

# Stryker M-Series Lift Assist™ Backrest: Force Value Comparisons

## Situation

Research on musculoskeletal injuries among nurses found that 52% of registered nurses suffer from chronic back pain and 12% of nurses surveyed said they left the profession due to back pain.<sup>1</sup> With 30.5% of the American population obese<sup>2</sup> and an estimated shortage of 500,000 nurses by 2025,<sup>3</sup> nurses are being asked to do more with less in handling their patients.

## Methodology

To gauge the force needed to raise and lower the backrest of a stretcher, which can be a source of back strain, a force values test was conducted. The test identified the force in pounds required to raise and lower a 250-lb. patient, and was conducted on the Stryker Lift Assist backrest of an M-Series stretcher, a competitor's backrest<sup>4</sup> and the Stryker standard pneumatic backrest.<sup>5</sup>

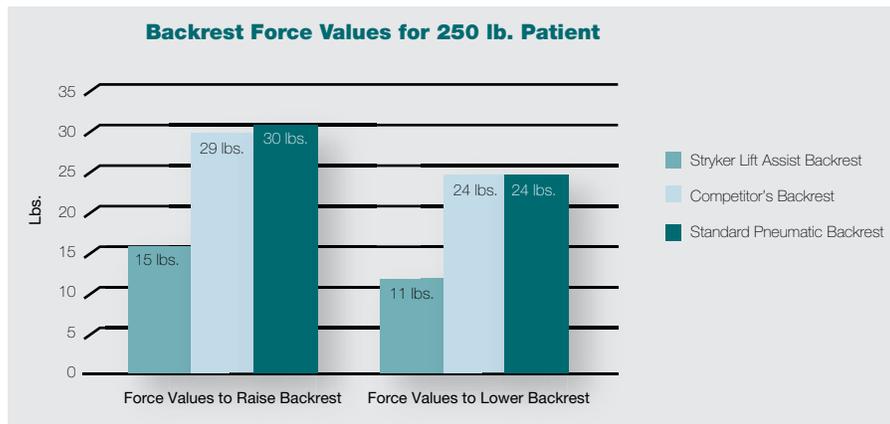
## Definitions

**Stryker Lift Assist Backrest:** The backrest contains a drop-seat design, which uses a patient's weight as a lever to assist the caregiver in raising and lowering the backrest.

**Competitor's<sup>4</sup> Backrest :** The backrest contains a drop-seat design, and when raised, the foot section raises simultaneously with the backrest.

**Stryker Standard Pneumatic Backrest:** The backrest is operated by hydraulic fluid moving through a cylinder.

## Findings



## Conclusion

The force values test data shows that the Stryker Lift Assist backrest requires significantly less force in pounds to raise and lower, making it easier to adjust than the competitor's backrest and standard pneumatic back rest. In fact, Stryker Lift Assist makes it 51% easier, helping to relieve caregivers' cumulative strain from consistently positioning their patients. It also gives caregivers peace of mind, helping them to focus on caring for their patients rather than worrying about the physical pain associated with positioning patients.

1. "Workplace Safety 2004: Preventing Back Injuries," *Nursing News*, <<http://www.nursezone.com/Nursing-News-Events/more-news.aspx?ID=12801>> accessed on December 15, 2008.

2. "Obesity in the U.S.," *American Obesity Association*, <[http://obesity1.tempdomainname.com/subs/fastfacts/obesity\\_US.shtml](http://obesity1.tempdomainname.com/subs/fastfacts/obesity_US.shtml)> accessed on December 23, 2008.

3. "The Future of the Nursing Workforce in the United States: Data, Trends and Implications," *American Association of Colleges of Nursing*, <<http://www.aacn.nche.edu/media/shortageresource.htm>> accessed on December 15, 2008.

4. Competitor's Backrest is Hill-Rom's BackSaver™ AutoContour™ Backrest option

5. Internal force values test conducted by Stryker engineering team