structure for a patient at risk of ulcers and is particularly focussed on a vibrating massage. However, the description makes brief reference to the possibility of incorporating vibration into a cushion and states “[The] cushion may be incorporated into the seat of a wheelchair, or a similar chair in which a patient of limited mobility may be expected to spend extended periods of time. The cushion 40 incorporates a vibration unit comprising a motor 16 connected to a flexible plastics frame 12, to provide vibrations to an occupant sitting on surface 14a through first layer of foam 14'. Cushion 40 may further comprise control hardware in communication with vibration motor 16, so as to provide vibration therapy to treat or prevent pressure ulcers for the patient sitting on cushion 40.”

[005] The Vibrant Medical device is described as employing cycloidal vibrations but does so in a limited way which fails to achieve a useful level of beneficial effect. The background described in GB2528967 is incorporated herein by reference. Reference to any prior art in the description should not be taken as an indication that the prior art forms part of the common general knowledge.

SUMMARY OF THE INVENTION

[006] According to an aspect of the present invention, there is provided a support cushion to ameliorate the incidence of pressure ulcers, the support cushion comprising:

an open or closed cell support structure;

at least one cavity formed within the support structure;

at least one vibrational device located within at least one of the cavities and imparting vibration to the support structure;

a controller controlling operation of the vibrational device to adjust one or more of intensity, duration and location of vibrations in a predetermined manner according to any one of a number of selectable programmes; and

at least one sensor adapted to measure a weight distribution of a user on the support cushion; ~~and~~

wherein the controller is wirelessly connected to a computer application programme that is executable by a processor on a mobile computing device, the mobile computing device wirelessly connected to the controller to select the selected programme and to receive data from the controller, and the mobile computing device comprising a graphical user interface.

[007] Preferably the controller is a microprocessor device programmed to control the vibrational device, the vibrational device operating according to a selected programme.

[008] Suitably the microprocessor device is connected to a control panel having an interface which allows selection of one of a number of selectable programmes.

[009] The control panel is preferably incorporated into the support structure and/or wirelessly connected to the microprocessor device and/or incorporated into an available computing device programmed to control the microprocessor device.

[0010] The selected programme is preferably customisable to adjust the intensity and/or duration and/or location of vibrations.

[0011] The at least one sensor provides input to the controller, which may adjust the intensity and/or duration and/or location of vibrations based on the input from the sensor.

[0012] An indication may be provided if a prolonged disproportionate distribution of weight on the support cushion is sensed.

[0013] ~~Preferably, the support cushion further comprises a computer application program that is executable by a processor on a mobile computing device, the mobile computing device suitably comprises a graphical user interface and is wirelessly connected to the controller.~~

[0014] The computer application program may display a map of weight distribution as sensed by the at least one sensor on the graphical user interface.

[0015] Suitably, the computer application program records, and/or provides on the graphical user interface, a weight distribution history log of the support cushion as sensed by the at least one sensor.

[0016] The computer application may provide visual and/or audio reminders for movement of the user.

[0017] Preferably the at least one sensor is comprised of at least one set of sensing device pairs, each of the sensing device pairs comprising at least one proximity sensor and one accelerometer.

CLAIMS

1. A support cushion to ameliorate the incidence of pressure ulcers, the support cushion comprising:

an open or closed cell support structure;

at least one cavity formed within the support structure;

at least one vibrational device located within at least one of the cavities and imparting vibration to the support structure;

a controller controlling operation of the vibrational device to adjust one or more of intensity, duration and location of vibrations in a predetermined manner according to a selected programme of any one of a number of selectable programmes; and

at least one sensor adapted to measure a weight distribution of a user on the support cushion; ~~and~~

wherein the controller is wirelessly connected to a computer application programme that is executable by a processor on a mobile computing device, the mobile computing device wirelessly connected to the controller to select the selected programme and to receive data from the controller, and the mobile computing device comprising a graphical user interface.

2. The support cushion of claim 1, wherein the controller is a microprocessor device programmed to control the vibrational device, the vibrational device operating according to the selected programme.

3. The support cushion of claim 2, wherein the microprocessor device is connected to a control panel having an interface which allows selection of the selected programme.

4. The support cushion of claim 3, wherein the control panel is incorporated into the support structure and/or wirelessly connected to the microprocessor device and/or incorporated into an available computing device programmed to control the microprocessor device.

5. The support cushion of claim 1, wherein the selected programme is customisable to adjust the intensity and/or duration and/or location of vibrations.

6. The support cushion of claim 1, wherein the at least one sensor is suitably used as inputs to the controller, adapted to adjust the intensity and/or duration and/or location of vibrations.

7. The support cushion of claim 1, wherein an indication is provided if a prolonged disproportionate distribution of weight on the support cushion is sensed.

8. The support cushion of claim 7, wherein the computer application provides visual and/or audio reminders for movement of the user.

~~9. The support cushion of claim 1, wherein the computer application program is executable on a mobile computing device wirelessly connected to the controller.~~

~~10.~~9. The support cushion of claim 1, wherein the computer application ~~program~~ programme provides on the graphical user interface a display of a map of the weight distribution of the support cushion as sensed by the at least one sensor.

~~11.~~10. The support cushion of claim 1, wherein the computer application ~~program~~ programme records, and/or provides on the graphical user interface, a pressure distribution history log of the support cushion as sensed by the at least one sensor.

~~12.~~11. The support cushion of claim 1, wherein the at least one sensor is comprised of at least one set of sensing device pairs, each of the sensing device pairs comprising at least one proximity sensor and one accelerometer.

~~13.~~12. The support cushion of claim 1, wherein the sensor is comprised of four sets of sensing devices, the four sets of sensing devices arranged in a quadrant layout.

~~14.~~13. The support cushion of claim ~~13~~12, wherein the quadrant layout of the sensing devices monitors centre of gravity of the user to determine a symmetry of posture.

~~15.~~14. The support cushion of claim ~~14~~13, wherein the symmetry of posture is determined by a set of ratios between the sensing devices arranged in the quadrant layout.

~~16.~~15. The support cushion of claim 1, wherein the controller turns off the at least one vibrational device when the at least one sensor determines that no user is present on the support cushion.

~~17.~~16. The support cushion of claim 1, wherein the support cushion and/or the at least one vibrational device comprises at least one rechargeable battery as a power source.

~~18.~~17. The support cushion of claim 1, wherein the support cushion is adapted for use as one of the following: seat cushion; wheel chair cushion; back-rest lumbar cushion; pet-bed cushion; mattress cushion.

~~19.~~18. The support cushion of claim 1, wherein the support structure is comprised of one or more of; latex, polymer materials, multi-density foam, memory foam, anti-pressure gel.

~~20. The support cushion of claim 1, wherein the at least one cavity is sized and shaped to receive at least one vibrational device.~~

~~21.~~19. The support cushion of claim ~~20~~1, wherein the at least one vibrational device is a cycloidal vibration device imparting cycloidal vibrational therapy to a user positioned upon the support cushion.

~~22.~~20. The support cushion of claim ~~21~~19, wherein the cycloidal vibration device comprises a brushless servo motor.