

Challenges in Performance and Rehabilitation

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Driving Issue

- How can musculoskeletal function and clinical outcomes be optimized?
 - Patients recovering/living with musculoskeletal injuries
 - Non-operative & post-operative patients
 - Enhance performance of non-pathologic population

Optimize

- For athletics clear, core aspect of competition, but at what cost?



- Injury recovery more complex, interventions for one aspect effect others
 - Therapy exercises
 - Assistive device design



- Understanding the impact of injury or pathology on neuromuscular function & evaluating treatment approaches to address neuromuscular deficits

Quantifying Changes

- To understand these impacts we need to develop methods to quantify changes in function (good and bad) for a given intervention.
 - Variety of tools to accomplish this
 - Direct measure
 - Others require modeling, only as good as the assumptions

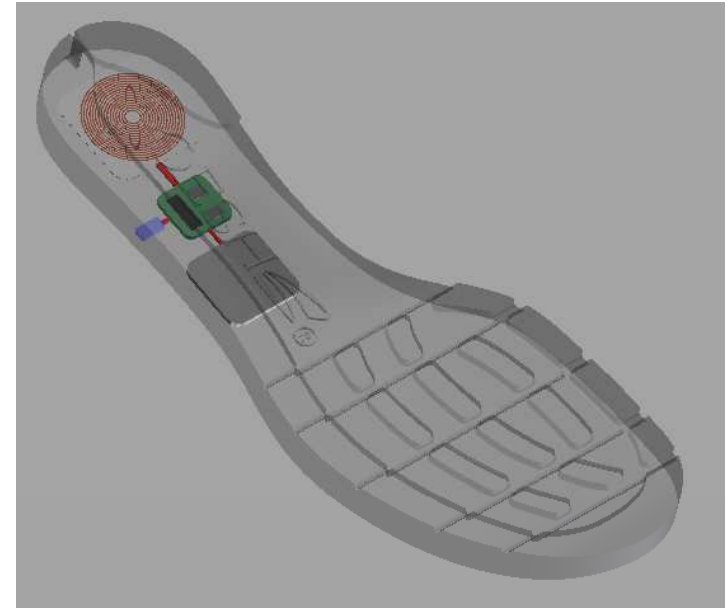
Out of Lab/Clinic Compliance

- Increased compliance with rehab plan, better outcomes
 - Develop methods to hold patients interest
 - Minimize complexity of instructions
 - Real time feedback



Take Research Out of Lab Setting

- Inertial Measurement Units, IMU
- Collect motion data out of lab
- Activity recognition
Walking, running, stairs, incline
- Measure compliance
- Real time feedback of desired movements
- Reminder of undesirable movements



Thank You

