Project 1 Interim

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Outline

- Background
- Data Management
- Exploratory Data Analysis
- Main Aims and Preliminary Models
- Future Work

Background

- With an aging population, car companies must keep the interests of the elderly in mind.
- One particular issue they face is simply getting in and out of the vehicle.

Background

- Dr. Galecki provided two specific aims for us to answer, but I also wanted to focus my analysis towards results we can implement.

Data Management

Data Management

1. Discarded shoe size variable completely from the first dataset.

Data Management

2. Took the **peak performance** of all repeated measurements

   - Knee Extension Strength
   - Hip Abduction Strength
   - Hip Abduction Rate of Torque
   - Grip Strength
   - Timed Up and Go
   - One Leg Balancing

Data Management

3. Kept track of number of missing measurements for each subject
   - Not worried about One Leg Balancing Measurements

Data Management

4. Created categorical One Leg Balancing variable

   - Sum of peak performance in each leg
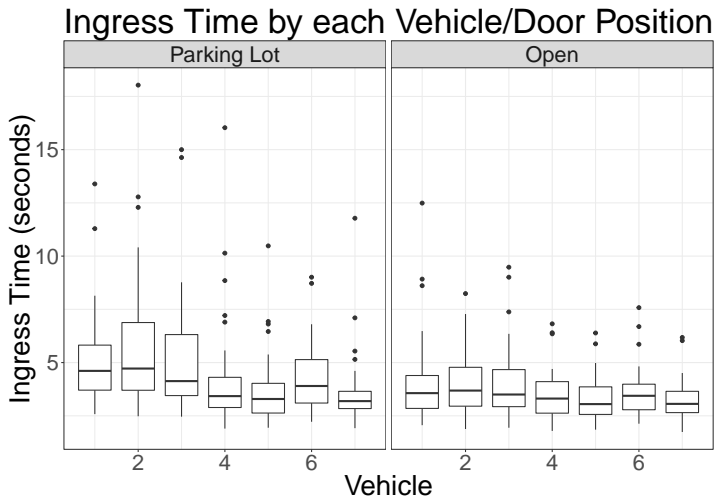   - Poor balance if less than 15

Data Management

Data Management

5. Analyzed correlation structures in each of the following categories to find a single representative variable

   - Anthropometric
   - Strength
   - Mobility
   - Cognitive

Data Management

Data Management

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Exploratory Data Analysis

EDA

Ingress Time by each Vehicle/Door Position

EDA

Egress Time by Subject

EDA Summary

- Random effects appear to be appropriate for both vehicles and subjects

- What makes Vehicle #2 and Vehicle #7 different?

Main Aims and Preliminary Models

Aim #1

Does egress (ingress) strategy affect driver egress (ingress) time in the elderly?

Do mobility impairments affect driver egress (ingress) time in the elderly?

Aim #2

Identify the human capacities that best explain the variation in egress (ingress) time between drivers.

Preliminary Models

Future Work

Future Work

- Identify the human capacities that best explain variation in ingress/egress times (Aim #2)

Future Work

- Identify which dimensions (if any) have a significant effect on ingress/egress times
    - An explanation to why drivers did better with certain vehicles
    - Give information to engineers so they can design "elderly-friendly" vehicles

Questions???