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Patient Mattress Minimises Contact Pressure Damage

A new patient support system developed by Joerns Healthcare (Pershore, UK) simulates the effects of a body floating in fluid, redistributing pressure and weight to prevent damage to skin and other tissues. The result is that the patient is in a simulated fluid environment and suspended in a nearly neutral buoyant state, as if floating on the mattress, the manufacturer said.

The Dolphin Fluid Immersion Simulation (FIS) system adjusts to a patient's change in position, blood flow, or temperature to help release pressure on the skin. The system does its work without any interaction by caregivers, the company noted. The Dolphin FIS is recommended for use by patients with spinal cord injury, amputations, pressure ulcers, arthritis, burns, and other situations that require rehabilitation and pain management.

Studies suggest that as many as one in 12 patients will develop a pressure sore in surgery lasting longer than three hours, while nearly a quarter of patients in long-term care suffer from pressure ulcers.

The manufacturer also cited a University of California at San Diego (CA, USA) study showing that the Dolphin FIS provided statistically significant improvements of tissue blood flow as compared to standard beds and gurneys. Dolphin FIS products are designed to fit virtually every bed frame and surface, including standard intensive care (ICU) and surgical beds, paediatric beds, stretcher pads, and wheelchairs.

The Dolphin FIS system detects and autocorrects the mattress surface based on weight, 3D surface area, and patient movement, significantly reducing vertical shear which can deform soft tissue and constricts blood flow. The process of weight reallocation and pressure redistribution is automated by the mattress, which uses complex algorithms, a microprocessor, and sophisticated dynamic pressure waveform analysis to precisely adjust the density of the surface for the unique anatomical features of the patient.

"This exciting breakthrough in wound care was first used by the US Navy in stretchers and pads to transport dolphins long distances without damaging their sensitive skin and internal organs when outside of their natural fluid environment," explained Curtis Jordan, marketing manager of Joerns Healthcare. "This surface is probably the most caring in the world. It provides enhanced comfort and accelerates the recovery period of wounds for high risk patients in intensive care and long-term care."

The Dolphin FSI system was initially developed for out-of-water transport of dolphins and seals for the US Navy, which has deployed dolphins since the 1960s due to their superior sonar ability. Dolphins' skin and organs are highly sensitive to pressure outside of water. Due to the sheer force of gravity from the air on dolphins' internal organs and circulation, the navy used pads to simulate a low pressure water environment by making air act as a fluid, thus avoiding stress to the mammals' blood circulation and tissue oxygenation.

Source: HospiMedica.com
Image Credit: Joerns Healthcare

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