

SUMMARY OF SELECTED FINDINGS

MEASUREMENT OF LEG CIRCUMFERENCE AND LEG VOLUME: INTRODUCTION OF A NEW OPTICAL 3D MEASUREMENT TECHNIQUE

TISCHER, T., OYE, S., WOLF, A., FELDHEGE, F., JACKSTEIT, R., MITTELMEIER, W., BADER, R., & MAU-MOELLER, A.

STUDY DESIGN

- Review of measurement accuracy: Comparative measurement of a human / test body and creation of 3D images using
 - a) radiation-free light projection (BODYTRONIC 600)
 - b) computed tomography (CT)
- Review of reproducibility: serial measurements of test bodies (n = 10) and humans (n = 20; 3 measurements each) with BODYTRONIC 600 to determine the circumference and volume of the lower extremities

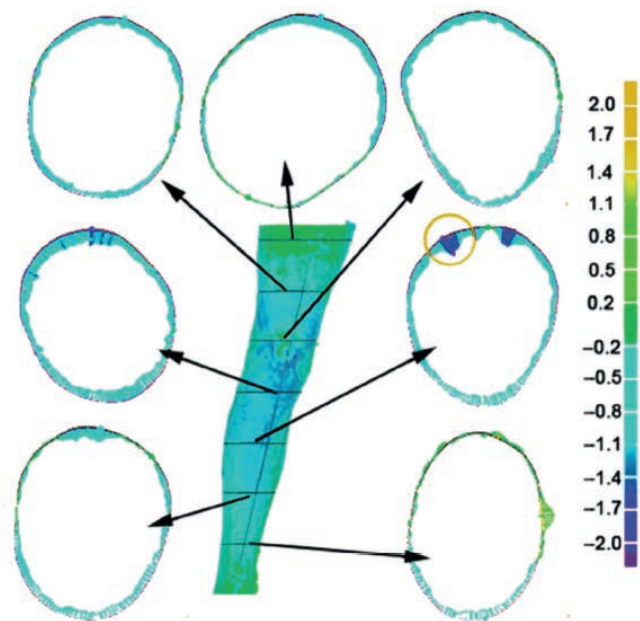
RESULTS

- 3D surface analysis with BODYTRONIC 600 vs. CT predominantly showed max. ± 1 mm deviation
- Serial measurements (humans and test bodies) yielded very precise and reproducible values

CONCLUSION

- **Measurement using digital measurement technology is 11.5 times faster than manual measurement and delivers very accurate and reproducible values (error rate <1 percent, i.e. 0.5–5.0 ml).**
- **BODYTRONIC 600 measurement technology has proven its competitiveness with the currently most accurate method (CT). Unlike CT, it does not expose the subject to radiation and can therefore be repeated as often as desired.**

Deviation of surface measurement with 3D model – BT600 vs CT



Deviations of topology (in mm) of the BT 600 3D models and CT scans from each other, as color scaling, here in leg sections.

SUMMARY OF SELECTED FINDINGS

PILOT STUDY ON THE INFLUENCE OF MCS ON POST-OPERATIVE LEG SWELLING AFTER ARTHROSCOPY

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STUDY DESIGN

- Randomized, controlled pilot study
- Use of Ccl 2 MCS (VenoTrain soft) for post-operative treatment after arthroscopy (after 24 hours of bandaging and prophylactic heparin treatment) n = 11 with MCS; n = 8 without MCS
- Primary parameters: measurement of leg circumference and leg volume taken after 1, 4 and 10 day(s) using BODYTRONIC 600 (without MCS)
- Secondary parameters: pain assessment using the visual analog scale (VAS) and range of motion (ROM)

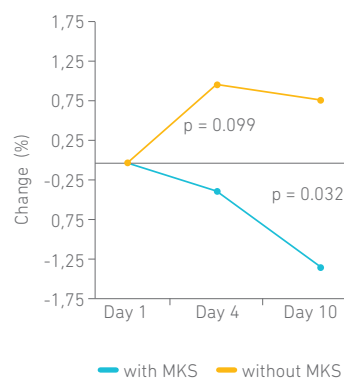
RESULTS

- Significant differences in circumference for cF (mid-thigh) and cD (knee) on Day 10
- Volume reduction of 1.35 percent with MCS vs. increase of 0.79 percent without MCS; significant differences in thigh volume between the groups on Day 1 and 4
- No differences in level of pain experienced between the groups

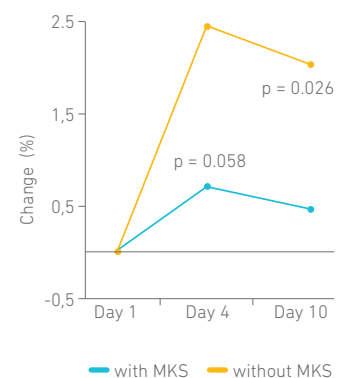
CONCLUSION

- **Ccl 2 MCS significantly reduced post-operative swelling of the leg**
- **Measurement using BODYTRONIC 600 enables precise measurements in a very low percentage range of 1-2 percent**

Change in thigh circumference (cF)



Change in knee circumference (cD)



Average change in circumference (%) at the post-operative measurement times in the groups with and without MCS