



A method and a chair for eliminating problems of sedentary origin.

The present invention relates to a method to eliminate problems of sedentary origin, in which method the pelvis and thigh muscles are supported while sitting by means of side parts, which at least partially curve downwards forming a saddle-shaped seat part. The present invention relates also to a chair to eliminate problems of sedentary origin.

When sitting on current chairs there is a problem that the pelvic area, hip joints and knee joints are in 90 degrees angle. Warm thighs are together and the space between the thighs, the pelvic area and genitals are under pressure and in high temperature. When sitting on upholstered chairs air circulation in the pants is bad and the temperature of the testes increases. The use of a belt and keeping the belt tight puts pressure on the stomach and pelvic muscles. Air circulation inside the pants becomes worse because of earlier mentioned reasons, which accelerates the accumulation of body heat in the groin area. This is the reason why testes are in too high temperature, and the quantity and the quality of sperm decreases. The normal production of sperm requires a few degrees, about 3 - 4 °C, lower temperature compared with the normal body temperature about 37 °C. When sitting on current chairs a seated person often droops in a heap and the functioning of lungs may weaken, which causes exhaustion. Furthermore, it is not easy to move on a current chair, but moving is, at it's best, clumsy.

On account of information above saddle chairs have been developed in order to decrease above-mentioned problems of sedentary origin. As an example of these kinds of saddle chairs there is a solution described in PCT-application PCT/F199/00621. In these saddle chairs there is a one-part saddle-shaped seat part, on which the seated person sits in a natural position with legs in an angle forwards. Saddle chairs are usually of relatively small size and they take relatively little space with regard to conventional chairs. They are also easy to move about.

The one-part seat of current saddle chairs causes, however, certain problems in males' comfort and health. Based on research it is commonly known that a saddle of male cyclists may cause impotence and scrotal tumour. Male users of one-part saddle chairs have given critical feedback. The reputation of saddle chairs of being unphysiological and uncomfortable seats prevents, for its part, the way of sitting in question to spread among men and thus the benefits of the whole way of sitting don't reach males avoiding saddle chair.



In current saddle chairs the testes may appear under pressure, for example, while the pelvis is bent while turning forwards or stretching. Furthermore, especially on males problems may cause while sitting the constant pressure on urethra, which may cause urology problems. Some people may suffer from earlier broken and therefore sore coccyx, so it is difficult for them to sit on current chairs. Also persons with haemorrhoids may find it difficult to sit on current chairs.

The object of the invention is to provide a method and chair to eliminate problems of sedentary origin, which occurred with earlier recognized technique. This has been achieved by means of the method and chair in accordance with the invention.

- 10 The method in accordance with the invention is characterized in that side parts are formed of at least two parts, between which a central opening longitudinal with the seat part is formed. The chair in accordance with the invention is, for its part, characterized in that side parts have been formed of at least two parts, between which a central opening longitudinal with the seat part has been formed.
- 15 The advantage of the invention appears to be especially the possibility of the method and the chair to eliminate pressing effect of the frame of the chair and the upholster to the male testes and thus eliminate the inconvenience and health risks due to those. It is also possible to eliminate the pressing effect to urethra and the part of the genital organ under the pelvic area during sitting, thus preventing the
- 20 feelings of uncomfotability and health risks created by the earlier mentioned reasons. By means of the invention the temperature of the testes may be kept near 33 °C, which is regarded as optimum, and thus the fertility of the spermatozoa is not jeopardized with too high temperatures. The advantage of the invention is, furthermore, that the chair applying the method is very simple by construction and
- 25 versatile by properties and thus the user of the chair may simply and quickly adjust the supporting properties of the seat part to meet his or her dimensions and clothing. Also persons with either sore coccyx or haemorrhoids may easily sit on the chair according to the invention, as the pressure in the middle part of the seat is less than in earlier recognized seats.
- 30 In advantageous application of the invention the side parts are formed of at least two separate parts. These parts may easily be joined to each other.

In the next advantageous application of the invention the middle opening is formed bigger in the front part of the seat part than in the back part. Thus the sitting person

is guided to sit in wide position, air circulation is increased and the tissues in that area are cooled.

In the next advantageous application of the invention side parts are joined to each other. Thus they form a saddle-shaped chair with a central opening.

- 5 In the next advantageous application of the invention side parts are joined to each other adjustable. Thus the distance between them e.g. the size of the central opening may be adjusted as wanted. Furthermore, the shape of the central opening may, in some application, be adjusted.

- 10 Next, the invention will be explained in more detail with reference to advantageous application examples in the accompanying drawings, to which the invention is not, however, limited. In the drawings

Figure 1 illustrates an advantageous application example viewed from the front,

Figure 2 illustrates an application example in accordance to figure 1 viewed from above,

- 15 Figure 3 illustrates a principle drawing of one adjusting possibility of an application in accordance to figures 1 and 2 viewed from above, and

Figure 4 illustrates another application example of the invention viewed from the front.

- 20 Figures 1 – 3 illustrate one advantageous application example of a chair applying the method in accordance with the invention. The chair in accordance with figures 1 – 3 includes a leg part 12 and a seat part 13 forming a saddle-shaped seat part attached to it. In this application the seat part 13 has been formed of two separate side parts 3, 5, between which an opening longitudinal with the seat part is formed.

- 25 The leg part 12 may be, for example, an earlier recognized device such as a leg part of a work chair equipped with rolls with a turning and vertically adjustable gas spring 11 or corresponding device used to adjust the height of the seat part.

- 30 Side parts 3, 5 formed of separate parts are formed of plate-shaped parts, making the saddle-shaped form to the seat curving in the upper part and pointing straight downwards in the lower part, so called thigh troughs, which are covered on the outer surface with suitable cushion and surface materials, such as expanded plastic and leather.

Central opening formed between side parts 3, 5 forms through the seat part a longitudinal space as illustrated in figure 2. The width of the space may be, for example, 10 – 35 mm. The space may be even by width, but especially advantageous has been noticed to be an application in which the space forming the central opening has been formed larger in the front than in the back part of the seat part. This kind of application has been illustrated in the figure 3 with dashed lines.

A seat part formed as mentioned above has been attached to the leg part by means of suitable attaching device 1 and with supporting parts 2, 4 attached to the attaching device and side parts. Construction in application in accordance with figures 1 – 3 includes, furthermore, an adjusting device 6-10 formed of several separate parts in order to attach the side parts to the attaching device adjustable.

The attaching device 1 mentioned above is a part joining supporting parts 2 and the gas spring 11 together. In the example in accordance with figures 1 – 3 the attaching device is a simple part made of plate material with U-shaped part, made of enough thick and enough stiff plate material under which web plate a tube like attaching cone of a gas spring extending downwards from the lower edge of the web plate has been attached in order to attach the attaching device to the upper end of the gas spring 11. One of the supporting parts between the side part and the attaching part has been joined to the flange parts of the U-shaped part.

Supporting parts 2, 4 in the application in accordance with figures 1 – 3 have been made of plate material of suitable thickness and formed such that the part on the side of the attaching device is essentially in horizontal position. While continuing towards side parts 3, 5 they turn from this position upwards into vertical position and widen such, that at the point where they are attached with the seat part they are almost as long as the seat part. Furthermore, at the joining point of the seat parts the ends of the attaching parts have been bent sideways at an angle in order to reinforce the attachment of the seat parts and to widen the angle of turning of the turning lever in the adjusting device. The supporting part on the right 2, which is a fixed supporting part, has been attached from its attaching device 1 end to the ends of the flange parts of the attaching device under it fixed. The supporting part on the left 4, instead, which is an adjustable supporting part, has been attached from its attaching device end with an adjusting device 6 – 10 formed of several parts adjustable partially on the fixed supporting part 2.

The adjusting device 6 – 10 and the locking device 7 – 9 in it include in the example in accordance with figure 1 – 3 a groove 6, essentially in crosswise direction with

the seat part and going through the supporting part in vertical direction, a screw 7 rising from the upper surface of the fixed supporting part 2 at the groove, a nut 8, screwed above the adjustable supporting part 4 to the end of the screw and clamping lever 9 of the nut attached to it as well as a directing device 10 attached to the upper
5 surface of the fixed supporting part. The clamping lever 9 has been attached to the nut 8 movable by means of threads in the end of the lever and on the sides of the nut. Thus the nut may be taken off for example while separating the seat parts. The directing device 10 is in this application a plate object attached to the back wall on the upper surface of the fixed supporting part 2. The front edge of the directing
10 device 10 placed against the back edge of the adjustable supporting part 4 has been cut into V-shape as illustrated in figure 2, thus limiting the turning angle of the adjustable supporting part 4 to correspond the angle of its cutting.

Changing the mutual distance between the side parts is realized by opening the nut 8 and moving the adjustable supporting part 4 and the side part 5 to wanted position
15 and so the space functioning as a central opening may be adjusted to be narrower or wider as the dimensions and/or clothing of the user imply. At the same time the position of side parts in respect with vertical axis also may be changed as illustrated in figure 3. Let us specify more closely that when the side parts are near each other the degree of the turning angle of the adjustable side part 5 is defined by the
20 distance between the side parts instead of the direction of the diagonal sides of the front edge of the directing device 10, because in this case the side parts turn against each other before the back edge of the adjustable supporting part 4 touches the diagonal front edge of the directing device 10.

In figure 4 another advantageous application of the invention has been illustrated.
25 The application in figure 4 differs from the application in figures 1 - 3 only in that the side parts in the application in figure 4 have been attached to each other such that between them a space functioning as a central opening is formed. In the application in figures 1 - 3 the side parts have been attached to each other by the same way, as was mentioned, in principle but adjustable. In figure 4 in
30 corresponding places same index numbers as in figures 1 - 3 have been used. In the application in figure 4 the side parts 3, 5 have been attached to each other by means of supporting part 14 made of plate material. The supporting part 14 has been attached to attaching device 1 in a suitable manner, for example by welding joint or the supporting part 14 and the attaching device 1 may be formed to be a solid part
35 made of plate material.

In another application of the invention the side parts of the chair have been attached or joined together from the back parts such, that the back part of the chair is solid. In such application the central opening extends from the front part of the seat part until wanted distance from the back edge of the seat. The central opening may
5 extend to the center of the seat part or slightly to the backside.

The invention is not limited to the presented advantageous applications but it can vary within the frames of the idea of the invention formed in the claims. Thus it is clear, that the chair in accordance with the invention or its details must not necessarily be as presented in the figures, but other kind of solutions are possible.
10 Supporting of the side parts to each other and to the attaching device as well as the adjusting may be realized completely freely by means of various mechanisms and constructions. When necessary, various extra parts may naturally be added to the chair, such as a back or/and elbow rests, which may advantageously be attached to the attaching device etc. A back and elbow rests may also be equipped with various
15 adjusting devices, by means of which properties of a back and elbow rests may be adjusted suitable to users of various sizes.

CLAIMS

1. A method for eliminating problems of sedentary origin, in which the pelvis and thigh muscles of the seated person are supported while sitting by means of side parts (3, 5) which at least partially curve downwards forming a saddle-shaped seat part, characterized in that the side parts (3, 5) are formed of at least two parts, in between which a central opening longitudinal with the seat part (13) is formed.
2. A method in accordance with claim 1, characterized in that the side parts (3, 5) are formed of at least two different parts.
- 10 3. A method in accordance with claim 1 or 2, characterized in that the central opening is formed bigger in the front part of the seat part (13) than in the back part.
4. A method in accordance with any of claims 1-3, characterized in that the side parts (3, 5) are attached to each other.
- 15 5. A method in accordance with claim 4, characterized in that the side parts (3, 5) are attached to each other adjustable.
6. A chair for eliminating problems of sedentary origin, which includes a firm saddle-shaped seat part supporting the pelvis and thigh muscles of the seated person, which has been formed by means side parts (3, 5) which at least partially curve downwards at an angle, characterized in that the side parts (3, 5) have been made of at least two parts, in between which a central opening longitudinal with the seat part (13) has been formed.
- 20 7. A chair in accordance with claim 6, characterized in that the side parts (3, 5) have been formed of at least two separate parts.
- 25 8. A chair in accordance with claims 6 or 7, characterized in that the central opening has been formed bigger in the front part of the seat part (13) than in the back part.
9. A chair in accordance with any of claims 6-8, characterized in that the side parts (3, 5) have been attached to each other.
- 30 10. A chair in accordance with claim 9, characterized in that the side parts (3, 5) have been attached to each other adjustable.