

ADVANCED HITTING EVALUATION



ATHLETE NAME: Evan Smith
DATE: 2024-12-09

HITTING LEVEL/FLAW OF FOCUS & ROUTINE	KEY METRICS OF FOCUS	VIDEO ANALYSIS
Level 1 - Sway Level 2 Not Enough Stretch	Fwd Move to Contact 🕒 Too fast & X-Factor Stretch Not enough stretch	Click here to watch on PDF Watch below on website

Athlete hits: **Left**

Pelvis Segmentation Test

Can the athlete move their pelvis without moving their upper body?

This movement is essential for building elastic potential across the body. When an athlete can reach a solid amount of stretch, they can use that stretch to generate a quick and powerful rotation.

Results: **Pass to Athlete's Right**
Pass to Athlete's Left



Seated T-Spine Rotation Test

As a baseball or softball player, being able to rotate your thoracic spine is very important. The rotation of your pelvis builds potential energy across the core, but the rotation of the thoracic spine transforms that potential energy into kinetic energy.



Results:

Fail to Athlete's Right, Fail to Athlete's Left

Estimated Degrees to the Right: **40**

Estimated Degrees to the Left: **40**

T- Spine was tight. This will be some thing that we will work on in the movement segment of his plan.

Balance Twist In and Out Test

Not only is the stretch between your pelvis and rib cage important, but also the stretch between your femur and pelvis. If we can internally rotate our femur during the loading phase, it builds potential energy across our posterior sling. At the beginning of rotation, elite hitters externally rotate their femur, which builds potential energy across their anterior sling.

Balance Right: Pass

Balance Left: Pass

Right Leg IR: Pass

Right Leg ER: Pass

Left Leg IR: Pass

Left Leg ER: Pass



Holding Angles Ulnar & Radial Deviation

Ulnar and radial deviation is one of the most important aspects of the swing because it brings your bat through the zone where you can make contact. Radial deviation delays your bat.

If you can't ulnar deviate, your body will look for other solutions to get through the hitting zone. These alternative movements often look very unusual and can be easily misdiagnosed if not tested properly.

Results:

Fail Below Head - Radial Restrictions



Hitchhiker Extension Test

Being able to maintain wrist angles through extension is very important in hitting, because if you can't maintain those angles, your wrists will pull you off the ball.

The Hitchhiker Extension Test also assesses our ability to pronate and supinate the forearm. This is crucial for hitting, as an inability to pronate and supinate can hinder an athlete's ability to reach a functional palm-up, palm-down position.



What movements did the athlete fail?

**Fail Right Supination
Fail Left Pronation**

These shouldn't be a problem for a left handed hitter. But we'll continue to monitor this.

Next-to-the-Net Circles Test

The Next-to-the-Net Circles Test is hugely important because it measures an athlete's ability to side bend to low pitches. If we want to hit low pitches well, we need to be able to side bend so we can rotate to the pitch and extend through it. Most hitters who struggle to side bend tend to extend down to low pitches, which results in weak ground balls and clipped pop flies.



Results

Hitting Side: Failed Movements

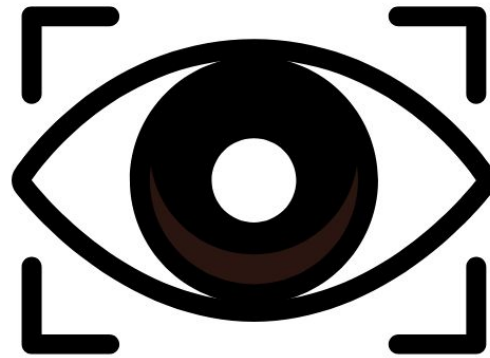
Non-Hitting Side: Failed Movements

Failed - Back of the circle

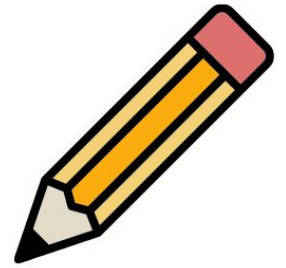
This could align with poor barrel depth, we will take a look

Baseball Vision Evaluation

Everyone knows that vision is important in hitting, but it's rarely assessed or trained in a functional way. This is something we are passionate about, as being a productive hitter is only possible when your vision is functional.



Vision - Convergence Pencil Push Up Test



The Pencil Push Up Test measures how well your eyes can track a ball as it moves toward you. Humans use binocular vision, meaning both eyes are pointed at the same object. When the object moves toward us, our eyes need to come together to follow it. This test measures how well you can do that.

Results:

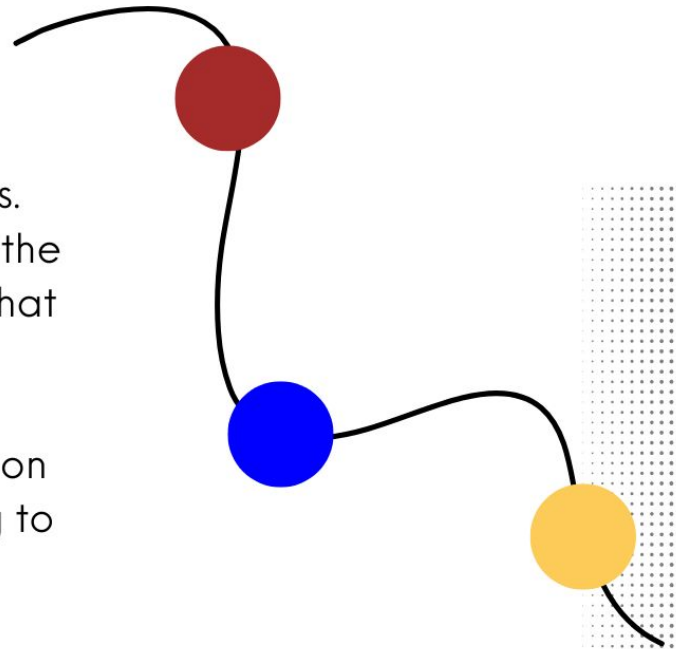
Where does the pen split? **2 Inches**

Which eye is restricted? **Right**

**There are definitely some things we can do to improve this.
Will put it in your plan.**

Vision - Brock String - Suppression Test

This test measures how much trust exists between your brain and each of your eyes. While this is a bit of an oversimplification, the easiest way to think about suppression is that one of your eyes has been providing the brain with faulty information over time, causing your brain to distrust the information it receives from that eye. Is this happening to you? This test will help us find out.



Results:

Closest Ball - The athlete struggled with -

One of the lines going out was faded

Second Ball - The athlete struggled with -

One of the lines going out was faded

Smooth Pursuit Test

Smooth pursuit is how our eyes track a slow-moving object. It is a fundamental vision skill that allows us to lock on to and track something moving at a relatively slow pace. You might wonder, if the object is moving slowly, how is this skill applicable? In baseball and softball, objects move quickly. However, smooth pursuit is a foundational vision skill—if you can't do this effectively, it will be difficult to perform more complex tasks. Walk before you run. Smooth pursuit before saccades.

Results:

Passed with flying colors



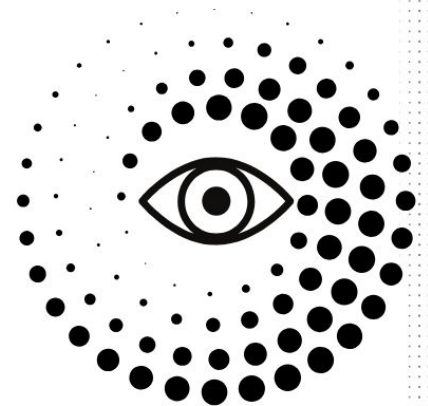
Vestibular Ocular Reflex Test

Your vestibulo-ocular reflex is related to your inner ear. This reflex helps you keep objects fixed in your vision when your head is moving.

You need to continue looking at the ball when you're swinging. If the vestibulo-ocular reflex is not functioning well, it will be difficult to do that.

Only report what was failed

Results:

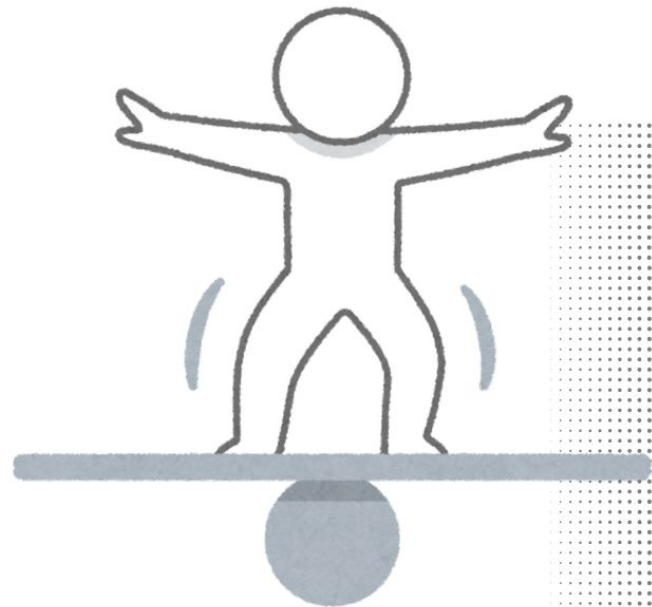


Best at this in the group of Mt St Mary's guys. Still will put in you program this is a fundamental skill that everyone can improve on.

Vestibular Ocular Reflex + Balance Test

Your vestibulo-ocular reflex is related to your inner ear. This reflex helps you keep objects fixed in your vision when your head is moving.

This test forces the athlete to balance and keep the object in the center of their eye socket as when compared to the standard VOR test.



Results: Only Report what was failed

Right Behind Left

Left Behind Right

Tested well.

Still will work on this, it's a fundamental skill.

ADVANCED HITTING EVALUATION MOVEMENT METRICS - KINEMATIC SEQUENCE

Kinematic Sequence

This is the measurement of the precise and coordinated movement pattern of the body parts—hips, torso, arms, and hands—during a swing. This sequence follows an ideal order where energy is transferred efficiently from the ground up through each body segment to generate maximum power and speed. The kinematic sequence matters in baseball because it directly impacts performance; an optimized sequence helps players achieve higher bat and better control, reducing strain on the body and lowering the risk of injury.

KINEMATIC SEQUENCE

Average Peak Velocities

Pelvis

752°/s

Pro range

500 - 600°/s

Trunk

797°/s

Pro range

575 - 700°/s

Arm

Extremely Variable
Which is actually a good thing

Pro range

800 - 1000°/s

Speed Gain

Average speed-up from Pelvis to
Torso

1.25X

Pro range

1.05x - 1.25x

Your most common sequence:

Pelvis - Trunk - Arm

Ideal sequence is Pelvis - Trunk - Arm

ADVANCED HITTING EVALUATION MOVEMENT METRICS - LEVEL 1 - THE FORWARD MOVE

The Forward Move and it's Speed

The way we move our pelvis forward during our stride is the most important factor when it comes to hitting a baseball or softball consistently.

In hitting, a weight transfer must happen. To make a swing, we have to de-weight our back foot. The process of de-weighting our back foot takes time, and if we wait too long to begin shifting our pelvis forward, we'll try to transfer weight so quickly that we won't be able to keep our head still. (This will create many other problems.)

A simple way to measure if this is happening properly is to quantify the time at which the athlete begins moving their pelvis forward and compare it to when they make contact with the ball.

This will tell us how quickly the athlete executed their forward move. When this happens in a very short period of time, hitters struggle. When they take their time, hitters perform much better.

Time From Forward Move Start to Contact:

Key Metric

.6 Sec

You tend to be a little quick on this one I think you'd get a lot of benefit by slowing down a bit and maybe going backwards less in your load. Will discuss more in the video.

.5 Sec and under = Too fast

.5-.7 Sec = Ok

.7-1 Sec = Great

ADVANCED HITTING EVALUATION MOVEMENT METRICS - X FACTOR + ROTATIONAL SPEED

X - Factor Stretch

X-Factor stretch refers to the difference in degrees between where the pelvis points and where the rib cage points. At different points of the swing, we want these numbers to be different. At our peak X-Factor stretch, we want the pelvis to be quite a bit ahead of the rib cage—around 35° would be ideal. By the time we get back to contact, we want our X-Factor stretch to return to 0° or very close to that.

We refer to the act of creating X-Factor stretch as “opening the gap.” This gap is the difference between where our pelvis points and where our rib cage points. When we bring our X-Factor stretch back to zero, we are “closing the gap,” and we want to do this very quickly. When we open the gap, we are building potential energy; when we close the gap, we are converting that potential energy into kinetic energy.

TRUNK POSITION THROUGH SWING

X-Factor **Key Metric**



Averaged across all swings, your max X-Factor prior to ball contact was

7°

Time to Open Gap: .0065 sec

Time To Close Gap: .0075 sec

**Time to open the gap is pretty variable
which is fine. But we'll monitor it.**

ADVANCED HITTING EVALUATION MOVEMENT METRICS - PELVIS AND RIBCAGE ROTATION

How Much You Rotate

The amount of rotation in the pelvis and rib cage is crucial. If we stop our rotation too early, it induces swings that roll over toward the pull side and produce a lot of ground balls. This is not a desirable outcome.

Under-rotating can also signal that the athlete is very hands- and arms-dominant in their swing.

Pelvis Rotation at Contact: 48°

Ribcage Rotation at Contact: 73°

This is a bit of an under rotation of both the pelvis and the ribcage. Generally we look for about 90° of rotation of each segment prior to contact. With the priority being on the ribcage as opposed to the pelvis. So with 73° we are close to where we want to be but this could improve a bit.