Effectiveness of the Dolphin Bed as a Tool to Improve Tissue Perfusion in Points of Compression

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Background
- Pressure ulcers plague bed-bound patients
- High incidence of pressure ulcers: 23% of long-term care facilities residents
- Expensive: $1.3 billion in costs annually
- Air-flow mattresses, Air-fluidized beds, and auto turning beds have improved care
- Is there a place for an even better “smart computerized, adaptable mattress?”

Objective
- Evaluate improvement of tissue perfusion by “Dolphin Bed” (v. standard O.R. bed/gurney)

Materials/Methods
- “Dolphin bed” (Manufactured by Biologics)
- 10 volunteers
- Perimed electronics tissue sensor system (for pressure and perfusion assessment):
  - Transcutaneous o2/ico2 sensor
  - Laser flow Doppler
- Sensors on bilateral scapula of volunteers
- Measurements (in 10 minute increments)
  - Baseline upright
  - Supine on standard OR bed/gurney
  - Sitting up again (recovery to new baseline)
  - Supine on the dolphin bed
- Percent reduction from baseline calculated
- Mean values compared by Wilcoxon and paired t-test

Results
- Mean values: 87% retention of perfusion on the dolphin bed vs. 16% of baseline perfusion for the standard bed
- All volunteers had significantly improved blood flow using the dolphin bed vs. standard bed (p<0.0001)

Conclusions
- Statistically significant improvement of tissue blood flow while on the “Dolphin Bed” relative to the standard bed and gurney
- Results warrant further study of the “Dolphin Bed’s” potential and clinical efficacy as a tool improving outcomes of pressure sore prophylaxis and treatment