

# **Ted Williams, The Last .400 Hitter... Ever?**

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## **Ted Williams, the last .400 hitter.....ever?**

In the modern era of baseball the homerun has become the object of the fan's adoration. In 1998 the nation stood in awe as Mark McGwire and Sammy Sosa battled it out towards Roger Mans' 62. America applauded as the St. Louis' slugger rounded the bases for the 70th time of the season, late in September, yet the "untouchable" feat stood for a mere three years, until Barry Bonds blasted his way into the record books. In this age of offense, where steroids, small ballparks, and power swell statistics, the baseball fan is forced to ponder whether or not any sacred clubs still exist within the game. That being said, since 1901 there has been one achievement more hallowed than fifty homeruns in a season, a perfect game, thirty wins, 160 runs batted in, or even the triple crown, and that is the .400 club.

In the early days of baseball .400 was commonplace, a deed worth noting, but nowhere near the legendary number that it has evolved into. In the nineteenth century twenty different players hit .400 a combined twenty-three times. However, prior to the turn of the century organized baseball was still in a state of development. For instance in 1887, base on balls were counted as hits, accounting for 13 players reaching the .400 mark, in only one season. Another reason for high early membership to the .400 club was the lack of a foul-strike rule. Prior to 1901 in the National League and 1903 in the American League foul balls that were not caught did not count as strikes, giving the hitter a profound advantage at the plate. This is the reason many baseball historians exclude Nap Lajoie from the other players to hit .400 in the 20th century. By playing for an American League team in 1901 (Philadelphia) Lajoie had an unfair advantage when he hit .426, as the rule had yet to be changed in his league. Even so the 18th century version of the .400 club has some recognition even today as ballplayers like Hugh Duffy, Big Ed Delahanty, and Wee Willie Keeler are enshrined on bronze plaques at Cooperstown.

Since the formation of "Modern Baseball" in 1903 only seven players have hit .400, a total of twelve times. The first to do it were "Shoeless" Joe Jackson and Ty Cobb in 1911, hitting .408 and .420 respectively. Ty Cobb repeated the feat in 1912 hitting .409 for the Tigers and then again in 1922 batting at a .401 clip. Shoeless Joe was never able to repeat before his infamous Black Sox Scandal rocked the sports world, however he came within three hits of .400 in 1912, when he batted .395. Other than Cobb the only other player to have three seasons at .400 or better was Rogers Hornsby who hit .401 in '22, .424 in '24, and .403 in '25. George Sisler's name also appears multiple times on the list, as he batted .420 in 1922 and .407 in 1920. Combined Sisler collected over 500 hits in those two years, and still holds the major league record with the 257 hits he racked up in 1920. The least distinguishable of the .400 hitters is almost certainly Harry Heilmann who hit .403 in 1923. However Heilmann's lack of notoriety is largely due to the fame that surrounded him as a Detroit Tiger in the '10s and '20s (Ty Cobb and Sam Crawford), not his lack of production. Between 1921-1927 Heilmann hit over .393 four times, while his avg. never fell below .346. In Ted Williams' "The Science of Hitting" Williams goes so far as to call Heilmann one of the "top five greatest right-handed hitters of all time". In the National League Bill Terry became the last to hit over .400 (.401) in 1930, for the

then New York Giants.

Eleven years passed after 1930, and many in the baseball community thought that The .400-hitter might be extinct. Then in 1941 the Boston Red Sox 23-year old cleanup hitter came onto the scene and put together arguably the most impressive season in baseball history. Ted Williams or the “Splendid Splinter” as some have come to know him, was batting .39955 (179 for 448) going into the final day of the season, September 28<sup>th</sup>. In the doubleheader “Teddy Ballgame” went six for eight, with a homerun and a double, finishing the ‘41 season with a league leading .406 average, 37 hr, 135 runs, and 145 walks. In 1986 John Updike wrote of the season, “It is now 45 years... since the cocky, lanky kid from San Diego closed out the season with an average of .406. That statistic has emerged from the shadows of 1941 (when Jolting Joe hit in 56 straight games and the Japanese attacked Pearl Harbor) to become Williams’ most famous feat, the tarnish-polish on the silver of his reputation...”.

Altogether now sixty-two springs have ushered in the hope of another .400 hitter, yet all sixty-two seasons have ended lacking even one batter to surpass the illustrious mark. In 1941 the United States had still not entered into World War II, yet here we are in the dawn of a new millennium, with no new members to the .400 club. Over the years a few have flirted with the magic number, yet none has been able to sustain the continued perfection that is needed to compile a 400 batting average. The World Series, home run crowns, silver bats and division titles are won by putting together streaks of excellence. However a 400 average is accomplished by consistently having success from Opening Day until October. Any prolonged slumps ruin any possible chance of reaching the mark, because a player will simply run out of at bats to acquire the needed hits. This is proven by the fact that the lowest monthly average for a .400 hitter was .324 by Hielmann in July, 1925, which in itself would have been high enough to pick up the batting title in AL last year. The Colorado Rockies first baseman, Todd Helton, made a serious bid at .400 in 2000, and in fact was hitting .400 as late as August, yet he experienced the aforementioned prolonged slump in September and finished the season at a noteworthy .372, yet a far cry from .400. In 1994 Tony Gwynn had a .394 average on August 12th when the player’s union went on strike, abruptly ending the season. Had the season been played to its completion could number nineteen have made a run at .400, quite possibly, however Gwynn just as easily might have fallen into a tailspin under the pressure as Helton would six years later. As it stands Gwynn went 165 for 419 that year, an incredible run, but one that would have been even more amazing had he gotten 168 hits in that same number of at bats. In 1980 George Brett challenged the monumental 400, yet ended the ‘80 campaign hitting 10 points below it at .390. Two years earlier Rod Carew of the Minnesota Twins hit .388, and even Ted Williams ventured near the .400 mark later in his career only to come up short at .388 in 1957. So simple in theory is hitting .400 in baseball, all one would have to do is average 2 - 5 for 162 games. Yet even the legends come up hitless on some occasions, and therein lies the complexity of .400. One 0-5 game and the batter is forced to come up with a 4 - 5 performance the next day just to keep up with the pace.

On July 5, 2002 Ted Williams passed away, leaving some fans questioning

whether the last .400 hitter was all but gone. After 62 years some accomplishments fall into the realm of legend, standards of excellence set in a bygone era. Yet in the baseball community hope remains that some hitter will one day break the futile streak from 1941. Many say the solution lies in Denver, at the mile-high Coors Field, where all of a batter's dreams are possible. A recent Sporting News article suggested that the Rockies home park saturates run production by as much as 50% compared to neutral stadiums such as Shea, Fenway, Tropicana and Jacobs Field. The author, David Strivanson went so far as to predict that if Bonds had taken his .370 average and 46 homeruns in 2002 away from SBC (formerly known as Pac Bell) Park to the more friendly confines in Colorado, he would have hit .430 with 75 homeruns, both modern-day records. In fact adjusting Bonds' '02 numbers to other home parks resulted in him hitting .400 in nine other locations as well. While such numbers seem a bit inflated there is no doubt that the thin air and huge outfield at Coors helps the Rockies slug out more hits than they would anywhere else. However those who are so optimistic that Denver will produce the next .400 hitter, forget about Todd Helton. The Rockies first baseman is perhaps the best hitter since Tony Gwynn, and not even he has been able to make a strong push for .400 late in September. The problem with Denver is that a player still must compete in eighty-one away games. For the Rockies this fact results in many more difficulties than for the average team. As a result of the high altitude and thin air the Rockies are forced to play a different sort of baseball. Pitchers breaking pitches suddenly stop breaking and movement on the ball is minimized. Hitters must constantly adjust between home and away as the season progresses, which may partially explain the documented struggles of the organization on the road. So even though Larry Walker hits .461 at Coors (as he did in 1999), the road struggles depress the average well below .400.

Optimism is not universal in the sporting world when it comes to the chances of surpassing the Splendid Splinter's mark. Many say the disappearance of the .400 hitter is due to the fact that the level of hitting and a batters devotion to his craft has declined since the first half of the 20th century. Others assert that night games, relief pitching, and longer schedules have also factored into the fall of the phenomenon. However, the late Stephen Jay Gould, a world-renown Harvard biologist, said that these theories are largely unfounded and lack strong evidence. According to him the, "modern artists of hitting — the Boggleses, Carews, Bretts, and Gwynns — play with as much intensity as the great .400 hitters of our past — the Cobbs, Hornsbys, and Sislers". Rather than the explanation that players have gotten worse Gould suggested that in fact they have improved over time. With all of the new tools available to the 21st century athlete this would seem to make sense. The conditioning, weight training, technology, and increased talent pool (race barrier prior to Jackie Robinson) would seem to suggest that the Major League player today has far more opportunities to sharpen his skills than those in the past. Tony Gwynn himself attributed much of his success to watching video tapes of his swing, something a Babe Ruth could not easily do.

So why then is batting average the one statistic not swelled by these personal improvements? The answer lies within a statistical term called standard deviation. In the early 1900s Ty Cobb, Rogers Hornsby, and George Sisler were giants among dwarfs. They were near the physical limits that a human being can possess when hitting, due not

only to their natural talent, but also their desire to improve their skill. The giants in baseball still exist in the persona of such stars as Albert Pujols and Barry Bonds. These hitters too are near the barrier that limits a human's productivity in a sport. However, the difference between these two eras is that the common ballplayer has gotten closer and closer to this barrier of man's possibility, while the stars have no place to go. As this standard deviation has shrunk the giants of baseball no longer have been able to tower over the ordinary individuals in the sport. This decreasing chasm between the best and the average players has led to the disappearance of the .400 hitter. The argument that hitting ability has decreased since the early 1900s has little merit, since the Major League average was .252 for 1901-1910 and .258 for 1911-1920, an era when .400 was reached four times. For comparison purposes the ML average was a similar .258 from 1951-1960 and .257 from 1971-1980, two decades when no batter came very close to the mark. In fact league averages have constantly stayed near the .260 mark for the past century, with slight exceptions in the '20s and '30s, making it evident that something deeper is repressing the league leading batting averages.

With this data in mind I took Gould's hypothesis about the shrinking standard deviation and tested it against such years as 1921, 1941, 1961, 1982, 2000, 2001, 2002, and 2003. For the earlier years (prior to 2000) I only entered batting averages when the player had at least 400 AB. Any smaller number of at-bats would suggest the player was either a reserve or injured, in which case the feat of hitting .400 would be minimized. For the 2000-2003 data I only included qualified batters (based on 3.1 plate appearances/game) in my calculations. The goal of my statistical analysis of these years was to either support or refute the hypothesis of diminishing standard deviation, and find the exact probability of a batter hitting .400.

With regard to the standard deviation, I found convincing data that in fact the .400 hitter is heading towards extinction. In 1921 the  $S_x$  (Standard Deviation) was an amazingly high 40.554 points. What this means is that 68% of the 98 qualified batters were within 40.6 points of the league mean batting average of 308.51, or in other words just over two-thirds of batting averages in 1921 were between .268 and .349. This was by far the highest  $S_x$  I observed, and just twenty years later in 1941 this number had shrunk to 32.478, meaning that 68% of the 101 qualified batters were hitting between .248 and .313. Over the past few years this decrease in standard deviation is evident on an even smaller scale, as  $S_x$  has gone from 30.029 to 28.424 to 26.893 to 26.051 from 2000 up until last year. It is clear that while there is a downsloping trend since 1921 for the standard deviation it has slowed from 1941 to the present. One explanation for this is the numerous expansion franchises, which have entered both leagues since 1941. What these extra teams have done is spread the talent thinner than before and allowed the stars to shine a bit brighter than they would have had the talent still been condensed on fewer teams. However the fact still remains that as each October passes it becomes increasingly more difficult to hit .400. As the standard deviation declines and the

“ordinary” major league ballplayer approaches the sport’s physical limits, the window of opportunity to join the ranks of Ted Williams closes ever so slightly.

Using a statistical formula on my scientific calculator I was able to determine the percentage chance of a batter reaching 400 in the various random seasons I studied. Based on the 1921 batting average distribution I calculated that there was a 72.694% chance that at least one batter from that season would hit .400 or better. While no hitter from that specific year actually reached the mark, one could estimate that approximately seven hitters would reach .400 in the ‘20s if the ‘21 data was representative of the decade ( $.7 \times 10 = 7$ ). This was in fact the case, as there were seven seasons of .400+ averages from 1921 to 1930. In 1941, which was the year Ted hit .400, there was just a 1.94% chance of at least one batter hitting .400 or more. Gould states, “In this context, Ted Williams had no business, absolutely no business, hitting well above .400 in 1941. The phenomenon of .400 hitting had already become extinct! Ted’s .406 is a much loftier achievement than Rogers Hornsby’s all-time twentieth century high of .424 in 1924, for Hornsby achieved his mark when .400 hitting remained in vogue...” In the remaining six years I studied only one produced a distribution in which there was higher than a 1% chance that one or more players that year would hit .400 or better, and that was in 2000 when there was a 1.84% chance. In 1961, 1982, 2001, 2002, and 2003 there were .17, .0036, .4, .084, and .07 percent chances of a .400 hitter, respectively. Combining this data we can approximate the probability that in the future a batter will reach .400. Based on these specific six years I would assert that there is roughly a .4% chance of one or more batters hitting .400+ in any particular season. This percentage suggests that the feat would happen roughly once every two hundred fifty years, and that the likelihood a new member would join Ted Williams before the year 2100 is a 32% chance. Even using the extremely conservative estimate that there is in fact around a 2% shot (as the 1941 and 2000 distributions predict) at hitting .400 in any given season, it would still suggest the accomplishment occurs only once every 50 years on average.

The halls of Cooperstown are filled with legends and the records they achieved which were meant to be broken. Yet the .400 mark has turned into a mythical number evading even the best the latter half of the 20th century had to offer. The hallowed club of Cobb, Jackson, Sisler, Hornsby, Terry, Heilmann, and Williams has admitted no new members for sixty-three years and it is doubtful as to whether or not it ever will. The sun has set on the .400 hitter, and the baseball world must wait and see if it will ever rise again.

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