Participants

Graduate Students: 7
Undergraduate: 9
Faculty: 3
Anatomy Students: 38
High School Faculty: 2

Our activities were designed to relate anatomy/physiology with physics and biomechanics at a high school level. The goal was to provide real world, everyday applications of biomechanics. All students attending received TWU promotional materials and a free commemorative t-shirt!

Event Details

Date: April 10, 2019
Time: 12pm – 2:30pm
Location: Biomechanics Lab and Classrooms, Pioneer Hall, Texas Woman’s University, Denton, TX

Goals

By the end of the event, students will be able to:
• Understanding basic principles of biomechanics
• Understand muscle properties and relationships
• Understand the basics of motion capture
• Assess static and dynamic balance ability

Promotion

We reached out to local high schools with fliers and information about our event. We promoted the event on all social media accounts and encouraged students to post pictures with the hashtags #NBD2019, #NationalBiomechanicsDay, and #TWUBiomechanics and tag @BiomechanicsDay

Activities

Activity 1: Balance
Students learned about how vision, feedback, and different surfaces affect balance ability.
*All students balanced on stable and unstable surfaces, including on a stabilometer and foam surface.

Activity 2: Biodex
Students learned about muscle properties, as well as the force-length and force-velocity relationships. They also learned about torque generation and ways to produce more muscle torque.
*Student volunteers performed knee flexion and extension on the Biodex to demonstrate muscle properties.

Activity 3: Electromyography
Students learned about EMG data collection, its research applications, and how to interpret results. They learned about dominant muscles, synergists, and antagonists.
*Students predicted muscle activation for common activities and student volunteers performed them to see if they were correct. Some activities included arm wrestling, push ups, and writing.

Activity 4: Motion Capture
Students learned the basics of motion capture, including its use in research, movies, and video games.
*Student volunteers demonstrated motion capture capabilities by performing lightsaber battles.

Activity 5: Hudl App
Students learned how biomechanics can be used with everyday movements and how proper form is important to gait and exercises.
*All students performed jump squats and used the app to determine if form was correct by analyzing knee valgus, back arch, and knee flexion.

Student Feedback

After the event, all students filled out surveys telling us what their favorite activities were, if they would come to another NBD event/recommend the event to others, if they are interested in pursuing a career in biomechanics, and something new they learned. All respondents said they had a better understanding of biomechanics after the event and many said they would now consider a career in biomechanics!