

Barrett Epstein, Age: 15

Ht: 5'7", Wt: 138 lbs

Beimel Elite Athletics Biomechanics Assessment

Date of Pitch AI session: 8/1/2023

Date of Assessment: 8/10/2023

Written by Ethan Wang

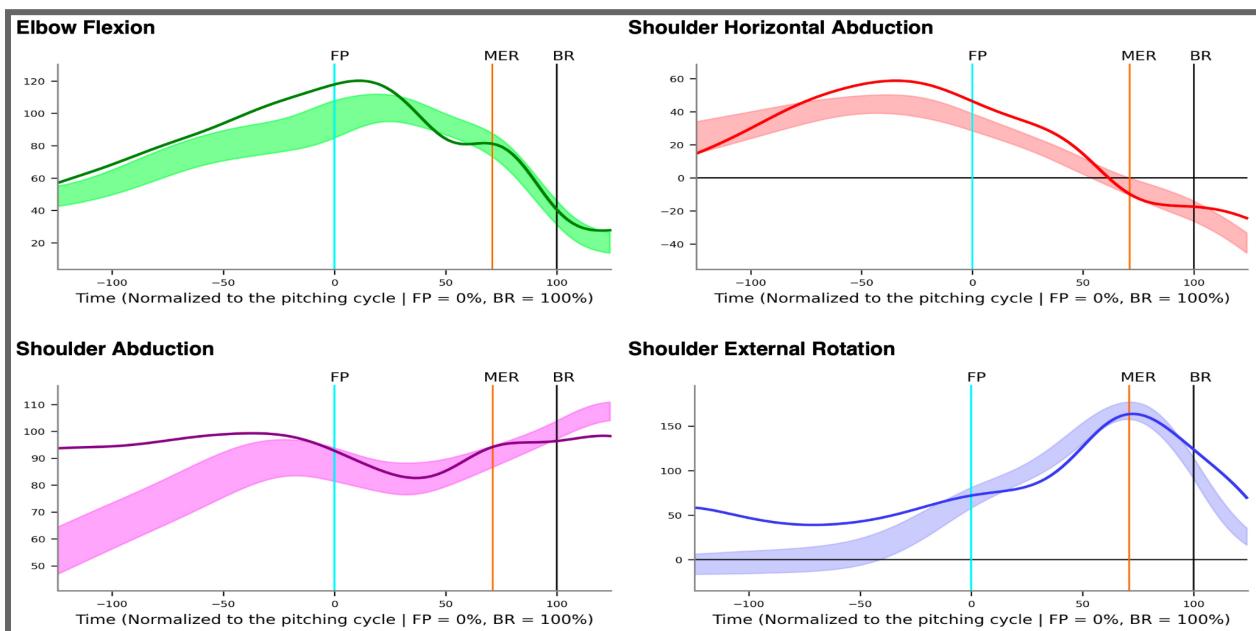
1. Hand Separation/Pre-Stride Phase



Trunk Stack and Hip Rotation:

Look down at the graph below and notice that shoulder abduction (bottom left) is at a way higher degree than it should be. This means that the angle at which his elbow raises above his ribcage is too big. The reason this is the case is his back hip internal rotation and trunk stack. He gets a nice trunk stack with his pelvis leaning backwards, but he pairs that with a huge internal rotation of the hips. Notice how his foot is almost pointing fully backwards. Doing both in order to trunk stack is overdoing it to the point where his arm and back shoulder sink too low and his elbow has to raise up high in order to compensate for the shoulder sink.

- If he doesn't over exaggerate trunk stack, his shoulder won't sink
- No shoulder sink means that his arm won't have to play catch up

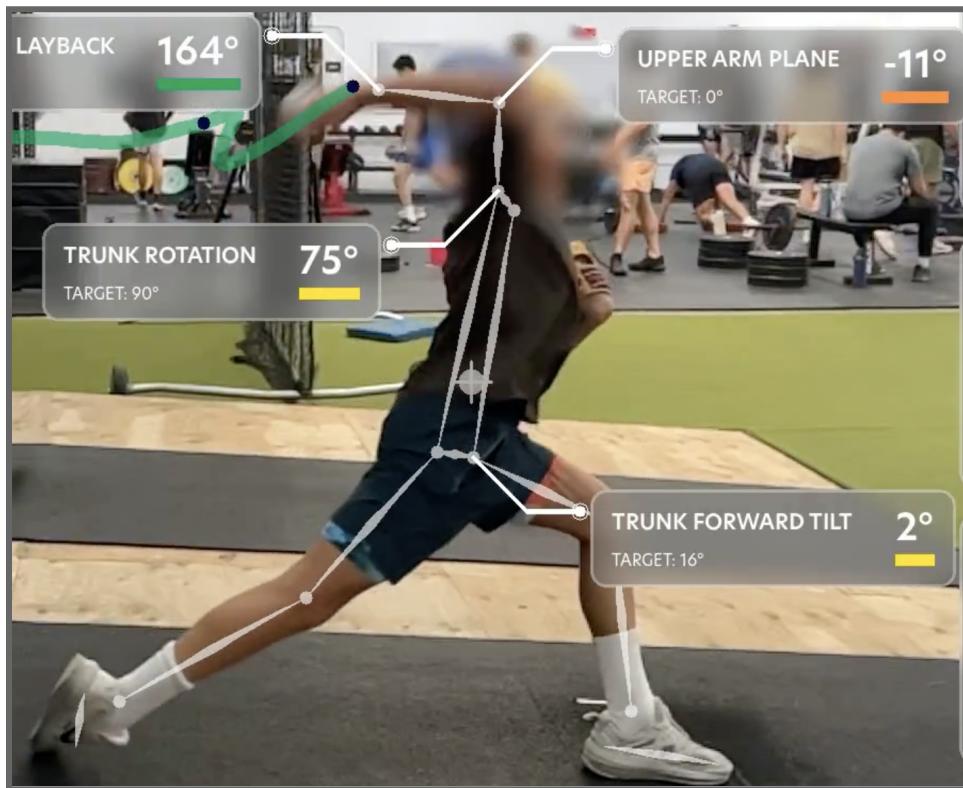


2. Beginning of Stride and Foot Plant Phase



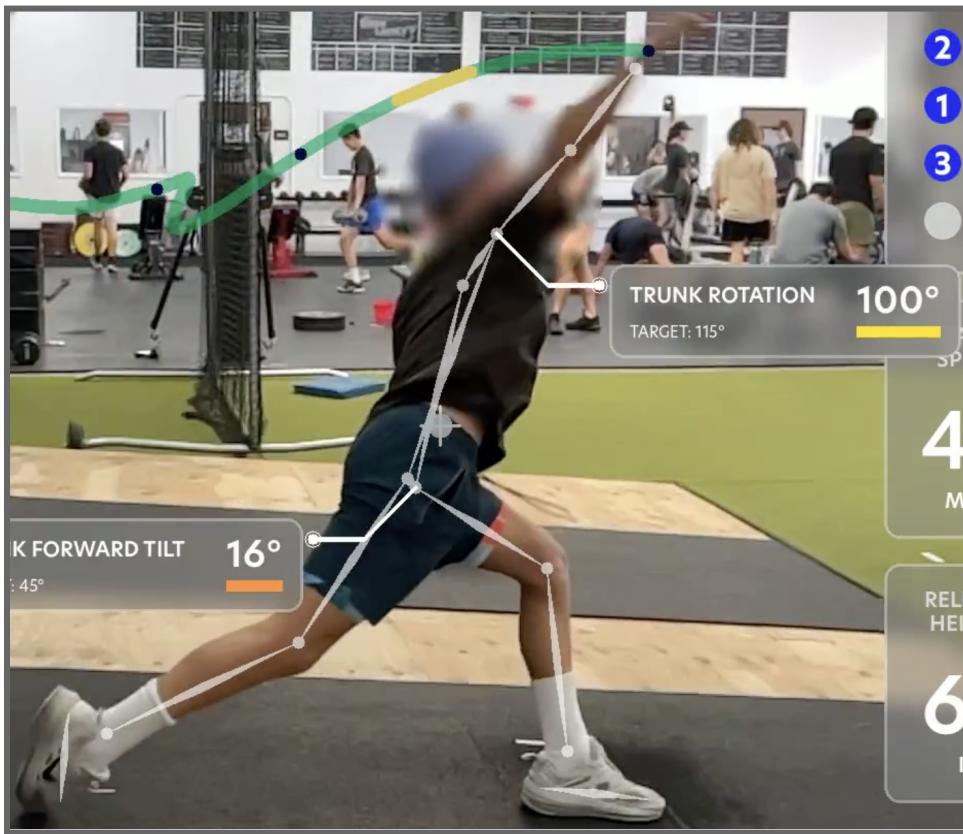
- Although I mentioned that he over exaggerates his trunk stack and it has adverse consequences, that trunk stack means that he gets into a great place at foot plant and has a really good front knee stabilizer and strong torso positioning
- However, even at foot plant he is really raising (abducting) that shoulder a lot
- Although, the graph above shows that his elbow flexion is not that much higher than the average meaning his forearm flyout isn't terrible
- However, even though forearm flyout may not be the issue, the next phase will show that since his shoulder is so abducted here at foot plant, the path of his arm looks very unnatural and inefficient
- The combination of his arm-side scapula retraction (which is a good thing) and his shoulder abduction creates a pie-throwing motion that will show how much arm energy he is wasting by straying from the most efficient arm path
- Check the next page for this analysis

3. Max External Rotation to Ball Release Phase



Arm Path:

Look at the green line that PitchAI draws for us to visualize Barrett's arm path. His shoulder is so abducted that his arm just flies to the sky when he gets to the ball release stage. Not only does this put more stress on the elbow, but it means he is not close to maximizing velocity. My diagnosis is still that the over exaggerated tilt during leg lift is what causes this issue because he over compensates by actively trying to raise his arm up.



Trunk Movement:

In a more simple light, the over exaggerated trunk stack also obviously affects his trunk rotation and positioning throughout the delivery. Since he overdoes it, his torso is late to release from its original position which is why trunk rotation and forward tilt are way less than what they need to be. I don't think there is actually much mechanically wrong with his angles shown in the graphic being too low.

I think it simply goes back to the overdone trunk stack which means he is a little late to rotate, even though he still gets nice hip shoulder separation and sequencing.