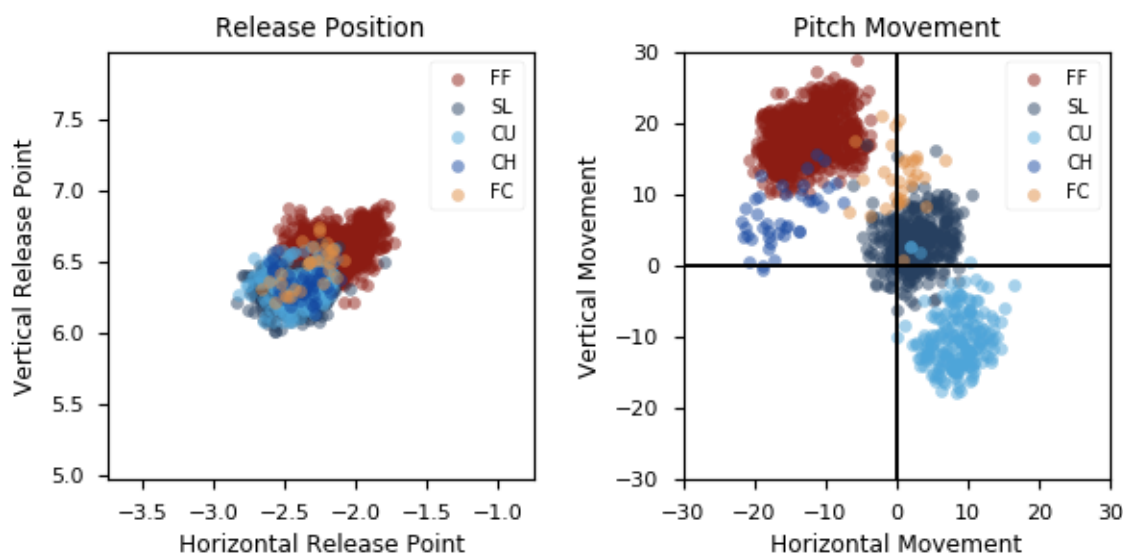# Arsenal Report for Justin Verlander

2017-8-1 to 2017-11-1

Aresenal

Pitch Type	% Thrown	Velocity (mph)	Spin Rate (rpm)	Horizontal Break (in)	Vertical Break (in)	xwOBA	wOBA	SwStr%
FF	60.6	95.5	2569.0	-12.8	18.3	0.356	0.23	10.4
SL	23.2	86.9	2615.0	2.5	3.3	0.349	0.251	21.0
CU	12.0	80.4	2832.0	8.4	-10.4	0.288	0.176	8.8
CH	2.4	87.3	1776.0	-16.2	7.0	0.557	0.406	12.2
FC	1.8	91.5	2529.0	0.2	12.4	0.291	0.064	3.2

- 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.