



What our lab does:

- Orthopaedic trauma biomechanics in animal models and clinical studies
- Mechanics of bone, bone fractures, and bone healing

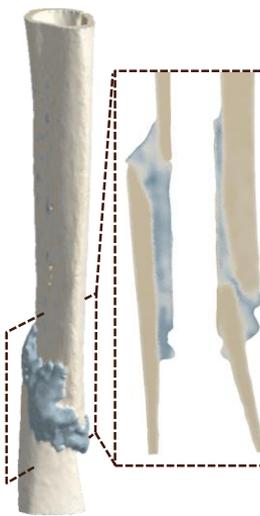
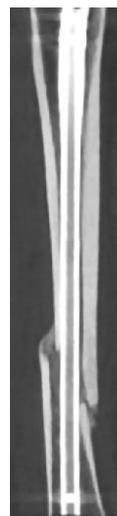
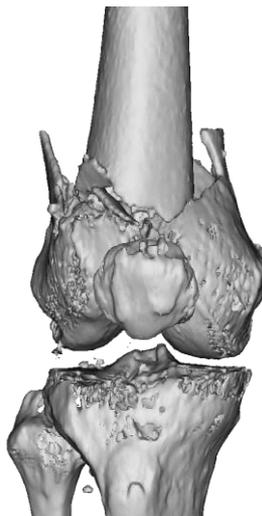
How we do this:

- Image-based finite element modeling
- Image data mining
- High-performance computing
- Active collaborations with surgeons and veterinarians worldwide

Why we are investigating this area:

- *Diagnostics:* Our models can detect poor bone healing and help surgeons make care decisions
- *Clinical Research:* Our tools can enable more powerful clinical trials
- *Fundamental Insights:* Our methods reveal how mechanical strain regulates bone healing

innovative engineering mechanics approaches to studying bone fracture and healing using imaging data



Distal Femur Fractures: [10.1115/1.4053875](https://doi.org/10.1115/1.4053875)

Image Data Mining: [10.1007/s10237-021-01553-2](https://doi.org/10.1007/s10237-021-01553-2)

Large Animal Validation: [10.1038/s41598-022-06267-8](https://doi.org/10.1038/s41598-022-06267-8)

Clinical Application: [10.2106/JBJS.18.01139](https://doi.org/10.2106/JBJS.18.01139)

Predictive Simulations: [10.1016/j.jbiomech.2021.110300](https://doi.org/10.1016/j.jbiomech.2021.110300)



ORTHOPAEDIC
TRAUMA
ASSOCIATION



@DaileyOrthoLab