Driving Reaction Time After Left Sided Foot and Ankle Procedures

Chris A. Anthony MD, Chamnanni Rungprai MD, Tinnart Sittapairoj MD, Phinit Phisitkul MD

Department of Orthopedic Surgery, University of Iowa, USA
Disclosures

• The authors have *no conflicts to disclose*
  – Chris A. Anthony MD
  – Chamnanni Rungprai MD
  – Tinnart Sittapairoj MD
  – Phinit Phisitkul MD
Background

• Brake reaction time (BRT) is defined as time from a “stop” stimulus until a brake is depressed \(^1\)

• Previous work suggested that a BRT of 0.57 seconds (s) was average for a healthy population \(^2\)
  – BRT > 0.7 s is potentially hazardous \(^3\)
Purpose

• The present pilot study aimed to evaluate postoperative right sided BRT in patients who had undergone left sided (1) arthroscopic and (2) open foot and ankle procedures.
Methods

- Seventeen patients were enrolled in the pilot study
  - 7 underwent ankle arthroscopy
  - 10 underwent an open procedure
    - 4 flatfoot reconstruction
    - 3 ankle arthroplasty
    - 2 ankle fusion
    - 1 cavovarus foot reconstruction

- All participants had left sided surgery and had their right lower extremity tested in the driving simulation
  - All participants completed 4 driving simulations which were averaged

- Participants required to be driving at a simulated driving speed between 35-70 miles per hour prior to the brake stimulus being initiated

- BRT was defined as the time from stop stimulus until brake depression of 5%
Results

• Average BRT in patients undergoing ankle arthroscopy was $0.66 \text{ s} \pm 0.06 \text{ s}$
  • 0.65 s at 6 weeks (N=2)
  • 0.64 s at 3 months (N=3)
  • 0.69 s at 6 months (N=2)
Results

• Average BRT in patients undergoing any open procedure was **0.65 s ± 0.08 s**
  • 0.62 s at 6 weeks (N=3)
  • 0.65 s at 3 months (N=5)
  • 0.69 s at 6 months (N=2)
Conclusions

- Right sided BRT after left sided arthroscopic and open foot and ankle procedures is greater than previously described healthy patient populations.

- Right sided BRT after left sided arthroscopic and open foot and ankle procedures is slightly below a previously defined “hazardous” cutoff of 0.7 s.

- Further investigation warranted with closer follow-up after left sided arthroscopic and open foot and ankle procedures.
References

