

Peer Review File

Article information: <https://dx.doi.org/10.21037/atm-23-1527>

This is an interesting and well executed systematic review and meta-analysis comparing the biomechanical abilities of one vs two suture button devices for obtaining syndesmotic stability after an injury of the syndesmosis.

the authors conclude that single button suture constructs result in minimal fibular rotation, and double suture button constructs minimize fibular translation.

I do have some minor comments with regards to this study.

Comment 1) it is interesting that one suture button results in minimal fibular rotation compared to two suture buttons. I find this not logical, why would there be more fibular rotation when using two suture buttons compared to one? Is there a difference in surgical technique? Or might this difference be due to the fact of low inclusion numbers? please elaborate on this in your discussion.

Reply 1) Thank you very much for your review of your manuscript and thoughtful attention to these results. In the results section of the systematic review in lines 119-129, we found that there were no differences in fibular rotation. As part of the meta-analysis in lines 158-163, we did not find any significant differences between single and double suture button constructs when looking at fibular rotation. Perhaps you may have found it illogical that a single suture button should have resulted in significantly more fibular rotation. There could be clinically meaningful differences rather than statistically significant differences, which is why we feel further investigation is necessary. Also, the other complicating factor is parallel vs divergent configuration when looking at 2 suture button constructs and how that may impact biomechanical metrics.

Changes in text: We have elaborated on this in the discussion lines 189-191. There was a typo in the conclusion that said there were differences in fibular rotation that has been changed as well, lines 251-252.

Comment 2) there is a high heterogeneity in your meta-analysis, this should also be mentioned in your discussion/limitations.

Reply 2) We agree there is high heterogeneity in this meta-analysis. Thank you very much for your comment.

Changes in text: We have added a sentence about this in the discussion, lines 229-231.

Comment 3) Could you elaborate on what kind of future studies are needed? do we need an RCT? is there any evidence on what kind of patients would benefit from one or two suture button constructs? eg Active patients/ high level athletes/ patients with high BMI etc?

Reply 3) Thank you for your comment. We can definitely elaborate on what future studies might be best. We did not come across evidence of what kind of patients may

benefit from specific constructs, as cadaveric studies are ill equipped to make those sorts of comparisons. We agree that would be an interesting area of study.

Changes in text: We elaborate on further studies in lines 241-245.

Comment 4) there is still no conclusive evidence if a screw fixation is better/worse compared to a suture button fixation for syndesmotic injury. Can you elaborate on when a suture button would be beneficial over screw fixation? (Isolated syndesmotic injury, or types of patients)

Reply 4) Thank you for this astute comment. We have included a few lines outlining the ongoing debate regarding suture button versus screw fixation.

Changes in text: We have added to the introduction lines 61-67.