SUMMARY OF THE INVENTION

It is an object of the present invention to provide an orthopedic pillow that treat, and prevent, lumbar and thoracic spine diseases. These diseases include lumbar and thoracic disc herniation, spondylolisthesis, and thoracic kyphosis.

According to the invention, an orthopedic pillow for treatment of lumbar and thoracic spine diseases comprises a padded member and a hard block fully inserted inside the padded member. The padded member is made of resilient materials such as foam, rubber, or cotton. The shape of the padded member is roughly similar to that of a rectangular block ~~or hexagonal block if being looked in the front-to-back. direction~~; wherein the padded member has a flat bottom side, a top side, vertically flat left and right sides (first and second sides), and curved front and back sides (third and fourth sides) arranged such that the top side is perpendicular to the adjacent left, right, top and bottom sides (first, second, third and fourth sides); however, if looked right from its right or left side, the padded member has a symmetric ~~or asymmetric~~ bell shape, whose bottom ~~might be~~is broader than the top to ensure stability. The length of the long side of the padded member is roughly equal to an adult's body's width.

The hard block is made of non-resilient material such as wood, polystyrene foam, or hard rubber. The hard block is able to tolerate, without rupturing ~~or deformation~~, the gravity force on a mass of about 140 kg with a shape and size similar to those of a person's body. The shapes of the hard block and of the padded member are similar to each other, and their dimensions are proportional~~, having a symmetric bell shape when the orthopedic pillow is used for the thoracic spine or asymmetric bell shape when the orthopedic pillow is used for the lumbar region, in order to bend in compliance with the curve created by the lumbar and sacral bone~~. The length of the long side of the hard block is also roughly equal to an adult's body's width. Both the padded member and the hard block have a flat bottom side.

To use the pillow to treat lumbar and thoracic diseases including disc herniation, spondylolisthesis, and thoracic kyphosis, a person needs to be in supine position, and then puts the pillow under his back ~~or chest~~ so that the long side of the pillow is

perpendicular to his spine. The pillow needs to be positioned right under the herniated disc, slipped vertebra, or kyphotic area. Under the gravity force of the person's body,

the hard block generates a vertical reaction force that gradually pushes the herniated disc or the slipped vertebra back to its normal position, or gradually adjusts the kyphotic thoracic spine back to its normal curve. The reason the hard block is made of non-resilient materials, instead of resilient materials, is not only to ensure that the reaction force is not absorbed excessively therefore its magnitude stays at a certain level but also to keep the reaction force always vertical and consistent in strength over time. The padded member is made of resilient materials to mildly absorb the person's body's gravity force, therefore reducing the reaction force generated by the hard block, giving the person comfort when using the pillow.

As the top of the padded member ~~and hard block~~ is wider, at a certain ratio, than the top of the hard block, ~~the width of the hard block is similar to the dimension of two thoracic vertebrae with regard to the symmetric bell shape or the width of this hard block is similar to five dorsal vertebra with regard to the asymmetric bell shape for lumbar~~, the padded member spreads the reaction force, reducing the pressure the pillow puts on a certain area of the person's body to the level that is adequate to treat the diseases while not damaging the spine. Furthermore, the height of the pillow is computed so that the magnitude of the gravity force, ~~the height of the pillow is computed to be nearly double the width thereof with regard to the hard symmetric bell block, in case of the hard asymmetric bell block, the height of the pillow is similar to the width of the pillow,~~ therefore of the reaction force, is at the right level to treat the diseases, not too high to damage the spine or too low to reduce the treatment effect of the pillow.

BRIEF DESCRIPTION OF THE DRAWINGS

The invention will be better understood when consideration is given to the following detailed description thereof. Such description makes reference to the annexed drawings wherein:

FIG. 1 is a right perspective view of an orthopedic pillow for treatment and prevention of lumbar and thoracic diseases according to the invention.

FIG. 2 is a left perspective view of the pillow shown in FIG. 1.

FIG. 3 is a cross-sectional view of the pillow of FIG. 1 along the line A- A' shown in FIG. 2.

FIG. 4 is a cross-sectional view of the pillow of FIG. 1 along the line B-B' shown in FIG. 2.

FIG. 5 illustrates how to use the pillow of FIG. 1.

DETAILED DESCRIPTION OF THE INVENTION

The present invention provides an orthopedic pillow that is used for treating and preventing lumbar and thoracic spine diseases including lumbar and thoracic disc herniation, spondylolisthesis, and thoracic kyphosis.

As shown in Figures 1 -4, the said pillow 100 comprises a padded member 200 and a hard block 300 fully inserted inside the padded member 200. The padded member 200 is made of resilient materials such as foam, rubber, or cotton. The padded member 200's shape is roughly similar to that of a rectangular ~~or hexagonal~~ block; however, if looked right from its right side or left side 202, the padded member 200 has a symmetric bell shape whose bottom 202B is broader than the top 202T to ensure stability. The length of the long side of the padded member 200 is roughly equal to an adult's body's width.

The hard block 300 is made of non-resilient material such as wood, polystyrene foam, or hard rubber. The hard block 300 is able to tolerate, without rupturing ~~and/or deformation~~, the gravity force on a mass of about 140 kg with a shape and size similar to those of a person's body. The shape of the hard block 300 and of the padded member 200 are similar, and their dimensions are proportional. ~~The hard block 300 and the padded member 200 can have a symmetric or asymmetric bell shape, depending on the body regions: the symmetric bell shape is used for the thoracic spine, the asymmetric bell shape is used for the lumbar region, in order to bend in compliance with the curve~~

~~created by the lumbar and sacral bone.~~ The length of the long side of the hard block 300 is also roughly equal to an adult's body's width.

Both the padded member 200 and the hard block 300 have flat bottom sides 203 and 303, respectively, as shown in FIG. 3.

FIG. 5 illustrates how to use the pillow 100. To use the pillow 100 to treat lumbar and thoracic diseases including disc herniation, spondylolisthesis, and thoracic kyphosis, a person needs to be in supine position, and then puts the pillow 100 under his back so that the long side of the pillow 100 is perpendicular to his spine.

The pillow 100 needs to be positioned right under the herniated disc or slipped vertebra. Under the gravity force F1 of the person's body, the hard block 300 generates a vertical reaction force F2 that gradually pushes the herniated disc or the slipped vertebra back to its normal position or gradually adjusts the kyphotic thoracic spine back to its normal curve.

The reason the hard block 300 is made of non-resilient materials, instead of resilient materials, is not only to ensure that the reaction force F2 is not absorbed excessively therefore its magnitude stays at a certain level but also to keep the reaction force F2 always vertical and consistent in strength over time. The padded member 200 is made of resilient materials to mildly absorb the person's body's gravity force Fl, therefore reducing the reaction force F2 generated by the hard block 300, giving the person comfort when using the pillow 100.

As the top 202T of the padded member 200 is wider, at a certain ratio, than the top 302T of the hard block 300, the padded member 200 spreads the reaction force F2, reducing the pressure the pillow 100 puts on a certain area of the person's body to the level that is adequate to treat the diseases while not damaging the spine. ~~the width of the hard block is similar to the dimension of two thoracic vertebrae with regard to the symmetric bell shape or the width of this hard block is similar to five dorsal vertebra with regard to the asymmetric bell shape for lumbar, the top surface of the padded~~

~~member 200 is wide enough to uniformly spread the reaction force F2 over a certain area of the spine in order to support the dorsal vertebrae without damaging the spine, the length of the hard block 300 inserted in the padded member 200 is similar to the width of an adult's back, thereby assisting the entire back seating back on this block.~~ Furthermore, the height H of the pillow 100, as indicated in FIG. 3, is computed ~~to be nearly double the width thereof with regard to the hard symmetric bell block, in case of the hard asymmetric bell block, the height of the pillow is similar to the width of the pillow,~~ so that the magnitude of the gravity force Fl, therefore of the reaction force F2, is at the right level to treat the diseases, not too high to damage the spine or too low to reduce the treatment effect of the pillow 100.

CLAIM

What is claimed is:

1. An orthopedic pillow for treatment and prevention of lumbar and thoracic spine diseases comprising:

a padded member made of resilient materials such as foam, rubber, or cotton, and a solid block fully inserted inside the padded member, which is made of non-resilient material such as wood, polystyrene foam, or hard rubber;

wherein the padded member and solid block each has a ~~rectangular~~ flat bottom side, a top side, ~~and~~ vertically flat ~~left~~ first and ~~right~~ second sides, curved third and fourth sides, arranged such that the top side is perpendicular to the adjacent first, second, third, and fourth sides, and a symmetric bell shape cross section when viewed from the first or second side with the bottom of the bell shape cross section being broader than the top of the bell shape cross section~~if looked right from its right of left side, the padded member has a symmetric or an asymmetric bell shape~~;

wherein the length of the long side of the padded member is roughly equal to an adult's body's width~~;~~.

~~the shape of the hard block and of the padded member is a symmetric bell shape when used for the thoracic spine and the width of the hard block is similar to the dimension of two thoracic vertebrae and the height of the pillow is computed to be nearly double the width of the pillow;~~

~~the shape of the hard block and of the padded member if the orthopaedic pillow is an asymmetric bell shape when used for the lumbar region, in order to bend in compliance with the curve created by the lumbar and sacral bone and the width of the hard block is similar to five dorsal vertebra and the height of the pillow is similar the width thereof,~~

~~the height of solid block is conform so that has ability created the slope and bended back or thoracic forward when a user puts his back or thoracic on this solid block.~~

~~The solid block is made of very hard material and has ability to tolerate the high pressure without being broken so that the solid block has capable adjusting the spine of user when lying by the weight himself.~~

2. The orthopaedic pillow ~~as claimed in~~according to claim 1, wherein a user's weight exerts a first force on the solid block, and the solid block exerts a second force in an opposite direction to the first force ~~the solid block create a vertical F2 force or feedback~~

~~force similar to a F1 force created by a user's weight pressing on the pillow~~ to adjust ~~a~~the spine of the user back to its normal position or curve.

3. The orthopaedic pillow according to any preceding claim, wherein the solid block is able to tolerate, without rupturing, a gravitational force acting on a mass up to about 140 kg with a shape and size similar to a human body.