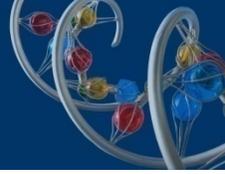


# Empowering Employees in Ergonomics

**Miranda Harmon-Smith**  
Production Supervisor



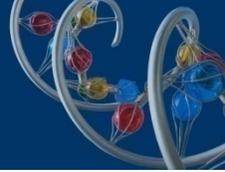


## **Miranda Harmon-Smith**

*Production Supervisor*

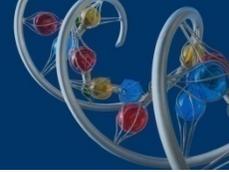
*Lawrence Livermore National Laboratory*

**Ms. Miranda Harmon-Smith is a production technical and administrative supervisor working at the Joint Genome Institute in Walnut Creek, CA. She is currently responsible for managing the daily operation of the 454 sequencing platform and the staff working in the production line. She has worked at the Joint Genome Institute for the past 7 years. She has made significant contributions to safety as the Chair of the Safety Culture Committee working toward building a strong safety culture through dissemination of information and improving the overall safety awareness level of employees. She also serves on the Emergency Response Team and works closely with the Deputy Director of Business Operations and Production to review and set Safety policies and guidelines. Ms. Harmon-Smith holds a Bachelor of Science degree in Biology from Syracuse University.**



- **Overview of JGI Organization**
- **Ergonomic Program prior to Dec. 2007**
- **The Culture Shift – Safety Stand down**
- **Ergonomic Program post Stand down**





## Office/Computer Workstations

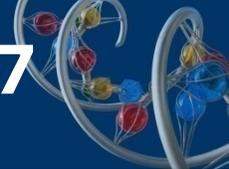
## Laboratory/Production



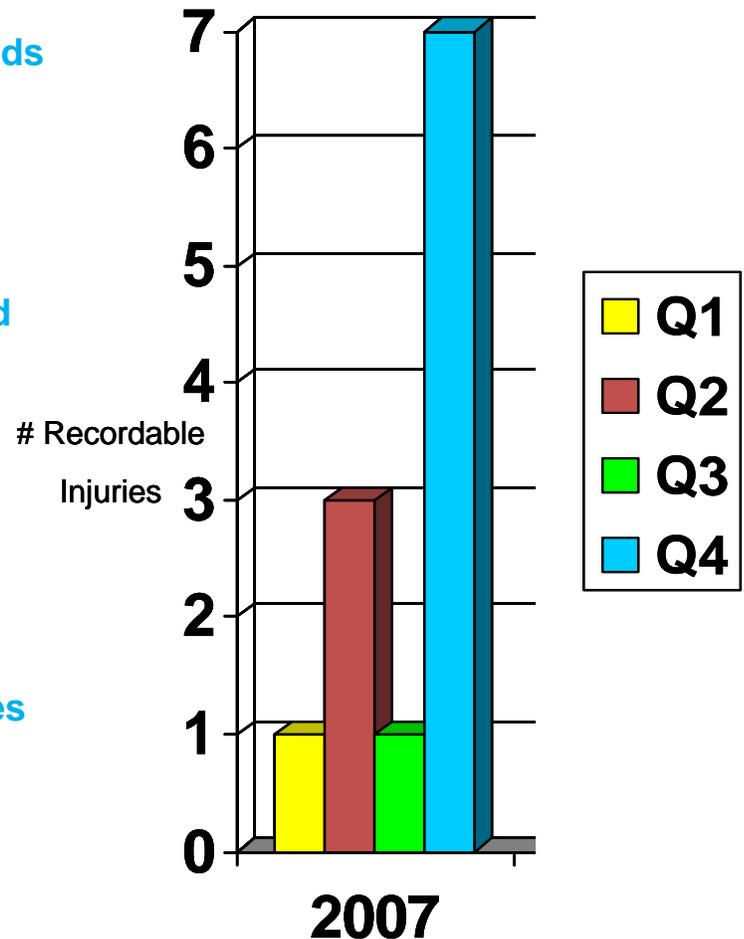
**60% staff in computer-intensive office settings**

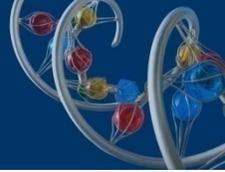


**40% staff in production tasks and R&D**

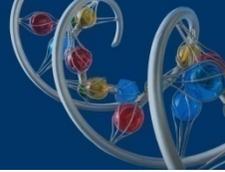


- **Safety Department**
  - 1 individual, no ergonomist
  - focus on meeting laboratory safety standards (chemicals and hazards)
  - Reactive rather than proactive
- **Nature of the work**
  - Manually intensive repetitive tasks
  - High force, awkward pinching, gripping and grasping postures
- **Equipment/instruments**
  - Used what was available in the market
  - Designed for small batches/single plates
  - Used for high throughput operation
- **Culture**
  - Staff were uncomfortable bringing up issues
  - Limited employee input on process improvements; lack of ownership
  - Faster is better mentality
  - One size fits all approach; limited options

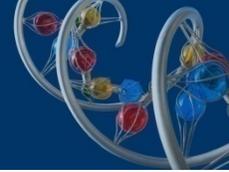




- **Shut down production for 1 month**
- **Brought in Ergonomic/Management consultant**
- **Management Team**
  - **Communication Model**
  - **Morale and Teamwork (team building exercises)**
  - **Defined Roles and Responsibilities**
  - **Set Clear Work Expectations**
  - **Reviewed Internal Safety Policies and Procedures**
  - **Received Education/Training**
    - Ergonomics in the Workplace
    - Observation training
    - Chevron Corporation – bench marking



- **Staffing Team**
  - **Received Education/Training**
    - Ergonomics in the workplace
    - How to perform peer observations
    - Improving Communication skills
    - **Stress Reduction**
      - Time management
      - Organizational skills
  - **Formed into Process Working Groups**
    - Reviewed all aspects of process areas
  - **Applied Core Functions of ISM to work**



**Project description**

- Employee roundtables
- Weekly staff meetings
- 1x1s
- Six Sigma/ Lean Ideas
- Suggestion boxes
- Recognition

- 1 shift – 1 batch
- 1 shift – 2 batches
- 2 shifts – 1 batch
- Perform and observe

**Work output**



**Reviewed SOPs**

**Reviewed training materials**

**Defined workload-batches/plates**

**Defined work expectations**

**Developed Process Flow Charts**

**Ergonomic risks**

**Safety risks**

**Workload**

**Workflow**

**Space allocation**

**Ergo limits**

**Walk-thrus**

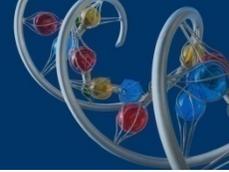
**Sign-offs**

**Observations**

**Checklists**

**Best practices**

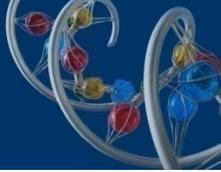
**Stretch Breaks**



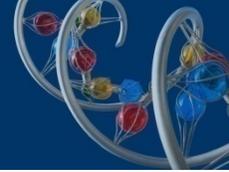
- **Celebration and Commitment Ceremony to close out the month**
  - **Goal moving forward was**  
**“Zero Ergonomic Injuries”**



# Was this easy... no way!



# Best Practices: Loading/Unloading Centrifuge

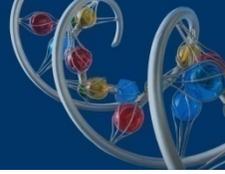


**Bad**

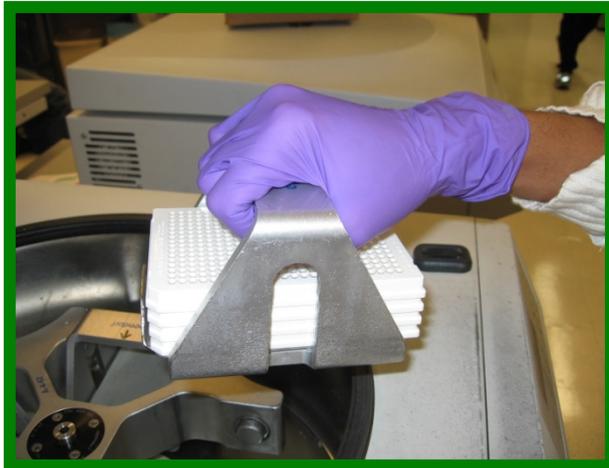
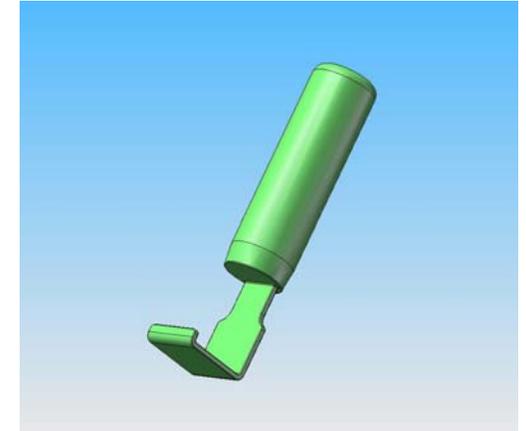
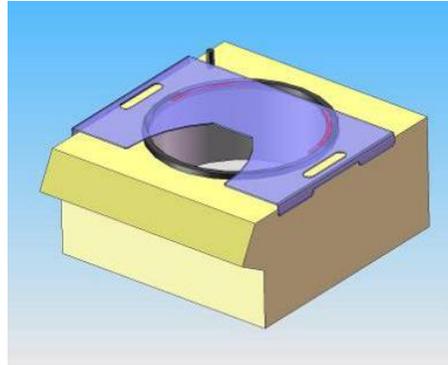
- Try not to bend your back
- Avoid reaching or using awkward hand postures
- use neutral posture
- Load buckets closest to you
- Rotate the carousel to bring slots closer to the front
- Use the tray for more work space



**Better**



**Too full, awkward  
pinch grip**



**Less plates, better grip**

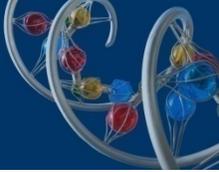


**Tray for loading/unloading**

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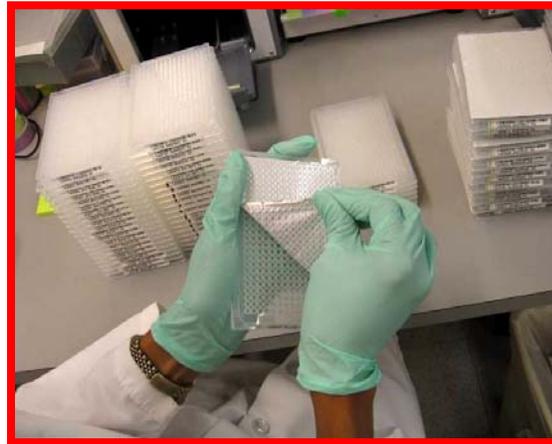
**Tool for lifting out**



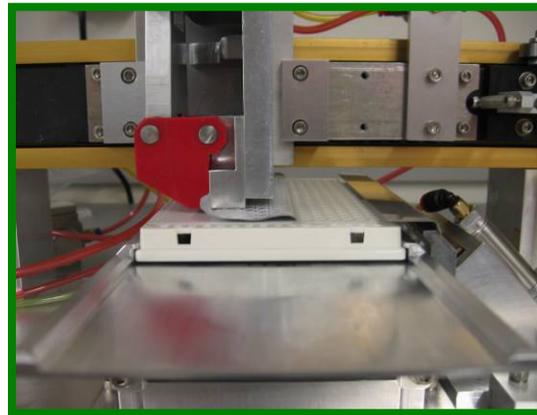
## Thermal Cycler Loading



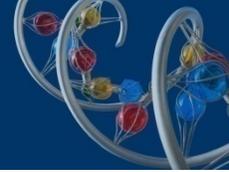
## Peeling Seals



## Freezer Rack Lifting



Empowering Employees in Ergonomics



## Pipetting



## Capping/uncapping



## Vortexing



Multiple Options

Automation



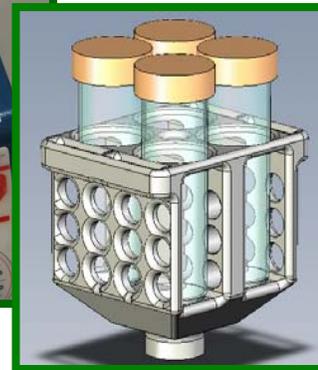
Multiple Options

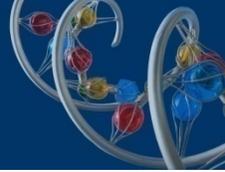


Empowering Employees in Ergonomics



Multiple Options





- **Safety Department**

- 3 individuals including an ergonomist
- Ergonomics education/training required
- Proactive approach
  - Early intervention program
  - Ergo points/comfort surveys
  - Remedy Interactive/ RSI guard

- **Nature of the work**

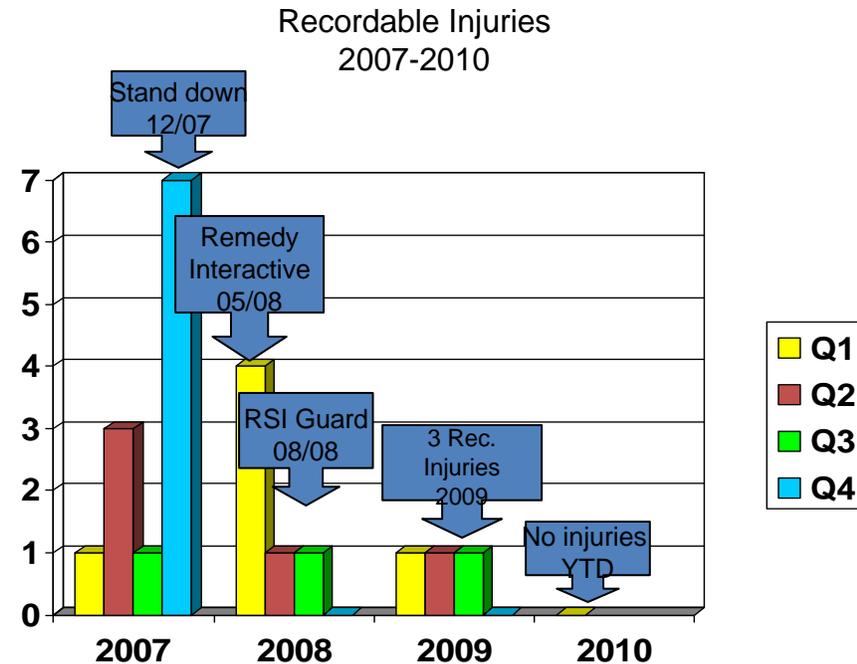
- Still manual and high force but minimized
- Work well defined: Improved Documentation
- Required/ Best Practices
- Supervisor and peer observations

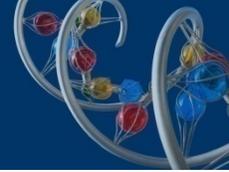
- **Equipment/instruments**

- Automation where possible
- Employee led designs of various tools

- **Culture**

- Improved communication – open dialogue
- Employee led process improvements
- Faster is not better; work smart
- One size does not fit all; options
- Focus on Continuous Improvement
- Available to the whole JGI not just production





## Engineering designs and solutions tools and automation

### Early intervention

Targets employees  
with discomfort  
Includes bi-weekly  
review meeting

### Proactive Efforts

Labs and offices  
Monitoring  
Walk-about  
Comfort surveys

### ISMS Guiding Principles and Core Functions



### Safety Culture Working Group

Promotion  
Awareness  
Communication  
Employee led  
Safety Fair

### Training/education

Risk targeted classes  
Stretch break programs  
Potty training  
Lessons Learned  
Website resources

### Relaxation/Rejuvenation Room

### Ergonomics Demo Room

### Work tools and practices

Ergo Points, Ergo Limits  
Required Practices  
Stretchware, RSI guard

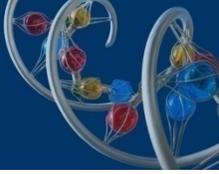
# JGI Wins the Ergo Cup Again!



FOR...the Ergonomic Program Improvement Initiatives category: **“Empowering Employees in Ergonomics,”** which focused on the employee-driven elements of the JGI Ergonomics Program.

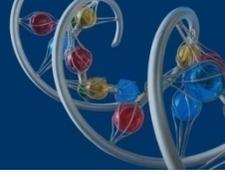


Empowering Employees in Ergonomics



- DOE ISM Champions Workshop Organizers
- JGI Management and Staff
- JGI Ergonomist – **Melanie Alexandre**
- JGI Ergo Cup Team Members
  - **Nicole Shapiro**                      **Megan Kennedy**
  - **Angela Tarver**                      **Bridget Swift**
  - **Martin Pollard**                      **Christine Naca**





# Questions?

## Contact Information

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Joint Genome Institute Website: [www.jgi.doe.gov](http://www.jgi.doe.gov)

