# Ergonomics Assessment

## ISYE 348 Fall 2024 Lab 13

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2024-12-09

This lab assignment is due by 23:59 on 2024-12-10. If you have any questions or need clarification, please reach out to me via email or during office hours. The report will be graded on **20 points** based on the following criteria:

| Criteria | Points |
| --- | --- |
| Introduction (your own words; 50-100 words) | 1 |
| Methods (your own words; 100-200 words) | 1 |
| Results | 9 |
| Discussion | 6 |
| Conclusion | 3 |

**Submission**: Please submit your report as a PDF file on Canvas. Make sure to include your name and your partner's name at the beginning of the report. Include any code, plots, or tables as needed to support your answers. Make sure to answer all questions thoroughly and provide detailed explanations where necessary. Cite any external sources used. Submit one single pdf file with all the answers.

**Collaboration** with your classmates is encouraged, and you will work in pairs for this lab to complete the report. Please list your partner's name at the beginning of the report. Only one submission per group is required. Must include data from both partners in the report.

**Late submissions** will be penalized by a 1 point deduction every hour past the deadline.

$$\text{score} = \max(20 - \lfloor \text{hours\_late} \rfloor, 0)$$

Please read the course policy on academic integrity and collaboration on the course syllabus. If you have any questions about what is permissible, please ask before submitting your work.

## Introduction

Ergonomic assessments are critical for identifying potential musculoskeletal disorder (MSD) risks in workplace environments. This lab focuses on two key assessment methods that provide structured approaches to evaluating physical strain and potential injury risks.

### Rapid Entire Body Assessment (REBA)

The Rapid Entire Body Assessment (REBA) is a comprehensive tool designed to evaluate the whole-body postural risks associated with job tasks. It provides a systematic method for assessing postures, forces, and actions that may contribute to worker discomfort and potential injury.

### Hand Activity Level (HAL)

The Hand Activity Level (HAL) method focuses specifically on hand and wrist movements, evaluating the intensity and frequency of hand activities that may lead to musculoskeletal disorders.

## Learning Objectives

By the end of this lab, you will be able to:

- Understand and apply the Rapid Entire Body Assessment (REBA) method
- Understand and apply the Hand Activity Level (HAL) method
- Critically analyze workplace ergonomics through systematic assessment techniques

## Required Equipment

- REBA assessment worksheets
- HAL assessment forms
- Stopwatch or timer
- Clipboard
- Pencils
- Video recording of workplace tasks (provided)

## Procedure

Watch the provided workplace task video and task demonstration shown in the lab. Follow the steps below to conduct the ergonomic assessments:

1. Conduct REBA assessment
    - Complete REBA worksheet
    - Calculate total risk score
    - Develop recommendations
2. Conduct HAL assessment
    - Complete HAL assessment form

- Determine hand activity risk level
- Develop recommendations
3. Discuss potential ergonomic improvements

## Results

- Detailed REBA assessment worksheet (provide brief reasoning for each score)
- Completed HAL assessment form (provide brief reasoning for each score)
- Calculated risk scores
- Specific ergonomic improvement recommendations
- Justification for recommendations based on assessment findings

## Discussion questions

1. Compare and contrast the REBA and HAL assessment methods. What are their primary strengths and limitations?
2. How do ergonomic assessment tools contribute to workplace safety and employee well-being?
3. What challenges did you encounter while applying the REBA and HAL assessment methods?
4. How might the same task be interpreted differently by different observers using these assessment tools? What strategies can minimize observer bias?
5. How do individual differences (age, physical condition, experience) impact ergonomic risk assessments?
6. What technological advances might enhance future ergonomic assessment methods?

## Conclusions

- Summary of key findings
- Recommendations for improvement based on assessment results
- Lessons learned from the lab exercise