

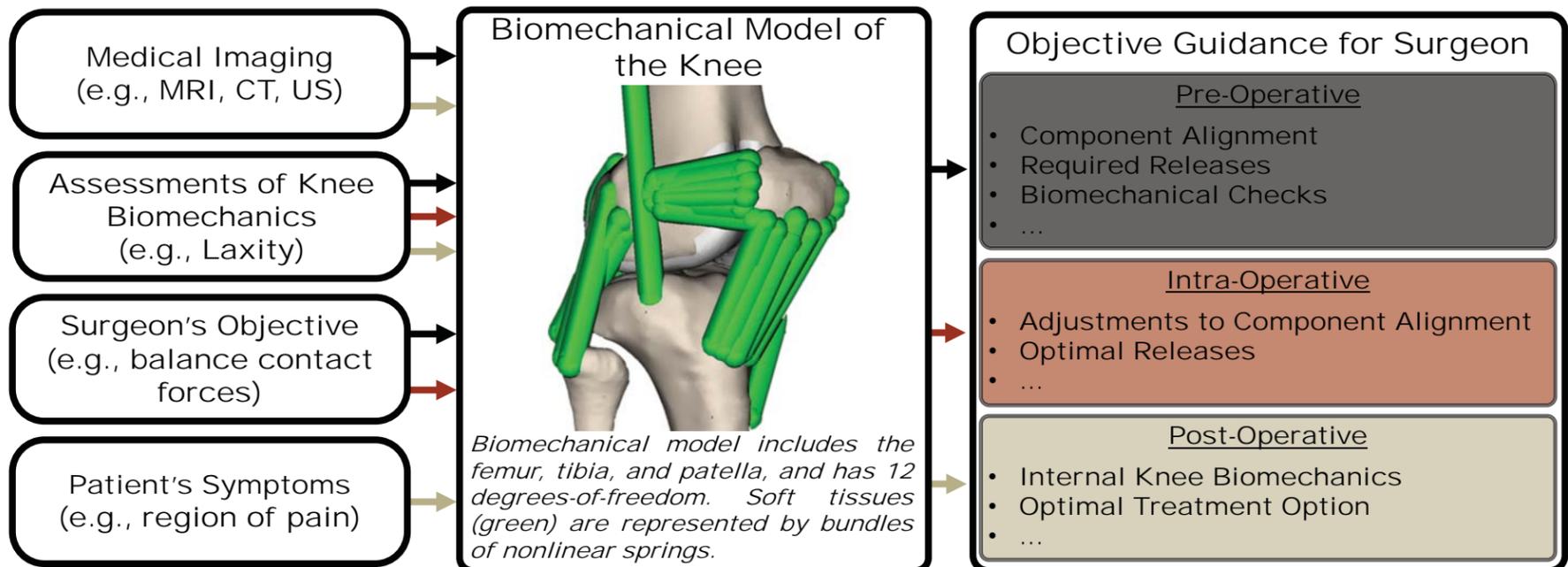
INTRODUCTION

- Up to 25% of patients are not satisfied after total knee replacement (TKR).
- Common sources of dissatisfaction are pain, stiffness, and instability.
- These sources of dissatisfaction are associated with improperly tensioned soft tissues.
- Despite advances in surgical techniques (e.g., intraoperative sensors and surgical robotics), the rate of patient dissatisfaction has not decreased.

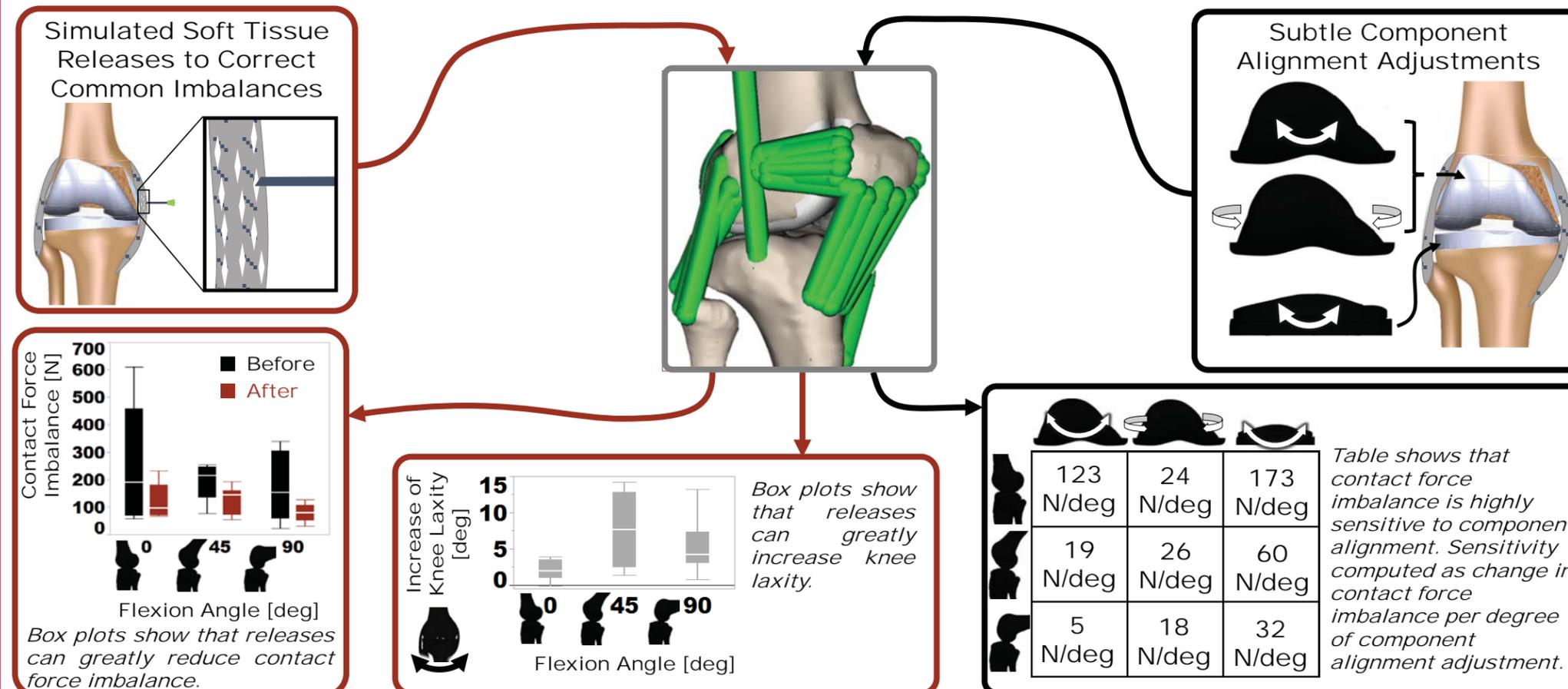
OBJECTIVES

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.

INTEGRATION OF BIOMECHANICAL MODELS INTO SURGICAL WORKFLOW



CHARACTERIZATION OF INTRAOPERATIVE SURGICAL DECISIONS



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.

ACKNOWLEDGEMENTS

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