

Inter- and Intra-user Reliability of Skin Graft Thickness as a Function of Instrument

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CONCLUSION HEADLINE

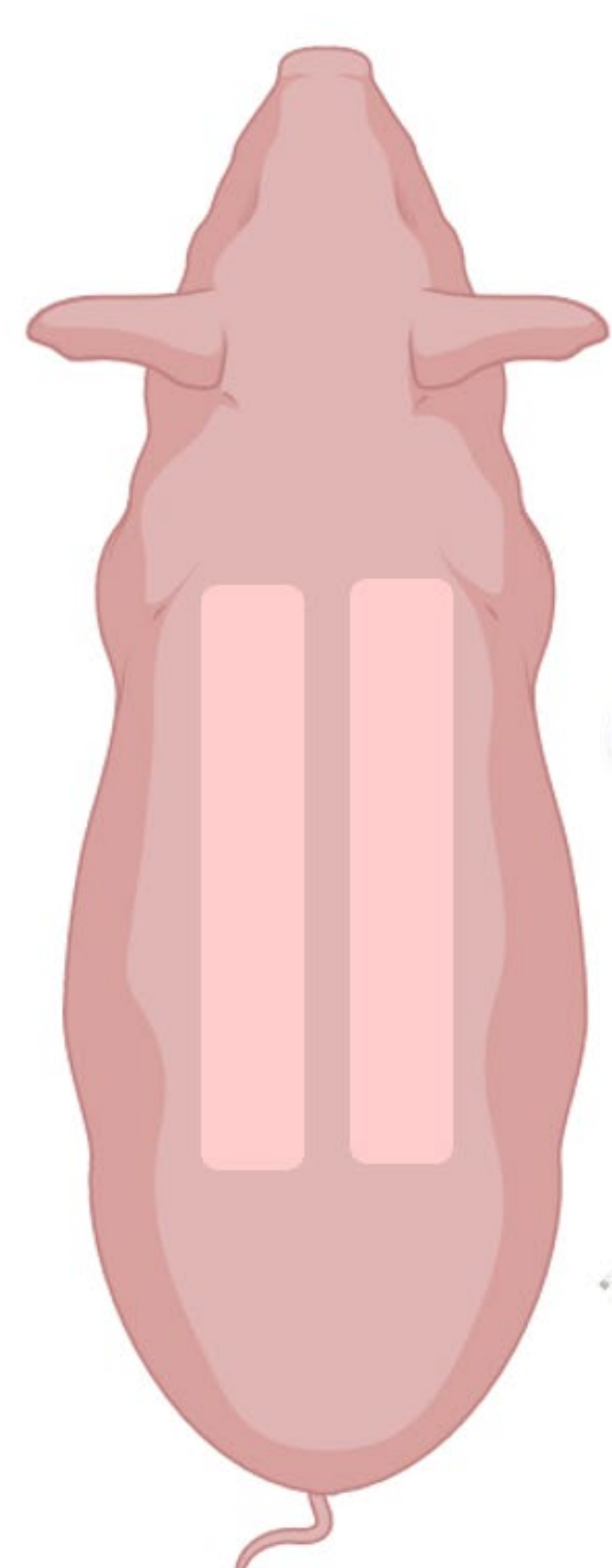
Many factors control the uniformity and overall thickness of a skin graft including applied pressure and angle of attack, and how much tension is applied to the elevated graft. Using a conventional dermatome, variability in thickness was observed with greater average measured thickness versus depth setting. Grafts harvested using the newly designed instrument were on average closer to the set thickness and more reproducible among users.

INTRODUCTION

- Electric and pneumatic dermatomes have a linear blade that oscillates at high speeds
- Thickness can be controlled by the depth-adjustment dial
- Additional factors, such as applied pressure, angle between the instrument and the surface, and curvature of the harvest site, can cause deviations from the target depth
- The same depth setting can result in significantly different thicknesses of excised tissue among operators
- A novel pneumatic dermatome has been developed
 - Rotates a circular blade at a fixed angle to the surface of the skin
 - Does not require additional downward pressure

OBJECTIVE: The goal of this study was to assess inter- and intra-user uniformity of graft thickness using conventional and newly designed dermatomes and assess the accuracy of the excised thickness. In addition, the healing rate and properties of the donor site were assessed as a function of harvesting system.

Harvest Skin



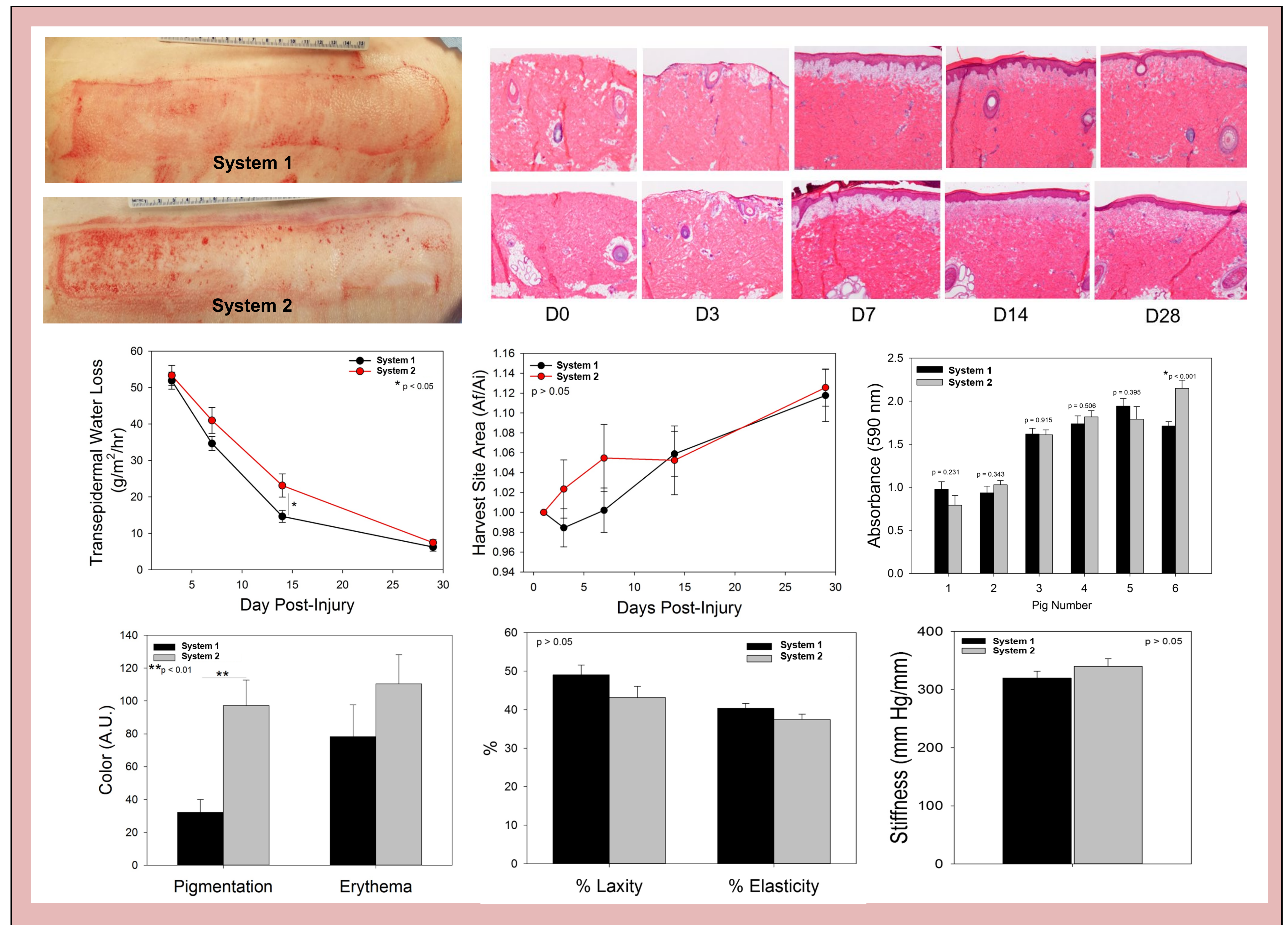
Assess Thickness



Healing Rate/Quality



RESULTS



SUMMARY of DATA

- Visually, system 1 harvested grafts that were thinner than system 2 and macroscopically more uniform
- No difference in rate of re-epithelialization and establishment of barrier function were observed
- Graft viability was equivalent between systems
- Donor site area grew slightly with time with no difference between systems
- Donor site pigmentation and erythema 30 days post-harvest was higher with system two
- No differences in donor site biomechanics were observed
- Skin graft thickness was greater using system 2 versus system 1 despite identical depth settings

ACKNOWLEDGEMENTS

The authors would like to thank University Animal Lab Resources at The Ohio State University.