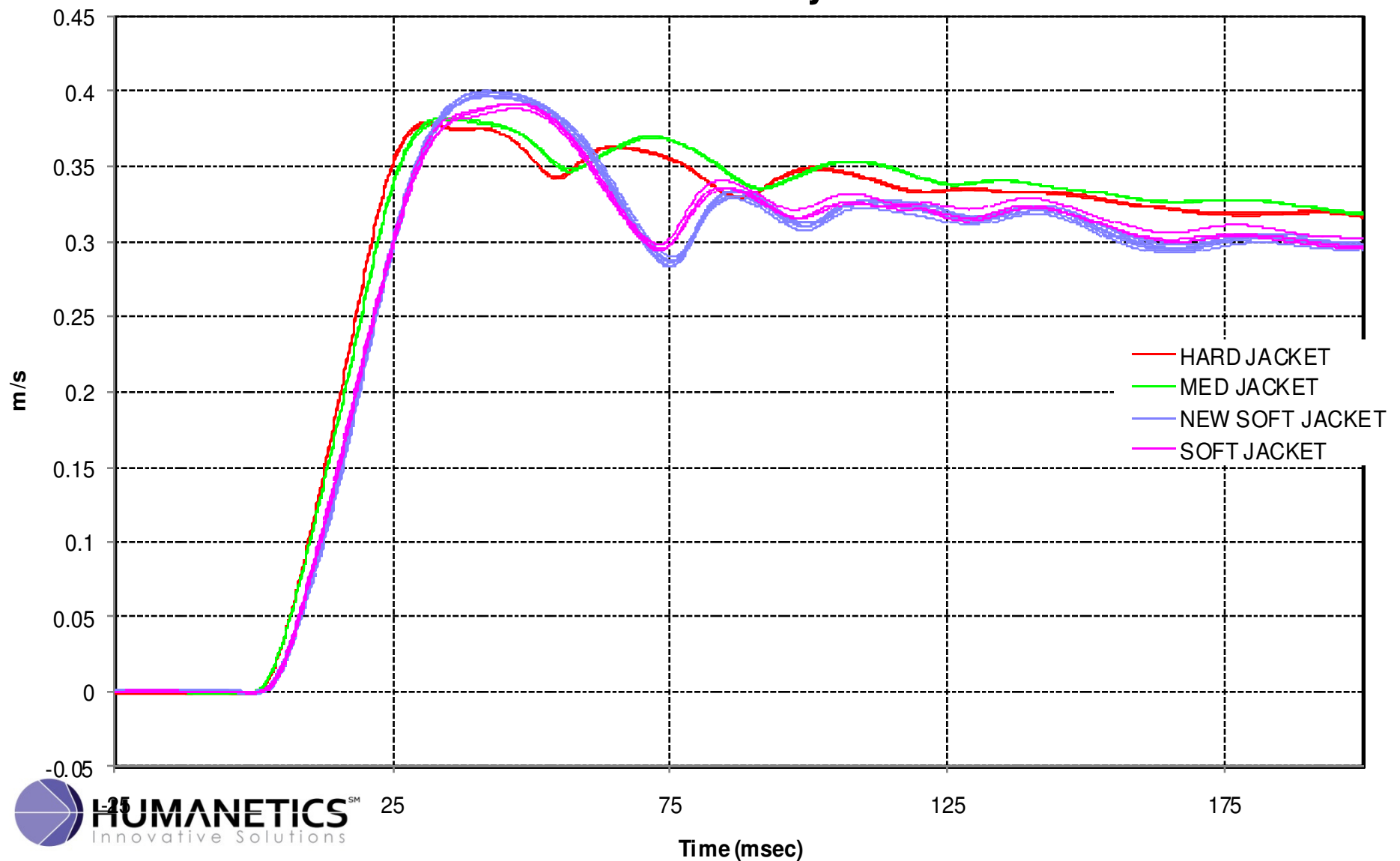


# Jacket Testing – Mini Sled

## Sled Velocity



# Jacket Testing Overview

- Mini Sled showed promising results
  - Able to see differences in jacket stiffness in pendulum force curves.
  - Need to investigate further and set corridors for manufacturing to ensure all future jackets produce similar results
- **NOTE:** *“hard jacket” and “new soft jacket” are the jackets used for the certification test variation studies*

# Component Tests: Pelvis Impact

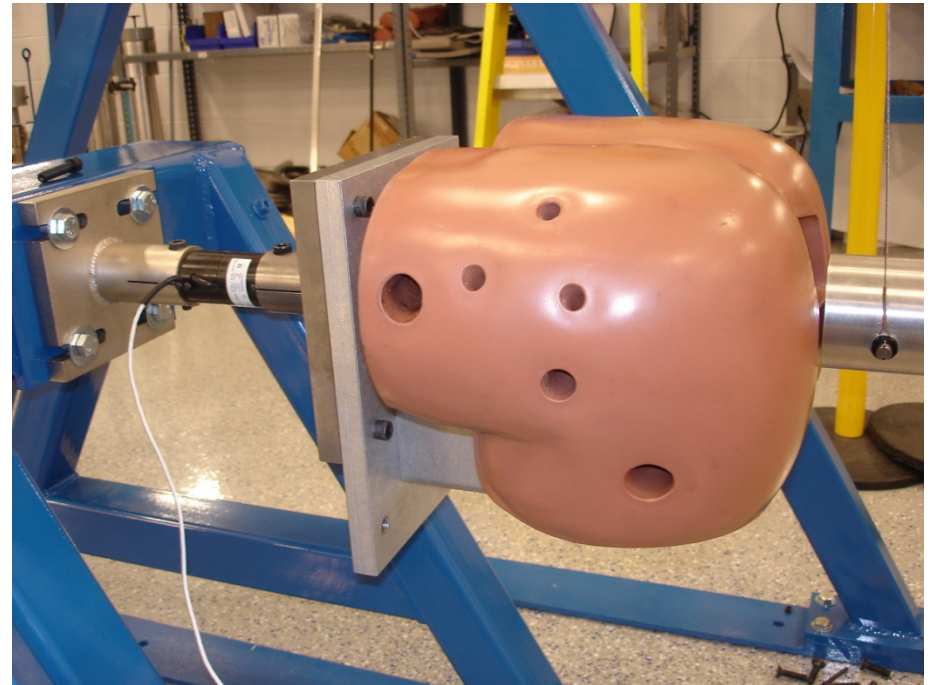
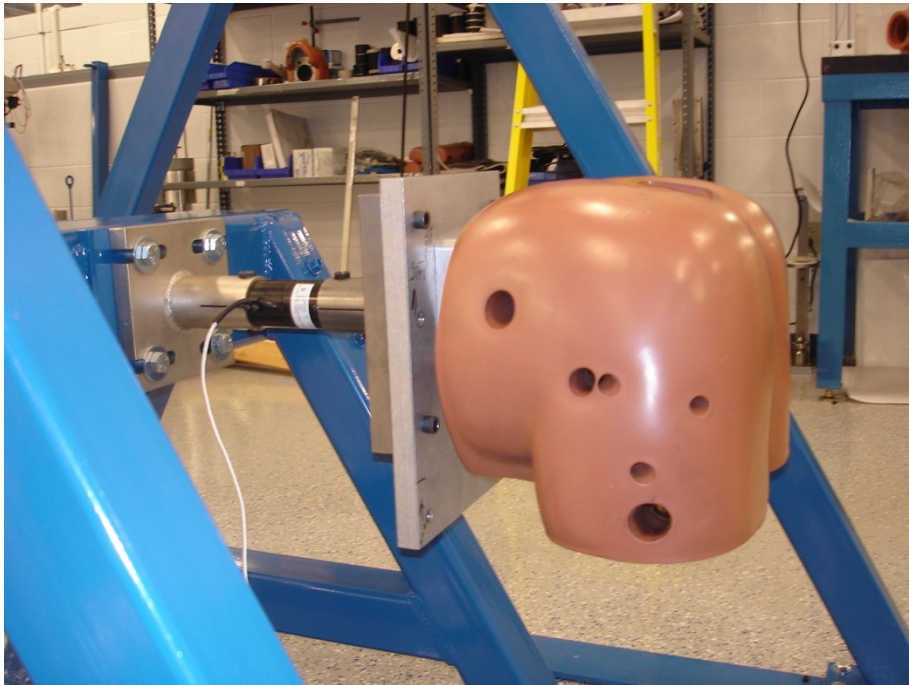
- Goals
  - Develop a test to check stiffness of back and bottom of pelvis
  - Determine if either method is more repeatable
  - Determine if either can depict differences between pelvises
  - Determine if this is a good tool for manufacturing of pelvis' to control materials

# Pelvis Testing – Mini Sled

- Two options
  - Adapt to knee impact fixture
    - Use femur interface since it is common in all labs
  - Adapter to front of mini-sled
    - Gives repeatable end condition

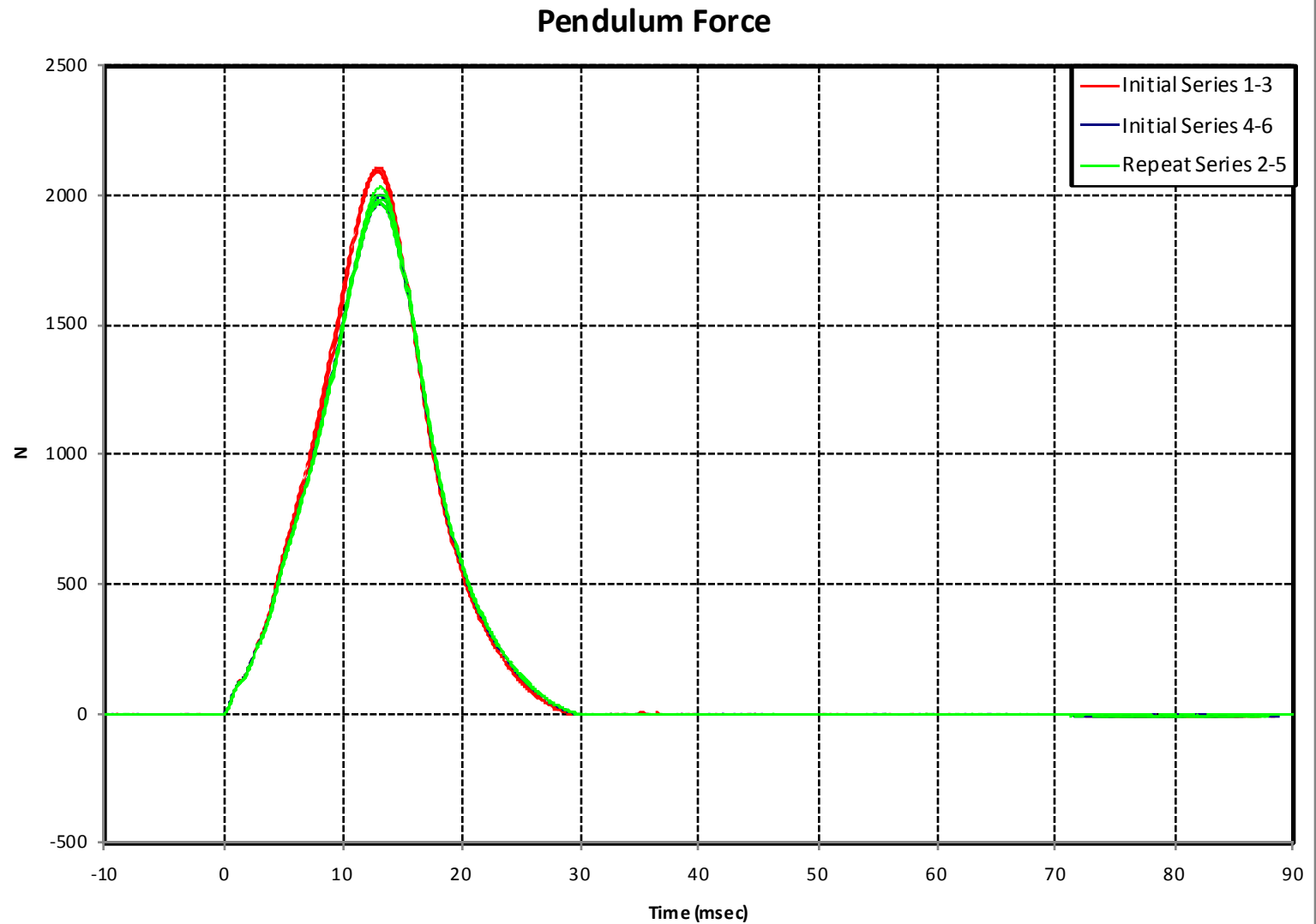
# Pelvis Testing, Knee Stand

- Use H-III50M knee impact probe

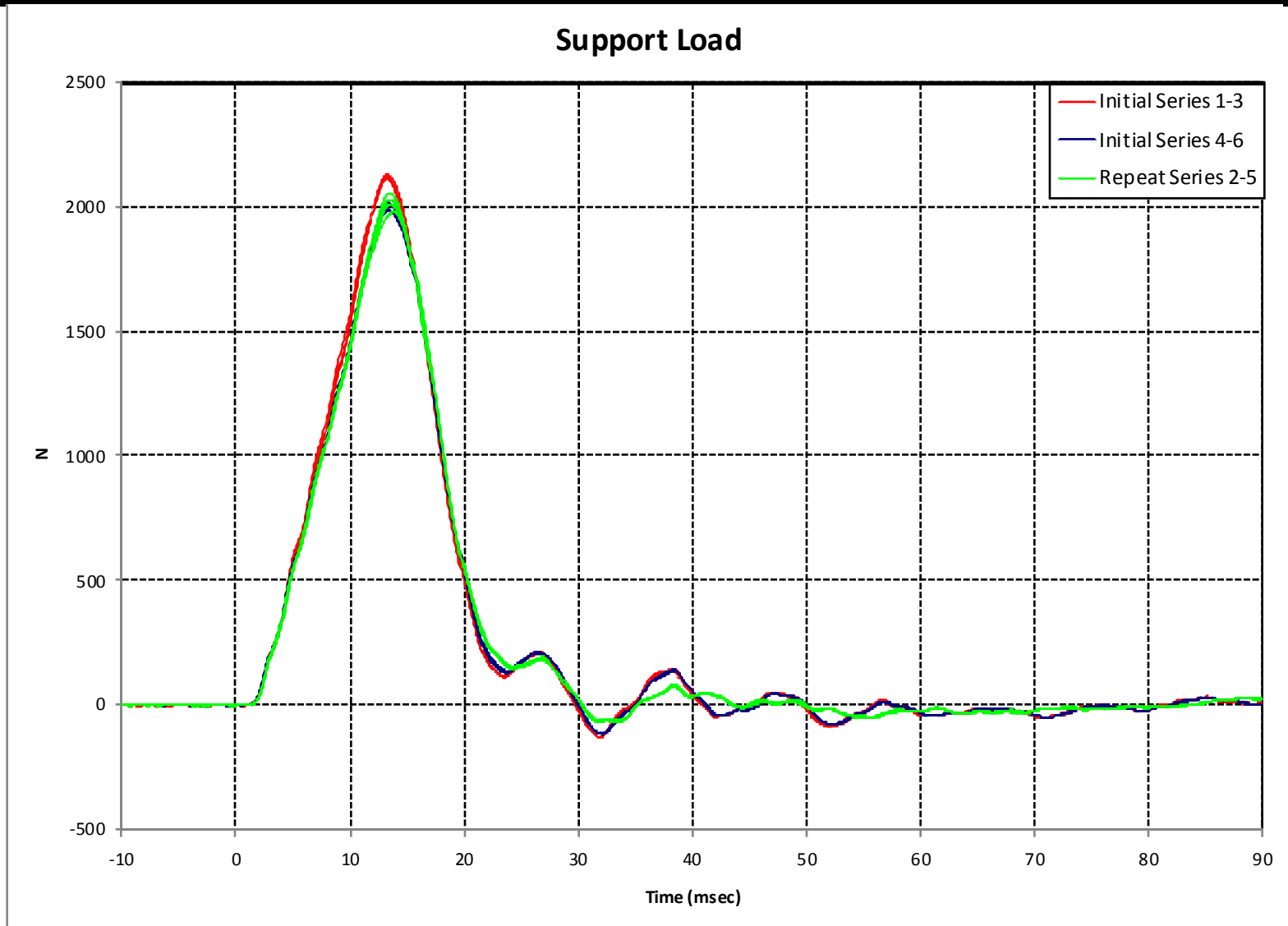


**Showed significant variability,  
especially on the bottom.**

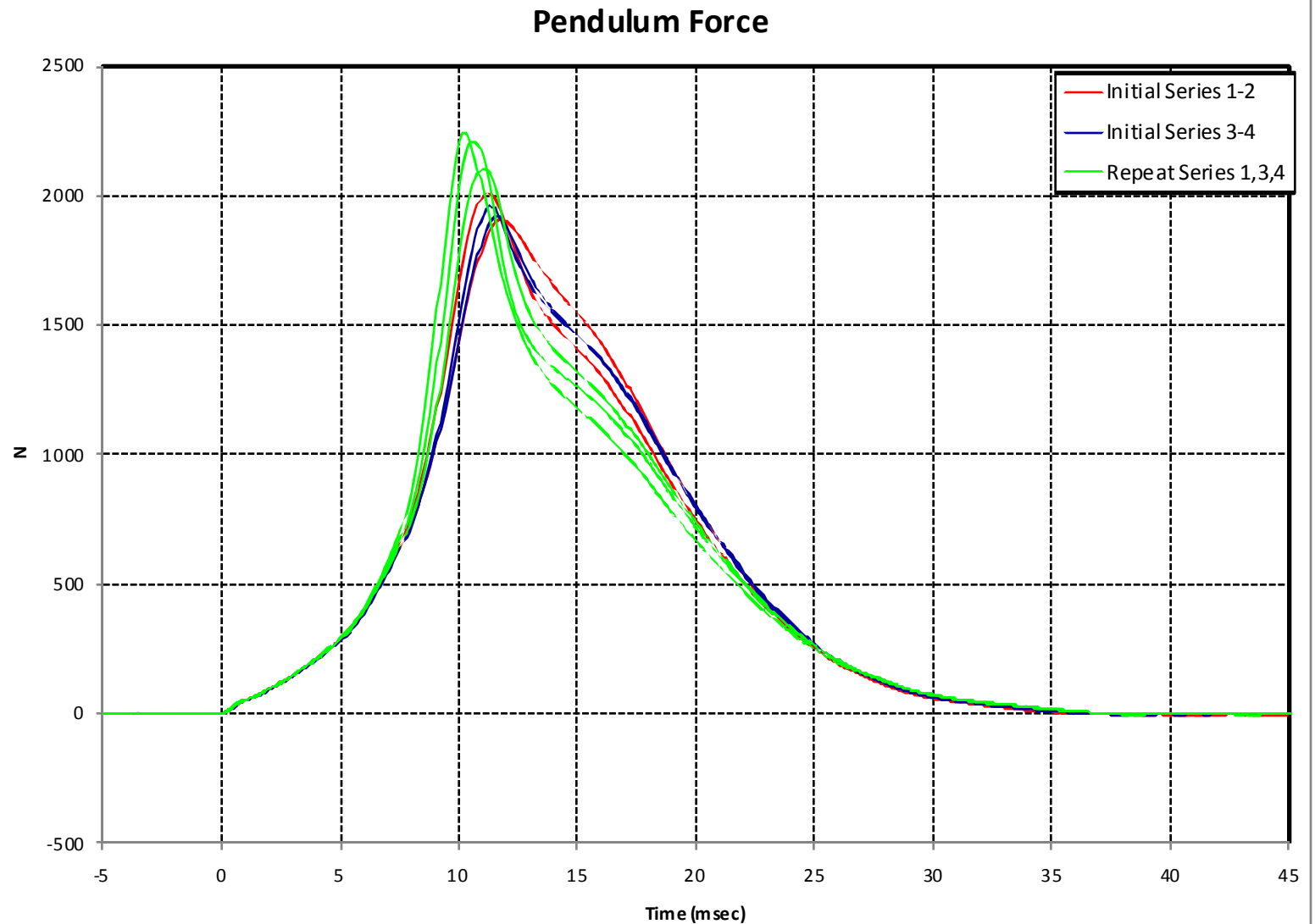
# Pelvis Testing, back - Knee Stand



# Pelvis Testing, back - Knee Stand

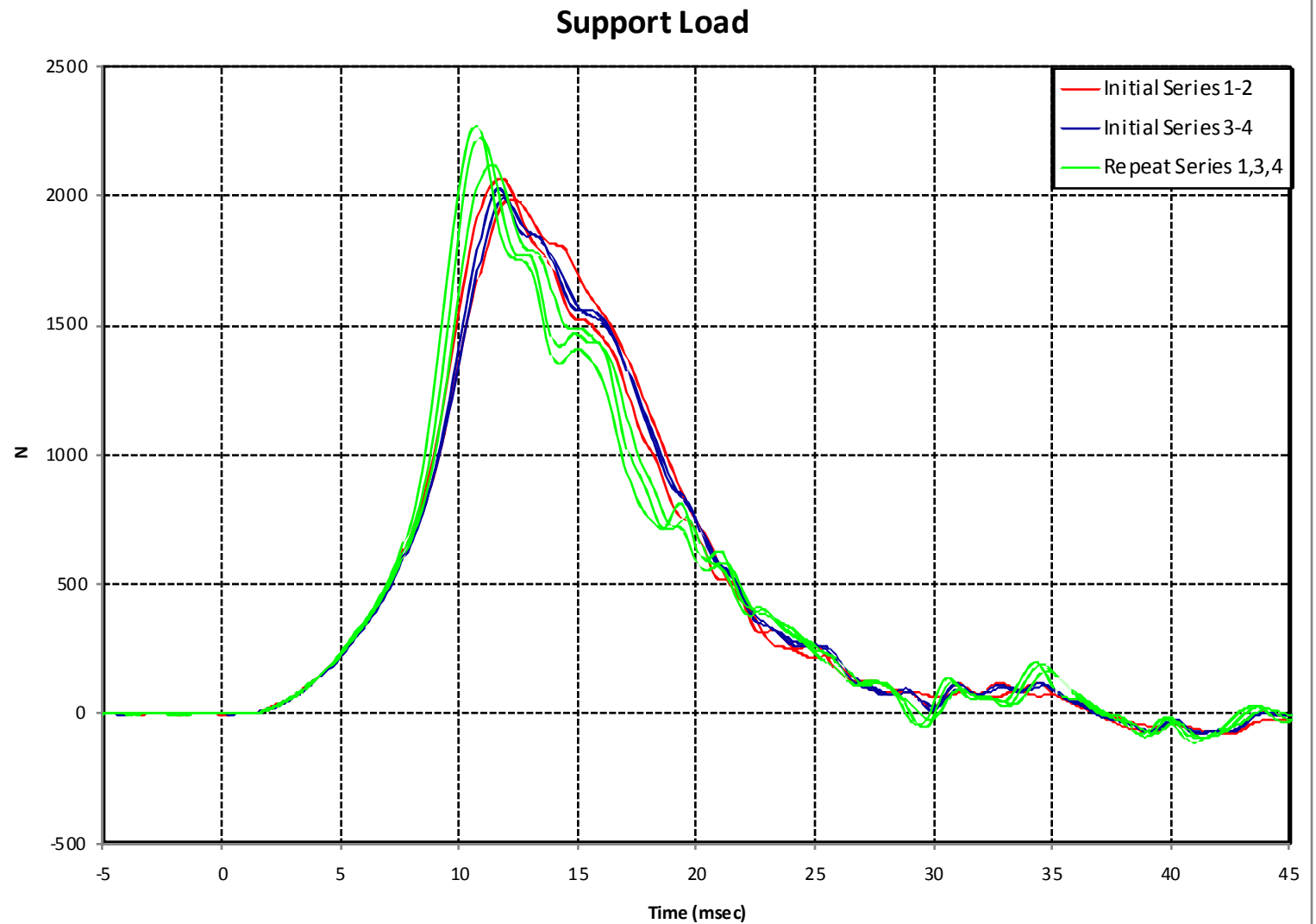


# Pelvis Testing, bottom - Knee Stand



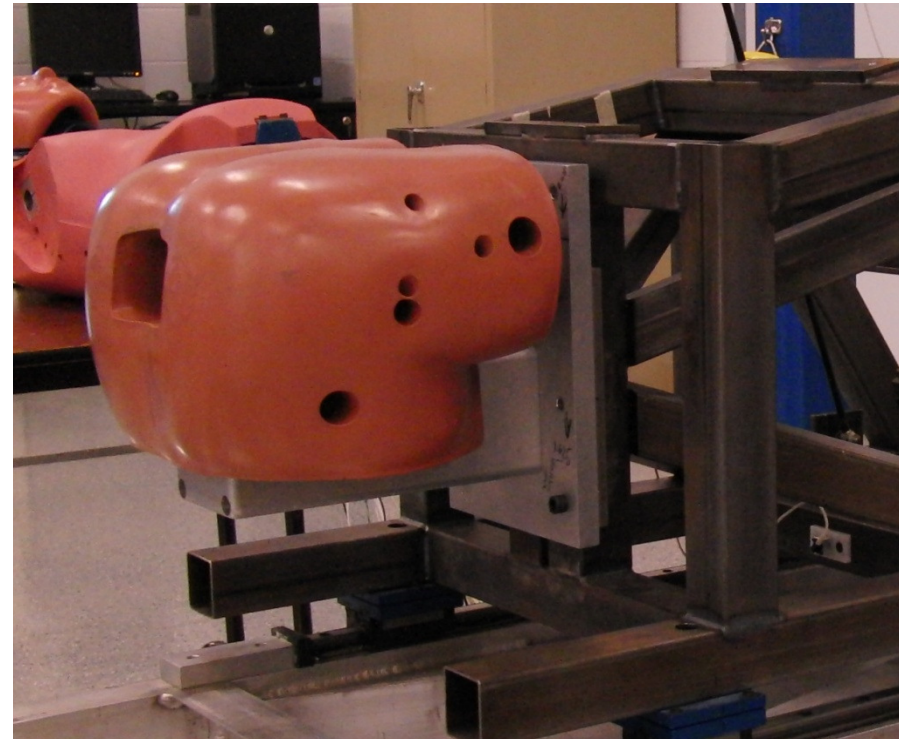
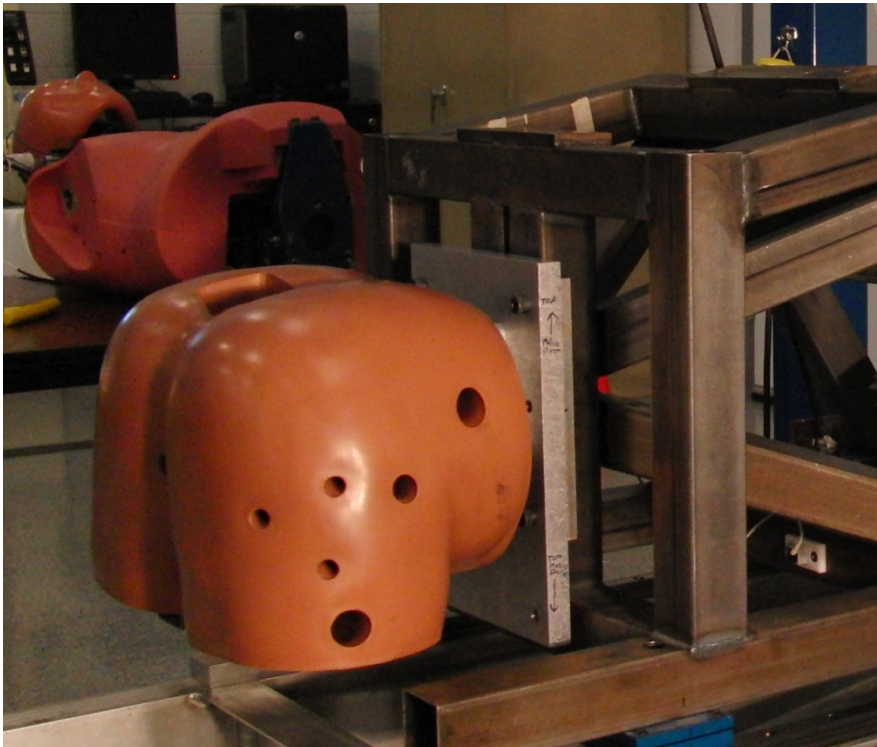


# Pelvis Testing, bottom - Knee Stand

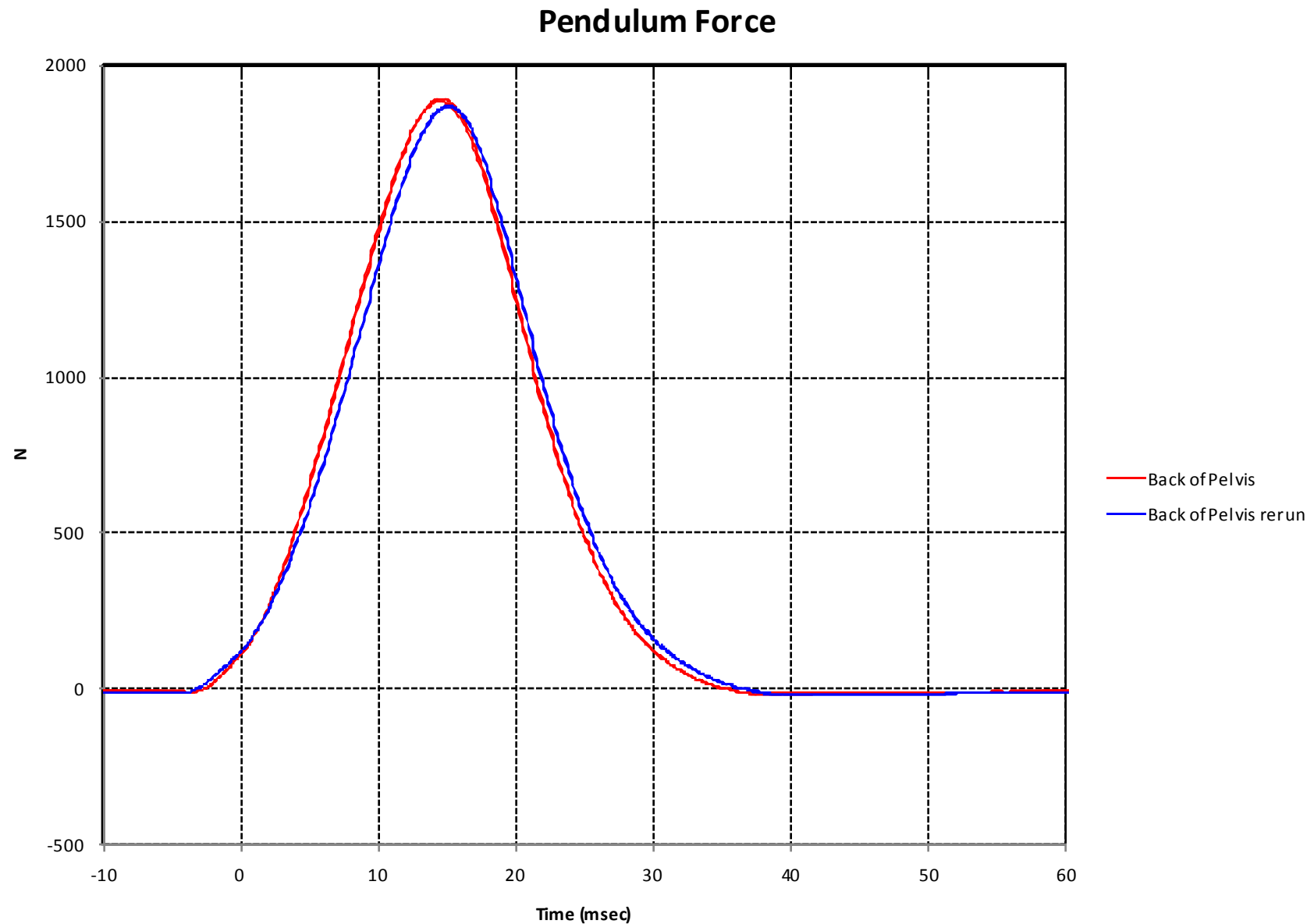


# Pelvis Testing – Mini Sled

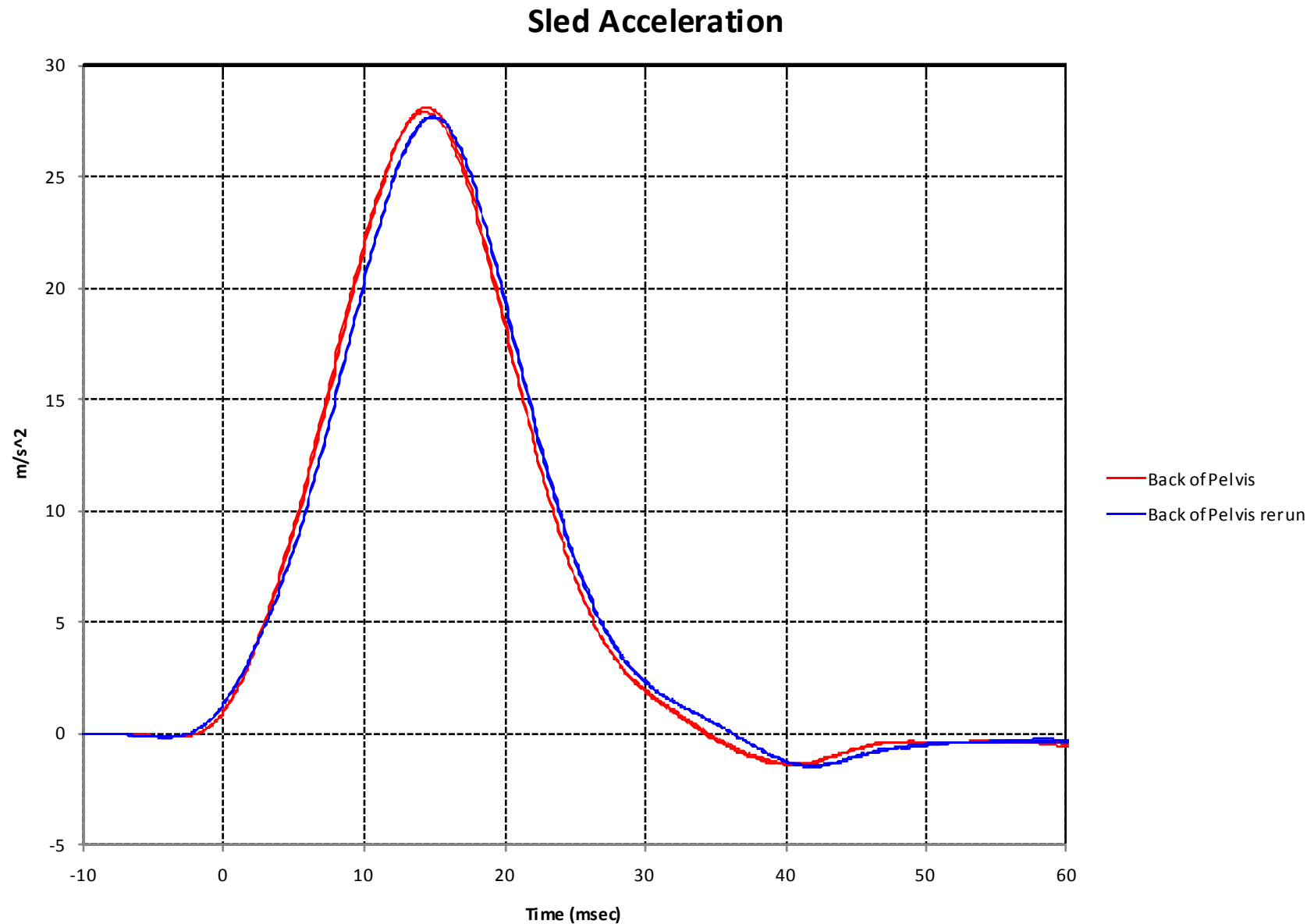
- Pelvis mounted to front of mini-sled and impacted with H-III5F thorax probe



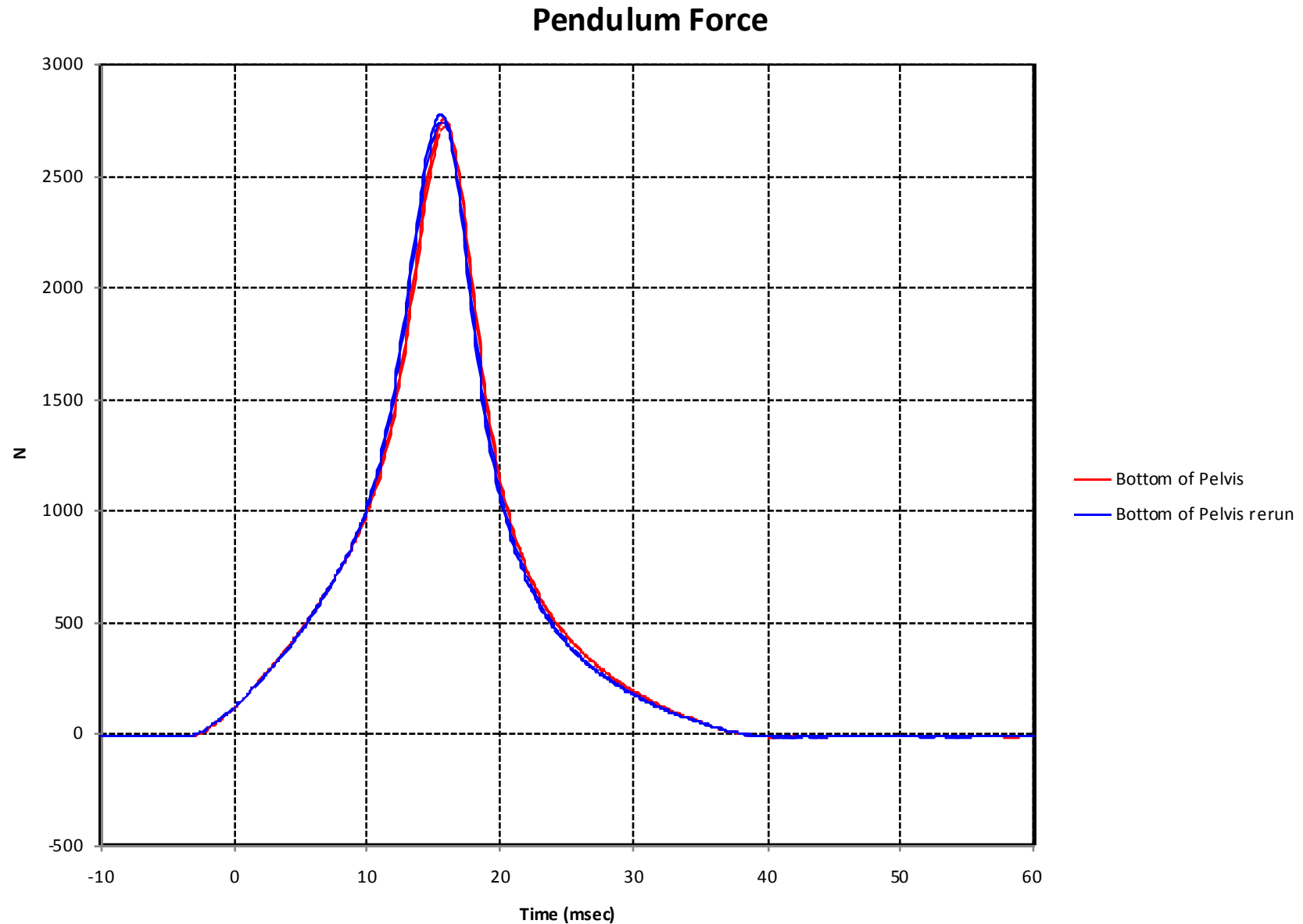
# Pelvis Testing, Back – Mini Sled



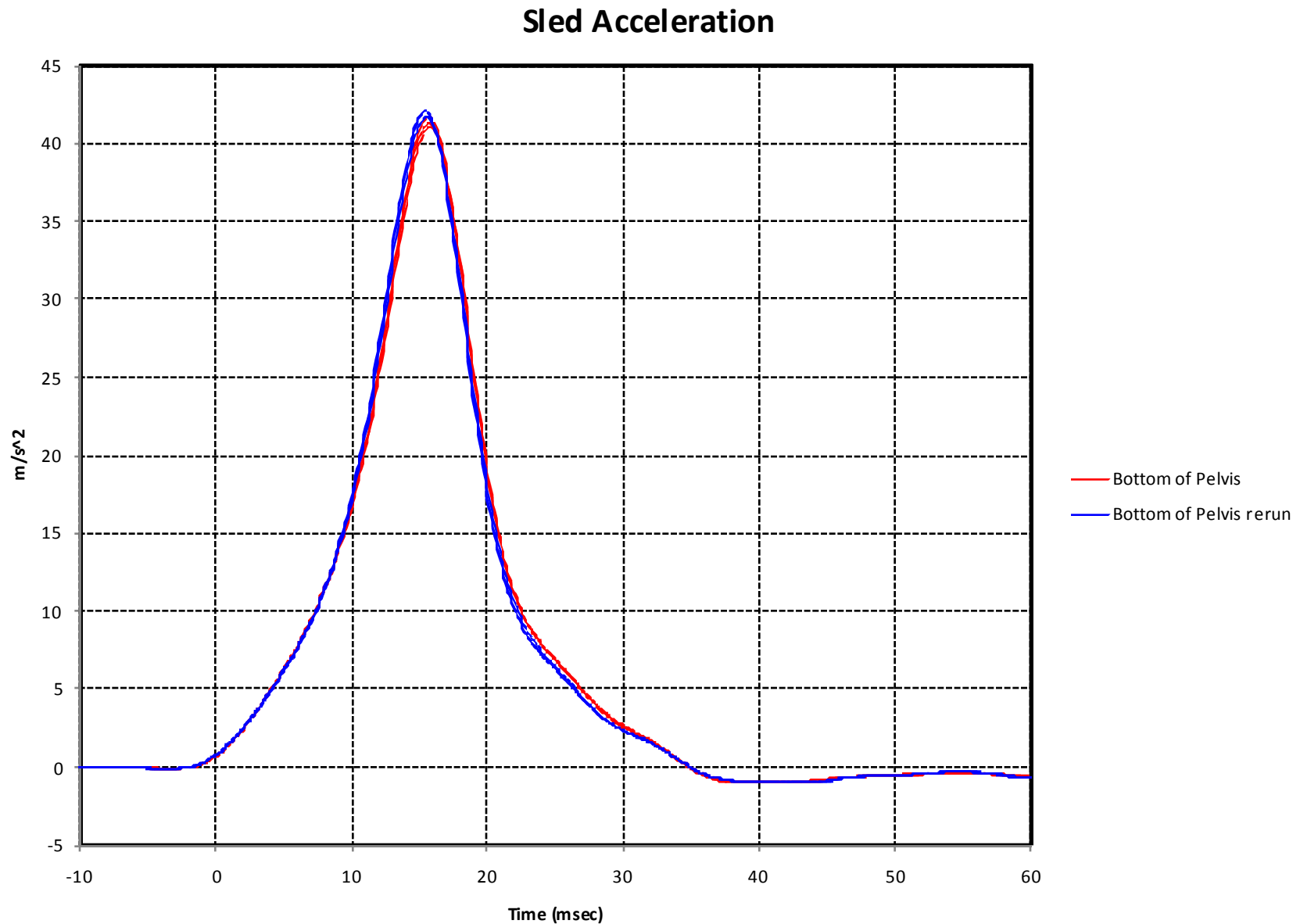
# Pelvis Testing, Back – Mini Sled



# Pelvis Testing, bottom – Mini Sled



# Pelvis Testing, bottom – Mini Sled



# Pelvis Testing, mini-sled – Overview

- Mini-sled showed promising results
- Had good repeatability on one pelvis
  - Both bottom and back of pelvis may be able to characterize the materials better for production
- Need to test more pelvises to determine if we can discern differences

# Component Testing – Decisions

- Questions or comments on two test methods?
  - Knee impact
  - Front of mini sled
- Can we proceed with one for each component (jacket & pelvis)?
  - Send fixtures to Europe & Japan
  - Collect data on multiple dummies
  - Create corridors

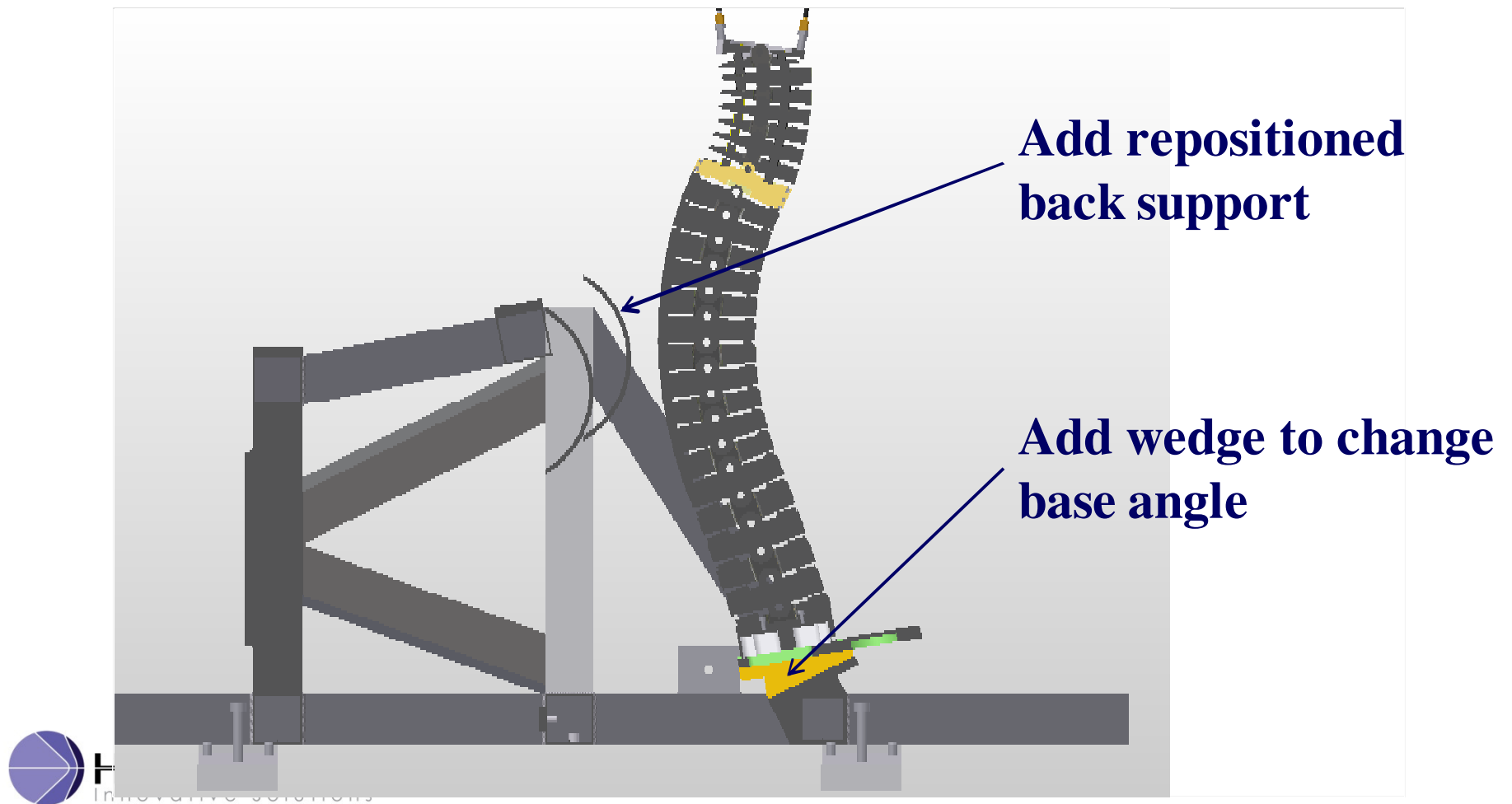


# Other Issues

- Rusty neck pins
  - Recently some rusty pins were found in Germany
    - Appeared to be sticking and changing dummy performance
  - Before June 2003 (~dummy 0028) pins could rust
    - Since then pins have been made of stainless steel
  - Investigate further
- Upright spine certification

# Upright spine certification

- It is possible to adapt the current mini-sled to do certification of upright spine setup with the correct geometry



**Thank you  
for your  
attention!**