes the
10 form of a loop of material (20) looped onto the belt (18) having a downwardly extending attachment piece (21) provided with a layer of velcro (22), which is able to cooperate with the strip of velcro (17) provided on the rear end (17a) of the underpart piece
15 (3).

 The shoulder straps (5a, 5b) are each attached at one end (23a, 23b) to one of the attachment rings (19a, 19b) of the back support (6). At their other ends (24a, 24b) the shoulder straps (5a, 5b) are each
20 provided with a metal or plastic clasp (25a, 25b) which is capable of attachment to the abdominal support (2). Each shoulder strap (5a, 5b) is also provided with an adjustably mounted shoulder pad (26a, 26b). The shoulder straps (5a, 5b) are each formed of two parts
25 (5a & a', 5b & b') so as to be adjustable in length; the two parts (5a & a', 5b & b') being jointed together by cooperating strips of velcro (27a & a', 27b & b') and by means of a guide ring (28a and 28b). The shoulder straps (5a, 5b) are crossed-over each other
30 and held in this position by means of a guide ring (29) through which the straps (5a, 5b) are passed.

 In use the abdominal support (2) is fitted around the front underpart of the pregnant abdomen (30) of the wearer (14). The attachment straps (8a, 8b) of the
35 abdominal support (2) are passed through the attachment rings (19a, 19b) of the back support (6) and folded

back on themselves. The attachment straps (8a, 8b) are fastened by means of the cooperating velcro strips (9a, 9b and 10a, 10b) in a position so that the abdominal support (2) fits comfortably around the pregnant
5 abdomen (30) and the belt (18) of the back support (6) fits comfortably around the lower back (31) of the wearer (14). Figure 5 in particular illustrates how the abdominal support could be adjusted to comfortably accommodated the increasing girth of the abdomen as
10 pregnancy progresses. The underpart piece (3) is attached to the front lower edge (11) of the abdominal support (2) by means of the cooperating snap fasteners (12 and 16), passed between the legs (13a, 13b) of the wearer (14) and attached to the attachment piece (21)
15 of the back support (6) by means of the cooperating velcro strips (17 and 22). The shoulder straps (5a, 5b) are attached to the upper edge (32) of the abdominal support (2) by means of the clasps (25a, 25b) and pass over the chest (33) of the wearer (14), over
20 the shoulders (34a, 34b) and down over the back (35), where they are criss-crossed, to the attachment rings (19a, 19b) of the back support (6). The shoulder pads (26a, 26b) are positioned under the shoulder straps (5a, 5b) on the shoulders (34a, 34b) of the wearer.
25 Figure 6 in particular illustrates how the length of the shoulder straps could be adjusted for comfort and support.

The weight of the pregnant abdomen (30) is thereby distributed by the device (1) from the abdominal region
30 to the back and most importantly to the load-bearing shoulders of the wearer (14).

The present invention aims to provide external support to the lower abdomen and back and, at the same time, to specifically relieve stress on the lumbo-
35 sacral region of the spine by transferring much of the weight of the pregnant uterus in such a fashion as to

be borne by the shoulders when a woman wearing the support is an upright position.



CLAIMS

1. A support device for a pregnant woman which comprises:

an abdominal support capable of supporting the
5 underpart of a pregnant abdomen which abdominal support is substantially crescent-shaped or semi-circular in shape and the length of which abdominal support is adjustable;

a back support capable of being worn in use around
10 the lower back and of connection with the abdominal support;

at least one shoulder strap connectable to the abdominal support and being capable in use of transferring weight from the abdomen to the shoulder of
15 a wearer; and

an underpart piece capable of passing from the abdominal support to the back support, which underpart piece is detachable from the remainder of the device.

2. A device according to claim 1, wherein the
20 abdominal support is provided with attachment straps by which it may be connected to the back support so as to be adjustable in length.

3. A device according to claim 2, wherein in use after connection to the back support the attachment
25 straps are folded back on themselves, with the degree to which they are so folded back determining the length of the abdominal support.

4. A device according to any preceding claim, wherein the length of the underpart piece is
30 adjustable.

5. A device according to any preceding claim, wherein the shoulder straps and back support are connected together to form a single-piece harness.

6. A device according to any preceding claim,
35 wherein there are two shoulder straps provided.

7. A device according to claim 6, wherein the two shoulder straps are interconnected at a suitable



11.

place so as to cross over each other.

8. A device according to any preceding claim, wherein the or each shoulder strap is adjustable in length.

5 9. A device according to any preceding claim wherein the or each shoulder strap is provided with means for its attachment to the abdominal support.

10 10. A device according to claim 9, wherein the or each shoulder strap is secured to the upper edge of the abdominal support by a quick-release clasp.

11. A device according to any preceding claim, wherein the or each shoulder strap is provided with a shoulder pad.

15 12. A device according to any preceding claim, wherein the back support is in the form of a belt provided at each end with attachment means.

13. A support device for a pregnant woman substantially as hereinbefore described with reference to, and as illustrated in, the accompanying drawings.