OBJECTIVES

1. Present a vision for how biomechanical models might be integrated into the surgical workflow.
2. Characterize the effects of two example intraoperative surgical decisions on soft tissue tension.

CHARACTERIZATION OF INTRAOPERATIVE SURGICAL DECISIONS

- Simulated Soft Tissue Releases to Correct Common Imbalances
  - Box plots show that releases can greatly reduce contact force imbalance.

- Subtle Component Alignment Adjustments
  - Box plots show that releases can greatly increase knee laxity.
  - Table shows that contact force imbalance is highly sensitive to component alignment adjustment.

CLINICAL IMPLICATIONS

- Integration of biomechanical models into the surgical workflow might provide objective guidance for surgeons pre-, intra-, and post-operatively.
- Surgeons should avoid unnecessary releases because while they do reduce the contact force imbalances, they might also lead to instability.
- Contact force imbalances are very sensitive to subtle component alignment adjustments. Hence, surgeons should consider making subtle component alignment adjustments as an alternative to performing releases.

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