THE OFFICIAL SENSOR TECH OF NPF

VIPERS SOFTBALL

TRAIN SMARTER. GET BETTER.™

Welcome To Blast Motion

BLAST

NORTH JERSEY VIPERS SOFTBALL

We are so proud to be partnering with Blast Motion! As we survey the marketplace in our expanding quest to get better and better, we believe Blast Motion offers us a new evolution in coaching and player development. Not only does Blast give us the ability to objectively measure swing performance, balance with our coach's expertise and create consistent training across all levels, it allows us to communicate with today's players with video and illustrations that are mainstream in their daily lives.

We believe our philosophies, tied with Blast, will allow our players to work in new and fun ways to achieve the goals they set for themselves.

2019/20 will be our inaugural launch of the Blast technology. A phrase you will hear me say often is "we do not know what we do not know". We will not be experts on day one and there is an acclimation process. We know we will be better day 31 than on day 1, day 61 then day 31 and so on, Please know that we are committed to advancing Blast and having full integration in the years to come.

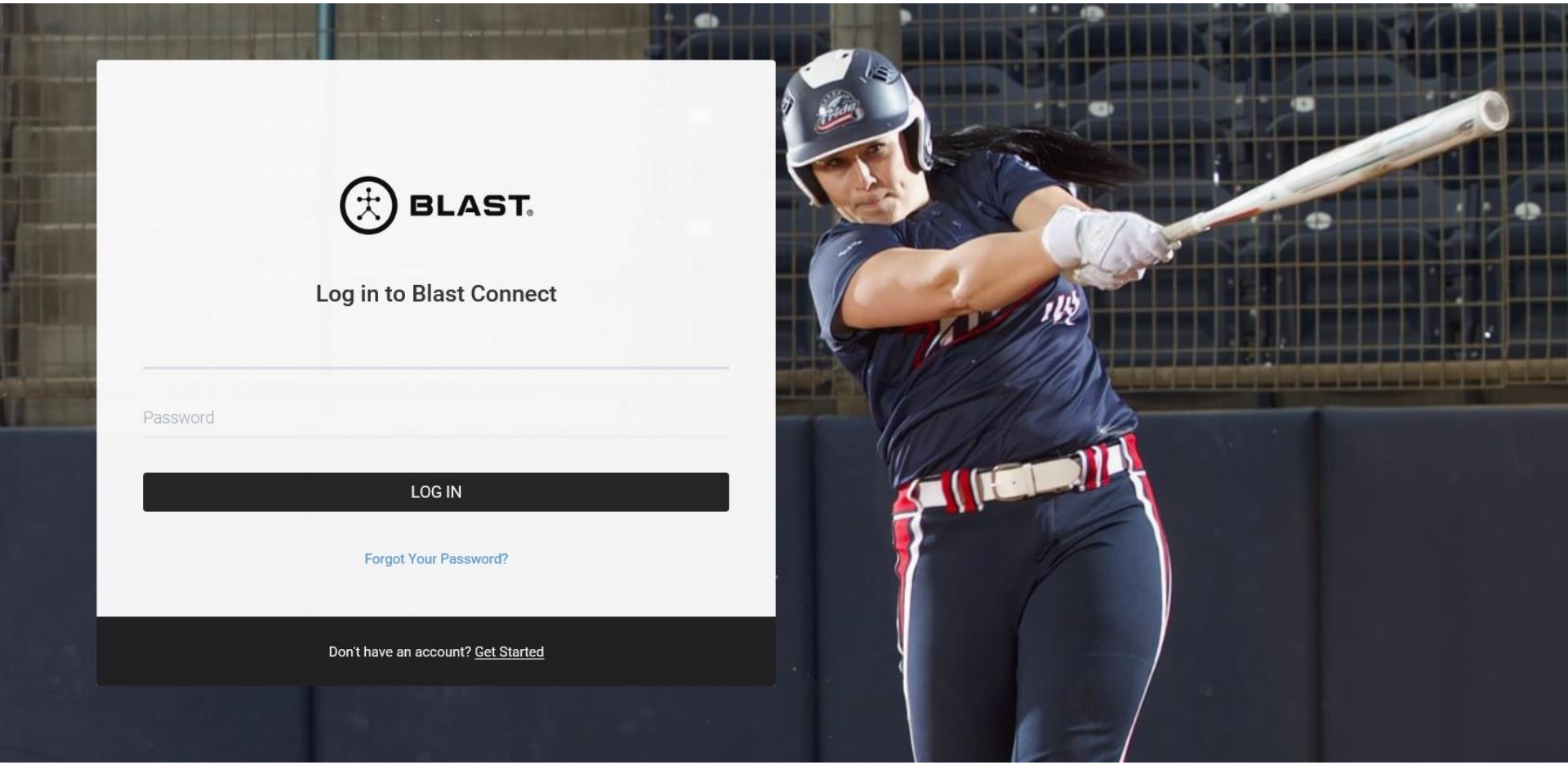
I wish all of you the best of luck as we embark on this endeavor together. I look forward to advancing Blast throughout the Vipers this year and helping all of our players have their best season ever.

Yours in softball,

Robert Germano

Log In To Blast Connect & Set Up Your Profile

www.blastconnect.com



Helpful Hints to Get Started: Phone App

Once the Blast Softball app is downloaded it opens the login screen. The available options of logging into the app or creating a new account are shown on the page.

Create Blast Softball Account

1. Open the Blast Softball.
2. Tap on “Create New Account” button.
3. Select on “I’M A PLAYER” or “I’M A COACH” by taping on the options.
4. Select on the following options by tapping on the name (Youth, Middle School, High School – Junior Varsity, High School – Varsity, College – All Divisions, & Amateur All Levels).

5. Fill in the create account info of Full Name, E-Mail, Confirm E-mail, and Password. To proceed to next screen, select on “Create Account” button.

* Password must be 8 characters long and include characters and a number.6 The welcome screen displays three options for completing the registration process.

* Basic Details * Register Sensor * Add Bat

If you don’t want to complete the registration, hit the skip option on the top right of the screen. This process will need to be completed later to use the sensor.

7. Select on the Basic Details option. This screen will have you fill out basic user info. * Add picture (Tap on Camera icon) * First Name * Last Name * Birth Date * Zip Code * Gender * Bats * Height

Once the information is entered select on the save option. The screen will continue back to the welcome screen.

8. A check mark will be displayed next to Basic Details on the welcome screen. Select on Register Sensor option. Scan the sensor using the screen circle to focus on the serial bar on the back of the sensor. If not able to scan, continue to bottom of the screen to type in the Serial (Top & Bottom) number on the back of the sensor. Hit done when this is completed.

9 Face the Blast logo towards the ground for two seconds, face the Blast logo towards the sky for two seconds, and repeat until it is activated. When completed, a Sensor Connected message will appear.

10. A check mark will be displayed next to Basic Details and Register Sensor. Select on the welcome screen. Select on Add New Bat option. Fill in the following information:

* Brand * Model * Nickname * Length * Weight

Once the information is completed tap on the “Add New Bat” button.

11. Tap on the Get Started button to start.

Register Sensor

Select on register sensor option. Scan the sensor using the screen circle to focus on the serial bar on the back of the sensor. If not able to scan, continue to bottom of the screen to type in the Serial (Top & Bottom) number on the back of the sensor. Hit done when this is completed.
Face the Blast logo towards the ground for two seconds, face the Blast logo towards the sky for two seconds, and repeat until it is activated. When completed, a Sensor Connected message will appear.

Connect Sensor

Once the Blast Softball App is opened, you should be able to shake the sensor and it should connect. Sometimes that doesn't happen. The alternative way of connecting is a manual connection.

How do you connect a sensor (Analyze, Training, Live, & Swings Screen)

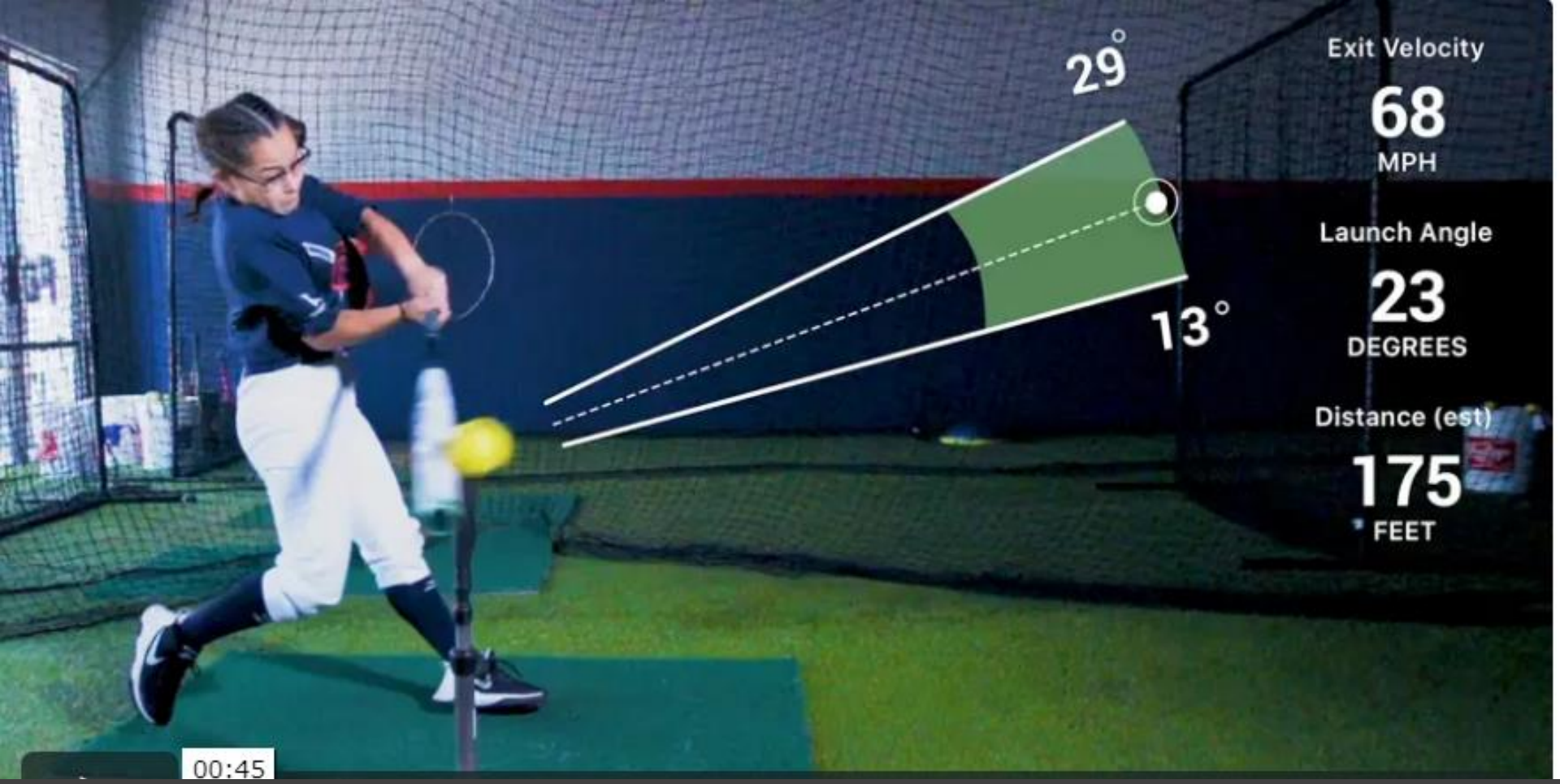
1. Tap on the circle with dash lines in the middle. This can be found on the top right.
2. Shake sensor until connected.

• Circle will show green when connected with battery level in the middle.

How to connect a sensor from my sensor

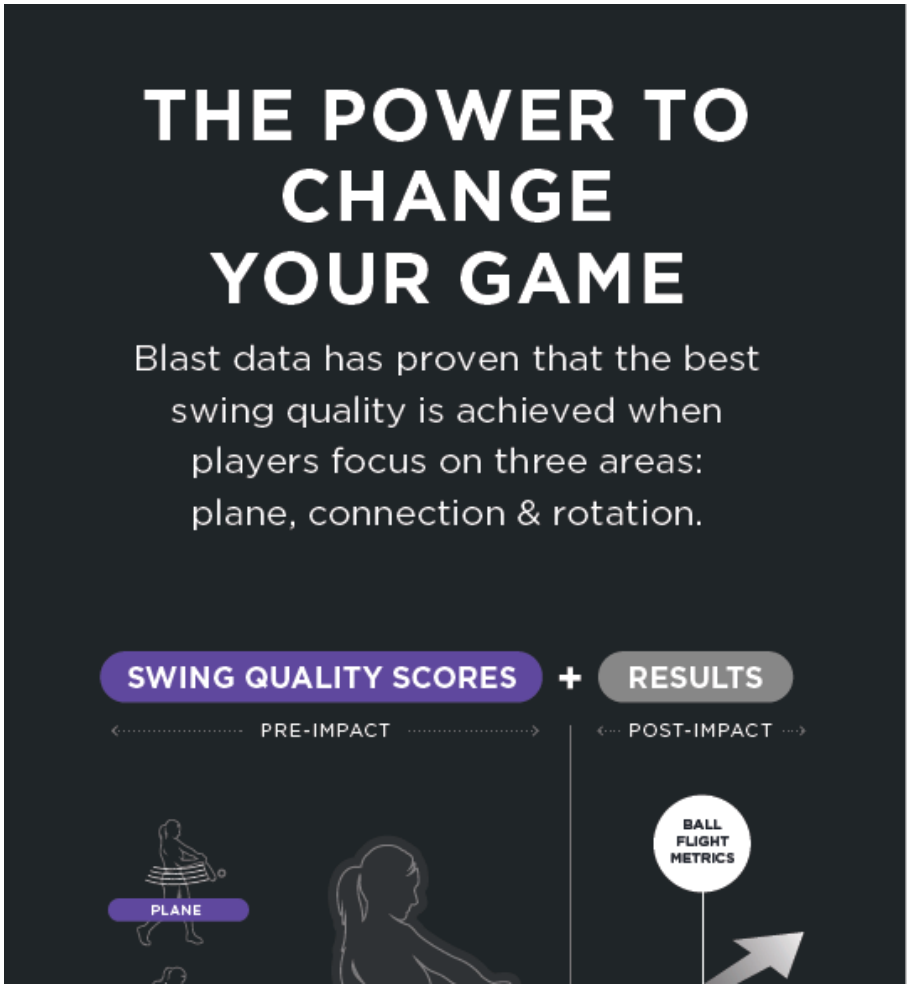
1. Tap on the menu.
2. Tap on My Sensors.
3. Tap on the sensor line item.
4. Shake sensor until connected.

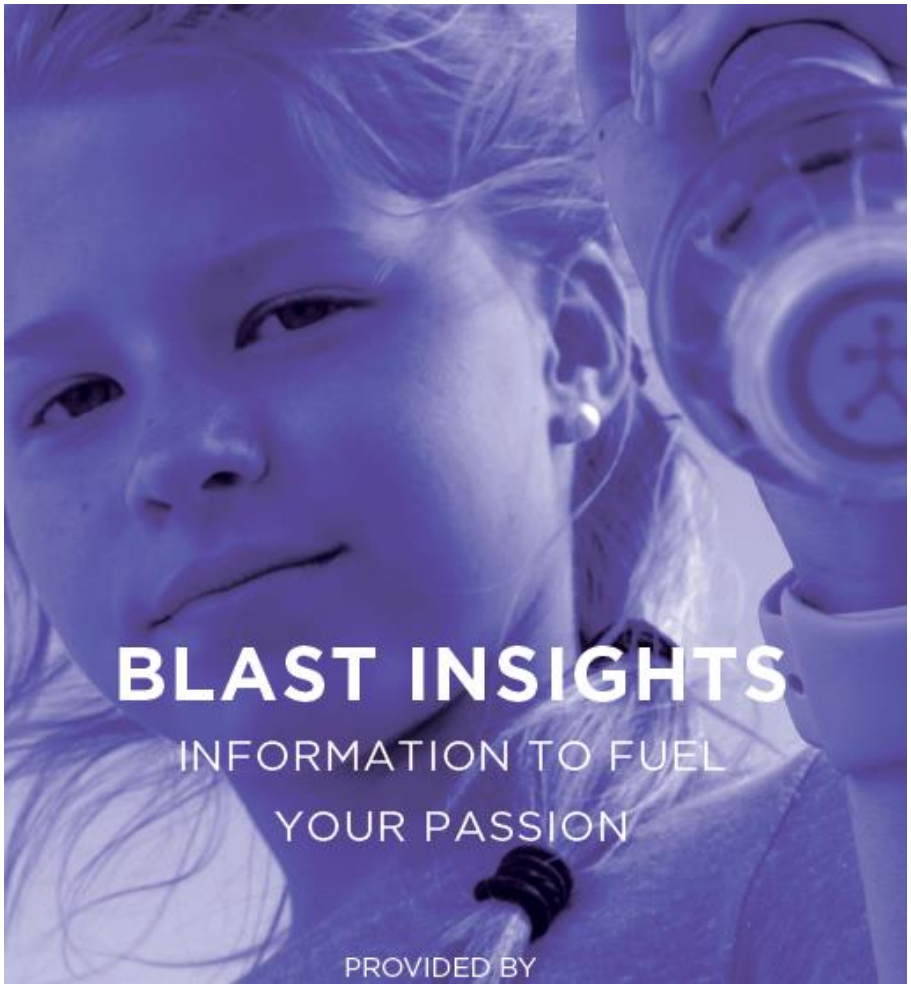
• The circle will show black with a green small circle will show when connected with battery level showing in the middle line item.



For Full details on app usage, settings, metrics, training, library, etc…, please log onto www.blastconnect.com. Once there, you can use the below link to assist with set up.

https://www.manula.com/manuals/blast-motion/blast-softball-5-0/1/en/topic/introduction


THE POWER TO CHANGE YOUR GAME
Blast data has proven that the best swing quality is achieved when players focus on three areas: plane, connection & rotation.
SWING QUALITY SCORES
+
RESULTS
PRE-IMPACT
POST-IMPACT
PLANE
BALL FLIGHT METRICS


BLAST INSIGHTS
INFORMATION TO FUEL YOUR PASSION
PROVIDED BY

PREMIUM

SWING QUALITY SCORES

Blast iQ™ assesses your swing and impact metrics, based on level of play, to automatically score your performance.

STANDARD SCALE

Measures a player's swing performance and distributes it on a bell curve, based on level of play.

- **80** — 0.2% achieve this score (above avg.)
- **70** — 2.1% achieve this score (above avg.)
- **60** — 13.6% achieve this score (above avg.)
- **50** — 68.2% achieve this score (avg. based on level of play)
- **40** — 13.6% achieve this score (below avg.)
- **30** — 2.1% achieve this score (below avg.)
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PLANE

Scores your On-Plane Efficiency for each swing on the standard scale of 20-80.

CONNECTION

Scores how connected your swing is by incorporating your Early Connection and Connection (at impact) on the standard scale of 20-80.

ROTATION

Scores your Rotational Acceleration for each swing, on the standard scale of 20-80.

PREMIUM

SWING METRICS

The Blast Sensor captures swing metrics that measure pre-impact swing mechanics centered around plane, connection, and rotation.

ON PLANE EFFICIENCY

Measures the percentage of your swing where the bat is on the swing plane.

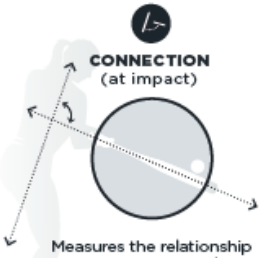
ROTATIONAL ACCELERATION

Measures how quickly your bat accelerates into the swing plane.

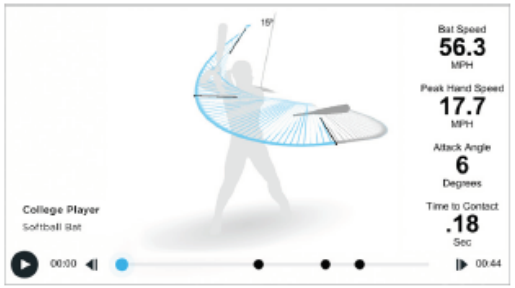
EARLY CONNECTION

Measures the relationship between your body tilt and vertical bat angle when the hitter initiates rotation.

CONNECTION (at impact)



Measures the relationship between your body tilt and vertical bat angle at impact.



3D Swing Tracer results available in-app for all swings.
(IOS only feature. Tracer export requires a Premium Services subscription.)

IMPACT METRICS

The Blast Sensor captures impact metrics that measure pre-impact performance outcomes based on ball contact.

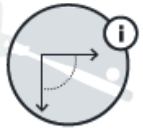
BAT SPEED

The total speed of the barrel at impact.

ATTACK ANGLE

The angle that the barrel approaches the ball at impact.

VERTICAL BAT ANGLE



The steepness of barrel at impact from a catcher's perspective.

TIME TO CONTACT

The time measured from the start of the downswing to impact.

PEAK HAND SPEED

The fastest hand speed reached throughout the swing.

POWER

Bat mass **X** avg. acceleration **X** bat speed at impact.

Metrics dependent on contact location.

PREMIUM **Swing Quality Scores, Swing Metrics, and Ball Flight Metrics require a coach or player Premium Services (Blast Connect) subscription.**

Plane Score: Scores your On-Plane Efficiency for each swing on the scouting scale of 20-80. Your score is based on how you compare to others at your level of play. The higher the score the better.

Connection: Scores your Early Connection and Connection (at impact) for each swing on the scouting scale of 20-80. Your score is based on how you compare to others at your level of play. The higher the score the better.

Rotation: Scores your Rotational Acceleration for each swing on the scouting scale of 20-80. Your score is based on how you compare to others at your level of play. The higher the score the better.

On Plane Efficiency: Measures the percentage of your swing where the bat is on the swing plane. Your vertical bat angle at contact establishes the plane for that swing. Plane is a great indicator for making more consistent contact on the barrel of the bat.

Rotational Acceleration: Rotation measures how quickly your bat accelerates into the swing plane. Rotation is a good indicator of how you build bat speed by sequencing properly vs. pulling the bat with your hands. The quicker your rotational acceleration, the more power you will have and the more time you have to make a decision at the plate.

Early Connection: Early Connection measures the relationship between your body tilt and vertical bat angle at the start of the downswing. Establishing good connection (90 degrees) early in the swing helps you get on plane and increases your ability to adjust to all pitch locations.

Connection at Impact: Connection (at impact) measures the relationship between your body tilt and vertical bat angle at impact. Maintaining good connection (90 degrees) for all pitch locations is an indicator of dynamic adjustability.

Connection at Impact vs. Early Connection: See what Connection at Impact and Early Connection are and how they are measured. Connection at Impact measures the relationship between body tilt and vertical bat angle at impact. Early Connection measures the relationship between body tilt and vertical bat angle just after the start of the swing.

BLAST.

Estimated Distance

Estimated Distance is the distance that the ball travels in the air after impact (not including roll...

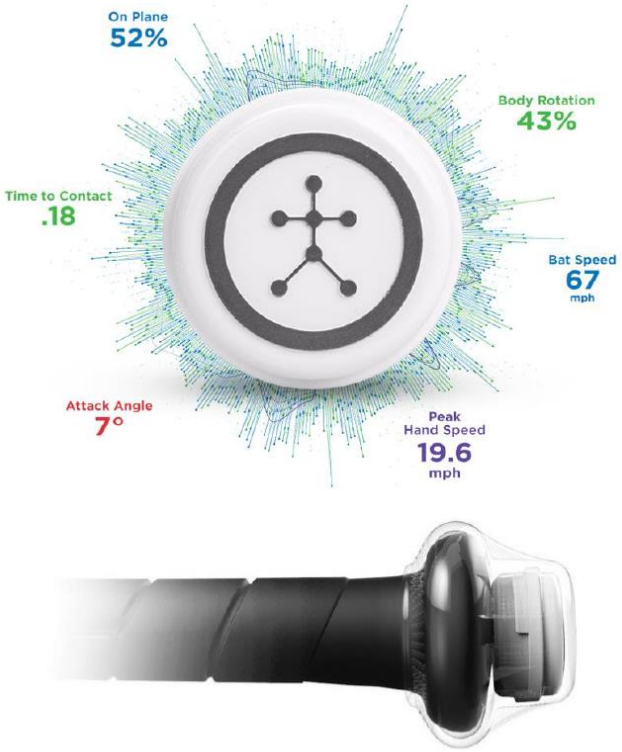
Exit Velocity

Exit Velocity is the speed of the ball immediately after impact, in miles per hour.

Launch Angle

Launch Angle is the angle between the ball path and the ground, measured in degrees.

The Numbers Don't Lie

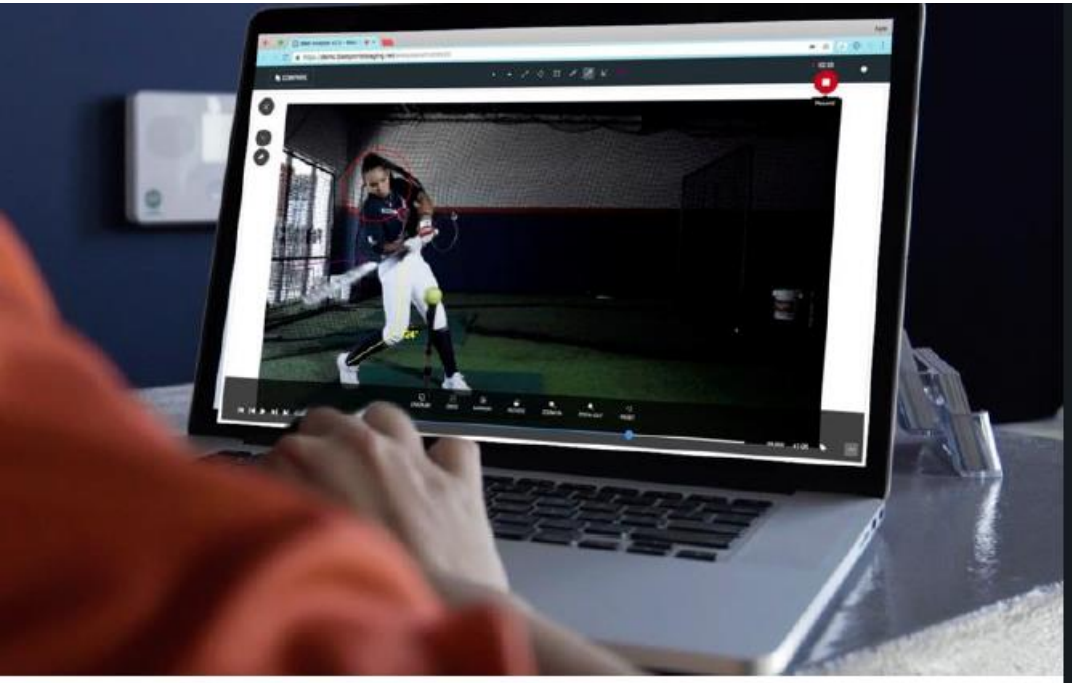


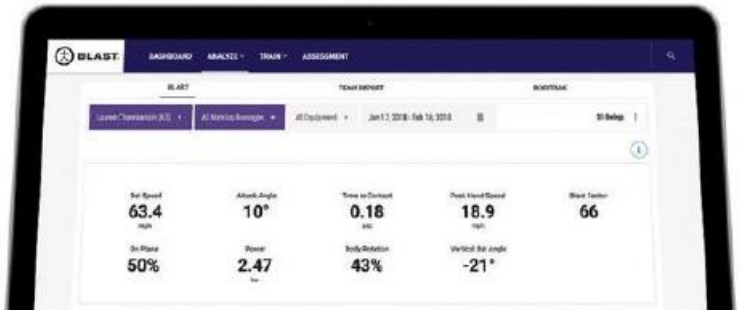
Blast Sensor

- Industry's most accurate and consistent swing analysis sensor
- Dynamic calibration for ease of use
- Real-time and offline swing capture mode for local storage of up to 1,000 swings
- Sleep Mode for efficient power management
- No on / off switch – automatically detects motion & turns on
- NCAA, NPF, PGF, USSSA approved for in-game use
- Bluetooth communication
- Wireless charging
- Low Profile design: 0.3 oz, diameter of a nickel

Mobile App

- App collects sensor data and displays it for immediate, real-time feedback
- Objective swing information and 3D swing tracer helps players, parents, and coaches “see” the results of their swing
- Review progress
- Quickly review video with Smart Video Capture™ (auto editing)
- Analyze and replay video with adaptive slow-mo technology
- Compare swings side-by-side
- Remote coaching feedback with video annotation & dictation





Blast Connect

- Cloud-based storage of information and video
- Enables direct communication with players, parents, and coaches
- Assign and track practices, workouts, and scheduling
- Teams and roster management
- Automatically aggregates information collected in-app
- Reporting, trending, and advanced insights
- Remote video analysis


Information to Measure Improvement
Blast Metrics & Ranges

Understanding the Blast Metrics

PREMIUM

SWING QUALITY SCORES

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PLANE

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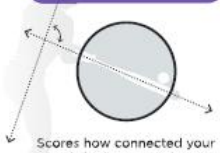
CONNECTION



Scores how connected your swing is by incorporating your Early Connection and Connection (at impact) on the standard scale of 20-80.

ROTATION

Scores your Rotational Acceleration for each swing, on the standard scale of 20-80.

Understanding the Blast Metrics

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ON PLANE EFFICIENCY

Measures the percentage of your swing where the bat is on the swing plane.

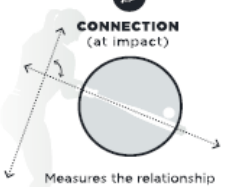
ROTATIONAL ACCELERATION

Measures how quickly your bat accelerates into the swing plane.

EARLY CONNECTION

Measures the relationship between your body tilt and vertical bat angle when the hitter initiates rotation.

CONNECTION (at impact)



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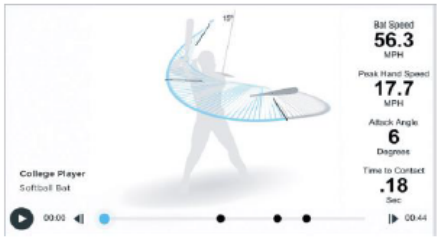

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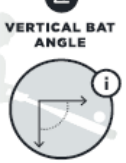
The total speed of the barrel at impact.

ATTACK ANGLE

The angle that the barrel approaches the ball at impact.

VERTICAL BAT ANGLE



The steepness of barrel at impact from a catcher's perspective.

TIME TO CONTACT

The time measured from the start of the downswing to impact.

PEAK HAND SPEED

The fastest hand speed reached throughout the swing.

POWER

Bat mass **X** avg. acceleration **X** bat speed at impact.

Metrics dependent on contact location.

PREMIUM

BALL FLIGHT

Blast iQ™ machine vision measures the post-impact results of your swing, allowing you to visualize ball flight.

EXIT VELOCITY *

Speed of the softball as it comes off the bat, immediately after impact.

LAUNCH ANGLE *

Vertical angle at which the ball leaves the bat after impact.

DISTANCE *

Estimated ball flight distance, measured in feet.

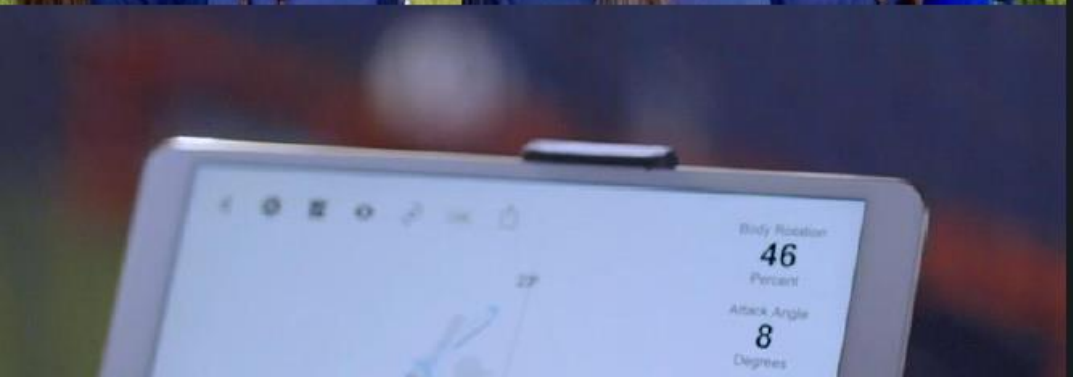
*** Coming soon to Blast Softball.**
Available now with the Blast Vision app.
(iOS only feature. Requires use of mobile camera.)

Identify Your Targets for Improvement

Blast Metric Ranges by Level of Play

	PRO	COLLEGE	TRAVEL BALL 16U-18U	HIGH SCHOOL V	HIGH SCHOOL JV	TRAVEL BALL 12U-14U	REC
BAT **SPEED**	63-75 MPH	58-70 MPH	54-66 MPH	49-63 MPH	42-56 MPH	38-52 MPH	32-46 MPH
PEAK HAND **SPEED**	21-27 MPH	20-26 MPH	18-26 MPH	16-24 MPH	14-22 MPH	13-21 MPH	10-18 MPH
ATTACK **ANGLE**	3 TO 15 DEG	2 TO 14 DEG	0 TO 14 DEG	0 TO 14 DEG	-1 TO 14 DEG	-1 TO 14 DEG	-2 TO 14 DEG
VERTICAL BAT **ANGLE**	-25 TO -35 DEG	-24 TO -34 DEG	-23 TO -33 DEG	-21 TO -31 DEG	-20 TO -30 DEG	-17 TO -27 DEG	-15 TO -25 DEG
ON **PLANE**	ABOVE 55% ON PLANE... THE MORE ON PLANE, THE MORE EFFICIENTLY YOU CAN BUILD BAT SPEED.						
BODY **ROTATION**	MOST PLAYERS SHOULD TARGET A RATIO OF 45%, WITH A TYPICAL DYNAMIC RANGE OF 40%-50%.						
TIME TO CONTACT	0.14-0.18 SEC	0.15-0.20 SEC	0.15-0.21 SEC	0.15-0.21 SEC	0.16-0.22 SEC	0.16-0.22 SEC	0.18-0.25 SEC
POWER	3.40-4.60 KW	2.50-4.0 KW	0.80-2.20 KW	1.65-2.85 KW	1.25-2.45 KW	0.80-2.2 KW	0.60-2.05 KW

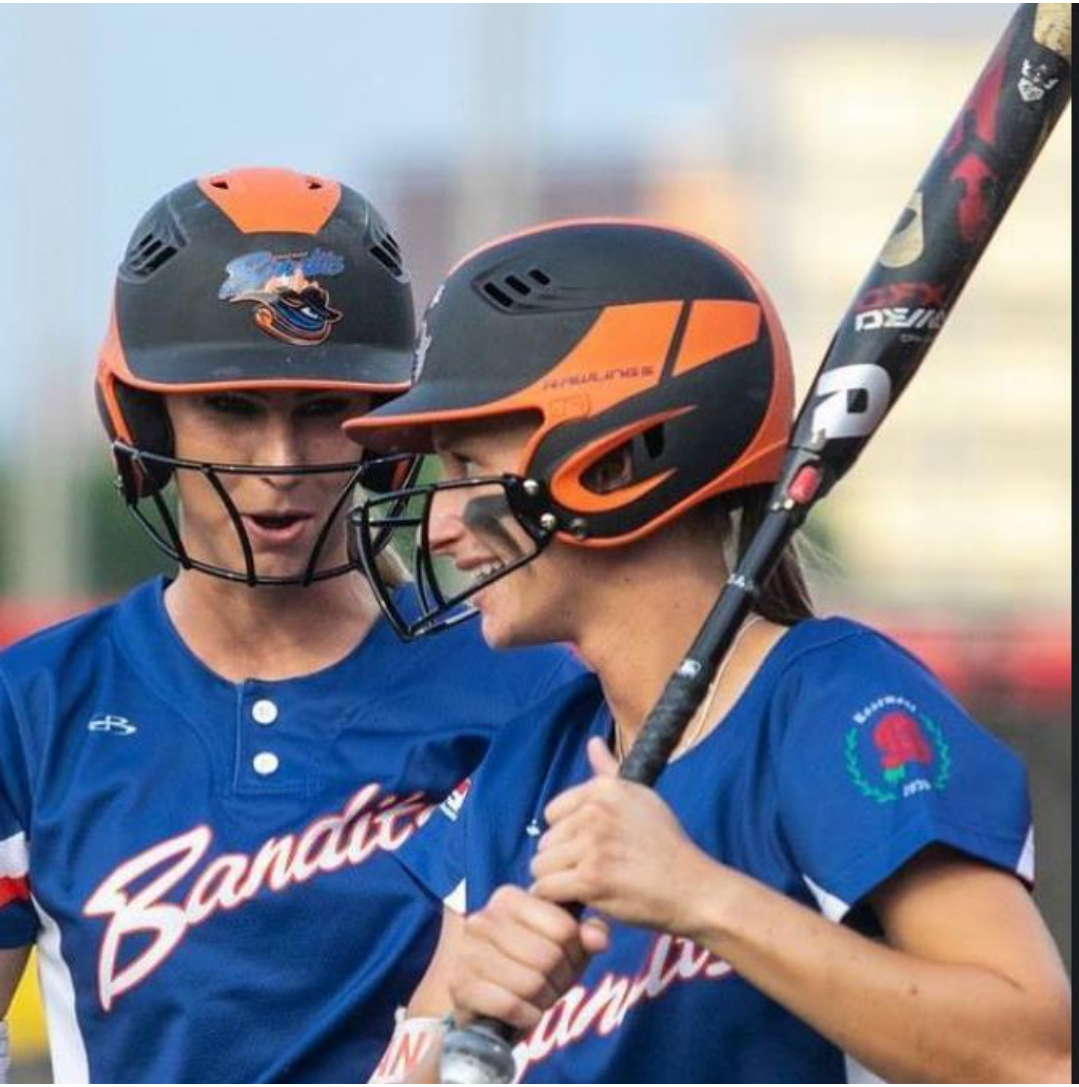

Why Use Blast?
The Value of Game Changing Technology



Player Development

The Blast solution collects and presents objective information, helping coaches and athletes transform data into improvement insights.

Capture and analyze details of every hit with simple stats and graphs. Set goals and monitor progress over time to identify performance trends and areas for improvement.



Collegiate Recruiting

Blast Connect offers college coaches comprehensive team data, a rich set of player analytics, reporting, video, and historical insights.

This information offers a more complete and objective view of each athlete's hitting potential, giving college coaches the ability to find recruits quicker and qualify their selections with objective information.

Customer Testimonials

"We are proud to partner with Blast Motion and are excited to get into the data and metrics their system can produce. We are in the business of making data driven decisions for our student athletes and our program. We are always looking for the best information."

Heather Tarr, University of Washington Head Coach

"Technology plays such an important role in the game of softball and today's players are hungry for information that can better their game. Blast allows us to measure and, most important, improve specific aspects of the swing more accurately and efficiently than ever before."

Karen Weekly, University of Tennessee Associate Head Coach

"My favorite thing about using Blast is that it shows me what right feels like. So when I get my numbers exactly where I want them, then I know how that feels. But if I do it wrong, then I know exactly how that feels too. And that needs to change. So it'll get me my muscle memory in order to continue doing what I'm doing."

Ashley Diamond Elizondo, TNT Academy, High School Athlete

We're Focused on Your Success

Featured Partners & Top Collegiate Programs

Softball Business Partners

BLAST IN THE NCAA

Several NCAA softball teams are capitalizing on the Blast Motion Solution. Dual benefits for player development and objective recruiting gives these teams short term and long term development strategies.

The Blast Motion solution captures swings online for immediate feedback and offline for information uploading post training. Teams compare/contrast Blast training data to create targeted improvement strategies for current players, all while building custom benchmarks for future recruiting initiatives through long-term storage and analytics.

With this comprehensive look, NCAA Division I players and teams now have a window into how Blast data is providing deeper insights to the swing while solidifying development strategies.

PLAYER EXAMPLE

01

Level:
NCAA Division 1 - Top 25 Program

Experience:
4 yrs

Assessment:
Known Strengths: elite power hitter **(.400 BA, .770 Slug%, 11 HR)**
Known Weaknesses: off speed pitches and consistent launch angle

Blast Insights:
Strengths: Bat Speed **(63 mph)**, Power **(2.68 kw)**, Peak Hand Speed **(19.8 mph)**
Weaknesses: On-Plane **(50%)**, repeatability

Development:
Emphasis on increasing On-Plane % (heavy weighted bat, wrist flexion), Postural Adjustments

PLAYER EXAMPLE

02

Level:
NCAA Division 1 - Top 25 Program

Experience:
1 yr

Assessment:
Known Strengths: natural athlete **(> 10 Strike-Outs)**, power potential
known weaknesses: inconsistent production **(.250 avg., .370 Slug%)**

Blast Insights:
Strengths: Connection* **(75%)**, repeatable swing
Weaknesses: On-Plane **(41%)**, hand dominant swing with limited dynamic adjustability

Development:
Emphasis on rotational training. Load and sequencing development.

PLANE

Measures the percentage of the swing where the bat is on the swing plane. Vertical bat angle at contact establishes the plane for that swing. Plane is a great indicator for making more consistent contact on the barrel of the bat.

*CONNECTION

Measures the relationship between body tilt and vertical bat angle at impact. Maintaining good connection (90 degrees) for all pitch locations is an indicator of dynamic adjustability.

ROTATION

Measures how quickly the bat accelerates into the swing plane. Rotation is a good indicator of how to build bat speed by sequencing properly. A quicker rotational acceleration, the more power and the more time to adjust to pitch locations.

THE OFFICIAL SENSOR TECH OF NPF

BLAST.

PLAYER EXAMPLE

01

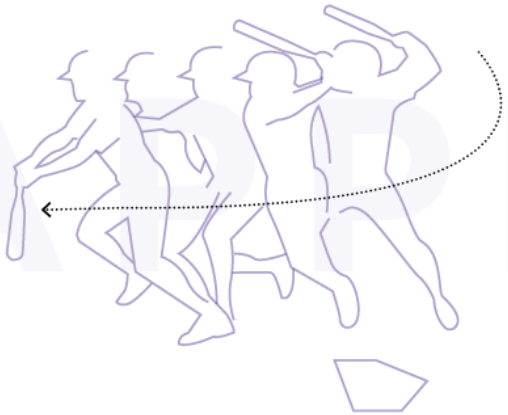
Level:
2 Years NPF, Former Pac-12 Player, 2x NCAA All-America, All-NPF Team

Assessment:
Known Strengths: Elite slapper with multiple offensive tools and exceptional speed. Table setter. College Career BA over **.400**. Current NPF BA over **.360**. Rarely strikes out.
Known Weaknesses: Limited power

Blast Insights:
Strengths: High On-Plane **(70%)**, repeatable swing. Above average Rotational Acceleration **(9.8 g's)**, good sequencing gives her more time to make decisions and adjust.
Weaknesses: No direct swing weaknesses.

Development:
No mechanical swing adjustments. Emphasize consistency in training and explore letting her swing more.

SLAPPER



THE OFFICIAL SENSOR TECH OF NPF

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PLAYER EXAMPLE

02

Level:
4 Years NPF, Former Big 12 Player, 3x All-Conference First-Team, 3X First-Team All-American, All-NPF Team

Assessment:
Known Weaknesses: Below average Bat Speed. Batting Average and HR's down since joining the NPF. More strike outs than walks for **3** consecutive seasons.

Blast Insights:
Strengths: High On-Plane **(76%)**, repeatable swing. Body and bat connected, adjust with her body.
Weaknesses: Below average Rotational Acceleration* **(6.7g's)**, inefficient sequencing, commits early.

Development:
Focus on rotational strength, more game like training. Load and sequencing development.
Drills/Trainings: Heavy Bat training, Impact Bag, Sequencing Drill, Step Behind, Medicine ball tosses, hip and core flexabilty.

PLANE

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CONNECTION

Measures the relationship between body tilt and vertical bat angle at impact. Maintaining good connection (90 degrees) for all pitch locations is an indicator of dynamic adjustability.

*ROTATION

Measures how quickly the bat accelerates into the swing plane. Rotation is a good indicator of how to build bat speed by sequencing properly. A quicker rotational acceleration, the more power and the more time to adjust to pitch locations.

PLAYER EXAMPLE

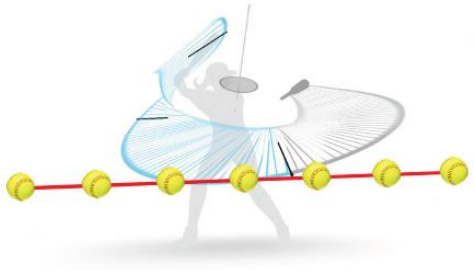
03

Level:
5 Years NPF, Former Pac-12 Player, NCAA All-American, NCAA All WCWS Team

Assessment:
Known Strengths: Model of offensive consistency with power threat. Set HR PR **(7)** in 2018 NPF Season.
Known Weaknesses: High K rate, increase in strikeouts every season in NPF.

Blast Insights:
Strengths: Good Bat Speed. Body and bat connected at all pitch locations. Adjust with her body.
Weaknesses: On-Plane **(Avg. 55%)** inconsistent swing, Below Average Rotational Acceleration **(6.2g's)**, inefficient sequencing. Commits early.

Development:
Emphasize On-Plane Efficiency (heavy weighted bat). Focus on rotational strength, more game like training. Load and sequencing development.
Drills/Training: PVC Pipe work, heavy bat training for On-Plane. Impact bag, Sequencing drills, Medicine ball tosses, hip and core flexabilty for RA.



ON-PLANE

THE OFFICIAL SENSOR TECH OF NPF

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PLAYER EXAMPLE

04

Level:
5 Years NPF, Former Big-12 Player

Assessment:
Known Strengths: Contact hitter. Puts the ball in play. Leadership.
Known Weaknesses: **.250** career batting average (NPF). Below average slugging %.

Blast Insights:
Strengths: Good Rotational Acceleration **(8.4g's)**, ideal sequencing.
Weaknesses: On-Plane* **(Avg. 58%)** inconsistent swing.

Development:
Emphasize On-Plane Efficiency (heavy weighted bat), postural adjustments.
Drills/Training: PVC Pipe work. Heavy Bat, light bat training, Ball in Arm Drill.

***PLANE**
Measures the percentage of the swing where the bat is on the swing plane. Vertical bat angle at contact establishes the plane for that swing. Plane is a great indicator for making more consistent contact on the barrel of the bat.

CONNECTION
Measures the relationship between body tilt and vertical bat angle at impact. Maintaining good connection (90 degrees) for all pitch locations is an indicator of dynamic adjustability.

ROTATION
Measures how quickly the bat accelerates into the swing plane. Rotation is a good indicator of how to build bat speed by sequencing properly. A quicker rotational acceleration, the more power and the more time to adjust to pitch locations.

THE OFFICIAL SENSOR TECH OF NPF

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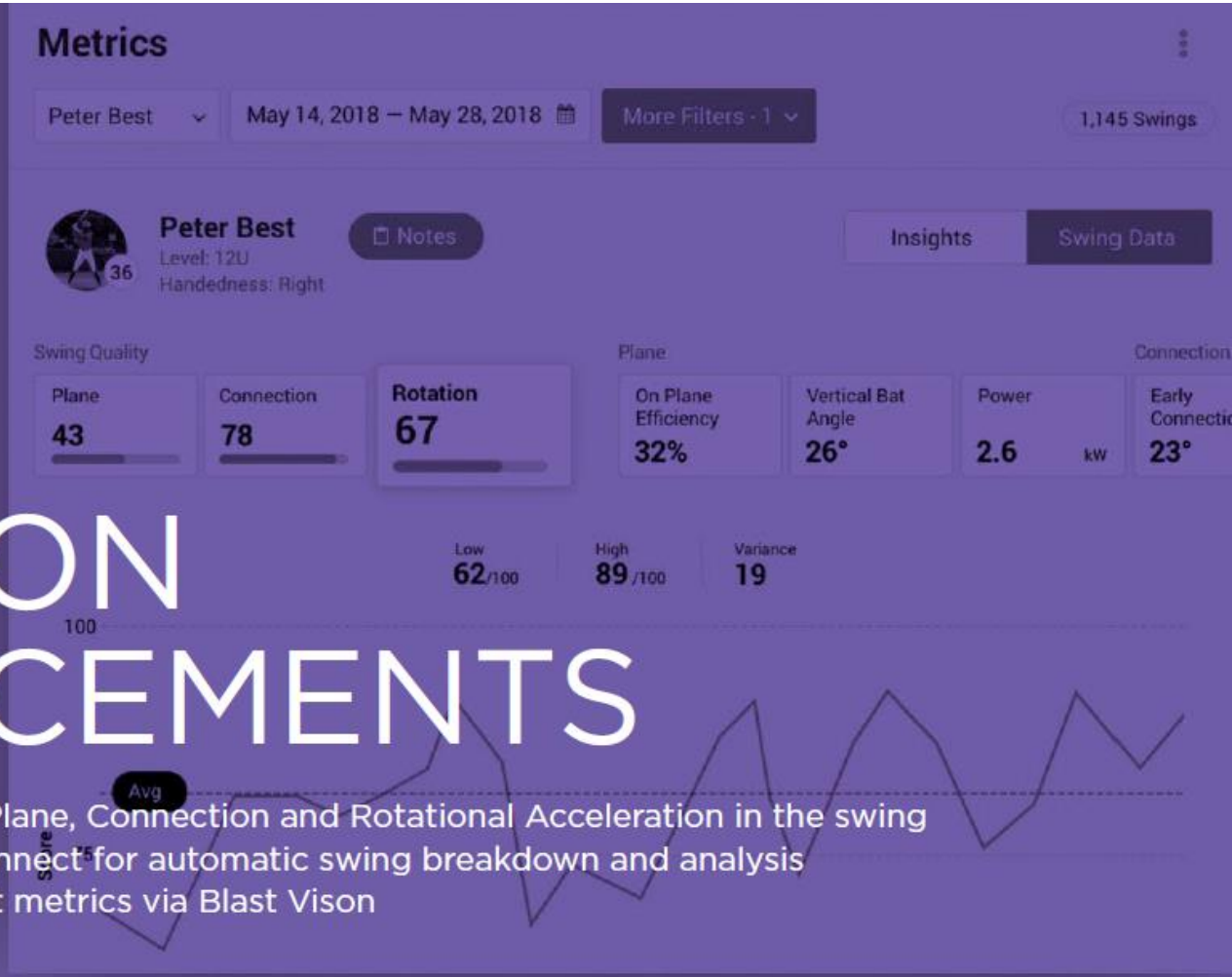
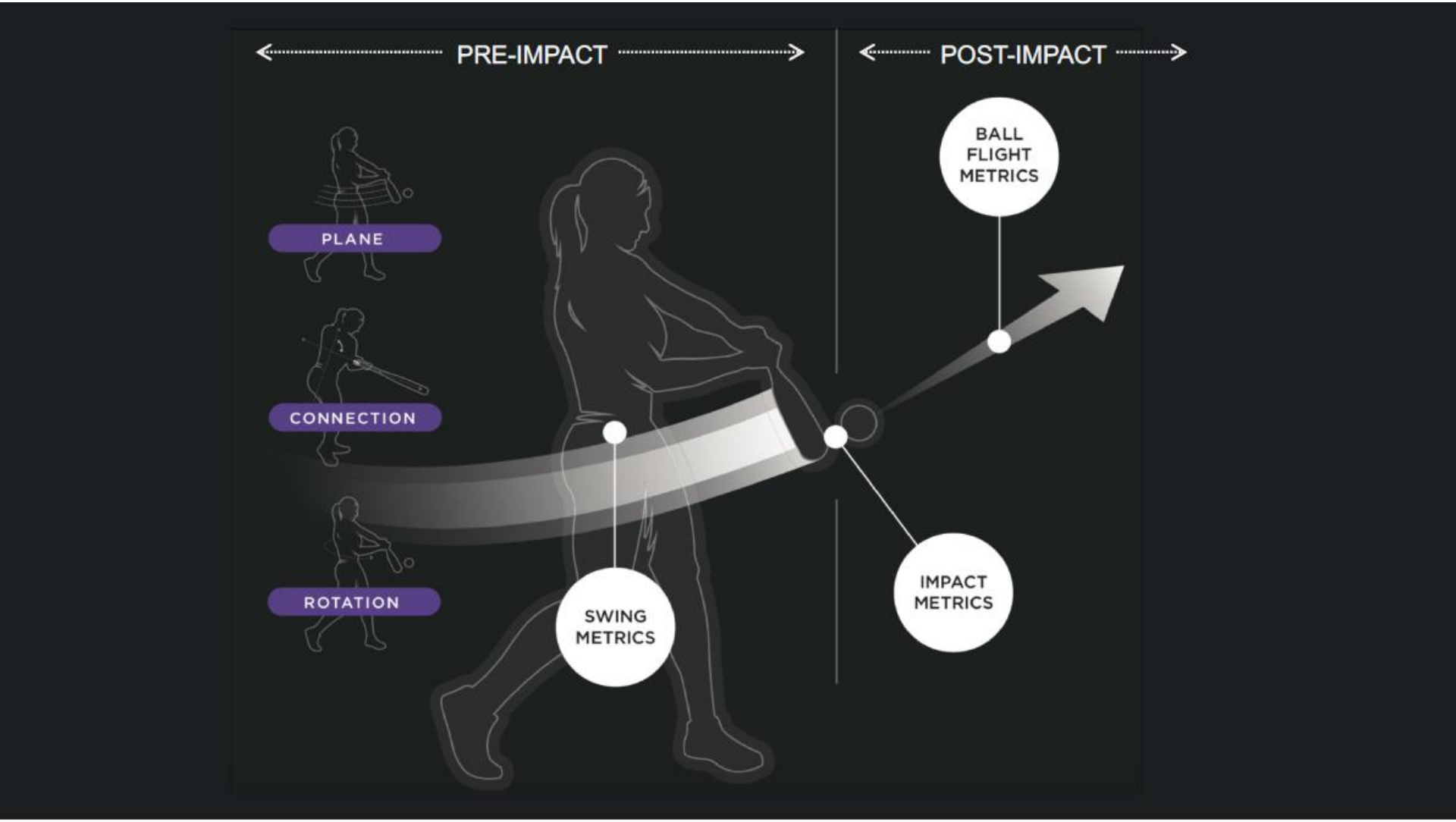
BLAST SOLUTION ENHANCEMENTS



- New Swing Quality Metrics - Plane, Connection and Rotational Acceleration in the swing
- Advanced insights in Blast Connect for automatic swing breakdown and analysis
- Full integration of Post Impact metrics via Blast Vison
- More...


BLAST INSIGHTS &
METRICS GUIDE
PLANE • CONNECTION • ROTATION


PRE-IMPACT
POST-IMPACT
PLANE
CONNECTION
ROTATION
BALL FLIGHT METRICS
SWING METRICS
IMPACT METRICS

PLANE • CONNECTION • ROTATION

SWING METRICS: IDEAL RANGES

On Plane Efficiency %	Rotational Acceleration	Early Connection	Connection at Impact
70% or Higher Range: 65% - 85%	Score above 50 for your level of play	90° (Perpendicular) Range: 80° - 105°	90° (Perpendicular) Range: 80° - 95°

Connection Notes

- Ideal for Early Connection and Connection at Impact to be relatively the same. Up to a 15° difference between the two is acceptable, however generally the closer the better.
- It is generally ok for hitters to not be exactly 90°, especially if both of their connection metrics are the same.

PLANE • CONNECTION • ROTATION

IMPACT METRICS: IDEAL RANGES

Level	Pro	College	Travel Ball 16U – 18U	High School Varsity	High School JV	Travel Ball 12U – 14U	Recreational
Bat Speed	57 – 63 MPH	57 – 66 MPH	51 – 61 MPH	51 – 61 MPH	42 – 56 MPH	38 – 52 MPH	32 – 46 MPH
Attack Angle	3° to 15°	2° to 15°	0° to 15°	0° to 15°	-2° to 15°	-2° to 15°	-2° to 15°
Vertical Bat Angle *	-10° to -40°	-10° to -40°	-10° to -40°	-10° to -40°	-10° to -40°	-10° to -40°	-10° to -40°
Time to Contact	0.15 – 0.18 seconds	0.15 – 0.18 seconds	0.16 – 0.19 seconds	0.16 – 0.19 seconds	0.16 – 0.22 seconds	0.16 – 0.22 seconds	0.18 – 0.25 seconds
Peak Hand Speed	18 – 20 MPH	18 – 21 MPH	16 -20 MPH	16 – 20 MPH	14 – 22 MPH	13 – 21 MPH	10 – 18 MPH
Power kW	2.05 – 2.77 kilowatts	2.02 – 2.90 kilowatts	1.48 – 2.31 kilowatts	1.48 – 2.31 kilowatts	1.25 – 2.45 kilowatts	0.80 – 2.20 kilowatts	0.60 – 2.05 kilowatts

* Pitch location specific

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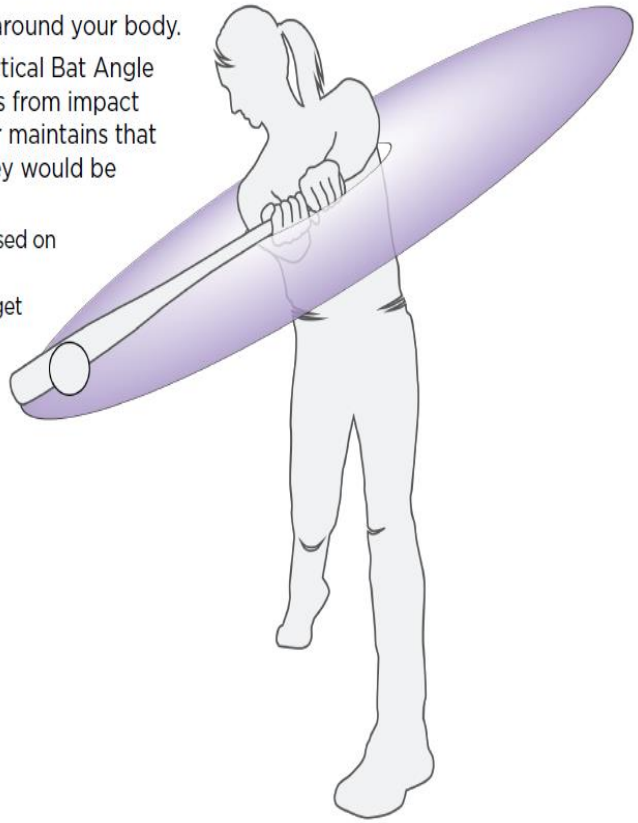
SWING PLANE

What is it?

- Think of the Swing Plane as an ellipse around your body.
- The Swing Plane is defined by your Vertical Bat Angle at impact. The sensor works backwards from impact to create your Swing Plane. If the hitter maintains that Vertical Bat Angle the entire swing, they would be 100% On Plane.
  1. Every swing has its own Swing Plane, based on the Vertical Bat Angle.
  2. A good way to think about plane is a fidget spinner. As you move the fidget spinner to hit different pitch locations, the Swing Plane changes.



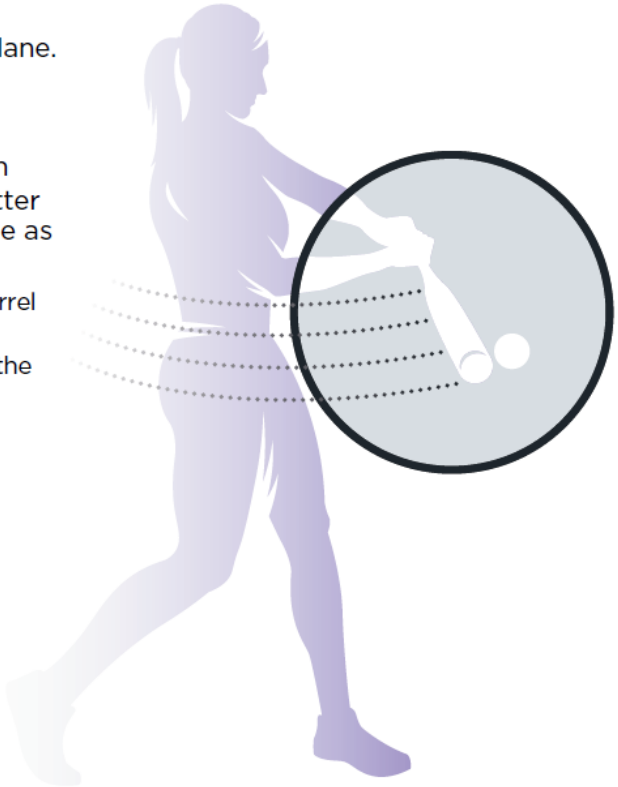
ON PLANE EFFICIENCY %

What is it?

- On Plane Efficiency Percentage (%) measures the percentage of your swing that was on the Swing Plane.

Why is it important?

- An efficient swing gets On Plane early and stays on plane through contact. In an efficient swing, the hitter wants to build as much forward bat speed On Plane as possible, in the direction of the point of contact.
  1. Hitters that have good On Plane Efficiency, tend to barrel up more balls (have higher average Exit Velocities)
  2. Hitting the ball hard relates to bat speeds, but hitting the ball hard more often is about being On Plane.



ON PLANE EFFICIENCY %

On Plane Efficiency %	Cause(s)	Training Focus	Drills
Metric Range: 70% or Above	1) Hitter gets the barrel on plane very early and deep in the swing path, optimizing acceleration of the barrel through the zone 2) Gets connected early and stays connected to impact. 3) Hitter is good at minimizing variability in the arm/wrist degrees of freedom (DOF).	• Vary training environments • Vary pitch types • Challenge hitter on decision making	• Bat on shoulder • PVC Pipe • Heavy bat • Ball Constraint • Turn to Contact
Metric Range: 60 – 70%	1) Some barrel manipulation with the wrist and hands throughout the swing, but rather consistent 2) Early Connection is a little outside desired range. (85° - 105° is good range)	• Look at early positioning of the barrel and wrists. • Get connected early and stay connected through impact • Focus on flattening out the wrist and eliminating extra wrist movement	
Metric Range: 59% and Below	1) Manipulates barrel with the wrist and hands. 2) Bad Early Connection between body tilt and Vertical Bat Angle (Connection is >110° or < 81°) 3) Early Connection is good, but manipulates bat or body during the swing causing disconnected at Impact.	• Same as above, but addition emphasis on fixing a major swing flaw.	

* Chart depicts the On Plane Efficiency % metric (not the score)

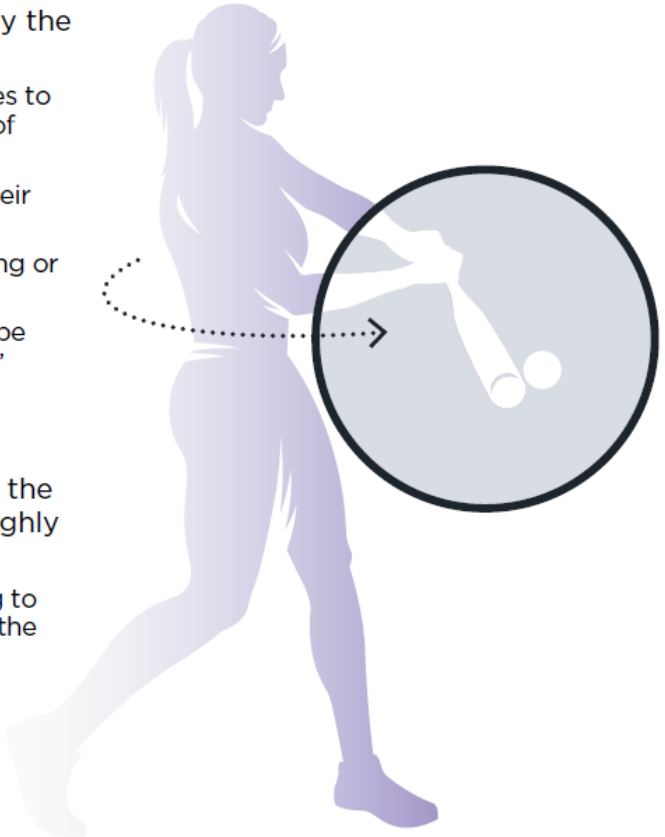
ROTATIONAL ACCELERATION

What is it?

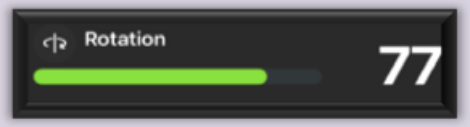
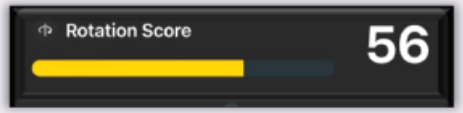
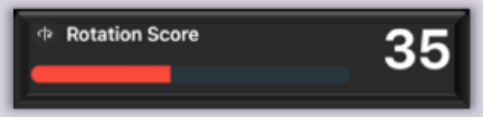
- Rotational Acceleration is a measure of how quickly the hitter accelerates the bat into rotation.
  1. Hitters that sequence well and use their bigger muscles to accelerate the bat into the swing, have higher values of Rotational Acceleration
  2. Hitters that actively pull the bat into the swing with their hands have lower values of Rotational Acceleration.
  3. The swing ideally begins with the middle (core) rotating or starting the swing.
  4. A way to think about it is "hitters want their hands to be moving, but not because they are moving their hands"

When is it measured?

- Rotational Acceleration is measured starting when the bat transitions from the load into rotation until roughly the time back elbow is slotted.
  1. Rotational Acceleration is measured early in the swing to capture information about the movement patterns of the athlete. It is also less susceptible to swing differences based on pitch location and type.



ROTATIONAL ACCELERATION

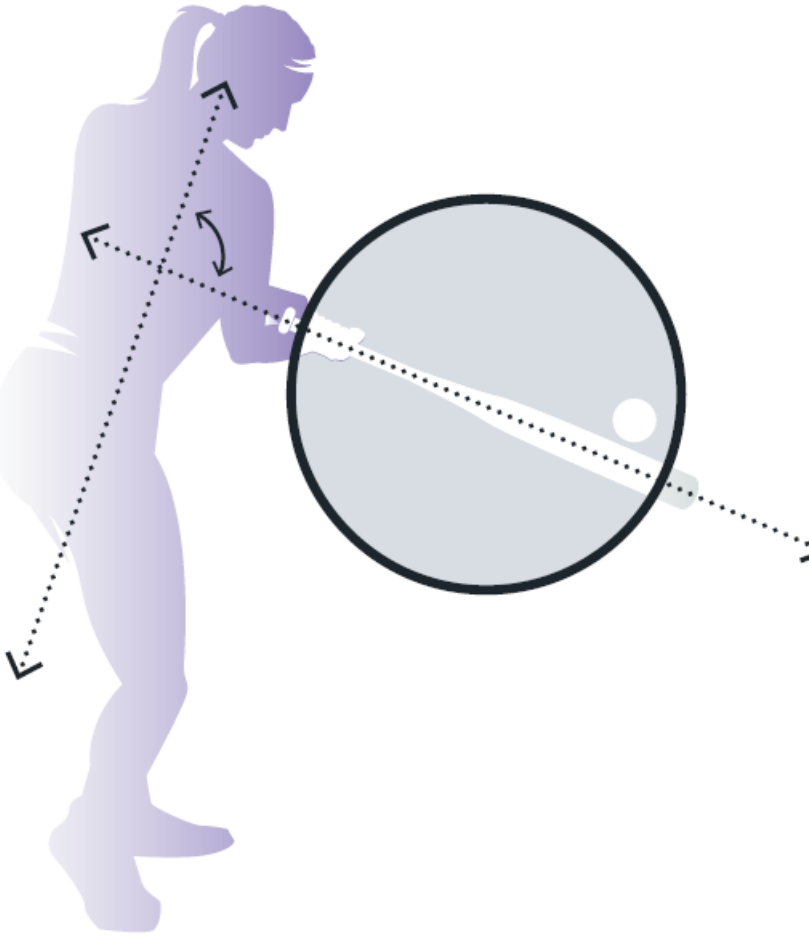
Rotation Score	Cause(s)	Training Focus	Drills
Rotation Score: Green 	1) Good sequencing and movement patterns. 2) Body starts the swing, 3) Good Hip/shoulder separation 4) Hands are passive early in the swing. Bigger muscles do the work. Hands are moving but hitter is not moving their hands.	• Keep consistency of good Rotational Acceleration • Vary training environments • Vary pitch types • Challenge hitter on decision making	• Trigger, trigger, fire • Rhythm Drill • Open Stance (45°) • Step behind • Heavy bat • Impact bag, close distance • Medicine ball routine
Rotation Score: Yellow 	1) Average sequencing and movement patterns 2) Block rotates, torso and hips go together 3) Hands are somewhat active early, but not necessarily a major issue	• Load middle (core) • Maintain load • Passive hands early • Finish Rotation	
Rotation Score: Red 	1) Hand dominate swing 2) Very active with hands early in the swing 3) Actively pulls the bat into rotation with the hands 4) Less than stellar sequencing and movement	• Load middle (core) • Passive hands early • Maintain load • Swing starts with body rotating	

* Chart depicts Rotational Acceleration Scores which are based on athletes set level of play

CONNECTION

What is Connection?

- Connection is a measure of the relationship between the hitter's body tilt and vertical bat angle, in degrees. Ideally this relationship is approximately perpendicular (90°) throughout the rotational portion of the swing.
  1. Hitters want to get connected and stay connected throughout the swing.
  2. Hitters want to maintain their connection for all pitch locations.
  3. Hitters want to adjust to different pitch locations with their body and posture as opposed to keeping their posture the same and using their hands to manipulate the barrel.



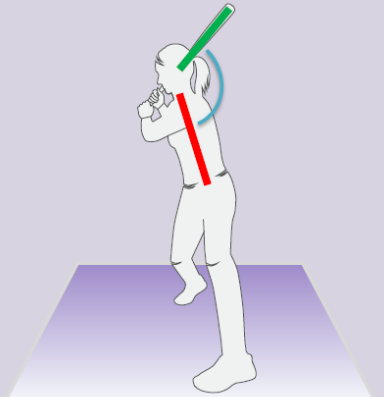
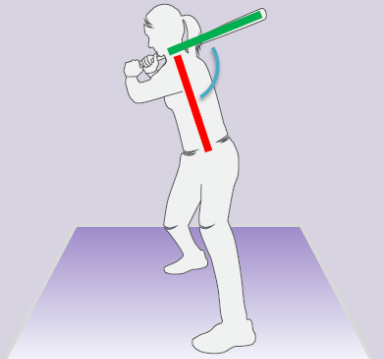
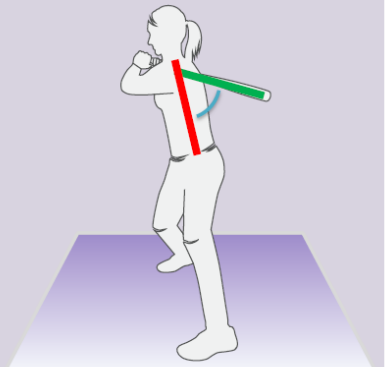
When is Early Connection measured?

- Early Connection is measured just after the start of the downswing or when the bat transitions from load into rotation.

When is Connection at Impact measured?

- Connection at Impact is measured at contact

EARLY CONNECTION

Greater than 90 °	90 °	Less than 90 °
		
• Hitter is > 90° as they begin to rotate. • Hitter gets stuck in barrel tip. • Steep into the swing plane.	• Hitter is at 90° as they begin to rotate. Making it easy to swing on-plane. (ellipse) • Hitter just has to turn and rotate to contact. Stays on swing plane.	• Hitter is < 90° as they begin to rotate or their body tilt becomes more steep throughout the swing.

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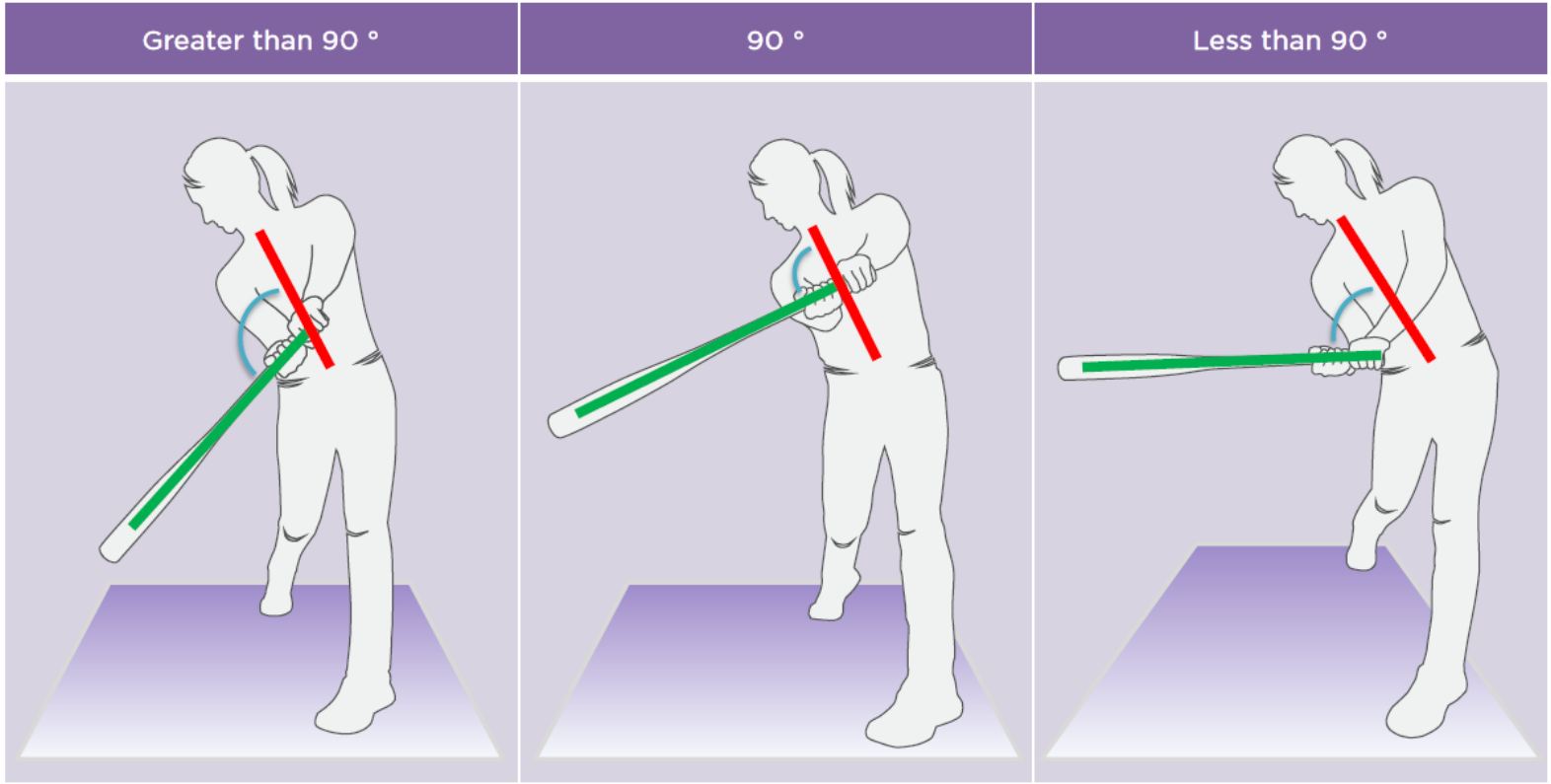
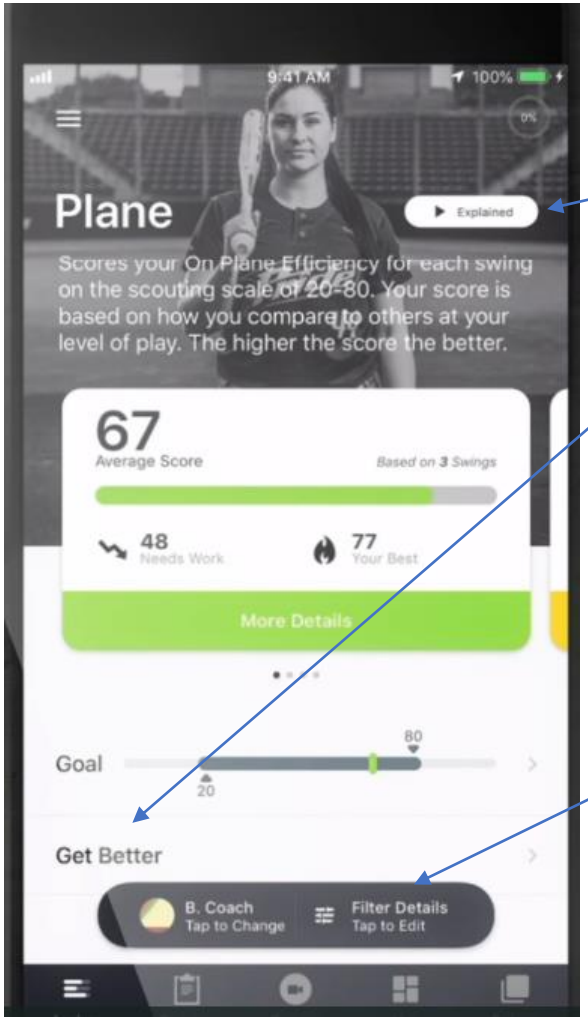
CONNECTION AT IMPACT



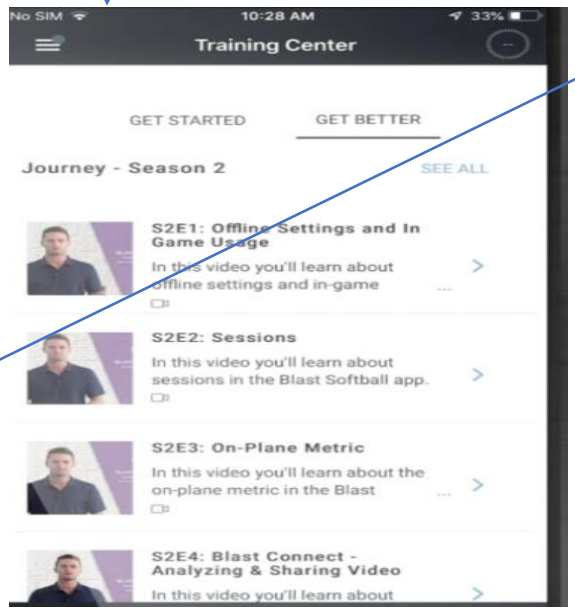
THE OFFICIAL SENSOR TECH OF NPF

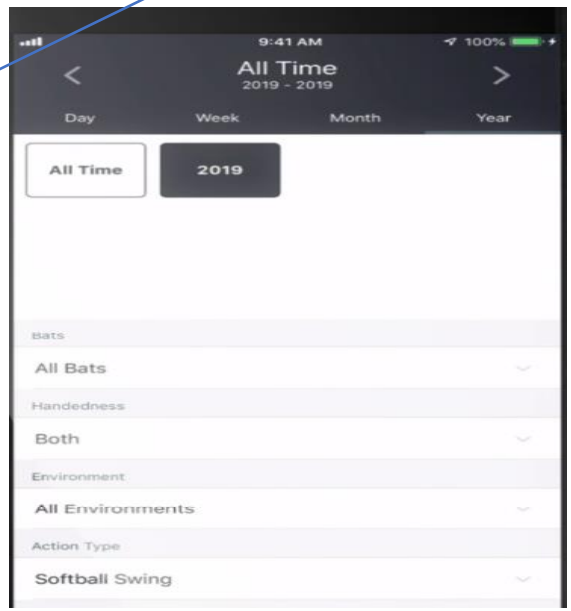
BLAST

Navigate The Mobile App

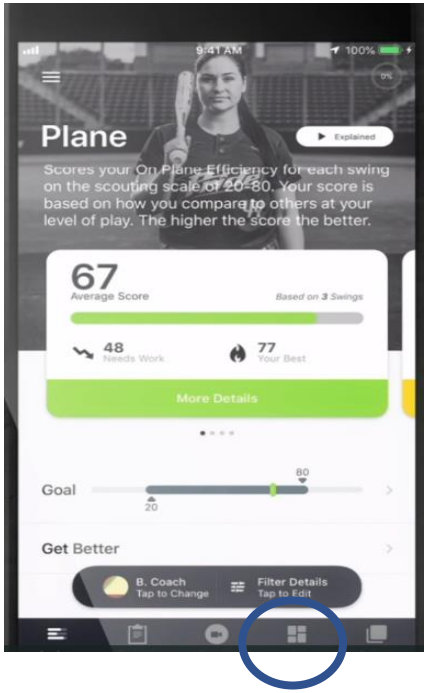


- Plane/Connection/Rotation are THE most important metrics
- EXPLAINED video in upper righthand corner
- Color codes will show Green/Yellow/Red…Green for GOOD, Yellow for AVERAGE and Red for "OPPORTUNITY TO GET BETTER"
- Get Better link will show a series of videos of drills to work on
- The Filter Tab will show dates/ time to manage progress of past swings





Navigate The Mobile App



Sensor Will Connect

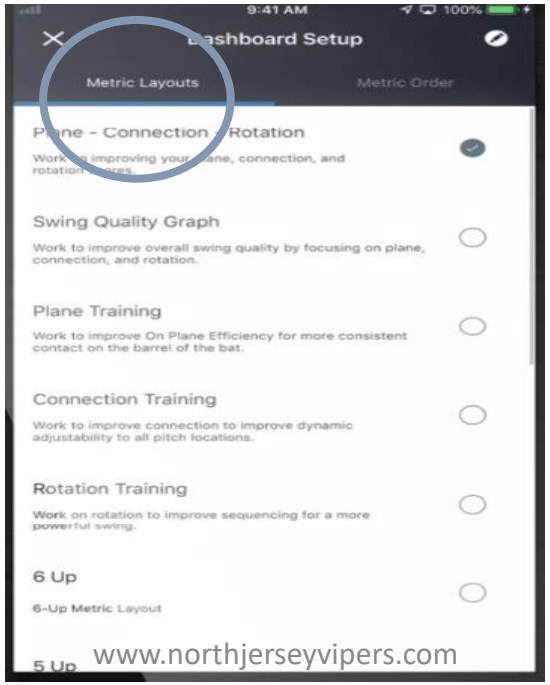
Navigate The Mobile App

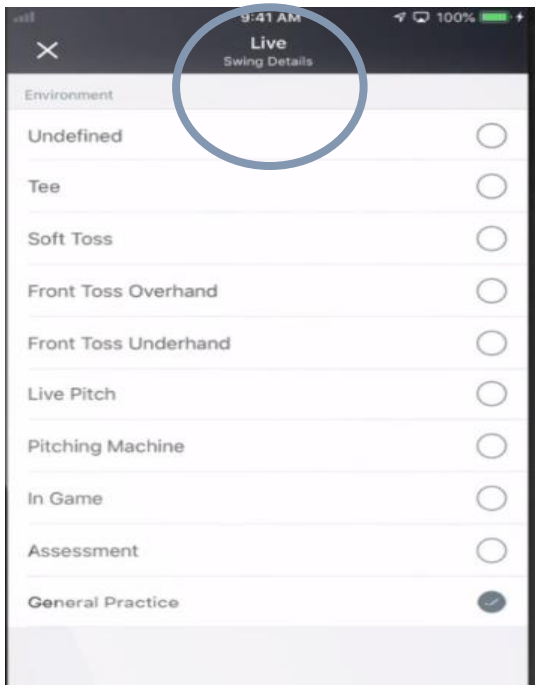
To Change ***Metric Layout***, Tap the Metric Layout on the top of the screen

- Can customize and put in any order you like
- STRONGLY URGE Plane, Connection and Rotation #1,#2,#3
- ***Swing Details*** allows for choosing of swing type (tee, front toss, etc.)
- Color codes will show Green/Yellow/Red…Green for GOOD,

Yellow for AVERAGE and Red for "OPPORTUNITY TO GET BETTER"

- Get Better link will show a series of videos of drills to work on

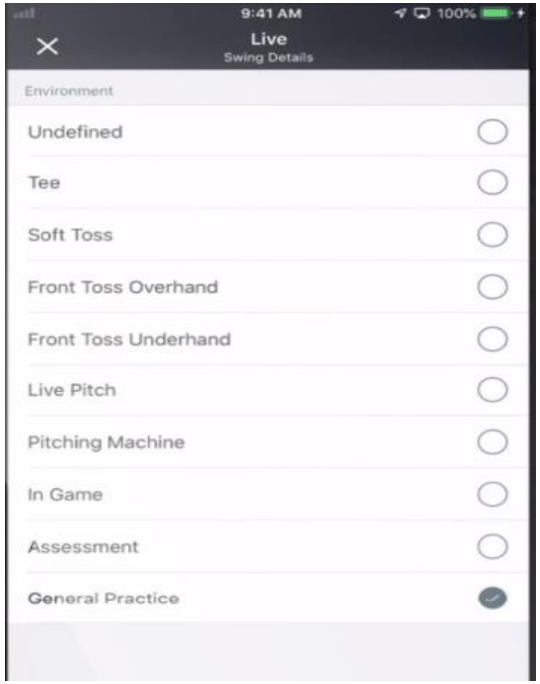




Navigate The Mobile App

When capturing swings on the ***LIVE*** screen

- Scores will vary based on swing environment (tee, live, front toss)
- Color codes will show Green/Yellow/Red…Green for GOOD, Yellow for AVERAGE and Red for "OPPORTUNITY TO GET BETTER"
- Get Better link will show a series of videos of drills to work on



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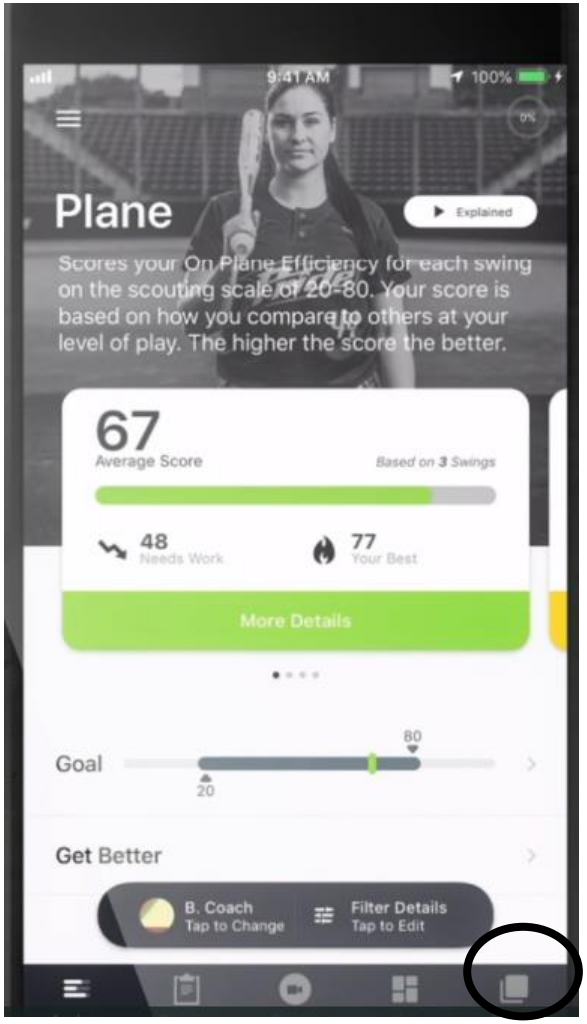
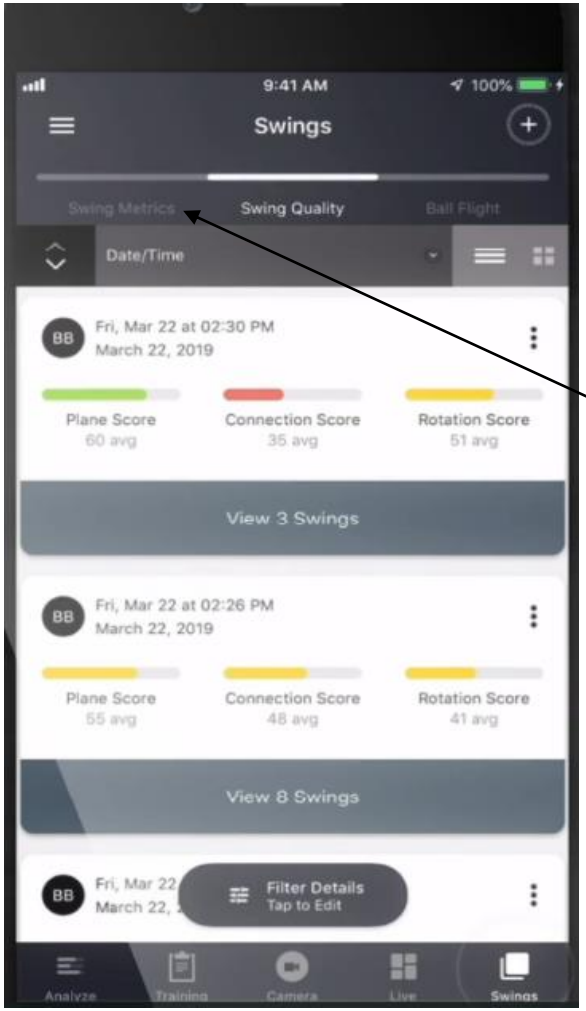
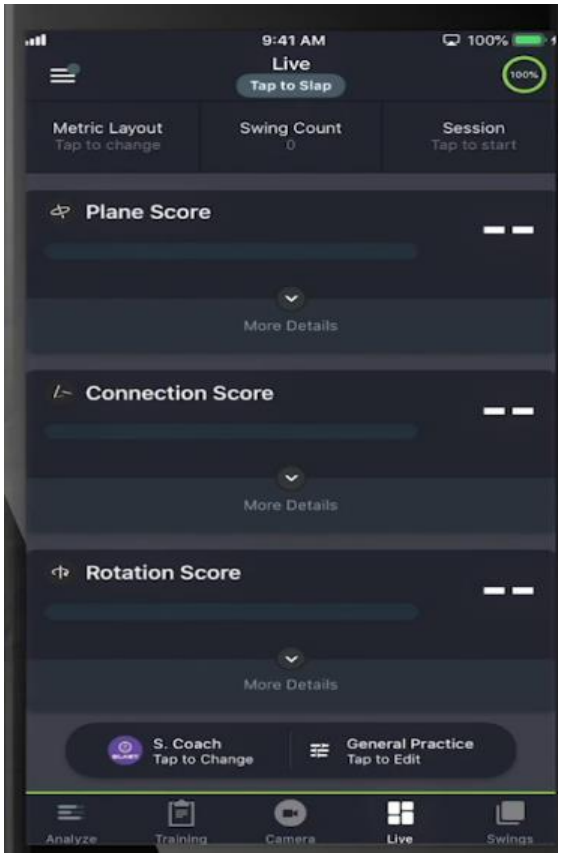




SWINGS Tab:

- All swings will be broken up by session
- GOOD, AVERAGE, OPPORTUNITY
- Automatically breaks down to Plane, Connection and Rotation
- Can flip to ***SWING METRICS*** tab to see how scores were achieved
- ***Filter tab*** will also allow you to set by date or by hitting environment

Navigate The Mobile App

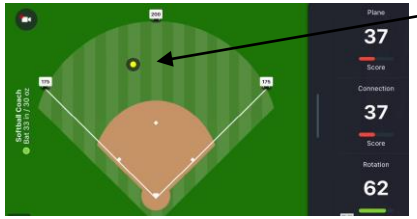


Record Video

- Click CAMERA button on the bottom
- Will activate camera
- Choose Portrait or Landscape
- Press Record
- Each swing will have its own video
- Stop Record and each video will get its own thumbnail

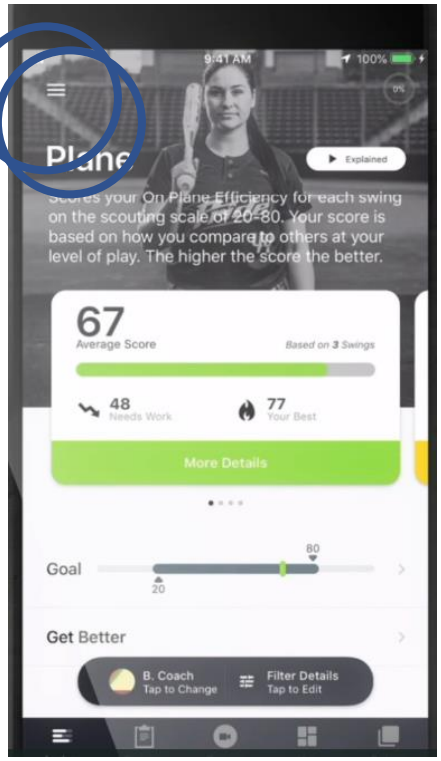
For Ball Flight Metrics:

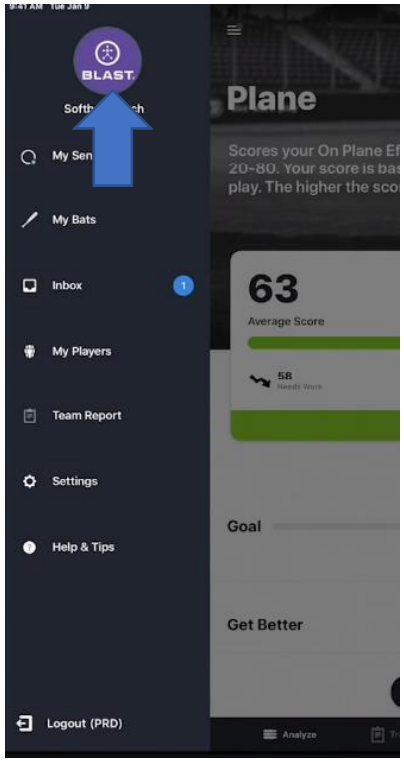
- Follow the above
- Click Ball Flight Button
- Set Distance (Very Important!)
- Captures Distance for Ball Travel

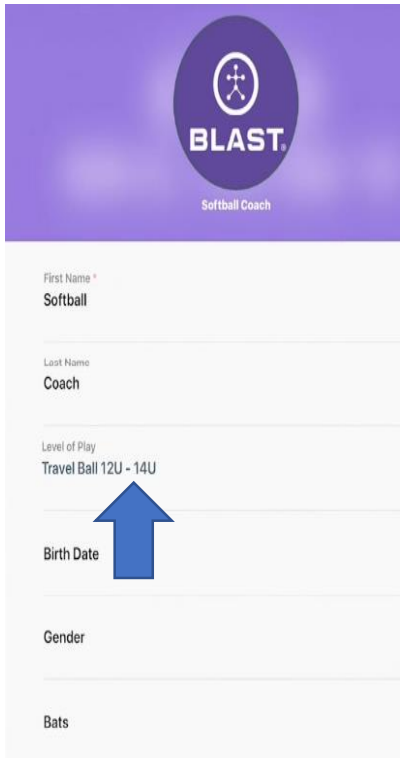


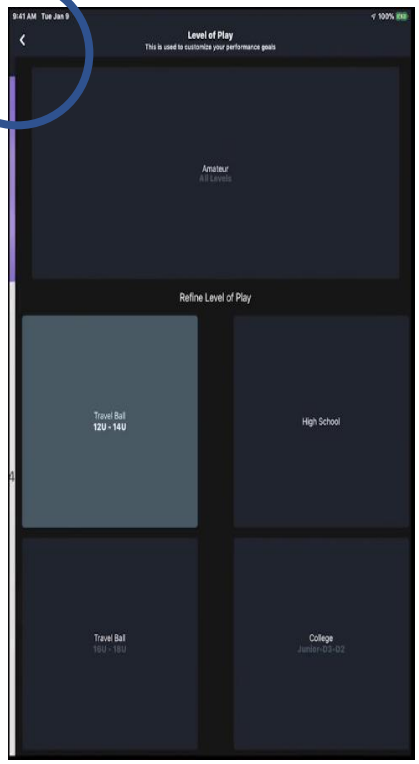
Navigate The Mobile App

Change Level of Play



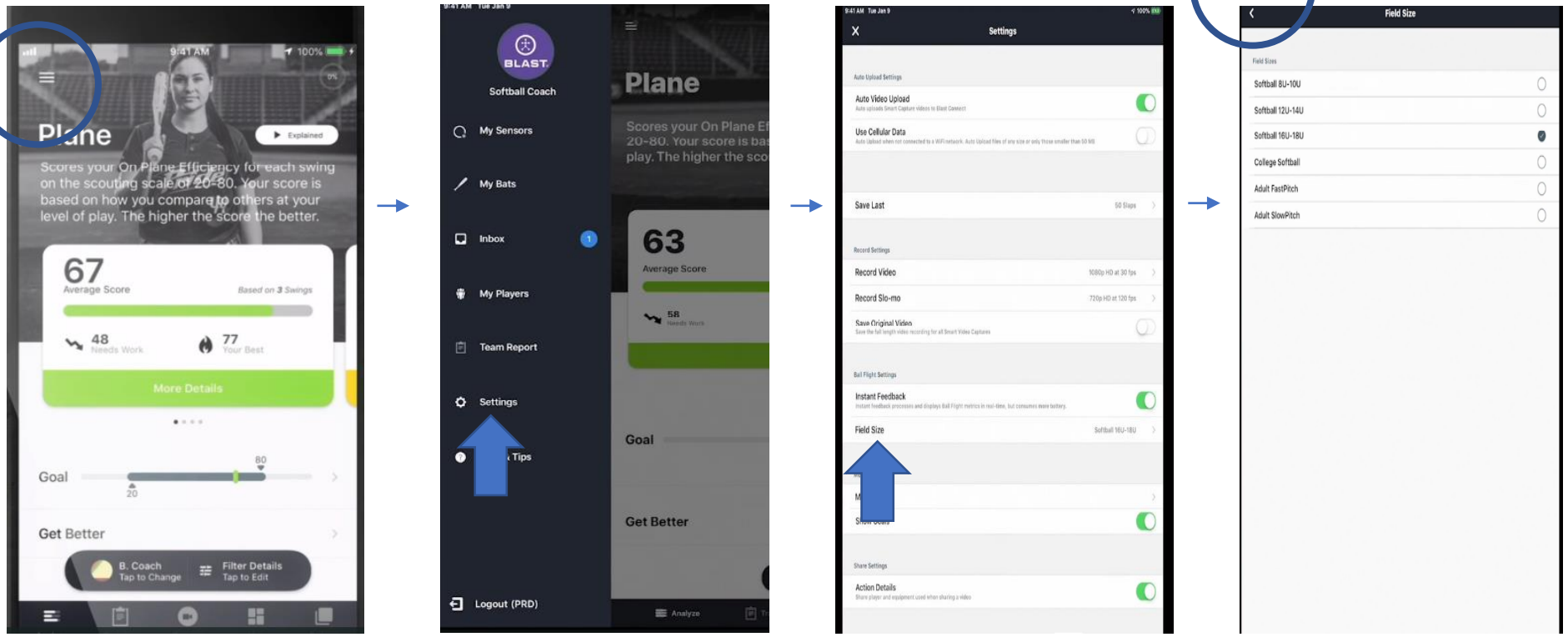






Navigate The Mobile App

Change Field Size



Frequently Asked Questions

What's is in the box for Blast Softball?

- Blast Baseball Sensor (Swing Analyzer)
- Clear Baseball Bat Attachment
- Wireless Charger and Charger Cable
- App Download (Free in App Store)

Who is Blast Connect for?

- Blast Connect is for academies, coaches, and athletes.

Is there a file size limit?

- 500MB is the maximum file size for upload.

Who can see my profile and stats?

Last updated over 1 year ago

- Your Blast Connect profile can be viewed by your Academy owner and coaches.

Is there a Resource Page?

- https://blastmotion.com/about/support/

To Be Continued….