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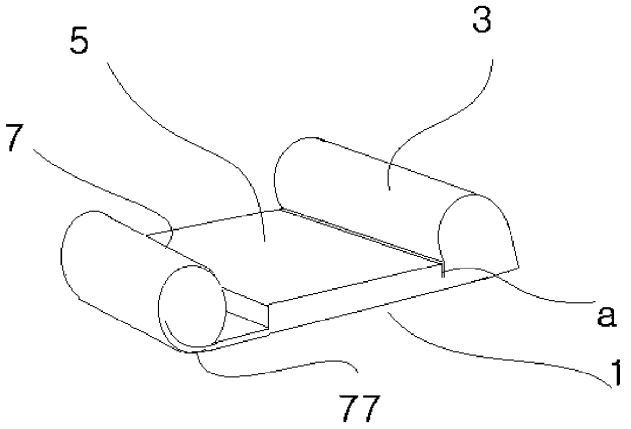
(54) AUXILIARY DEVICE FOR EXERCISING ABDOMINAL MUSCLES

(57) There is provided an auxiliary device for abdominal muscle exercise, and more particularly, to an auxiliary device for abdominal muscle exercise having a simple shape in which two supports are connected to each other by a board for easily exercising and strengthening the body. To achieve the objects of the present invention, the auxiliary device for abdominal muscle exercise comprises: a first support (3) being of a predetermined height and size sufficient to support the sacral region just beneath the lumbar region in use; a board (5) secured to and extending from the bottom surface of the first support (3); anda second support (7) secured to and positioned on the end of the board (5) opposite to the first support (3). Preferably, the width of the board (5) [the shortest distance between the first support (3) and the second support (7)] and the height and inclination of the second support (7) may be formed to support the lesser trochanter region of the femur. The second support (7) may be connected with adjusting means (77) to adjust the width of the board (5).

【FIG 2】



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Description

[Technical Field]

[0001] The present invention relates to an auxiliary device for an abdominal muscle exercise, and more particularly, toanauxiliary device for an abdominal muscle exercise in a simple shape in which two supports are connected to each other by a board, to easily and continuously exercise the abdominal muscles.

[Background Art]

[0002] Most conventional abdominal muscle exercise machines which have been used in health clubs (fitness centers), etc. are big and complicated. Those that are more easily used at home are structured to secure or hold a user's feet or to provide a seesaw motion.

[0003] Each of Korean Utility Model Registration Publication Nos.(Y1) 20-0302525 (entitled "*sports appliance for training abdominal muscle"* by *YU, IHyun*) and 20-0313393 (entitled *"isokinetic exercising machine of abdominal muscle, waist muscle, leg muscle"* by *KANG, JiSoo*and*SUNG, YouIHye)* discloses the device in a lying chair shapewhich is used by securing a user's feet. Specifically, these devices are not suitable to be used at home since they take up a lot of space. Also, since the user pulls up the upper body using the strength of the user's legs after securing the feet, these devices make it difficult to continue exercising for a long time.

[0004] Devices having a smaller volume and simple shape are disclosed in Korean Utility Model Registration Publication Nos. (Y1) 20-0436125 (entitled "inflatable exercise device for strengthening abdominal muscle" by KIM, Jae-young) and 20-2011-0011624 (entitled *"muscle strengthening exercise equipment for waist and abdomen"* by SONG, Eui Jin). These devices receive a user's hip and back. The user may lie face down or face up in these devices. These are to help the abdominal muscle exercise but occupy a relatively large space. Korean Utility Model Laid Open Publication No. (U) 20-2010-0006144 (entitled *"waist exercise device"* by *PARK, Kwon Soon)* also discloses a device where a user exercises in a lying position. However, it requires a considerable strength of the user in contracting and relaxing the abdominal muscles.

[0005] Much smaller and simple exercise devices are disclosed in Korean Utility Model Registration Publication Nos. (Y1) 20-0270662 (entitled *"abdomen swing exerciser"* by LIN, Shih Yuan) and 20-0266031 (entitled *"waist exercise device"* by *JEN, Yong Ken*). These are the devices characterized in simple structures and small dimensions. Each device is shaken by having the bottom formed in an inverted triangle shape or in a round shape. However, the exercise effect resulting from the repetitive muscle exercise using this method is low and the muscle building is not properly done with too much help from the device.

[0006] In short, basically these conventional devices are too big in volume to be used at home. Even with the small devices, since it is hard to work the abdominal muscles, it is difficult to keep exercising. Even if it is not hard to do the abdominal exercise, since the help/dependency from/to the devices is too much, those devices have the structures which lower the effect of the abdominal muscle exercise.

[0007] Generally, the two abdominal muscle exercises which are known as very effective in strengthening the abdominal muscles are as follows: one is that, while hanging down from a chin-up bar and straightening both legs, a person lifts up the two legs forwardly and puts them down (repetition of "I" to "L" shape position). The other is that, as shown in FIG. 9, while lifting two legs (with two arms) and the upper body centering around the hip (coccyx) and unfolding two knees a little bit, a person repetitively pulls the two knees towards the chest to contract the abdominal muscles and immediately return the knees to the original position to release the abdominal muscles (repetition of the motions A and B of FIG. 9).

[0008] However, the first method is to lift up two legs at the same time in the condition that the two legs are unfolded (that is, the condition that the leg muscles are stiff/inflexible). Thus, since it is too hard for general people to repeat those motions, it is difficult to repeat more that two or three times. The second method is very effective for sports athletes to strengthen the abdominal muscles on a bench or the floor but it is difficult for general people to keep repeating those motions as the abdominal muscle exercise.

[0009] The inventor of the present invention devised an exercise device to supplement the second method, based on research with the premise to meet the following requirements: (1) It shall be possible to control the exercise intensity from the minimum level to the maximum level according to the exercise capability of a user. (2) The posture stability of a user should be secured. (3) The abdominal exercise shall be continuously possible. (4) The volume of the device shall be small so that it is easy to carry and to use anytime and anywhere as well as at home.

[0010] During the research, the inventor of the present invention understood that the continuous repetition of the motions was possible: That is, on the premise of the posture mentioned in relation to the second method, when the muscles are not completely relaxed, you slowly contract the abdominal muscles and then immediately relax the muscles. But, to repeat the contraction and relax, you should secure the center point of strength and simultaneously secure the support point to secure the reaction in order that the waist muscles to generate the strength should not completely relax.

[0011] Accordingly, the inventor found that the aforementioned purposes could be all achieved if a device would have a very simple structure to support the sacral region and the lesser trochanter region of the femur by applying the above principles, to invent the present in-

vention.

[Disclosure]

[Technical Problem]

[0012] Therefore, it is an object of the present invention to solve the above problems and to providean auxiliary device for abdominal muscle exercise which makes it possible to control the exercise intensity from the minimum level to the maximum level according to the exercise capability of a user.

[0013] It is another object of the present invention to provide an auxiliary device for abdominal muscle exercise which makes it possible to continuously do the abdominal muscle exercise by securing the stability of the exercise posture and simultaneously using the repulsive force.

[0014] It is another object of the present invention to provide an auxiliary device for abdominal muscle exercise which is small in volume to be easily carried so as to be easily used anytime and anywhere as well as at home.

[Technical Solution]

[0015] In accordance with an aspect of the present invention, there is provided an auxiliary device for abdominal muscle exercise which comprises: a first support having the height and size sufficient to support only the sacral region just beneath the lumbar; and a board extending from the bottom surface of the first support, wherein the material of the board has flexibility to be placed and used on an uneven surface like a sofa, etc.

[0016] In accordance with another aspect of the present invention, there is provided an auxiliary device for abdominal muscle exercise which comprises: a first support having the height and size sufficient to support the sacral region just beneath the lumbar; a board extending from the bottom surface of the first support; and a second support positioned on the end of the board being opposite to the first support, wherein the size of the board and the height and inclination of the second support are formed to support the lesser trochanter region of the femur.

[0017] Preferably, the second support may be connected toadjusting means to adjust the width of the board.

[0018] Preferably, the board, the first support and the second support may use a cushioning material in their respective parts touching a human body (coccyx, etc.).

[0019] Preferably, the board, the first support and the second support may be integrally formed by using reinforced plastics, specifically having elasticity, or compressed plywood materials.

[0020] Preferably, the height of the first support may be 7~14cm from the surface of the board, the height of the second support may be 5~9cm from the surface of the board, and the width of the board (the shortest distance between the first support and the second support) may be adjustable within the range of 7~15cm.

[Advantageous Effects]

[0021] According to the constitution of the present invention, the auxiliary device for abdominal muscle exercise is very simple and small. A user puts the auxiliary device on the sofa and sits on the board so that the first support supports the sacral region of the user. Then, the user can continue the abdominal muscle exercise even while watching TV.

[0022] The present invention also provides a very simple and small auxiliary device for abdominal muscle exercise. The user sits on the board and adjusts it so that the first support supports the sacral region of the user and the second support supports the lesser trochanter region. Then, it is possible to do the abdominal muscle exercise on the floor, etc.

[0023] According to the present invention(s), the user can control the exercise intensity from the minimum level to the maximum level for the exercise capability of the user. Further, it is possible to continuously do the abdominal muscle exercise by securing the stability of the exercise posture and simultaneously using the repulsive force.

[0024] Since the auxiliary device for abdominal muscle exercise according to the present invention(s) is small in volume, it is easy to carry it and it is also easily to use anytime and anywhere as well as at home.

[Description of Drawings]

[0025] These and other aspects and advantages of the present invention will become apparent and more readily appreciated from the following description of the embodiment(s), taken in conjunction with the accompanying drawings, in which:

FIG. 1 shows an auxiliary device for abdominal muscle exercise according to one embodiment, comprising a first support and a board only;

FIG. 2 shows an auxiliary device for abdominal muscle exercise according to another embodiment, comprising a first support, a board and a second support;

FIG. 3 shows acushion used in a body of the auxiliary device for abdominal muscle exercise according to the present invention;

FIG. 4 showsadjusting means to adjust the width of the board in the auxiliary device for abdominal muscle exercise of FIG. 3;

FIG. 5 shows the shapes of the cores of the supports;

FIG. 6 is aside sectional conceptual diagram of the auxiliary device for abdominal muscle exercise integrally formed of a high pack material;

FIG. 7 shows the state of use of the auxiliary device for abdominal muscle exercise of FIG. 2;

FIG. 8 is a skeletal drawing (viewed from the back)

of a human body showing the sacral region and the lesser trochanter region;

FIG. 9 is a conceptual diagram showing the exercise motions according to the present invention; and

FIG. 10 shows the auxiliary device for abdominal muscle exercise integrally formed of a synthetic resin material (silicon, etc.) having elasticity.

[Best Mode]

[0026] The present invention(s) according to the preferred exemplary embodiment(s) will be specifically described with reference to the accompanying drawings. Since the present invention(s) is important in its concept, a person having an ordinary knowledge in the field to which the present technology belongs may carry out the products in various shapes if the person understands the basic elements configuring the concept of the present invention. Therefore, the characteristics of the present invention will be clarified by focusing on the concept. Some exemplary embodiments will be also described focused on the concept and no detailed description will be presented.

[0027] The term, "sacral region" (3'), used in the present application means the lower torso portion where the sacrum is located. The sacrum is connected just beneath the lumbar (the fifth lumbar vertebra is the last vertebra) as indicated in the skeletal drawing of a human body as shown in FIG. 8. The tip of the sacrum connects with the coccyx (tailbone). The coccyx region means the part where the coccyx is located.

[0028] The term, "lesser trochanter region" (7'), means the part where the femur begins extending above the femoral region connecting with the hipbone. In view from the outside of the human body, it is about the place where the hips may be creased when standing.

[0029] "First support (3)", "second support (7)" and "board (5)" mean the inner side of a body (1) which is the entire shape of the present invention, that is, mainly the parts in contact with the human body (the sacral region, the lesser trochanter region and the coccyx region). Therefore, the outer side of the present invention may be designed in diverse shapes according to the quality of a material to carry out the present invention.

[0030] FIG. 1 shows the simplest shape of the present invention according to one embodiment. A first support 3 to support the sacral region is formed in a semi-cylindrical shape. A board 5 is extended from the bottom side of the semi-cylindrical shaped first support. The board 5 is pressed by the coccyx region.

[0031] The present invention according to this embodiment is to be used specifically on a place like a sofa. Preferably, the board 5 may use flexible leather or fabric materials. Preferably, the top surface of the board 5 may be processed to impart a frictional force to prevent sliding.

[0032] The first support 3 may have various shapes if its shape is sufficient to support the sacral region. In this embodiment, the first support 3 has the semi-cylindrical shape. Preferably, a core inside the first support 3 may use a material such as acompressed sponge to give elasticity. Therefore, the shape of the first support 3 may not be in the semi-cylindrical shape.

[0033] The present invention according to this embodiment may be integrally formed using flexible synthetic resin materials (or latex having less elasticity) (as shown in FIG. 10).

[0034] FIG. 2 shows an auxiliary device for abdominal muscle exercise according to another embodiment. In FIG. 2, a second support 7 is added to the present invention of FIG. 1. The second support 7 is added with an elastic material so as not to have any negative effect to the human body (the coccyx region) upon long-time use. The second support 7 is formed at the end of the board 5 opposite the first support 3. A stepped part (given no reference number) in front of the second support 7 is to be adjusting means 77 to adjust the width of the board 5 by rolling the second support 7. Therefore, strong Velcro, etc may be used to reduce the width of the board 5 by rolling the second support 7. In FIG. 2, "a" indicates a groove. This groove may be formed or not according to the quality of the material.

[0035] As shown in FIGS. 3 and 4, the adjusting means 77 to adjust the width of the board 5 may include a fixing bar 27 and a plurality of fixing holes 9. The fixing bar 27 is fixed to the core 17 of the second support 7 and the fixing holes 9 are formed in the length direction of the auxiliary device for abdominal muscle exercise. The second support 7 is movable by inserting the fixing bar 27 into any one of the fixing holes 9. Furthermore, the adjusting means 77 to adjust the width of the board 5 may be designed using a variety of publicly-known skills. Therefore, the present application provides no detailed description as to how to constitute the adjusting means 77 to adjust the width of the board 5.

[0036] FIG. 3 is a conceptual diagram that can be understood at a glance. After a basic frame is formed in the body 1 of the auxiliary device for abdominal muscle exercise, the first support 3, the board 5 and the second support 7are formed of elastic materials. FIG. 4 shows the adjusting means 77 not shown in FIG. 3.

[0037] FIG. 5 (A) and (B) illustrate, by examples, the shape of the core of the first support 3 (shown in FIG. 5 (B)) and the shape of the core of the second support 7 when the present invention according to FIG. 1 or FIG. 2 is carried out by a method of sewing fabric or leather. The present invention is not limited to these shapes of the cores. In FIG. 5 (B), the bottom side of the core of the first support 3 is longer to effectively support the weight of a user.

[0038] FIG. 6 is a conceptual diagram showing a side sectional view of the auxiliary device for abdominal muscle exercise integrally formed of reinforced plywood having elasticity,so-called "high pack". Therefore, the synthetic resin materials having elasticity, such as reinforced plastic, may be used.

[0039] The sizes and positions of the first support 3,

the board 5 and the second support 7 which are the major elements of the present invention will be described. In the auxiliary device for abdominal muscle exercise of the present invention, since the first support 3 supports the sacral region, it should not touch the lumbar. Therefore, the height of the first support 3 may be preferably about 10cm from the surface of the board 5. (When the board has elasticity, the degree to be pressed by the elasticity needs to be considered. In the same way, that needs to be considered regarding the height of the second support 7 and the width of the board 5.) In an adult, the length from the coccyx just before the fifth lumbar vertebra is a little longer than about 10cm although there is a difference among individuals.

[0040] The present invention may be carried out in three sizes (large, medium and small), depending upon age of user. It is sufficient if the size of the first support 3 calculating from the average build can effectively support the sacral region without touching the lumbar. Thus, the height of the first support 3 may be within the range of 7~14cm from the surface of the board 5. However, since there are people having special builds, the present invention is not limited to this range. (In the same manner, the present invention is not limited to the range of the height of the second support 7 and the range of the width of the board 5, to be described below.)

[0041] If the height of the second support 7 is about 7cm, it touches the lesser trochanter region. Therefore, if the height of the second support 7 is about 7cm (±1cm), it may be enough. However, considering different builds of people, the height of the second support 7 is presumed as being within the range of 5~9cm from the surface of the board 5.

[0042] The width of the board 5 (the shortest distance between the first support 3 and the second support 7) is about 10cm for an ordinary adult. But, considering different build conditions, the width of the board 5 is adjustable within the range of 7~15cm.

[0043] In the first and second supports 3, 7, the parts touching a human body have inclines. However, when the first and second supports 3, 7 are formed using an elastic material, these do not need to be structured to have the inclines because the material is naturally shaped by the human body. However, the inclination may be particularly considered. For this case, when a user sits on the auxiliary device for abdominal muscle exercise, since a side view of the hip is in a V shape, the inclines of the first and second supports 3, 7 are to be respectively outwardly, based on the vertical line (FIGS. 3 and 6). In the first support 3, the inclination may be preferably 70° (±5°) based on the floor surface so that the first support 3 provides support when the user leans back after the sacral region touches the first support 3. In the second support 7, the inclination may be preferably 45° (±5°) from the floor surface.

[0044] This incline is to more comfortably support the sacral region or the lesser trochanter region (by broadening the contact area as wide as possible) but such a range is not broad. Referring to FIG. 6, a portion supporting the sacral region in the first support 3 is the portion protruding inwardly (close to about 90° since it is made of the elastic material) and the other portion extending upwardly and being bent does not touch the human body as well as the sacral region upon actual use.

[0045] However, in FIG. 6, a portion supporting the lesser trochanter region is an inflection point (indicated by reference number 7) of a gentle circle but the other portion extending and being curved outwardly is to decrease impact, considering the time when the femoral region touches the second support.

[0046] A method of using the auxiliary device for abdominal muscle exercise according to the present invention will be briefly described. As shown in FIG. 7, the user sits on the auxiliary device for abdominal muscle exercise and adjusts the second support 7 as the adjusting means 77 (refer to FIGS. 2 and 4), to fix the width of the board 5 so that the user's sacral region and lesser trochanter region are supported.

[0047] Then, if the user repeats the motions of (1) rocking the upper body only back and forth, (2) pulling knees toward the chest and releasing them, or (3) pulling both the upper body and knees and releasing them, the abdominal muscles are strengthened as the muscles of the stomach work. The effect of the auxiliary device for abdominal muscle exercise according to the present invention as shown in this process makes it less hard to do the abdominal muscle exercise and possible to easily continue exercising.

[0048] That is, since the auxiliary device for abdominal muscle exercise according to the present invention secures the sacral region and the lesser trochanter region, if the upper body or legs move in the other direction, the body itself tries to restore. Then, the fixing point of the support helps the restoration to be easy and therefore it is less hard. So, the user gets into the rhythm and is able to easily do the exercise for a long time. Especially, since the auxiliary device for abdominal muscle exercise according to the present invention secures the center point of force and simultaneously keeps the posture stable, the muscles can continue the contracting and relaxing actions in a properly relaxed state.

[0049] As indicated in the relevant prior art, people feel how so difficult it would be to do sit-ups by using the sit-up exercise devicewhich secures the feet or to do the upper body and leg exercise on the floor without any device. Those people knew they could not do such exercises for a long time. However, if those people use the auxiliary device for abdominal muscle exercise of the present invention, they can notice its excellence right away and use it to exercise without the difficult of other devices.

[0050] The invention has been described using preferred exemplary embodiments. However, it is to be understood that the exemplary embodiments are to clarify the concept of the present invention(s) and do not describe the scope of the invention to be protected. That

is, the scope of the invention is not limited to the disclosed embodiments. On the contrary, the scope of the invention is intended to include various modifications and alternative arrangements within the capabilities of persons skilled in the art using presently known or future technologies and equivalents. The scope of the claims, therefore, should be accorded the broadest interpretation so as to encompass all such modifications and similar arrangements.

Claims

1. An auxiliary device for abdominal muscle exercise comprising:

   a first support (3) being of a predetermined height and size sufficient to support only the sacral region just beneath the lumbar region in use; and
   a board (5) secured to and extending from the bottom surface of the first support (3),
   wherein the material of the board (5) is flexible to permit use of the device on an uneven surface or even surface.

2. An auxiliary device for abdominal muscle exercise comprising:

   a first support (3) being of a predetermined height and size sufficient to support the sacral region just beneath the lumbar region in use;
   a board (5) secured to and extending from the bottom surface of the first support (3); and
   a second support (7) secured to and positioned on the end of the board (5) opposite to the first support (3),
   wherein the size of the board (5) and the height and inclination of the second support (7) are formed to support the lesser trochanter region of the femur in use.

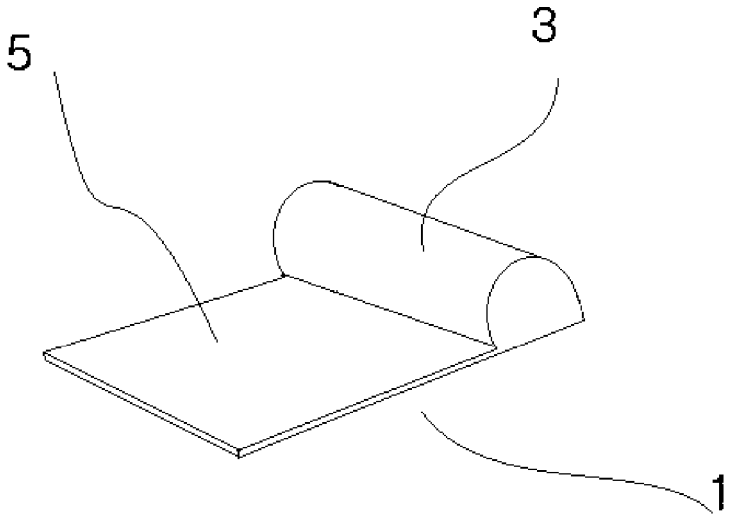
3. The auxiliary device for abdominal muscle exercise according to Claim 2, wherein the second support (7) is connected with adjusting means (77) to adjust the width of the board (5)

4. The auxiliary device for abdominal muscle exercise according to Claim 2 or 3, wherein the first support (3), the board (5) and the second support (7)include a cushioning material for their respective parts touching a human body.

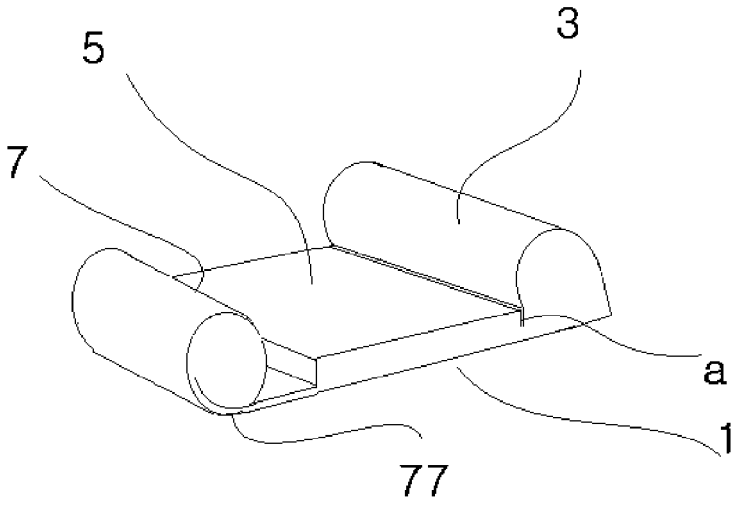
5. The auxiliary device for abdominal muscle exercise according to Claim 2, wherein the first support (3), the board (5) and the second support (7) are integrally formed, using reinforced plastics (fiber reinforced plastics, FRP) having elasticity.

6. The auxiliary device for abdominal muscle exercise according to Claim 2, wherein the height of the first support (3) is 7~14cm from the surface of the board (5), the height of the second support (7) is 5~9cm from the surface of the board (5), and the width of the board (5) [the shortest distance between the first support (3) and the second support (7)] is adjustable within the range of 7~15cm.

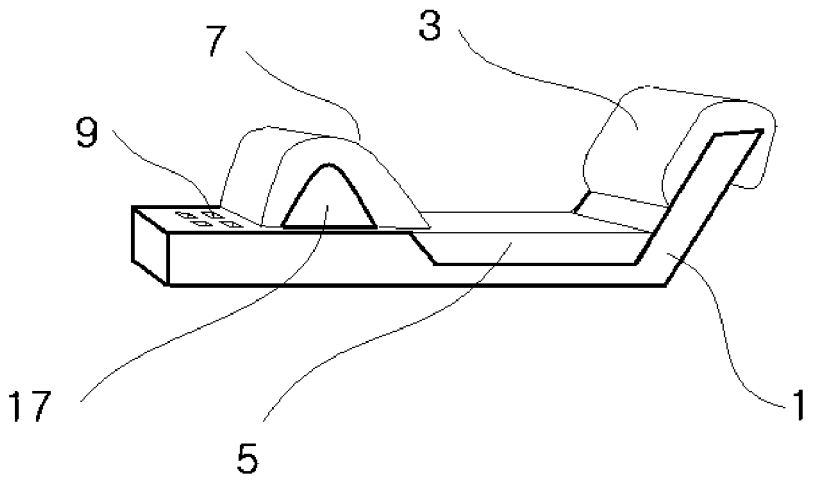
【FIG 1】



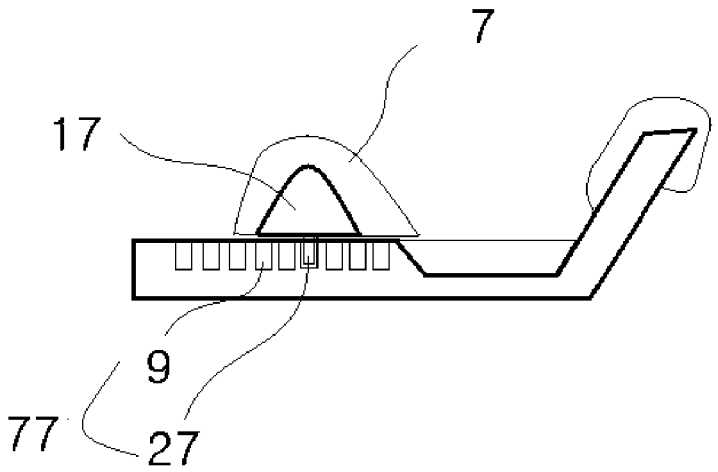
【FIG 2】



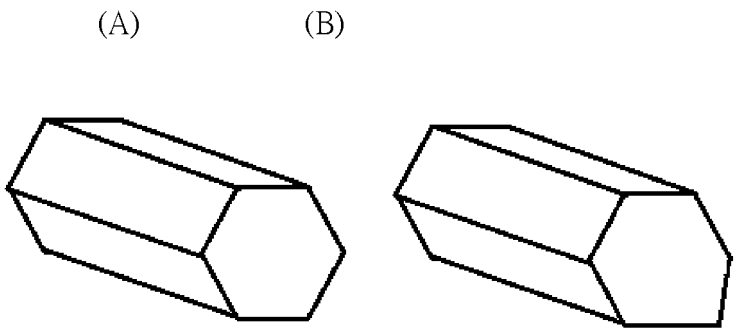
【FIG 3】



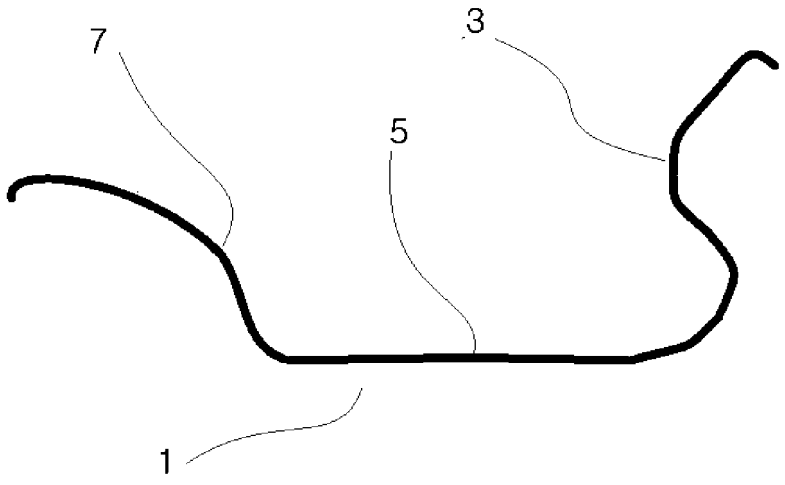
【FIG 4】



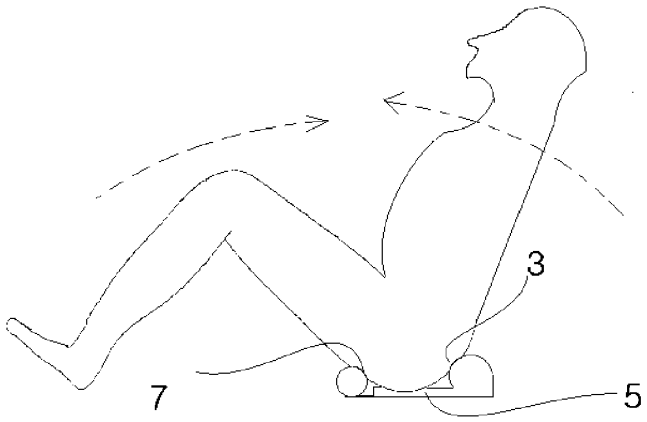
【FIG 5】



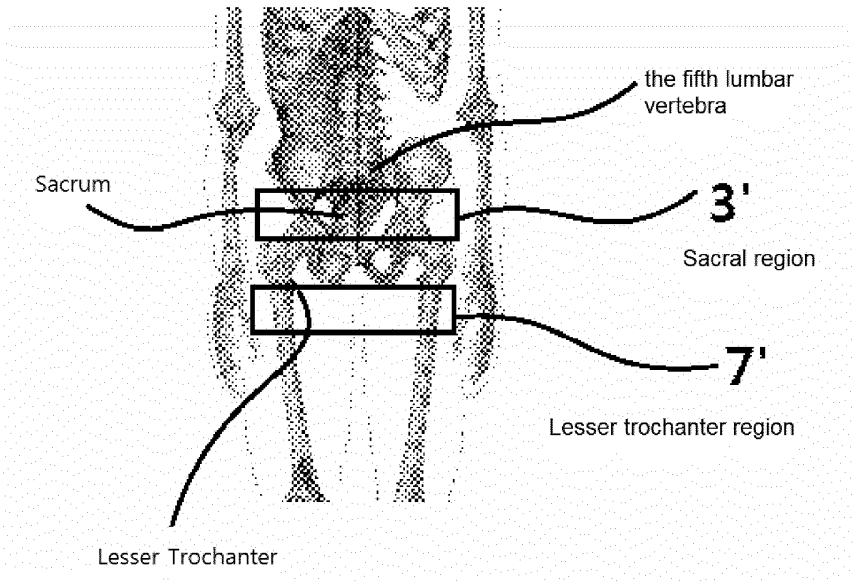
【FIG 6】



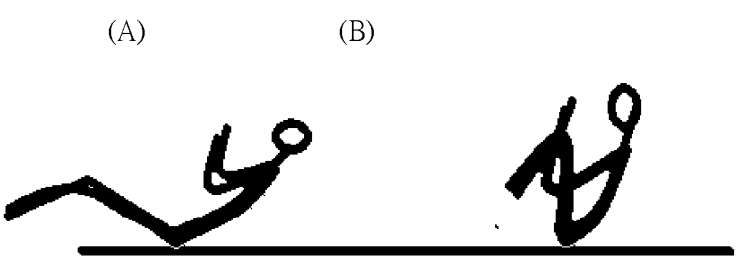
【FIG 7】



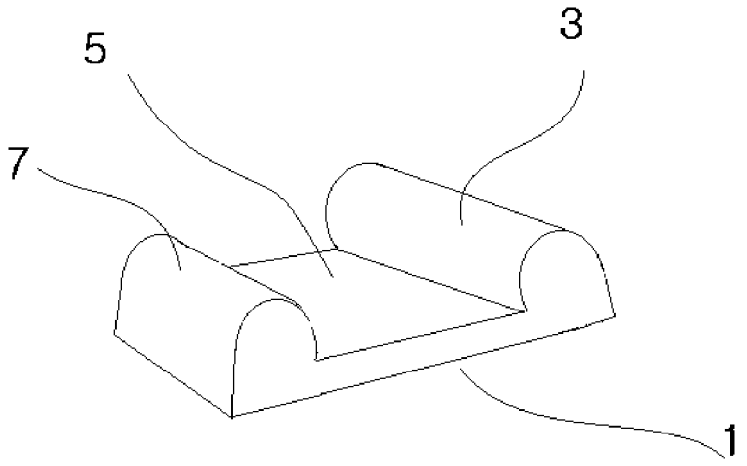
【FIG 8】



【FIG 9】



【FIG１０】



INTERNATIONAL SEARCH REPORT

International application No.
PCT/KR2013/001343

A. CLASSIFICATION OF SUBJECT MATTER

A63B 23/02(2006.01)i

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

A63B 23/02; F27B 9/22; A63B 21/00

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
Korean Utility models and applications for Utility models: IPC as above
Japanese Utility models and applications for Utility models: IPC as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

eKOMPASS (KIPO internal) & Keywords: abdominal muscles exercise-device, lumbar vertebra, first support unit, seating board unit, flexibility, knee, second support unit, buffer member, reinforcing plastic, means for controlling width of seating plate

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X Y A	KR 10-0761460 B1 (KANO INTERNATIONAL CO.,LTD.) 04 October 2007 See abstract, paragraphs 0031-0034, claims 1-2 and figure 1.	1 2,4 3,5-6
Y A	KR 20-0454037 Y1 (ROH, Kwang Soo) 10 June 2011 See abstract, paragraphs 0031-0034, claims 1-2 and figure 1.	2,4 1,3,5-6
A	US 6623270 B1 (MELDEAU, William Brent) 23 September 2003 See abstract, claim 1 and figures 1-2.	1-6
A	US 05647829A A (RIVAS, Andrew R.) 15 July 1997 See abstract, claim 1 and figures 1-2.	1-6

☐ Further documents are listed in the continuation of Box C. ☒ See patent family annex.

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INTERNATIONAL SEARCH REPORT
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International application No.
PCT/KR2013/001343

Patent document cited in search report	Publication date	Patent family member	Publication date
KR 10-0761460 B1	04.10.2007	NONE	
KR 20-0454037 Y1	10.06.2011	NONE	
US 6623270 B1	23.09.2003	NONE	
US 05647829A A	15.07.1997	NONE	

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