TEST METHODS AND METRICS BREAKOUT SESSION

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STRAWMAN

- Safety then Performance
- Common Tasks By Users:
  - A. Walking 
  - B. Lifting 
  - C. Bending 
  - D. Stationary 

DISCUSSION

- Difficult to measure reduction of injuries
- Assumptions in the community include reduce metabolic rate, increase strength, reduce fatigue
- Need apples-to-apples comparison on metrics for example torque on motors and joints, and gait changes
- Need a trusted market place
- Need a taxonomy or classes of exoskeletons
- Common movement patterns
- Task specific vs. person specific

Begin with what has been done

- NIOSH - Metabolics, biomechanics, psychophysical tables, ground reaction force
- Basic principles are there, even though NIOSH study didn’t include exo’s
- EMG - From lower limbs

Bench tests first before expanding to human tests

- Durability, actuator/sensing, environment, MTBF…
- Indicator lights, patterns, signage

How to show better performance

- Duration of task
- Power – energy expenditure of the device, battery life during tests

WORKGROUPS

1. Size, Fit, Ergonomics
   - Range of motion
   - Discomfort

2. System performance
   - Device
   - Device + human

3. Human performance
   - Physiology
   - Biomechanics
   - Psychophysical

4. Usability
   - Interaction
   - Interface

5. Task Performance
   - Lift
   - Speed
   - Accuracy