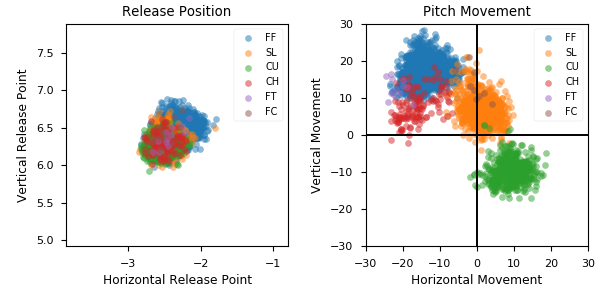
**Arsenal Report for Justin Verlander**  
2017-4-2 to 2017-8-31



**Aresenal**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Pitch Type | % Thrown | Velocity (mph) | Spin Rate (rpm) | Horizontal Break (in) | Vertical Break (in) | xwOBA | wOBA | SwStr% |
| FF | 57.3 | 95.3 | 2536.0 | -13.5 | 17.2 | 0.406 | 0.294 | 8.0 |
| SL | 21.2 | 88.5 | 2510.0 | 1.1 | 7.2 | 0.354 | 0.323 | 16.0 |
| CU | 16.4 | 80.4 | 2796.0 | 9.1 | -9.7 | 0.385 | 0.3 | 6.7 |
| CH | 4.4 | 87.7 | 1818.0 | -16.3 | 7.7 | 0.485 | 0.385 | 8.3 |

* Pitch Type - FF: Four-Seam Fastball, FT: Two-Seam Fastball, SI: Sinkker, FC: Cutter, FS: Splitter, SL: Slider, CU: Curveball, KC: Knuckle-curve, CH: Changeup, FO: Forkball, SC: Screwball, KN: Knuckleball, EP: Eephus
* Velocity - recorded in miles per hour at release.
* Spin Rate - recorded in revolutions per minute at release.
* Horizontal Break - horizontal movement, in inches, of the pitch between the release point and home plate, as compared to a theoretical pitch thrown at the same speed with no spin-induced movement.
* Vertical Break - vertical movement, in inches, of the pitch between the release point and home plate, as compared to a theoretical pitch thrown at the same speed with no spin-induced movement.
* xwOBA - formulated using exit velocity, launch angle and, on certain types of batted balls, Sprint Speed.
* wOBA - a statistic, based on linear weights, designed to measure a player's overall offensive contributions per plate appearance.
* SwStr% - measures swing and miss rate based on pitch type. EX: (FF Swings and Misses)/(Total # of FF Thrown) \* 100.