

Watch Your Footprint: Anatomic ACL Reconstruction

Watch your step.

We better stay in line.

Precisely watching our footprints, we could walk on a beach, in the sand, in a line, and a detective examining the prints would not be able to tell if it were one of us, or just the two of us, or all of us who had gone by.

This may be a metaphor for anatomic ACL surgery. We believe that anatomic footprint reconstruction of ACL grafts is a critical key to successful outcome. This isn't unique to ACL reconstruction; shoulder surgeons continue their discussion¹⁻⁷ of footprint reconstruction in the current issue.⁸ But the emphasis of October's issue is the ACL.

Jon Karlsson's group⁹ presents Level II evidence that graft type is not a significant determinant of ACL outcome. But this is controversial, and the authors do note a possible association of osteoarthritis with bone-patellar tendon-bone grafts and clinically insignificant tunnel widening with hamstring grafts. Adding to the controversy, Dargel et al.¹⁰ report that graft substance is the weak link in ACL biomechanical testing.

In addition, Samuelsson et al.⁹ present Level II evidence that fixation doesn't matter with regard to ACL reconstruction outcome. This finding is supported in the current issue by the study of Shen et al.¹¹ Yet, Shen et al. do note an exception with regard to interference fixation screw insertion torque, where excessively high torque may result in cutting an ACL graft when too large screws are inserted. Dargel et al. also dispute that "fixation doesn't matter" by showing that fixation significantly influences graft tension during biomechanical testing.

Again, we believe footprint reconstruction positively affects outcome, and this is supported by Bedi et al. who emphasize footprint reconstruction in a technical note.¹² But technical notes may be classified

as Level V evidence, expert opinion, and thus the lowest level of evidence in the hierarchy. Basdekis et al.¹³ study double-bundle ACL reconstruction, and these authors now, and previously,^{14,15} have also emphasized footprint anatomy in their publications.

Again, however, Samuelsson et al. in their Level II systematic review conclude that the objective decrease in knee anteroposterior¹⁶ and rotational^{9,16} laxity that can occur after anatomic double-bundle ACL reconstruction seems clinically insignificant.

And the latest Level I evidence? Endeley et al. show that with regard to ACL outcomes, computer navigation does not seem to be a significant determinant of outcome.¹⁷

In the context of controversy, we continue to contend that anatomic placement of ACL reconstruction grafts is the critical key to successful outcome. Yet, the difficulty in reaching clinically relevant conclusions, as we learn in this issue,⁹ is that "In the quality assessment [of current ACL clinical trials] . . . weaknesses in the study design of the randomized controlled trials were found."

In the future, improved research methods may clarify clinical controversy; in the meantime, we're going to watch our footprints and step precisely.

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