

# A Comparison Between MicroAire Standard and Onyx™ Low Profile Devices: Median Nerve Pressures in a Cadaver Model

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## Summary Points:

- Transient neurapraxia occurs in 1% of ECTR patients.<sup>1</sup> Previous cadaver studies show higher cross-sectional area correlates with increased median nerve pressure.<sup>2</sup>
- In the present cadaver study, an Onyx™ Low Profile blade case significantly ( $p < .01$ ) reduces average peak median nerve pressure by 60% compared to the Standard Blade.
- Average peak median nerve pressures are more consistent with the Onyx Low Profile blade case compared to the Standard blade case in the cadaver model.

## Methods:

An incision was made in the proximal wrist crease of 15 cadaveric hands and a 3.5F pressure transducer was placed in the epineurium of the median nerve at the level of the hook of hamate. MicroAire Standard and Onyx Low Profile blade cases were inserted into the carpal canal while measuring pressure in the median nerve. Peak pressures were recorded. For each cadaver, the first device inserted into the carpal canal was randomized between blade cases and then alternated for a total of three carpal canal insertions per blade case (Figure 1A), yielding an average peak insertion pressure for each blade case for each specimen.

## Results:

Average peak median nerve pressures for Standard and Onyx blade cases are compared in Figure 1B. Peak median nerve pressures were significantly lower ( $p < .01$ , Paired Student's T-Test) with the Onyx blade case compared to Standard when used in a cadaver model. Peak median nerve pressures from insertion of the Onyx blade case were an average of 60% lower than the Standard blade case (74 vs. 187 mmHg, respectively). Peak nerve pressures were more consistent with the Onyx blade case (standard deviation of 72 mmHg) compared to Standard blade case (standard deviation of 191 mmHg).

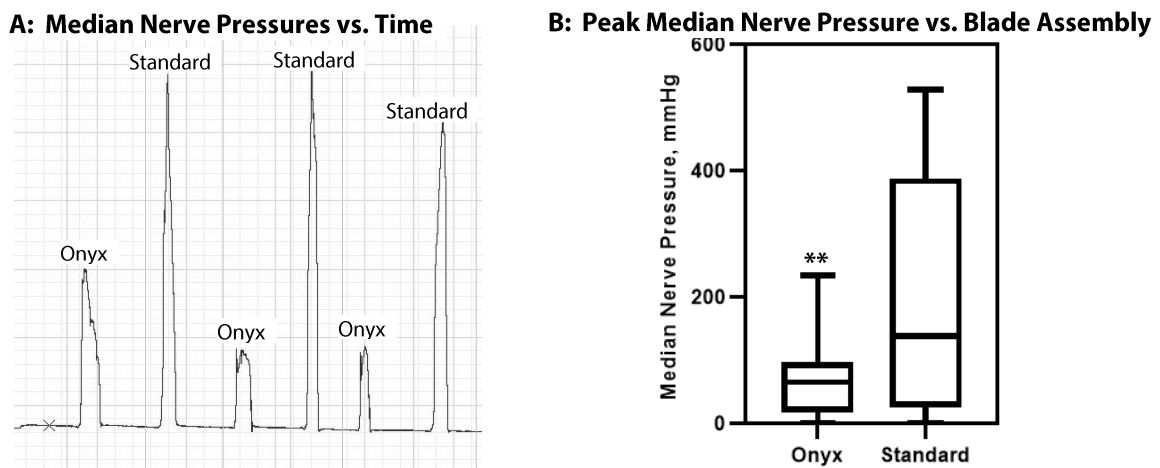


Figure 1. **A: Median Nerve Pressures vs. Time, Specimen Number 11. Three replicates per blade case.**  
**B: Peak Median Nerve Pressure vs. Blade Case Assembly. \*\*  $p < .01$ , Paired Student's T-Test.**

<sup>1</sup>Satteson ES, Person D, Tannan SC. Single Surgeon Series of Outcomes of 1280 Consecutive Endoscopic Carpal Tunnel Releases Stratified by Disease Severity. American Association of Hand Surgeons. Waikoloa, HI, 2017.

<sup>2</sup>Wales K, Wheatley M, Pierce JL, Cornet DA. Influence of Endoscopic Blade Case Geometry on Carpal Canal and Median Nerve Pressures and on Anatomy during Endoscopic Carpal Tunnel Release Surgery in a Cadaver Model. Poster presented: Annual Meeting of the American Association for Hand Surgery, San Francisco, CA, September 7-9, 2017.