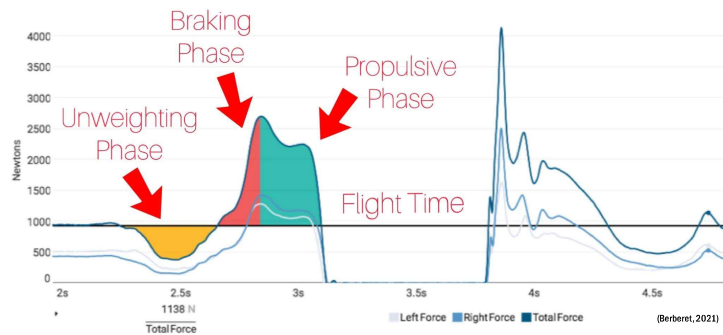




Dissecting the Countermovement Jump



HOW CAN THIS DATA ANALYSIS BE USEFUL FOR THE PURDUE ATHLETICS DEPARTMENT?

- Identifies explosive lower body power via jump height
- Measures any lower limb asymmetries
- CMJs with negative trends or less improvement over a period can be indicative of athlete fatigue and possible injury risk
- CMJs with positive trends can suggest increasing training load and a positive impact of the current strength conditioning regiment

BACKGROUND

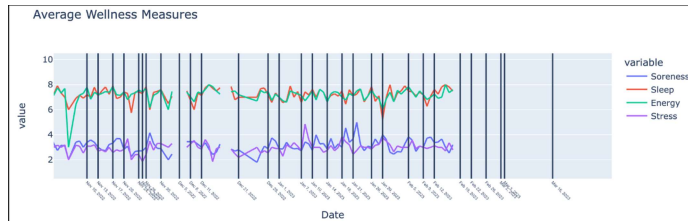
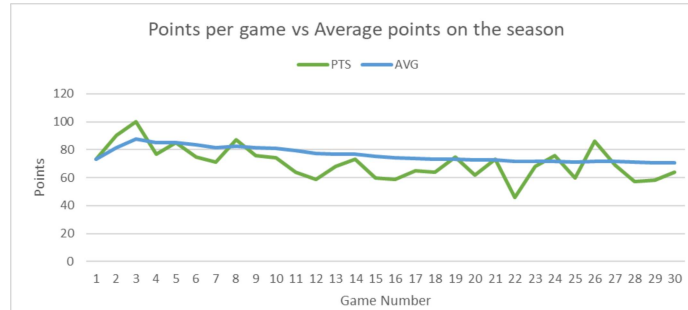
Our Mentor, Jason Pullara utilizes, a variety of sports equipment to measure athlete function. With a plethora of data available, our motivation is to increase the accessibility of this data in order to more readily notice trends for injury prevention and performance improvement.

BOX SCORE ANALYSIS

Web scraping women's basketball box scores to identify performance trends and compare to trends in wellness data provided by athletes at the beginning of training sessions.

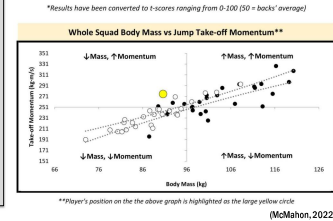
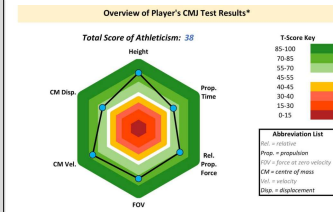
TRENDS

Both points and wellness measures are graphed in terms of games, so a trend can be drawn by associating wellness leading up to, on the day of, and following a game.



FUTURE GOALS

Our work this past semester will be foundational for future projects. We hope the direction we've taken the data in can lead to further visuals that update on the spot for athletes. In the figure to the right, we see a fluid representation of an athlete's athletic "score" based on their height and properties extracted from CMJ data: propulsion time, relative propulsion force, zero velocity force, center of mass velocity, and center of mass displacement. The scoring hexagon clearly identifies athletes in a positive green zone and a negative red zone, further indicating what direction their training load should veer.



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