



Leveraging Motion Capture & Artificial Intelligence in Ergonomics

Vincent Cotto, MS, AEP
Senior Ergonomics Consultant

AIHA Connecticut River Valley Local Section

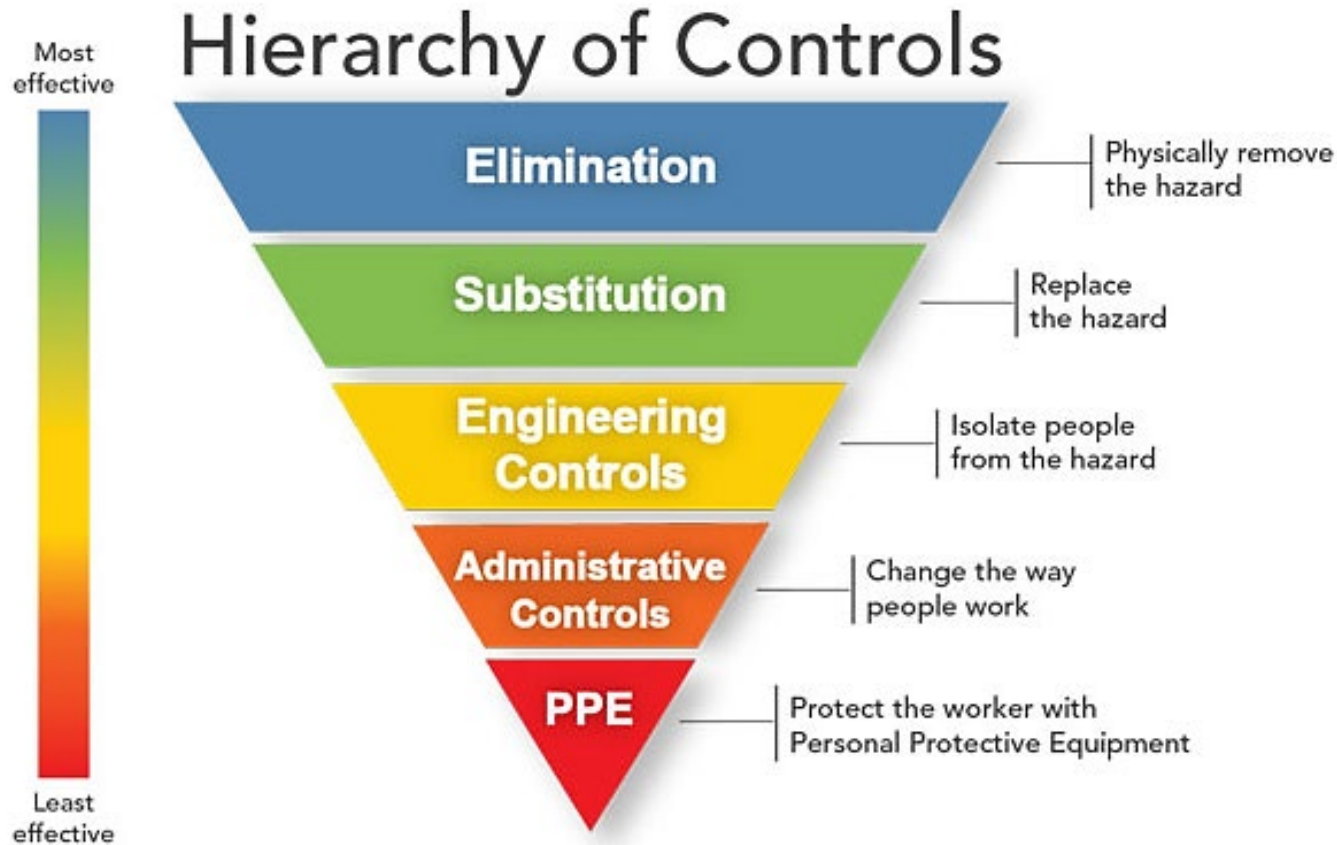


Setting the Stage

- \$4.2 trillion in injury costs in 2019
 - Includes medical and compensation plus other indirect costs
- \$33,589 – Average cost of sprain/strain related injuries according to National Safety Council
- 1/3 – Musculoskeletal disorders (MSDs) account for 33% of all workers' compensation costs
 - Roughly 400K MSDs annually
- \$20 billion – direct costs of MSDs

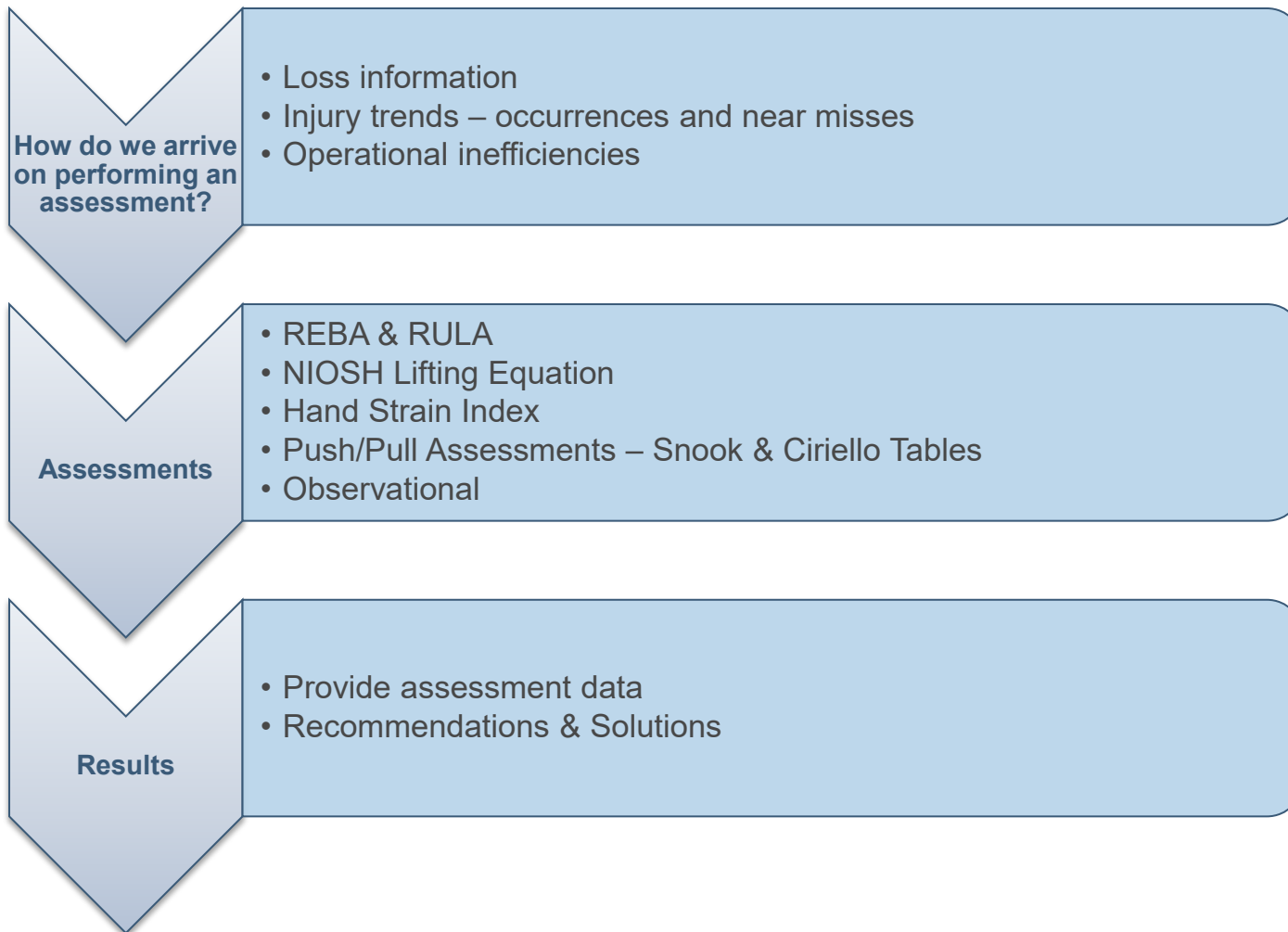


Goal of Ergonomics

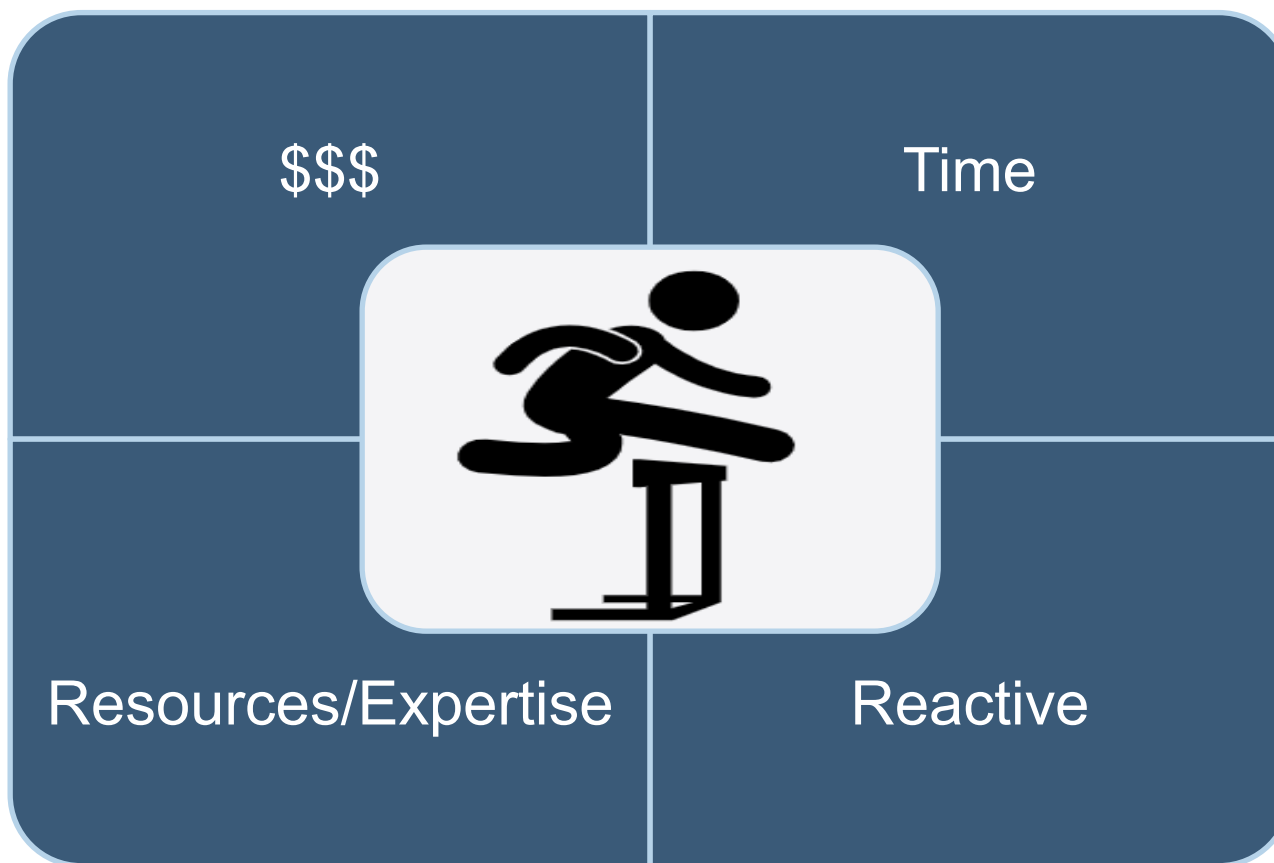


Overall goal is to improve safety by reducing hazard exposure while also increasing operational efficiency.

Traditional Ergonomic Assessment Methods



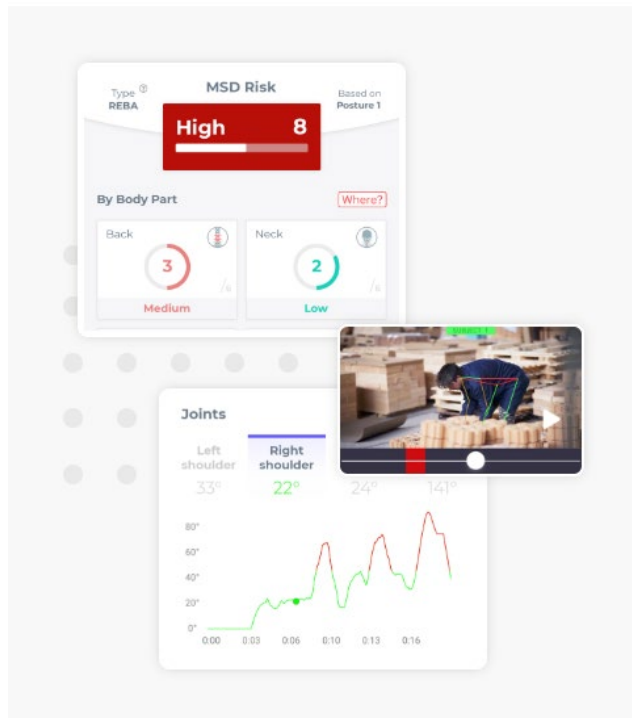
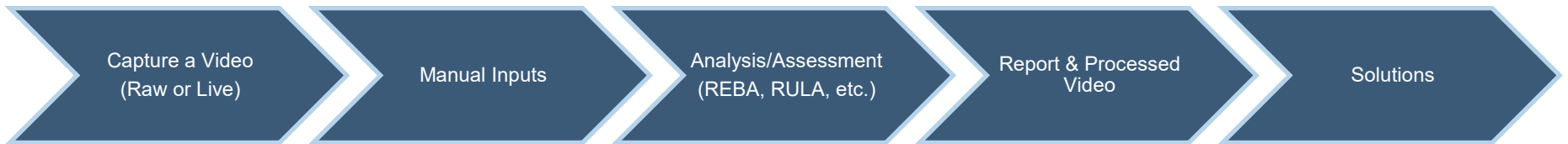
Drawbacks to Traditional Methods



The Technology Shift



Motion Capture Uploading



Artificial Intelligence Platforms

- Continuously monitoring operations
 - Compile data in cloud & report out
 - Real time feedback (voice alerts, text messages, emails)
- Can identify countless EH&S exposures
- Reports can include generic or detailed recommendations
- **Pros:** Time, decreased subjectivity, and increased coverage

▶ Squatting: Fixing cardboard cutting machinery

Rapid Entire Body Assessment
(REBA) Methodology

Score: 8 HIGH RISK



Which part of the body is impacted



Event Details

[Event #1594122](#)

Video Timestamp: 1:20

Camera: CC1

Risk / Cause

Cutting machinery requires regular employee attendance to remove debris and restart product on the conveyor

Forces Involved

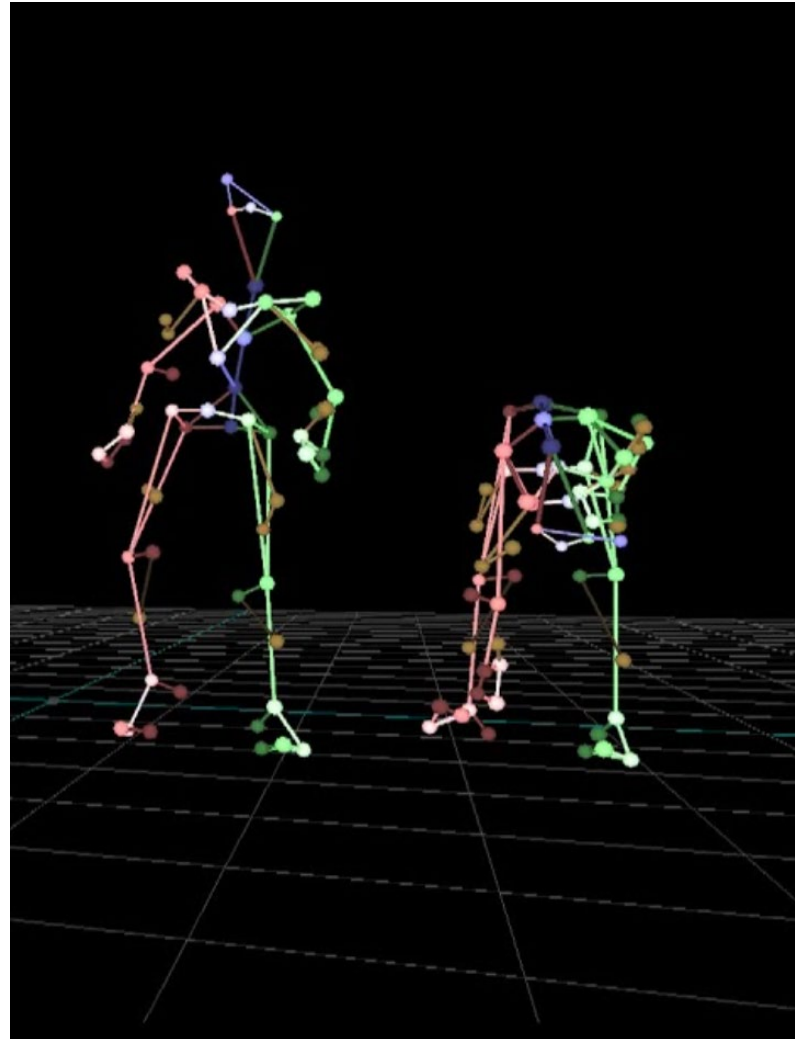
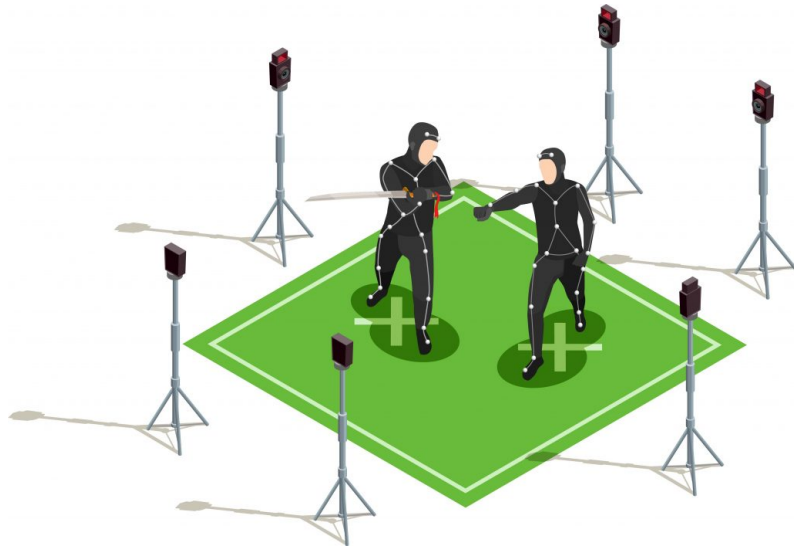
- Posture that encourages overstretched muscles and tendons held statically

Recommendations

Investigate and Implement Change

1. Ensure machinery is in good working order to minimize human energy and product loss
2. Provide a rolling shop seat for access to lower portions of the machine and to clean underneath it

How Do We Do It? – Is It Reliable?



Combating the “Big Brother” and Privacy Assumptions

- Safety first – it is all about keeping employees safe

Methods:

- Blurred faces
- Anonymous
- No personal identifying information tracked
- Use & Dump
- No clients/customers see each others' information



Emphasis on Technology is the Future



Thank you!

