Project 3: Biomechanical simulation of reaching movements in older adults In-Class Presentation and Report
KIN 494: Introduction to Occupational and Rehabilitation Biomechanics

Background:

You work at a national rehabilitation center of excellence focused on providing guidance for fall prevention in older adults during common daily activities, such as reaching forward to put away groceries in the refrigerator. You have been asked to create a biomechanical model in MATLAB to simulate reaching as far forward and as fast as possible without falling. The goal is to produce a model using realistic characteristics of older adults to estimate what biomechanical parameter might be most responsible for age-related changes in the incidence of falls during forward reaching movements. Your supervisor has asked you to prepare a report and presentation, providing evidence-based research on recommended modifiable factors for targeting in future rehabilitation protocols in older adults.

Overview of the Report (maximum of 200 points):
The report will analyze the problem and assess the proposed solutions, with sufficient details on the problem, scientific background, biomechanics content, recommendations, conclusions, and references. You work for a national rehabilitation center of excellence; thus your report must:

1. **Focus on model development** (i.e., provide strong rationale for parameters and values used in model)

AND

2. **Focus on identification of salient age-related factors leading to falls during reaching movements**.

Be sure to include references to support your findings, and figures to illustrate your model and results.

Overview of the Presentation (maximum of 100 points):
The presentation is 15 minutes long, with additional time available for questions from the audience, and will be given in class. You work for a national rehabilitation center of excellence; thus your report must:

1. **Focus on model development** (i.e., provide strong rationale for parameters and values used in model)

AND

2. **Focus on identification of salient age-related factors leading to falls during reaching movements**.

Be sure to focus the presentation on salient elements of the report for a 15-minute presentation. Be sure to include references to support your findings.

Technical Assistance:
I encourage students to discuss their proposed model of the report and presentation with me. I may be able to help focus the model and locate resources. While it is not required, *the wise student will ask me to confirm that the model developed for the report and the presentation are appropriate.*