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**OPTIMIZING THE ORIENTATION OF A SUTURE BUTTON TO STABILIZE THE
DISTAL RADIOULNAR JOINT IN A BONE MODEL**

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Abstract:	<p>Purpose When left untreated, distal radioulnar joint (DRUJ) instability leads to prolonged wrist pain and weakness during pronosupination. Current treatment options are technically demanding, which has resulted in mixed outcomes. This study evaluates the potential of using a suture button to stabilize the DRUJ and find the optimal positioning of the suture button.</p> <p>Methods A synthetic bone model was used to compare the range of motion, dislocation events, dorsal translation, volar translation, and gapping between a straight across or obliquely placed suture button in six different configurations. The translation and gapping at three positions (60° supination, neutral, 60° pronation) were evaluated.</p> <p>Results Full range of motion (ROM) was achieved in all configurations except for suture buttons placed in 60° pronation. Obliquely placed suture buttons led to more dislocations than straight across suture buttons. The oblique 60° supination configuration had the lowest average dorsal translation ($p < 0.001$), but also the greatest total volar translation and total gapping. In configurations that achieved full ROM, the straight across 60° supination configuration obtained the least total volar translation, total gapping, and force to achieve full ROM.</p> <p>Conclusions In this model, suture buttons allowed full ROM and limited pathological wrist movement in several configurations, indicating that suture buttons have the potential to be used as a treatment option for stabilization of the DRUJ. The optimal positioning of a suture button is likely in the straight across 60° supinated configuration, as it provides an adequate balance of ROM and stability in comparison to the other suture button configurations.</p> <p>Clinical Relevance Additional treatment options for the stabilization of the DRUJ is needed. Suture buttons may be of use.</p>