



McCullers vs. Verlander

Hypothesis: Verlander > McCullers

SMGT 430 Player Comparison

March 20, 2018

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Justin Verlander

- Position: RHP
- Height/Weight: 6'5", 225 lbs
- College: Old Dominion
- Draft: 2004 - Rd1 (2nd Overall) by DET
- Justin Verlander is the fourth-highest paid Major League Baseball player by salary (\$28,000,000)



Verlander



PITCHING	TEAM	G	GS	W	L	WPCT	CG	SHO	QS	SV	HLD	IP	H	R	ER	HR	BB	SO	ERA
2005	DET	2	2	0	2	.000	0	0	0	0	0	11.1	15	9	9	1	5	7	7.15
2006	DET	30	30	17	9	.654	1	1	18	0	0	186.0	187	78	75	21	60	124	3.63
2007	DET	32	32	18	6	.750	1	1	21	0	0	201.2	181	88	82	20	67	183	3.66
2008	DET	33	33	11	17	.393	1	0	13	0	0	201.0	195	119	108	18	87	163	4.84
2009	DET	35	35	19	9	.679	3	1	22	0	0	240.0	219	99	92	20	63	269	3.45
2010	DET	33	33	18	9	.667	4	0	22	0	0	224.1	190	89	84	14	71	219	3.37
2011	DET	34	34	24	5	.828	4	2	28	0	0	251.0	174	73	67	24	57	250	2.40
2012	DET	33	33	17	8	.680	6	1	25	0	0	238.1	192	81	70	19	60	239	2.64
2013	DET	34	34	13	12	.520	0	0	22	0	0	218.1	212	94	84	19	75	217	3.46
2014	DET	32	32	15	12	.556	0	0	18	0	0	206.0	223	114	104	18	65	159	4.54
2015	DET	20	20	5	8	.385	1	1	14	0	0	133.1	113	56	50	13	32	113	3.38
2016	DET	34	34	16	9	.640	2	0	27	0	0	227.2	171	81	77	30	57	254	3.04
2017	DET	28	28	10	8	.556	0	0	18	0	0	172.0	153	76	73	23	67	176	3.82
2017	HOU	5	5	5	0	1.000	0	0	5	0	0	34.0	17	4	4	4	5	43	1.06
2017	Total	33	33	15	8	.652	0	0	23	0	0	206.0	170	80	77	27	72	219	3.36
Career		385	385	188	114	.623	23	7	253	0	0	2545.0	2242	1061	979	244	771	2416	3.46

K/BB = 3.134 QS/GS = .657

Lance McCullers Jr.

- Position: RHP
- Height/Weight: 6'1", 203 lbs
- College: Florida Commit
- Draft: 2012 - Comp Bal Rd A by HOU
- National Rank - Class of 2012 - 4th Overall, 2nd RHP



McCullers



PITCHING	TEAM	G	GS	W	L	WPCT	CG	SHO	QS	SV	HLD	IP	H	R	ER	HR	BB	SO	ERA
2015	HOU	22	22	6	7	.462	1	0	12	0	0	125.2	106	49	45	10	43	129	3.22
2016	HOU	14	14	6	5	.545	0	0	6	0	0	81.0	80	29	29	5	45	106	3.22
2017	HOU	22	22	7	4	.636	0	0	9	0	0	118.2	114	61	56	8	40	132	4.25
Career		58	58	19	16	.543	1	0	27	0	0	325.1	300	139	130	23	128	367	3.60

K/BB = 2.867 QS/GS = .465

Flamin'

- Verlander
 - FF
 - FT

stats	start speed	end speed	nasty	spin dir	spin rate
min	90.70	75.90	16.00	192.94	1454.05
max	99.80	90.90	84.00	243.19	3879.44
mean	95.27	86.82	46.94	219.28	2684.51
median	95.30	86.90	47.00	218.85	2667.86
std	1.38	1.46	14.62	8.60	329.45
skewness	-0.21	-0.55	0.18	0.07	0.25
kurtosis	-0.10	2.01	-0.56	-0.30	0.23

stats	start speed	end speed	nasty	spin dir	spin rate
min	92.50	83.10	31.00	235.69	2386.06
max	96.90	89.80	64.00	247.88	3466.27
mean	95.64	86.81	52.25	240.53	3042.89
median	95.90	86.80	52.50	239.97	3068.52
sd	1.12	1.54	9.96	4.24	287.88
skewness	-1.68	-0.52	-0.65	0.29	-0.56
kurtosis	2.28	1.02	-0.71	-1.61	-0.07

- McCullers
 - FF

stats	start speed	end speed	nasty	spin dir	spin rate
min	90.10	81.50	18.00	190.28	824.36
max	97.70	90.20	83.00	282.23	3147.90
mean	94.13	86.30	48.41	236.78	2079.33
median	94.30	86.40	48.00	236.66	2085.66
sd	1.63	1.63	14.69	13.83	357.53
skewness	-0.32	-0.26	0.05	-0.02	-0.24
kurtosis	-0.56	-0.43	-0.59	0.23	0.09

Max SS(V) > Max SS(M)

Mean SR(V) > Mean SR(M)

Sd SR(M) > Sd SR(V)

Breakin'

- Verlander
 - CU
 - SL

stats	start speed	end speed	nasty	spin dir	spin rate
min	75.90	69.70	9.00	0.75	254.06
max	83.80	78.70	100.00	359.46	1938.59
mean	80.44	74.42	40.47	46.45	1199.12
median	80.50	74.40	36.00	40.76	1219.73
sd	1.33	1.51	22.95	45.75	276.35
skewness	-0.14	-0.06	0.78	5.55	-0.31
kurtosis	-0.08	-0.03	-0.24	34.07	0.16

stats	start speed	end speed	nasty	spin dir	spin rate
min	83.60	76.70	12.00	26.20	41.84
max	97.50	88.70	94.00	353.46	2577.37
mean	88.32	81.66	40.91	178.84	879.69
median	88.20	81.70	41.00	181.27	837.71
sd	1.91	1.75	17.85	34.25	412.70
skewness	0.26	0.11	0.56	-0.04	0.75
kurtosis	0.17	-0.06	0.00	3.67	1.00

- McCullers
 - KC

stats	start speed	end speed	nasty	spin dir	spin rate
min	78.90	73.30	26.00	0.37	161.61
max	89.60	83.20	96.00	359.99	2252.14
mean	85.61	79.04	51.64	44.23	1278.37
median	85.80	79.20	51.00	32.14	1289.10
sd	1.64	1.72	14.40	57.27	382.06
skewness	-0.61	-0.45	0.50	4.56	-0.28
kurtosis	0.42	0.20	-0.05	21.38	-0.27

SR SL(V) > SR KC(M) > SR CU(V)

Max Nasty = V

Sd Nasty(V) > Sd Nasty(M)

Changin'

- Verlander
 - CH

stats	start speed	end speed	nasty	spin dir	spin rate
min	84.50	77.00	15.00	212.20	1274.96
max	91.00	84.40	78.00	275.09	2920.50
mean	87.62	80.73	42.95	243.89	2096.36
median	87.60	80.70	41.00	246.06	2097.61
sd	1.27	1.35	16.16	14.08	359.52
skewness	0.31	0.20	0.35	-0.35	-0.14
kurtosis	-0.12	-0.14	-0.79	-0.56	-0.69

- McCullers
 - CH

stats	start speed	end speed	nasty	spin dir	spin rate
min	84.40	77.40	17.00	206.25	853.02
max	90.70	85.30	88.00	298.32	3028.99
mean	88.60	81.43	43.36	258.41	2025.08
median	88.70	81.60	43.50	260.59	2037.25
sd	1.22	1.29	15.05	15.21	324.44
skewness	-0.57	-0.32	0.33	-0.49	-0.38
kurtosis	-0.06	0.03	-0.15	0.69	1.34

Sd SR(V) > Sd SR(M)

Max Nasty = M

Pitcher Counts

- Verlander

count	pitch	freq	n								
(0-1)	CH	0.041	17	(0-2)	CH	0.057	14	(1-2)	CH	0.021	8
(0-1)	CU	0.190	79	(0-2)	CU	0.263	65	(1-2)	CU	0.248	95
(0-1)	FC	0.005	2	(0-2)	FC	0.004	1	(1-2)	FC	0.003	1
(0-1)	FF	0.545	226	(0-2)	FF	0.466	115	(1-2)	FF	0.428	164
(0-1)	FT	0.002	1	(0-2)	FT	0.004	1	(1-2)	SL	0.300	115
(0-1)	SL	0.217	90	(0-2)	SL	0.206	51				



- McCullers

count	pitch	freq	n								
(0-1)	CH	0.171	35	(0-2)	CH	0.124	12	(1-2)	CH	0.098	16
(0-1)	FF	0.459	94	(0-2)	FF	0.237	23	(1-2)	FF	0.282	46
(0-1)	KC	0.371	76	(0-2)	KC	0.639	62	(1-2)	KC	0.620	101

Hitter Counts

- Verlander

count	pitch	freq	n																
(1-0)	CH	0.108	33	(2-0)	CH	0.023	2	(2-1)	CH	0.031	5	(3-0)	FF	0.963	26	(3-1)	CU	0.029	2
(1-0)	CU	0.102	31	(2-0)	CU	0.023	2	(2-1)	CU	0.055	9	(3-0)	SL	0.037	1	(3-1)	FF	0.855	59
(1-0)	FC	0.013	4	(2-0)	FC	0.023	2	(2-1)	FF	0.650	106					(3-1)	SL	0.116	8
(1-0)	FF	0.534	163	(2-0)	FF	0.805	70	(2-1)	SL	0.264	43								
(1-0)	FT	0.003	1	(2-0)	FT	0.011	1												
(1-0)	SL	0.239	73	(2-0)	SL	0.115	10												



- McCullers

count	pitch	freq	n																
(1-0)	CH	0.159	33	(2-0)	CH	0.127	8	(2-1)	CH	0.076	9	(3-0)	FF	1.000	20	(3-1)	CH	0.022	1
(1-0)	FF	0.449	93	(2-0)	FF	0.429	27	(2-1)	FF	0.269	32					(3-1)	FF	0.478	22
(1-0)	KC	0.391	81	(2-0)	KC	0.444	28	(2-1)	KC	0.655	78					(3-1)	KC	0.500	23

Even Counts

- Verlander



count	pitch	freq	n												
(0-0)	CH	0.039	31	(1-1)	CH	0.041	14	(2-2)	CH	0.036	11	(3-2)	CH	0.011	2
(0-0)	CU	0.137	109	(1-1)	CU	0.236	81	(2-2)	CU	0.155	47	(3-2)	CU	0.082	15
(0-0)	FC	0.003	2	(1-1)	FC	0.006	2	(2-2)	FF	0.515	156	(3-2)	FF	0.625	115
(0-0)	FF	0.687	546	(1-1)	FF	0.507	174	(2-2)	FT	0.003	1	(3-2)	FT	0.005	1
(0-0)	FT	0.003	2	(1-1)	FT	0.012	4	(2-2)	SL	0.290	88	(3-2)	SL	0.277	51
(0-0)	SL	0.132	105	(1-1)	SL	0.198	68								

- McCullers

count	pitch	freq	n												
(0-0)	CH	0.084	39	(1-1)	CH	0.159	33	(2-2)	CH	0.135	23	(3-2)	CH	0.030	3
(0-0)	FF	0.635	294	(1-1)	FF	0.314	65	(2-2)	FF	0.212	36	(3-2)	FF	0.192	19
(0-0)	KC	0.281	130	(1-1)	KC	0.527	109	(2-2)	KC	0.653	111	(3-2)	KC	0.778	77

Order 1

- Verlander

past	pitch	freq	n
F	F	0.650	1242
F	O	0.350	669
O	F	0.479	660
O	O	0.521	719

- McCullers

past	pitch	freq	n
F	F	0.401	306
F	O	0.599	458
O	F	0.414	446
O	O	0.586	630

Order 2

- Verlander

past	pitch	freq	n	past	pitch	freq	n
FF	F	0.648	798	OO	F	0.497	355
FF	O	0.352	433	OO	O	0.503	359
FO	F	0.458	304	OF	F	0.646	420
FO	O	0.542	360	OF	O	0.354	230

- McCullers

past	pitch	freq	n	past	pitch	freq	n
FF	F	0.387	118	OO	F	0.429	267
FF	O	0.613	187	OO	O	0.571	355
FO	F	0.393	178	OF	F	0.386	170
FO	O	0.607	275	OF	O	0.614	270

Order 3

- Verlander

past	pitch	freq	n	past	pitch	freq	n	past	pitch	freq	n	past	pitch	freq	n
FFF	F	0.657	520	FOF	F	0.628	189	OFF	F	0.622	258	OOF	F	0.664	231
FFF	O	0.343	272	FOF	O	0.372	112	OFF	O	0.378	157	OOF	O	0.336	117
FFO	F	0.444	191	FOO	F	0.483	173	OFO	F	0.482	110	OOO	F	0.511	182
FFO	O	0.556	239	FOO	O	0.517	185	OFO	O	0.518	118	OOO	O	0.489	174

- McCullers

past	pitch	freq	n	past	pitch	freq	n	past	pitch	freq	n	past	pitch	freq	n
FFF	F	0.368	43	FOF	F	0.381	67	OFF	F	0.388	66	OOF	F	0.392	103
FFF	O	0.632	74	FOF	O	0.619	109	OFF	O	0.612	104	OOF	O	0.608	160
FFO	F	0.378	70	FOO	F	0.458	125	OFO	F	0.404	108	OOO	F	0.407	142
FFO	O	0.622	115	FOO	O	0.542	148	OFO	O	0.596	159	OOO	O	0.593	207

Order 4

- Verlander

past	pitch	freq	n																
FFFF	F	0.671	347	FFOF	F	0.651	123	FOFF	F	0.608	113	FOOF	F	0.641	109	OFFF	F	0.612	156
FFFF	O	0.329	170	FFOF	O	0.349	66	FOFF	O	0.392	73	FOOF	O	0.359	61	OFFF	O	0.388	99
FFFO	F	0.461	124	FFOO	F	0.451	107	FOFO	F	0.464	51	FOOO	F	0.546	100	OFFO	F	0.420	66
FFFO	O	0.539	145	FFOO	O	0.549	130	FOFO	O	0.536	59	FOOO	O	0.454	83	OFFO	O	0.580	91
OFOF	F	0.587	64	OOFF	F	0.633	145	OOOF	F	0.685	122								
OFOF	O	0.413	45	OOFF	O	0.367	84	OOOF	O	0.315	56								
OFOO	F	0.542	64	OOFO	F	0.496	58	OOOO	F	0.474	82								
OFOO	O	0.458	54	OOFO	O	0.504	59	OOOO	O	0.526	91								

- McCullers

past	pitch	freq	n																
FFFF	F	0.395	17	FFOF	F	0.300	21	FOFF	F	0.299	20	FOOF	F	0.431	53	OFFF	F	0.354	23
FFFF	O	0.605	26	FFOF	O	0.700	49	FOFF	O	0.701	47	FOOF	O	0.569	70	OFFF	O	0.646	42
FFFO	F	0.324	24	FFOO	F	0.434	49	FOFO	F	0.404	44	FOOO	F	0.372	54	OFFO	F	0.392	40
FFFO	O	0.676	50	FFOO	O	0.566	64	FOFO	O	0.596	65	FOOO	O	0.628	91	OFFO	O	0.608	62
OFOF	F	0.434	46	OOFF	F	0.447	46	OOOF	F	0.357	50								
OFOF	O	0.566	60	OOFF	O	0.553	57	OOOF	O	0.643	90								
OFOO	F	0.472	75	OOFO	F	0.408	64	OOOO	F	0.431	88								
OFOO	O	0.528	84	OOFO	O	0.592	93	OOOO	O	0.569	116								

Max Freq(V) = F

Max Freq(M) = O

Order 5

OOOFF	O	0.314	38
OOOFO	F	0.536	30
OOOFO	O	0.464	26
OOOOF	F	0.671	53
OOOOF	O	0.329	26
OOOOO	F	0.407	37
OOOOO	O	0.593	54

OOOFF	O	0.640	32
OOOFO	F	0.466	41
OOOFO	O	0.534	47
OOOOF	F	0.360	31
OOOOF	O	0.640	55
OOOOO	F	0.482	55
OOOOO	O	0.518	59

• Verlander

past	pitch	freq	n								
FFFFF	F	0.678	234	FOFFO	O	0.644	47	OFFOO	F	0.456	41
FFFFF	O	0.322	111	FOFOF	F	0.608	31	OFFOO	O	0.544	49
FFFFO	F	0.402	68	FOFOF	O	0.392	20	OFOFF	F	0.587	37
FFFFO	O	0.598	101	FOFOO	F	0.508	30	OFOFF	O	0.413	26
FFFOF	F	0.689	84	FOFOO	O	0.492	29	OFOFO	F	0.409	18
FFFOF	O	0.311	38	FOOFF	F	0.574	62	OFOFO	O	0.591	26
FFFOO	F	0.444	64	FOOFF	O	0.426	46	OFOOF	F	0.694	43
FFFOO	O	0.556	80	FOOFO	F	0.459	28	OFOOF	O	0.306	19
FFOFF	F	0.612	74	FOOFO	O	0.541	33	OFOOO	F	0.558	29
FFOFF	O	0.388	47	FOOOF	F	0.697	69	OFOOO	O	0.442	23
FFOFO	F	0.492	32	FOOOF	O	0.303	30	OOFFF	F	0.629	90
FFOFO	O	0.508	33	FOOOO	F	0.549	45	OOFFF	O	0.371	53
FFOOF	F	0.604	64	FOOOO	O	0.451	37	OOFFO	F	0.476	40
FFOOF	O	0.396	42	OFFFF	F	0.645	100	OOFFO	O	0.524	44
FFOOO	F	0.546	71	OFFFF	O	0.355	55	OOFOF	F	0.579	33
FFOOO	O	0.454	59	OFFFO	F	0.546	53	OOFOF	O	0.421	24
FOFFF	F	0.589	66	OFFFO	O	0.454	44	OOFOO	F	0.576	34
FOFFF	O	0.411	46	OFFOF	F	0.576	38	OOFOO	O	0.424	25
FOFFO	F	0.356	26	OFFOF	O	0.424	28	OOOFF	F	0.686	83

• McCullers

past	pitch	freq	n								
FFFFF	F	0.412	7	FOFFO	O	0.630	29	OFFOO	F	0.410	25
FFFFF	O	0.588	10	FOFOF	F	0.432	19	OFFOO	O	0.590	36
FFFFO	F	0.346	9	FOFOF	O	0.568	25	OFOFF	F	0.261	12
FFFFO	O	0.654	17	FOFOO	F	0.477	31	OFOFF	O	0.739	34
FFFOF	F	0.167	4	FOFOO	O	0.523	34	OFOFO	F	0.383	23
FFFOF	O	0.833	20	FOOFF	F	0.528	28	OFOFO	O	0.617	37
FFFOO	F	0.449	22	FOOFF	O	0.472	25	OFOOF	F	0.397	29
FFFOO	O	0.551	27	FOOFO	F	0.333	23	OFOOF	O	0.603	44
FFOFF	F	0.381	8	FOOFO	O	0.667	46	OFOOO	F	0.277	23
FFOFF	O	0.619	13	FOOOF	F	0.352	19	OFOOO	O	0.723	60
FFOFO	F	0.429	21	FOOOF	O	0.648	35	OOFFF	F	0.422	19
FFOFO	O	0.571	28	FOOOO	F	0.367	33	OOFFF	O	0.578	26
FFOOF	F	0.469	23	FOOOO	O	0.633	57	OOFFO	F	0.411	23
FFOOF	O	0.531	26	OFFFF	F	0.304	7	OOFFO	O	0.589	33
FFOOO	F	0.500	31	OFFFF	O	0.696	16	OOFOF	F	0.435	27
FFOOO	O	0.500	31	OFFFO	F	0.310	13	OOFOF	O	0.565	35
FOFFF	F	0.200	4	OFFFO	O	0.690	29	OOFOO	F	0.473	44
FOFFF	O	0.800	16	OFFOF	F	0.350	14	OOFOO	O	0.527	49
FOFFO	F	0.370	17	OFFOF	O	0.650	26	OOOFF	F	0.360	18

Conclusion

Truth: Verlander > McCullers

McCullers

- Attacks with KC
- Needs to gain command of FF
- Astros should be careful with him
- Rookie

Verlander

- Attacks with FF
- Velo maxed at 86 in HS
- Astros are lucky to have him
- Veteran

Sources

- <https://www.foxsports.com/mlb>
- <https://cran.r-project.org/web/packages/mlbgameday/mlbgameday.pdf>
- <https://github.com/mjr2000/Player-Comparison>