

The learning curves of two flexor tendon repair techniques: a comparative porcine cadaveric study

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Background: As surgeons learn new techniques, the performance tends to improve with experience. This phenomenon can be represented graphically as learning curve. There are no studies that investigate learning curves in different flexor tendon repairs. We compared a simple four-strand Adelaide repair with a more complex six-strand modified Lim-Tsai repair. The aim of this study was to compare learning curves between these repairs.

Methods: We organized a workshop attended by 20 medical students of the second to fourth year course. Participants' experience in surgery was limited to few saturation exercises. Each participant repaired five porcine tendons in situ: either with Adelaide or modified Lim-Tsai followed by a peripheral suture. We tested all tendons with linear static testing to measure yield loads. Moreover, we measured repair times for each repair. We used linear mixed model to compare learning between the techniques.

Results: There was increase in yield loads with repetitions, but we did not find difference in yield loads at any time points between the repair methods (Figure 1). The interaction between repair technique and repetition of the repair remained statistically insignificant ($p = 0.427$). Time to perform repair did not differ and decreased from 44 to 28 minutes and from 46 to 25 minutes with Adelaide and modified Lim-Tsai repairs, respectively.

Conclusion: It seems that inexperienced future doctors can learn both simple and more complicated repairs in the same way. However, generalizability of the result should be made cautiously because only two repair methods were examined under laboratory conditions.