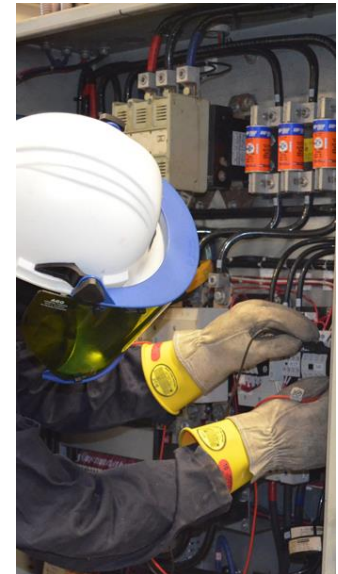


Grip Sensor Technology: Application in Ergonomics

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The Problem...

- *CTS affects almost 5 million U.S. workers*
- *7.8% prevalence rate of CTS among US workers performing hand-intensive activities.*
- *Comprise 65% of WMSDs of hand & wrist*



- *Most hand intensive activities involve repetitive **submaximal gripping***

Hard to Fix What We Can't Accurately Measure



Determine gripping requirements:
Ask worker to replicate the grip strength
required to perform the task



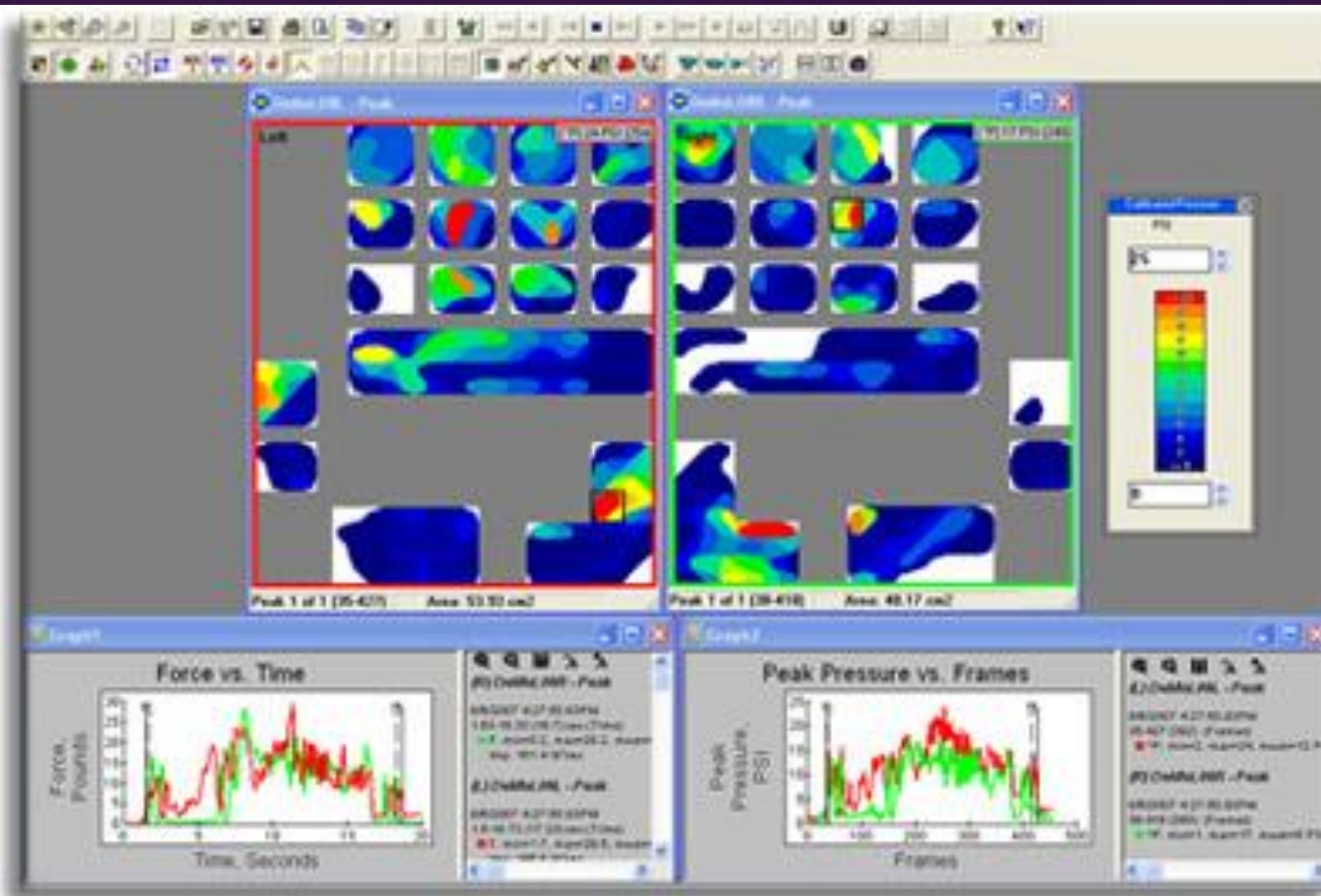
VERY SUBJECTIVE

Tekscan Grip Sensors

Quantify forces applied by the human hand while grasping objects during work-related tasks.



Data Sample

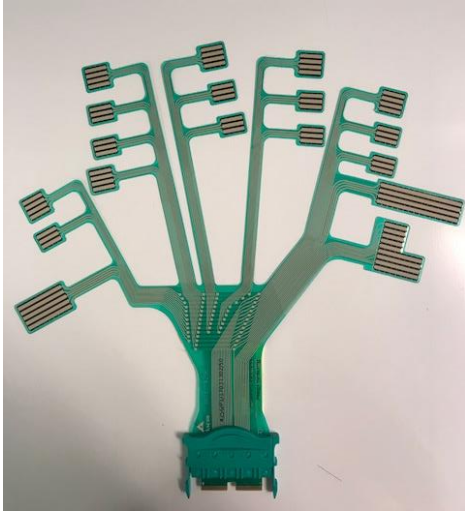


- **Grip Force**
- **Peak Pressure**
- **Example: Peak pressure areas:**
 - Ulnar border of hand
 - Middle phalanx of 2nd finger.

Uses in Ergonomics

- Determine which job within a group of jobs has highest grip requirements
 - *Target jobs for countermeasures*
 - *Develop job rotation*
- Comparison of multiple ergonomic controls to determine which is most effective
- Other use: Design pre-hire/return-to-work employee testing

Sensor Application

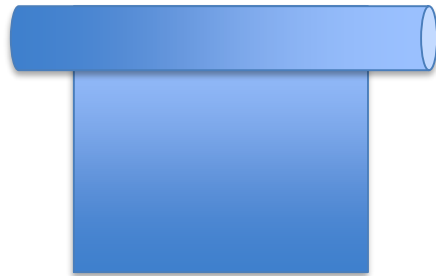
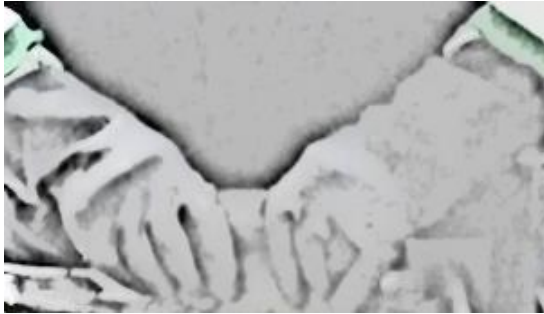


Intermediate glove

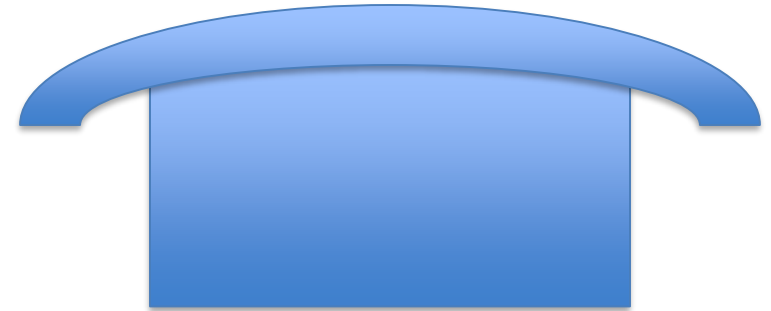


Final glove

Modification of Hand Tool Used for Pressing & Pushing



Before



After

Presentation will discuss:

- Challenges with field utilization of sensors
- Consistency of data collected
- Before and after changes in grip strength & hand position
- Compare data collected to other systems

Questions?

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