



Metrics Analysis

Koa Sports Travel Baseball collects data from three metrics categories:

Athletic, Defensive, Offensive

Athletic Ability	Definitions	References
60 Yard Dash (timed)	A 60-yard sprint, which evaluates the speed & acceleration of baseball players.	PRO: 6.3-6.9 seconds HS: 7.0-7.8 seconds YOUTH: 7.9-8.5 seconds
30 Yard Split (timed)	The distance from home to first base (90 ft).	PRO: 3.9-4.5 seconds HS: 4.2-4.9 seconds YOUTH: 4.6-5.25 seconds
Standing Broad Jump	Measures a player's power and explosion by jumping forward from a standing position & landing in an athletic/balanced stance. The longer the Broad Jump, the more potential hitting and throwing power.	PRO: Player height in inches x 1.75 HS: Player height in inches x 1.25 YOUTH: Player height in inches x 1.0
Lateral Jump	Is a (side) jump off one leg. This translates to explosiveness in both hitting and pitching, and more applicable than the Broad Jump as most baseball actions are performed on 1 leg.	PROFICIENT: Player height + 1.5ft ↑ DEFICIENT: Player height + .5ft ↓

Defensive Metrics	Definitions	References
Infield Velocity	Measures the infielder's arm strength throwing from shortstop to first base.	PRO: 90-100 mph HS: 70-80 mph YOUTH: 50-60 mph
Outfield Velocity	Measures the outfielder's arm strength throwing from right field to third base.	PRO: 90-105 mph HS: 70-80mph YOUTH: 50-60 mph
Mound Velocity	Measures the pitcher's arm strength when throwing off the mound.	PRO: 93- 104 mph HS: 75-85mph YOUTH: 55-65 mph
Catcher Pop Time (timed)	The moment the pitch hits the catcher's mitt to the moment the ball touches the fielder's glove at second base.	PRO: 1.7-1.9 seconds HS: 2.0-2.2 seconds YOUTH: 2.25-2.45 second

Offensive Metrics	Definitions	References
Exit Velocity	Measures the speed of a batted baseball immediately after contact.	PRO: 90-105 mph HS: 70-85mph YOUTH: 50-65mph
Bat Speed	Is the measured speed of the sweet spot of the bat at impact. The sweet spot of the bat is six inches from the tip of the bat.	PRO: 65-80 mph HS: 55-70 mph YOUTH: 40-55 mph
Attack Angle	Is the horizontal angle of the bat's path at impact. A positive value indicates swinging up, & a negative value indicates swinging down. Zero is perfectly level.	PRO: 19-23° HS: 14-18° YOUTH: 9-13°
Time to Contact	Is the time between start of downswing and impact. The start of downswing uses an advanced algorithm to detect when functional forward bat speed is initiated and is not triggered by bat waggle early in the swing.	PRO: 0.13-0.17 seconds HS: 0.14-0.2 seconds YOUTH: 0.17-0.23 seconds
Peak Hand Speed	The top speed on the handle of the bat (measured six inches from the knob of the bat). Peak Hand Speed occurs prior to the moment of impact, very close to committing the swing when the wrists unhinge.	PRO: 23-29 mph HS: 29-26 mph YOUTH: 17-23 mph
Power	The power generated during the swing is found from the effective mass of the bat, the bat speed at impact, and the average acceleration during the downswing. Power is measured in watts. Higher power is achieved when a hitter is able to swing a heavier bat & accelerate it to higher speeds.	PRO: 3.8-5.8 kW HS: 2.1-4.1 kW YOUTH: 0.8-2.8 kW