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(54) **Special pillow and mattress, especially for patients suffering from reflux disease**

(57) A specially formed pillow, especially for patients suffering from reflux disease, having a wedge shape and in given cases built together with a mattress portion,

wherein a neck and head support (2) conforming to the shape of the neck and head is formed at the larger end of the wedge.

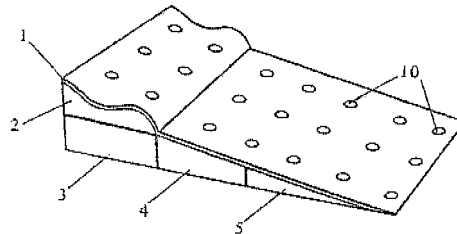


Figure 1

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## Description

**[0001]** The object of the utility model is a specially formed pillow and mattress for patients suffering from reflux disease. The specially formed pillow has a wedge shape, and at the larger end of the wedge it has a neck and head support conforming to the shape of the neck and head. The special pillow in given cases is built together with a mattress portion.

**[0002]** Nowadays reflux disease has become a popular disease. The most common risk factors for reflux disease include obesity, drinking, smoking, excessive coffee consumption and stress. An unhealthy diet and irregular eating, as well as an exercise-deficient lifestyle also contribute to the development of the disease. Reflux often occurs in pregnant women, as the expanding uterus puts pressure on the abdominal organs.

**[0003]** Reflux (backward flow) is the phenomenon when the contents of the stomach flow back into the esophagus due to the relaxation of the lower esophageal sphincter. The frequent backflow of acidic gastric juice leads to the development of additional diseases. The disease presents milder or more severe symptoms, varying by individual. The disease is treatable, controllable by medical examination and therapy.

**[0004]** Without treatment the reflux disease may lead to the development of various complications in the long term. Such consequences include constant coughing, frequent angina or laryngitis, damage to the dental enamel. Chronic inflammation, possible cicatrization, in rare cases stenosis or haemorrhage may develop on the mucous membrane of the esophagus. Cancerous changes in the mucous membrane exposed to constant irritation represent an extremely rare but more severe complication.

**[0005]** In milder cases of the reflux disease changes in the lifestyle (a proper diet, the omission of smoking and alcohol consumption, the reduction of overweight) may achieve significant improvement. It is especially important not to have the last meal of the day late in the evening, directly before going to bed.

**[0006]** In today's hurried world only few people can or want to change their lifestyles, in spite of the calls, recommendations for a healthy lifestyle. In most cases actual changes in the lifestyle occur only after the diagnosis of the disease.

**[0007]** In addition to medical therapy and changes in the lifestyle, physicians recommend the raising of the head and upper body by 15-25 cm in the lying position, reducing by this the chance of a backflow of gastric acid.

**[0008]** In the past years there have been a number of unsuccessful attempts to develop a pillow that would reduce the symptoms or prevent the development of the symptoms.

**[0009]** When only the head is raised with several pillows, that can deteriorate the situation as the esophagus bends, thus the pressure in the stomach increases and gastric acid flows back into the esophagus. In addition,

the lungs, the trachea and the esophagus, as well as the internal organs are compressed. Moreover, due to the uncomfortable head position, muscle strain can develop in the neck.

**[0010]** The simple solution, when a simple wedge-shaped pillow is used, seems obvious. Such a pillow is e.g. the commercially available Mediform reflux pillow. They are, however, not really good, as on such pillows the head and the neck are not supported, therefore the neck is not free from tension during sleep. Thus in the morning we wake up with a strained neck. Another disadvantage of a simple wedge-shaped pillow is that due to the wedge shape the body slides downwards continuously during sleep, thus the pillow cannot prevent the backflow of acid into the esophagus.

**[0011]** According to another attempt, another pillow is placed on the wedge-shaped pillow, but as it is not fixed to the lower pillow, it slides down from the wedge easily, slips out from under the head, and thus the same problem occurs as in the previous case.

**[0012]** The aim of the utility model was to provide a pillow and mattress for patients suffering from reflux disease that is simple to produce, can prevent the backflow of acidic gastric juice into the esophagus, and in addition, its use ensures a comfortable and restful sleep.

**[0013]** The set aim was achieved with a specially formed pillow that has a wedge shape, and at the larger end of the wedge it has a neck and head support conforming to the shape of the neck and head. The pillow in given cases can be built together with a mattress portion.

**[0014]** The utility model is based on the recognition that when a neck and head support conforming to the shape of the neck and head is formed on a wedge-shaped pillow, the neck and head are supported and free from tension during sleep, and thus no muscle strain occurs in the neck. Moreover, the formed neck and head support does not allow the body to slide down to the bottom of the wedge-shaped pillow, thus the body remains in a raised position compared to the horizontal plane throughout sleep. In this body position the acidic gastric juice does not flow back from the stomach into the esophagus, that is the pillow prevents the development of reflux disease. The special pillow ensures a pleasant, restful and peaceful sleep, the feeling of perfect comfort even with constant use.

**[0015]** The object of the utility model is a specially formed pillow that has a wedge shape, and at the larger end of the wedge it has a neck and head support conforming to the shape of the neck and head. The upper pillow portion supporting the neck and head, conforming to their shape in a curved manner is formed from a softer foam of a density of preferably 16 - 40 kg/m<sup>3</sup>, most preferably 16 kg/m<sup>3</sup>.

**[0016]** The pillow is 40 - 90 cm wide and 50 - 80 cm long, at the waist it is 1- 5 cm high, and at the top of the head the height of the wedge is 10 - 30 cm, preferably 15 - 25 cm. The dimensions can be adjusted to the body dimensions and to add to the feeling of comfort. The most

common pillow dimensions are: 60 cm wide, 80 cm long, 1 cm high at the waist and 20 cm high at the top of the head. It is advisable to use the pillow with a cover (pillowcase), preferably made from cotton.

**[0017]** According to a preferred embodiment the pillow according to the utility model is formed in such a way that the wedge consists of at least 3 zones: a head zone, a shoulder zone and a waist zone. The zones are formed from foams of different densities according to the body parts pressing into the foam in such a way that the density of the shoulder zone is lower than the density of the head zone and the waist zone. It is advisable to form the head zone and the waist zone from a foam of a density of 25 - 80 kg/m<sup>3</sup>, preferably 30 kg/m<sup>3</sup>, and the shoulder zone from a foam of a density of 16 - 40 kg/m<sup>3</sup>, preferably 25 kg/m<sup>3</sup>.

**[0018]** It is also preferable, and adds to the feeling of comfort, to cover the whole surface of the pillow with a viscoelastic foam layer. A viscoelastic foam is preferable due to its property of regaining its original shape slower than regular foams. A foam of a density of 16 - 40 kg/m<sup>3</sup>, preferably 40 kg/m<sup>3</sup>, having a profiled surface is used as a viscoelastic foam layer. The thickness of the layer is advisably 2 cm.

**[0019]** In order to add to the feeling of comfort, vertical ventilation through-holes are formed throughout the pillow, ensuring good ventilation and drainage of sweat during use. The diameter of the ventilation holes is 2 - 8 mm, preferably 5 mm.

**[0020]** The pillow according to the utility model can be built together with mattresses of various thicknesses and structures, material compositions and material densities known from the state of the art. According to a preferred embodiment the mattress built together with the pillow also consists of several zones: a hip zone, a thigh zone, a leg zone and an ankle zone.

**[0021]** The pillow according to the utility model is made in such a way that first the wedge shape is glued together with foam glue from the zones formed from foams of appropriate densities. The neck and head support is cut with a machine suitable for this purpose to a shape conforming to the shape of the neck and head, and glued on top of the parts already glued together at the head zone. The wedge shape is formed by the neck and head support, as well as the head, the shoulder and the waist zones all together. In order to add to the feeling of comfort a 2 cm viscoelastic foam layer is glued on the whole upper surface of the pillow made in this way. The head and the waist zones can be made from foams of the same hardness, but the shoulder zone (to allow the shoulder to sink more into the foam mainly in a lateral body position) shall be made from a softer, lower density foam. In given cases the pillow can also be cut from foams of the same density and type. Finally, the pillow is perforated perpendicularly in several places with a punching tool for the purpose of forming ventilation holes.

**[0022]** The pillow according to the utility model can be made also in such a way that the wedge shape is sewn

from a suitable fabric and filled - for the purpose of forming the zones - with materials of different softnesses, or different materials (polyester, wool, other).

**[0023]** The solution according to the utility model is shown in detail in the following figures:

Figure 1: a three-zone wedge-shaped pillow with a neck and head support

Figure 2: the wedge-shaped pillow with a neck and head support built together with a mattress portion

**[0024]** The pillow shown in Figure 1 consists of a head zone 3, a shoulder zone 4 and a waist zone 5. A neck and head support 2 is glued on the head zone 3. The surface of the pillow is covered with a viscoelastic foam layer 1 having a profiled surface. Vertical ventilation through-holes 10 are formed throughout the pillow.

**[0025]** The pillow consisting of the head zone 3, the shoulder zone 4 and the waist zone is built together with a mattress portion shown in Figure 2. The mattress portion consists of a hip zone 6, a thigh zone 7, a leg zone 8 and an ankle zone 9. The surface of the mattress is covered with a viscoelastic foam layer 1 having a profiled surface. Vertical ventilation through-holes 10 are formed throughout the mattress.

**[0026]** The specially formed pillow according to the utility model is simple to produce, prevents the backflow of gastric acid into the esophagus, and prevents the development of reflux disease. It is comfortable, it ensures a feeling of perfect comfort for the head and the neck. It has a long service life. A further advantage is that the pillow is washable.

### Claims

1. A specially formed pillow, especially for patients suffering from reflux disease, having a wedge shape and in given cases built together with a mattress portion, wherein a neck and head support (2) conforming to the shape of the neck and head is formed at the larger end of the wedge.
2. The pillow according to claim 1, wherein the height of the wedge at the top of the head is 10 - 30 cm, preferably 15 - 25 cm.
3. The pillow according to claims 1 or 2, wherein the wedge consists of at least 3 zones: a head zone (3), a shoulder zone (4) and a waist zone (5).
4. The pillow according to claim 3, wherein the zones are formed from foams of different densities and the density of the shoulder zone (4) is lower than the density of the head zone (3) and the waist zone (5).
5. The pillow according to claim 3, wherein the head zone (3) and the waist zone (5) are formed from a

foam of a density of 25 - 80 kg/m<sup>3</sup>, preferably 30 kg/m<sup>3</sup>.

6. The pillow according to claim 3, wherein the shoulder zone (4) is formed from a foam of a density of 16 - 40 kg/m<sup>3</sup>, preferably 25 kg/m<sup>3</sup>. 5
7. The pillow according to any of claims 1-6, wherein the whole surface of the pillow is covered with a viscoelastic foam layer (1). 10
8. The pillow according to claim 7, wherein the viscoelastic foam layer (1) has a density of 16-40 kg/m<sup>3</sup>, preferably 40 kg/m<sup>3</sup>, and a profiled surface. 15
9. The pillow according to any of claims 1-8, wherein vertical ventilation through-holes (10) are formed throughout the pillow.
10. The pillow according to claim 1, wherein the pillow is built together with a mattress portion consisting of a hip zone (6), a thigh zone (7), a leg zone (8) and an ankle zone (9). 20

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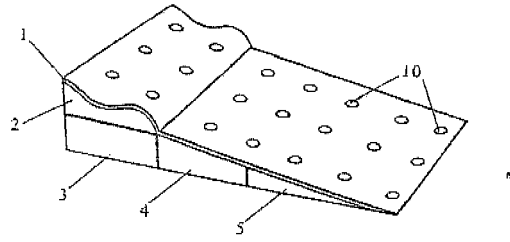


Figure 1

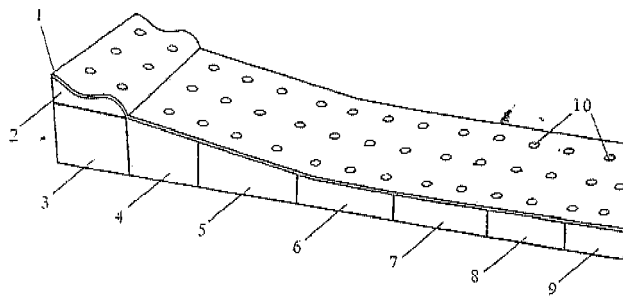


Figure 2



EUROPEAN SEARCH REPORT

Application Number  
EP 09 00 6945

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The present search report has been drawn up for all claims			
Place of search		Date of completion of the search	Examiner
The Hague		26 August 2010	Edlauer, Martin
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X : particularly relevant if taken alone		T : theory or principle underlying the invention	
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