

Quality Starts 1957-2006
Christopher Gehringer

Notes on the information gained in this study:

The information used here was obtained free of charge from and is copyrighted by Retrosheet. Interested parties may contact Retrosheet at 20 Sunset Rd., Newark, DE 19711.

*Retrosheet data is incomplete for games from 1957 to 1973. However, the season with the most games missing (1957) is only missing about 52 games, or just over 100 starts. 1999 is also missing from the data in its entirety. All statements made regarding “since 1957” are missing these games, but the general amount of the data within should constitute enough information to come to the same conclusions. However, any “leader lists” could be effected if this data were available. For information on the games missing from the report, please reference:
<http://retrosheet.org/wanted/index.html>

**Games where the starting pitcher failed to get through the first batter (or in a few cases, even face the first batter) were not made eligible to count as Quality Starts. For example, Johan Santana pitched what would be a Quality Start on 8/6/2002 against the Baltimore Orioles, but was not listed as the starter, though listed starter Eric Milton was injured in warm-ups and did not throw a pitch. This happened 22 times since 1957* as far as I can tell, which wouldn't do much to skew the data.

Other studies cited:

On Quality Starts and Dominant Starts by “redsoxtalk”
<http://fantasyscope.wordpress.com/2007/08/30/on-quality-starts-and-dominant-starts/>

The Quality Start is a Useful Statistic by David W. Smith
<http://www.diamond-mind.com/articles/qstart.htm>

Quality Start Still a Good Measure of Quality by Rob Neyer
http://insider.espn.go.com/mlb/insider/columns/story?columnist=neyer_rob&id=2407313

Bill James Baseball Abstract, 1987

Other notes:

Interested parties can email chrisg at sunflower dot com for more information or to request a .txt file of linescores for starting pitchers since 1957 in csv format (12.4MB)

The Quality Start was invented in 1985 by Philadelphia Inquirer sportswriter John Lowe. Quite simply, a pitcher is credited with a Quality Start (QS), if he 1) starts the game as the pitcher, 2) pitches at least six innings (IP) and 3) gives up three earned runs (ER) or less. Over the past two decades, the statistic has had its detractors. Sporting News writer Moss Klein once submitted that in principle, a pitcher could pitch exactly six innings and give up exactly three earned runs in each and every start, giving him a less-than-outstanding earned run average (ERA) of 4.50.

Because of this opposition, there have been a few studies to prove or disprove the Quality Start's validity as a statistic, most notably by David W. Smith and Rob Neyer. Retrosheet founder David W. Smith in the Spring of 1992 did a study for all starts from 1984 to 1991, noting that the ERA of all Quality Starts during the period was 1.91, which is more-than-outstanding, given the number of innings figured into the equation. Also, he states, the average number of innings pitched in these starts was close to 7 ½ as opposed to the minimum, 6, and also the winning percentage of teams with Quality Starts was better than two out of three. To refute Klein, Smith noted that less than 1000 of the close to 17,500 Quality Starts between 1984 and 1991 fit the minimum definition of 6 IP and 3 ER (5.7%).

ESPN writer Rob Neyer also did a study in early 2006, comparing the 1985 season, the year Lowe made his argument, with the 2005 season. His main contention was that the teams' winning percentage in Quality Starts in each season, was still over two in three and actually they were just one-tenth of a percentage point (67.3% to 67.4%) apart. He also showed that in 1985, the QSERA was 1.88, and in 2005 it was 2.04 (both happen to be over a full point below the team with the lowest ERA in either season).

Both Smith and Neyer agree fourteen years apart that the Quality Start is, and has been a useful and viable statistic since its inception. Neyer contends we could likely come up with "a different, 'better' measure for a starting pitcher's effectiveness... but... everybody's got his own definition of 'better'" but he also states that "there's something elegant about 3/6/4.50." It has been shown that the Quality Start has been a good statistic since at least 1984. The purpose of this study is to discuss 1) If it has always been a viable statistic, and 2) if there are better criteria to define what is a Quality Start.

Using Retrosheet event files and game data, we can come up with a table showing how often a team won when its pitcher had a Quality Start since 1957:

<u>Year</u>	<u>TW</u>	<u>TL</u>	<u>QSW%</u>
1957	838	381	68.74%
1958	852	369	69.78%
1959	864	393	68.74%
1960	839	429	66.17%
1961	965	463	67.58%
1962	1095	517	67.93%
1963	1208	604	66.67%
1964	1169	573	67.11%
1965	1157	594	66.08%
1966	1137	573	66.49%
1967	1200	625	65.75%
1968	1277	722	63.88%
1969	1440	708	67.04%
1970	1375	691	66.55%
1971	1448	760	65.58%
1972	1459	759	65.78%
1973	1388	676	67.25%
1974	1462	696	67.75%
1975	1391	666	67.62%
1976	1435	737	66.07%
1977	1438	647	68.97%
1978	1559	779	66.68%
1979	1435	709	66.93%
1980	1492	691	68.35%
1981	982	509	65.86%
1982	1423	701	67.00%
1983	1452	683	68.01%
1984	1464	716	67.16%
1985	1453	702	67.42%
1986	1451	684	67.96%
1987	1380	594	69.91%
1988	1575	794	66.48%
1989	1502	731	67.26%
1990	1483	717	67.41%
1991	1467	746	66.29%
1992	1500	758	66.43%
1993	1542	743	67.48%
1994	1078	487	68.88%
1995	1283	585	68.68%
1996	1449	627	69.80%
1997	1511	729	67.46%
1998	1637	752	68.52%
2000	1547	703	68.76%
2001	1617	725	69.04%
2002	1596	778	67.23%
2003	1651	727	69.43%
2004	1566	711	68.77%
2005	1651	796	67.47%
2006	1566	713	68.71%

Over the course of each of the above 49 seasons, teams won, at a minimum, 63.88% of their pitchers' Quality Starts. What's interesting about what is above is that 1968, the

“year of the pitcher” had the lowest QSW%, which, at first glance, seems a bit strange. But the fact of the matter is that 1968 was such a good pitching season, that in 48% of the games with a Quality Start, both pitchers accomplished the feat, making it by far the season with the highest percentage of games with both starters doing so. Below are the ten seasons with the highest percentage:

<u>Year</u>	<u>TW</u>	<u>TL</u>	<u>QSW%</u>	<u>#QS</u>	<u>#G</u>	<u>#both</u>	<u>#1 pit</u>	<u>%both</u>
1968	1277	722	63.88	1999	1351	648	703	48.0%
1972	1459	759	65.78	2218	1531	687	844	44.9%
1971	1448	760	65.58	2208	1532	676	856	44.1%
1963	1208	604	66.67	1812	1265	547	718	43.2%
1976	1435	737	66.07	2172	1522	650	872	42.7%
1967	1200	625	65.75	1825	1284	541	743	42.1%
1978	1559	779	66.68	2338	1646	692	954	42.0%
1965	1157	594	66.08	1751	1238	513	725	41.4%
1960	839	429	66.17	1268	897	371	526	41.4%
1988	1575	794	66.48	2369	1677	692	985	41.3%

And the ten with the lowest percentage...

<u>Year</u>	<u>TW</u>	<u>TL</u>	<u>QSW%</u>	<u>#QS</u>	<u>#G</u>	<u>#both</u>	<u>#1 pit</u>	<u>%both</u>
2004	1566	711	68.77	2277	1729	548	1181	31.7%
1987	1380	594	69.91	1974	1487	487	1000	32.8%
1996	1449	627	69.80	2076	1561	515	1046	33.0%
2006	1566	713	68.71	2279	1713	566	1147	33.0%
2003	1651	727	69.43	2378	1785	593	1192	33.2%
2002	1596	778	67.23	2374	1780	594	1186	33.4%
2001	1617	725	69.04	2342	1743	599	1144	34.4%
1995	1283	585	68.68	1868	1388	480	908	34.6%
1998	1637	752	68.52	2389	1773	616	1157	34.7%
1977	1438	647	68.97	2085	1547	538	1009	34.8%

Though 1968 had the lowest QSW%, it is mainly because the pitching was so strong that season that the winning and losing team quite routinely had each pitcher throw a Quality Start. It is also interesting to note that save for 1987 (a year in which Wade Boggs hit 24 home runs—one of exactly two seasons he hit more than ten, and a well-known offensive year), the other eight seasons with the lowest percentage of both starters throwing a Quality Start happened after 1995.

Another fact about 1968 is it has the most Quality Starts per game (62.7%), so it seems that one of the reasons the QSW% may go down is because of the percentage of games where both pitchers throw a Quality Start goes up. In 1968, there were 1594 games looked at, and 648 of them had both pitchers with a Quality Start (40.65%), meaning that over 20.3% of Quality Starts inherently had to earn the pitchers’ team a loss. It is the only season since 1957 that is over 40% in that department.

The above observations back up Smith and Neyer, that the Quality Start is a good stat. They also show that it has been a good statistic since at least 1957, as in no season has the QSW% gone below 63.88% or above 69.91%. Since 1957, the QSW% for major league baseball is approximately 67.5%. (66749-32173 for the games studied).

To look at Neyer's question, however, is it a great statistic? Yes, $3/6/4.50$ is elegant, but what is better? Most everyone would agree that if their pitcher throws a Quality Start, he gives his team a good chance of winning the game. Most everyone would agree that two out of three is a good chance. In today's 162 game schedule, it would mean going 108-54 (actually, 67.5% would be somewhere between 109 and 110 wins). In virtually any season, a team with this winning percentage would be in the postseason.

But is there a such thing as a High-Quality Start? Is there a way to determine that a team *should* win the game if the pitcher accomplishes a certain feat? Secondly, what would that winning percentage have to be? 3 in 4? 4 in 5? Also, is there a such thing as a Low-Quality Start? What would its percentage be? 3 in 5?

Since a Quality Start ends up being a victory for the team about two out of every three times, or about 67.5%, I would suggest that a high Quality Start would be where a pitcher gave his team a chance to win about 10% more of the time than that. I would propose a low-Quality Start would be where a pitcher gave his team a chance to win about 10% less than that as well.

The true "elegance" of the Quality Start is that, since 1957, it has occurred in 51.6% of starts, or right around half. This shows not just the simplicity of the six inning, three earned run formula, but also the criteria, or better, happen just over half the time. Every game has to have a winner and a loser, so having this as the criteria makes perfect sense. A High-Quality Start should occur more than a Quality Start, and a Low-Quality Start should occur less, however, this makes for some troubling information on the low end of the spectrum. For instance, if a pitcher goes at least five innings and gives up four earned runs or less, his team is likely to win 61.4% of the time. Also, since 1957, using these criteria, no season has seen the winning percentage drop below 59.1% (again 1968), or climb above 62.9% (2003), mainly because of all the Quality Starts figured into the data.

Also, a start with these criteria account for 70% of all starts in the major leagues. It is likely that both pitchers accomplish the same feat in the game, moving the winning percentage closer to 50%, but it is hard to find a line to draw in the sand where a team wins under 60 percent of the time and still tag the word "quality" to the criteria. I have include the data below, but I also see no validity in a "Low-Quality Start."

On the other hand, pitchers going seven innings and giving up two earned runs or less end up pitching their team to victory in over 76% of games since 1957, and they only account for just over 38% of starts in that span. The low for one season (again in 1968—because of the same issues discussed above) was 72.76%, and the high (1958) was

79.55%. Below are the two tables. The first is with the minimum of five innings and four runs. The second is with the minimum of seven innings and two runs:

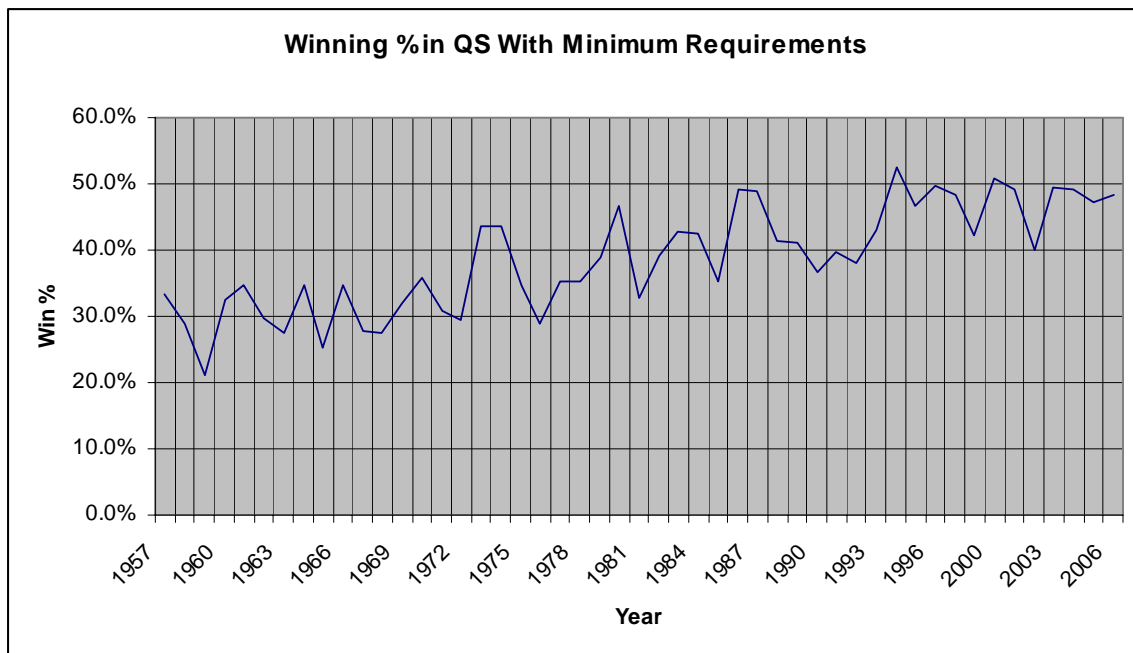
Year	TW	TL	QSW%	Year	TW	TL	QSW%	Year	TW	TL	QSW%
1957	969	594	62.00	1973	1656	1043	61.36	1990	1863	1159	61.65
1958	991	600	62.29	1974	1697	1056	61.64	1991	1829	1169	61.01
1959	1016	620	62.10	1975	1667	1035	61.70	1992	1838	1243	59.66
1960	1000	647	60.72	1976	1696	1105	60.55	1993	1954	1226	61.45
1961	1151	731	61.16	1977	1764	1056	62.55	1994	1358	819	62.38
1962	1330	801	62.41	1978	1837	1172	61.05	1995	1700	1014	62.64
1963	1386	915	60.23	1979	1767	1091	61.83	1996	1896	1150	62.25
1964	1350	849	61.39	1980	1807	1125	61.63	1997	1941	1173	62.33
1965	1348	900	59.96	1981	1204	786	60.50	1998	2079	1260	62.26
1966	1341	877	60.46	1982	1775	1111	61.50	2000	2051	1234	62.44
1967	1398	921	60.28	1983	1819	1130	61.68	2001	2108	1294	61.96
1968	1448	1002	59.10	1984	1831	1165	61.11	2002	2112	1312	61.68
1969	1680	1086	60.74	1985	1819	1119	61.91	2003	2140	1264	62.87
1970	1635	1074	60.35	1986	1818	1126	61.75	2004	2062	1263	62.02
1971	1688	1123	60.05	1987	1759	1044	62.75	2005	2149	1366	61.14
1972	1664	1130	59.56	1988	1861	1227	60.27	2006	2104	1264	62.47
				1989	1868	1194	61.01				

Year	TW	TL	QSW%	Year	TW	TL	QSW%	Year	TW	TL	QSW%
1957	638	193	76.77	1973	1005	315	76.14	1990	953	297	76.24
1958	630	162	79.55	1974	1070	338	75.99	1991	965	313	75.51
1959	635	191	76.88	1975	1003	310	76.39	1992	1010	336	75.04
1960	622	205	75.21	1976	1050	351	74.95	1993	979	315	75.66
1961	683	204	77.00	1977	971	257	79.07	1994	664	193	77.48
1962	787	250	75.89	1978	1095	370	74.74	1995	758	234	76.41
1963	924	296	75.74	1979	984	293	77.06	1996	835	260	76.26
1964	843	277	75.27	1980	1010	296	77.34	1997	921	283	76.50
1965	835	302	73.44	1981	683	227	75.05	1998	973	276	77.90
1966	854	287	74.85	1982	939	314	74.94	2000	880	256	77.46
1967	902	313	74.24	1983	980	296	76.80	2001	920	241	79.24
1968	1007	377	72.76	1984	976	324	75.08	2002	911	274	76.88
1969	1066	331	76.31	1985	987	309	76.16	2003	891	250	78.09
1970	974	290	77.06	1986	952	293	76.47	2004	854	265	76.32
1971	1101	381	74.29	1987	854	238	78.21	2005	928	315	74.66
1972	1114	380	74.56	1988	1048	340	75.50	2006	843	239	77.91
				1989	998	326	75.38				

Bill James wanted to call the Quality Start a “Johnson Game.” His reasoning was that people had a problem with the term “Quality.” It makes sense to rename the statistic, but the statistic that would be renamed may not be the most sensible. The problem being is that if a pitcher hit the minimum requirement of six innings and three earned runs exactly, his team lost the game more often then they won it over the past 50 years or so. Actually the record is 2302 wins versus 3295 losses (41%), which might seem to back up Moss Klein’s argument.

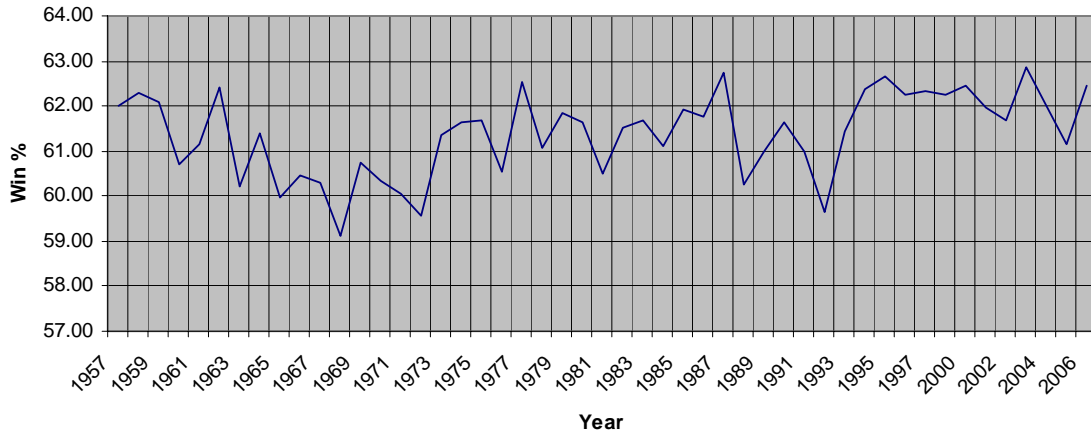
However, it is important to keep in mind that this is a *minimum* requirement, and that the purpose of the Quality Start was to say that a team with one had a *reasonable* chance of winning the game, and it does just that. The problem with any statistic of this nature is that you *have* to have minimums. Any better minimums would raise the winning percentage to a range where the statistic would not be used for its specific purpose. Thus, even with the low winning percentage for the minimum requirements, the Quality Start is a good statistic, and as shown above, it is a more reliable statistic now than before.

Even though the winning percentage for the *minimum* requirements has gone up significantly since 1957, the winning percentage for *anyone* fitting the requirements hasn't really changed all that much. It is still very close to 2/3. Actually, QSW% for 1957 and 2006 differ by only .03%, making them each other's most comparable seasons, and in 1994 (55-50) and again in 2000 (98-95), teams with the minimum requirement for a Quality Start actually won over 50% of their games. In the last ten years, the record is 838-936 (47%). It will be interesting to see what the next ten years brings, as more and more teams go to the bullpen and starting pitchers get even less innings. It looks as if people reaching the minimum will soon have a winning record, if not be right around 50% for the foreseeable future:

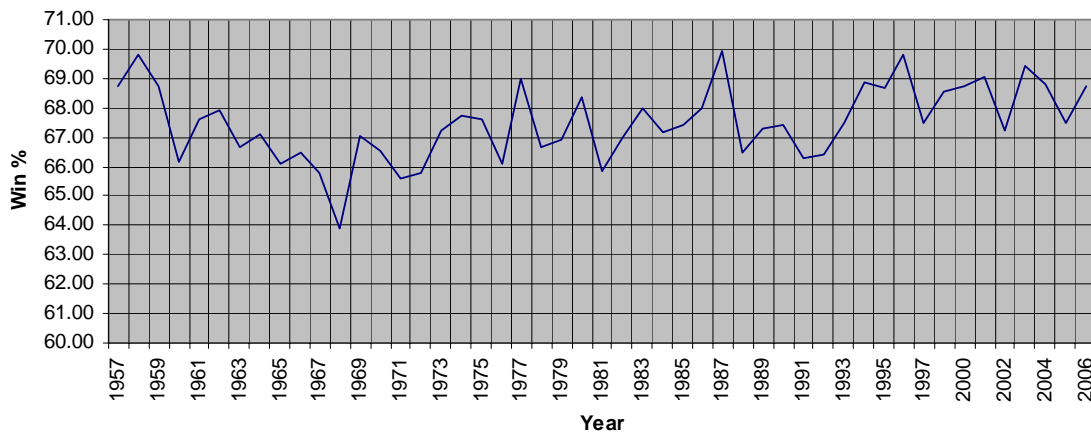


By definition, The Quality Start is about giving your team a *chance* to win, and not about stating your team *should* win. Thus, I propose the “High-Quality Start” with the minimums of seven innings and two runs. Seven innings and two runs gives a team odds of winning of better than three in four, and the odds of winning with the minimum requirements throughout the past 50 years is about 54.5%, stating the pitcher’s team *should* win the game, and that is something worthy of being titled a “Johnson Game.” The question here is did Walter Johnson fans feel their team had a *reasonable* chance with him on the hill, or did they feel like they were going to win?

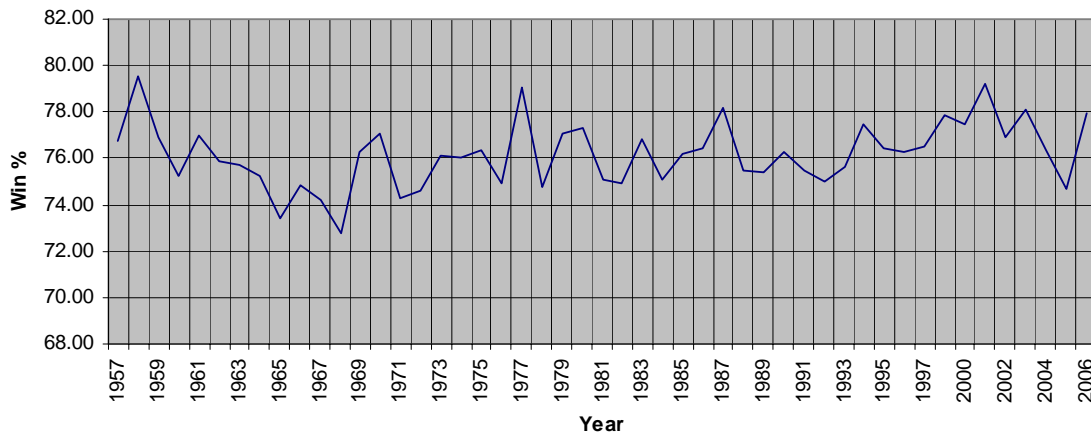
5 Innings/4 Runs



Quality Starts



7 Innings/2 Runs



Lists:

Most Quality Starts since 1957:

Name	<u>TW</u>	<u>TL</u>
Don Sutton	336	147
Nolan Ryan	331	150
Tom Seaver	309	145
Gaylord Perry	312	141
Steve Carlton	311	136
Roger Clemens	331	108
Phil Niekro	298	139
Tommy John	303	128
Bert Blyleven	291	138
Greg Maddux	304	122
Tom Glavine	282	107
Jim Kaat	256	109
Frank Tanana	240	125
Ferguson Jenkins	254	104

Best QSW% since 1957 (minimum 100 QS):

Name	<u>TW</u>	<u>TL</u>	QSW%
Sandy Koufax	160	39	0.804
Mark Mulder	93	23	0.8017
Scott McGregor	124	31	0.8
Whitey Ford	151	40	0.7906
Jeff Fassero	83	22	0.7905
Andy Pettite	150	40	0.7895
Billy Pierce	86	23	0.789
Storm Davis	93	25	0.7881
Ron Guidry	153	42	0.7846
Dennis Leonard	132	37	0.7811
Steve Stone	103	29	0.7803
Kirk Reuter	113	32	0.7793

Most High-Quality Starts since 1957:

Name	<u>TW</u>	<u>TL</u>	HQS
Don Sutton	258	73	331
Roger Clemens	257	65	322
Gaylord Perry	243	78	321
Nolan Ryan	249	70	319
Steve Carlton	249	69	318
Tom Seaver	237	81	318
Phil Niekro	226	69	295
Greg Maddux	219	69	288
Tommy John	219	67	286
Bert Blyleven	215	60	275
Jim Palmer	211	51	262
Ferguson Jenkins	201	58	259
Bob Gibson	199	46	245
Jim Kaat	179	53	232
Frank Tanana	168	64	232

Best HQSW% since 1957 (minimum 100 HQS):

Name	<u>TW</u>	<u>TL</u>	HQSW%
Mike Flanagan	120	18	86.96%
Denny McClain	100	15	86.96%
Sandy Koufax	132	20	86.84%
Andy Pettite	93	16	85.32%
David Wells	120	21	85.11%
Warren Spahn	108	20	84.38%
Mike Cuellar	138	26	84.15%
Ross Grimsley	89	17	83.96%
Scott McGregor	89	17	83.96%
Steve Renko	86	17	83.50%
Whitey Ford	116	23	83.45%
Frank Viola	126	25	83.44%
Dennis Leonard	100	20	83.33%

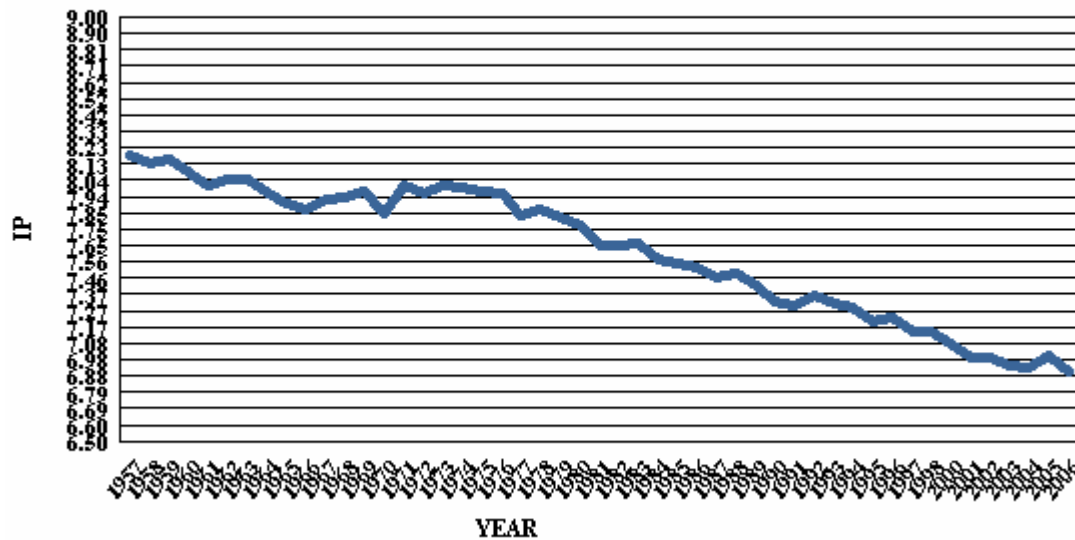
Most Low Quality Starts since 1957:

Name	<u>TW</u>	<u>TL</u>	QS
Don Sutton	382	217	599
Nolan Ryan	369	227	596
Steve Carlton	366	198	564
Phil Niekro	350	204	554
Tom Seaver	353	195	548
Greg Maddux	362	179	541
Gaylord Perry	338	202	540

Team records in Quality Starts, Non Quality Starts and Overall since 1957:

Year	OSW	OSL	OSW%	IOSW	IOSL	IOSW%	W	L	W%
AIA	502	226	69.0%	276	454	37.8%	778	680	53.4%
ARI	445	229	66.0%	183	439	29.4%	628	668	48.5%
ATL	2297	1139	66.9%	920	1931	32.3%	3217	3070	51.2%
BAL	2903	1170	71.3%	1189	2498	32.2%	4092	3668	52.7%
BOS	2693	1144	70.2%	1367	2554	34.9%	4060	3698	52.3%
BRO	69	27	71.9%	15	43	25.9%	84	70	54.5%
CAL	1747	886	66.4%	693	1732	28.6%	2440	2618	48.2%
CHA	2728	1255	68.5%	1258	2535	33.2%	3986	3790	51.3%
CHI	2542	1403	64.4%	1117	2669	29.5%	3659	4072	47.3%
CIN	2797	1258	69.0%	1264	2449	34.0%	4061	3707	52.3%
CLE	2556	1264	66.9%	1213	2722	30.8%	3769	3986	48.6%
COL	529	310	63.1%	423	781	35.1%	952	1091	46.6%
DET	2654	1219	68.5%	1200	2706	30.7%	3854	3925	49.5%
FLO	686	364	65.3%	291	698	29.4%	977	1062	47.9%
HOU	2536	1322	65.7%	933	2174	30.0%	3469	3496	49.8%
KC1	488	317	60.6%	220	703	23.8%	708	1020	41.0%
KCA	1940	940	67.4%	930	2048	31.2%	2870	2988	49.0%
LAA	196	120	62.0%	108	219	33.0%	304	339	47.3%
LAI	3111	1431	68.5%	981	2100	31.8%	4092	3531	53.7%
MIL	1814	953	65.6%	884	2052	30.1%	2698	3005	47.3%
MIN	2485	1115	69.0%	1113	2445	31.3%	3598	3560	50.3%
MLN	535	204	72.4%	220	404	35.3%	755	608	55.4%
MOH	1915	990	65.9%	769	1858	29.3%	2684	2848	48.5%
NY1	33	28	54.1%	24	47	33.8%	57	75	43.2%
NYA	3017	1159	72.2%	1316	2282	36.6%	4333	3441	55.7%
NYN	2484	1429	63.5%	827	2255	26.8%	3311	3684	47.3%
OAK	2124	884	70.6%	1037	1982	34.3%	3161	2866	52.4%
PHI	2673	1401	65.6%	1122	2579	30.3%	3795	3980	48.8%
PIT	2756	1372	66.8%	1070	2442	30.5%	3826	3814	50.1%
SDN	1927	1136	62.9%	776	2019	27.8%	2703	3155	46.1%
SE1	41	22	65.1%	23	77	23.0%	64	99	39.3%
SEA	1423	684	67.5%	725	1743	29.4%	2148	2427	47.0%
SFH	2791	1233	69.4%	1169	2431	32.5%	3960	3664	51.9%
SLI	2916	1369	68.1%	1164	2323	33.4%	4080	3692	52.5%
TBA	313	199	61.1%	197	584	25.2%	510	783	39.4%
TEX	1754	804	68.6%	826	1992	29.3%	2580	2796	48.0%
TOR	1550	665	70.0%	711	1650	30.1%	2261	2315	49.4%
WAS	97	55	63.8%	55	117	32.0%	152	172	46.9%
WS1	163	108	60.1%	88	257	25.5%	251	365	40.7%
WS2	519	339	60.5%	222	693	24.3%	741	1032	41.8%

Avg IP of a Quality Start



Other observations:

In reading about a proposed “Dominant Start,” it seems to have merit. However, since 1957, the difference in strikeouts per inning in a Quality Start as opposed strikeouts per inning in a non-Quality Start only differ by two-hundredths of a strikeout, it might be viable, but it would not really be related to the Quality Start. Walks per inning, however, go up 0.18 per inning if the pitcher does not have a quality outing. This holds true by season, or for all the data as a whole.

There could be a statistic based on the High-Quality Start, but more research is likely needed on the subject.

Bert Blyleven should be in the Hall of Fame, and I hate the Twins.

No team historically has won over 40% of their games where they didn’t have a quality start. The best is Anaheim at 37.8% (Though the NQSW% as the California Angels is one of the worst—Los Angeles Angels is pretty average) The Yankees are second in QSW% to the Milwaukee Braves and in NQSW% to the Angels.

Further study:

How often did it happen that a player had a Quality Start after six innings but stayed in the game and lost it? What are the win loss records for those players? Is there a certain team, player or manager that has that happen more than others? How much does good hitting play into it? It seems that QSW% and NQSW% are pretty standard across the board, but the better hitting teams seem to be a little higher.