CONSISTENCY IN COMPRESSION THERAPY: COMPARATIVE ANALYSIS OF COMFORT AND REPRODUCIBILITY OF AN ADJUSTABLE GARMENT VERSUS TWO-LAYER BANDAGE SYSTEMS

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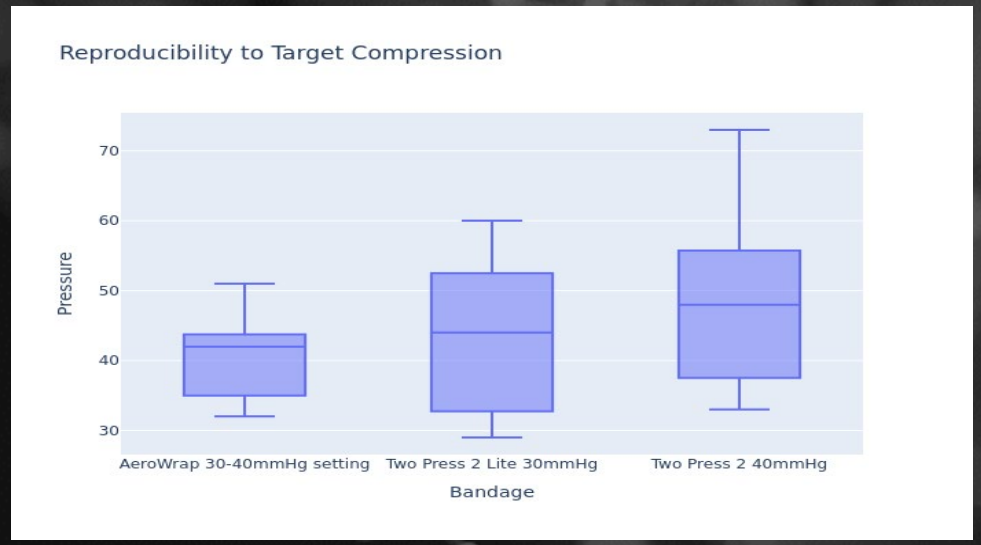
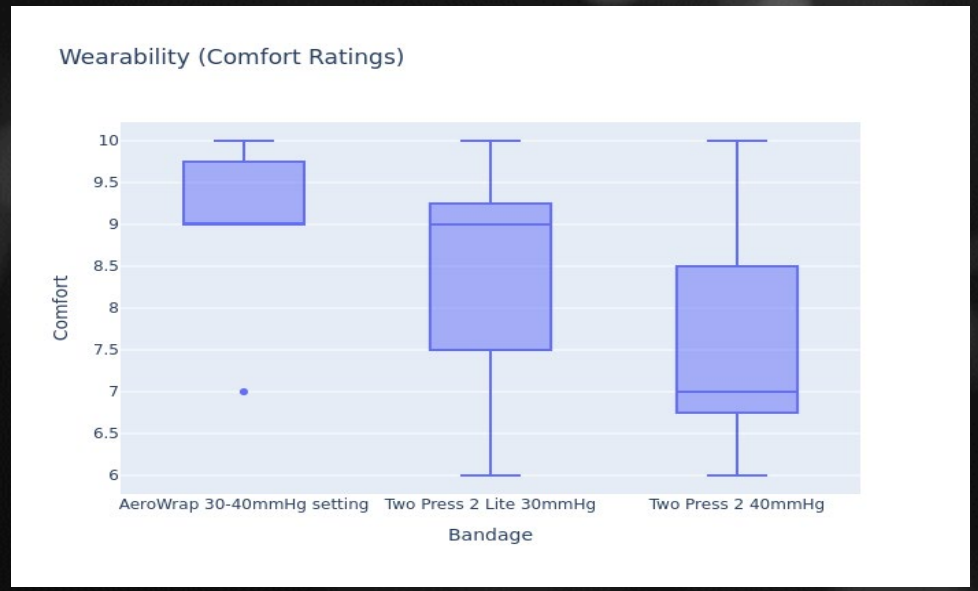
Background: Compression therapy is a cornerstone in managing venous and lymphatic disorders yet achieving consistent sub-bandage pressure remains a clinical challenge. Variability in application technique can compromise therapeutic efficacy and patient safety. This study evaluates the reproducibility of sub-bandage pressure and perceived comfort using three compression modalities: AeroWrap adjustable garment, TwoPress 2 Lite (30 mmHg), and TwoPress 2 (40 mmHg).

Methods: A prospective, hands-on workshop was conducted with podiatric medical students, who applied each compression system to peers under faculty supervision. Sub-bandage pressures were measured post-application immediately at standardized anatomical landmarks using validated pressure-measuring devices. Comfort ratings were recorded on a 10-point Likert scale. Descriptive statistics were calculated for mean, median, standard deviation (SD), and range for each modality.





Results: AeroWrap demonstrated the most consistent pressure delivery (mean 40.9 mmHg, SD 6.6, range 19 mmHg) and highest comfort ratings (mean 9.0, SD 1.0). TwoPress 2 Lite exhibited greater variability (mean 43.4 mmHg, SD 12.4, range 31 mmHg) with comfort mean 8.4 (SD 1.5). TwoPress 2 (40 mmHg) showed the widest pressure range (mean 48.6 mmHg, SD 15.3, range 40 mmHg) and lowest comfort (mean 7.6, SD 1.5). Compliance with target pressure bands was highest for AeroWrap (71%), compared to TwoPress Lite (40%) and TwoPress 40 (20%).

Conclusion: AeroWrap's standardized application mechanism significantly reduces variability in sub-bandage pressure compared to traditional two-layer systems, enhancing reproducibility and patient comfort. These findings underscore the importance of device selection in clinical practice and support the integration of adjustable compression garments for improved therapeutic outcomes. Further research in patient populations is warranted to validate these results and assess long-term clinical impact.

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