

LEGACY and Rings Added: Methods

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Summary

LEGACY is one plus-minus rating for every player-season in professional basketball history, 1937-38 to today, across the NBA, ABA, BAA, and NBL. Rings Added turns those ratings into championships: how much each player raised his teams' title odds, with each season's titles weighted by how hard they were to win and how strong the league was.

The guiding rule throughout: every choice is measured, not picked to produce a ranking.

The ratings predict next season's team results better than every public metric they were compared with (BPM, RAPTOR, DARKO, LEBRON, win shares), over each metric's own seasons. The career top 10 in Rings Added:

#	Player	Rings Added
1	Michael Jordan	15.68
2	LeBron James	14.01
3	Stephen Curry	8.94
4	Magic Johnson	7.56
5	Bill Russell	7.33
6	Nikola Jokić	7.32
7	Larry Bird	7.07
8	Wilt Chamberlain	6.12
9	Kareem Abdul-Jabbar	5.86
10	Tim Duncan	5.75

Live site: nba-legacy-ratings.pages.dev.

Data

All inputs are free and public: stats.nba.com (through `nba_api`) for game logs, box scores and play-by-play, and Basketball-Reference for season totals, old box scores, the ABA and the NBL. The model covers 28,744 player-seasons.

League	Seasons	Player-seasons
NBL	1937-38 to 1948-49	1,344
BAA	1946-47 to 1948-49	429
NBA	1949-50 to today	25,715
ABA	1967-68 to 1975-76	1,256

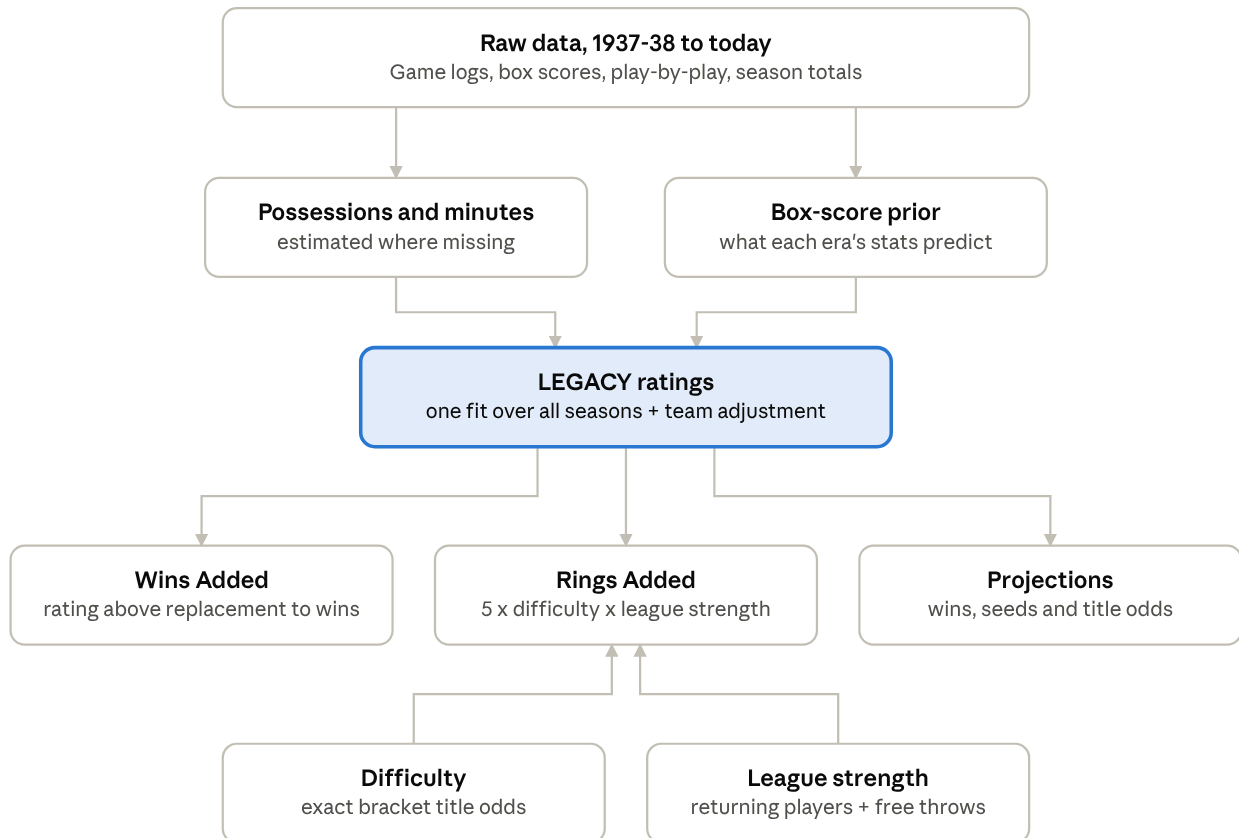
What each era recorded decides how much the model can learn from it:

Seasons	What exists	What is missing
1996-97 on	Full box scores and play-by-play, so who was on the floor for every possession	Nothing
1983-84 to 1995-96	Full box scores with minutes for every game	Who was on the floor together
1973-74 to 1982-83	Most game minutes; steals, blocks, turnovers and offensive rebounds start appearing	Some game minutes; those stats are partial until 1984
1951-52 to 1972-73	Who played and points in every game; season minutes for every player	Most game minutes (5-90% recorded, rising over time); no steals, blocks, turnovers or rebound splits
1946-47 to 1950-51 (BAA, early NBA)	Who played, points, field goals and free throws	Minutes anywhere, game or season
NBL, 1937-38 to 1948-49	Season games, field goals and free throws made, points; free-throw attempts from 1946-47	Minutes, game results, rebounds, assists

The two sources agree on season points and games played to within about 0.5%. Basketball-Reference's old box scores come from the same original records, so neither source fills the other's minutes gaps.

Pipeline at a glance

Every result flows from one rating model



pipeline · data to ratings to Wins Added, Rings Added and Projections

Everything downstream uses the same LEGACY ratings; Rings Added adds two season-level weights, difficulty and league strength, that don't touch the ratings themselves.

Possessions and minutes

Ratings are per 100 possessions, and a player's weight in each game is his share of the minutes. Both have to be estimated where old records are missing.

Possessions. Where every input exists, possessions = FGA + 0.44 × FTA – offensive rebounds + turnovers, averaged between the two teams. Before turnovers and offensive rebounds were recorded, they are predicted from what was recorded: offensive rebounds from the team's share of rebounds, its opponents' misses and field-goal percentage; turnovers from assist, foul and free-throw rates and field-goal percentage. Tested by hiding those stats in modern seasons:

Hidden	Possession error	Margin error per 100
Offensive rebounds	2.1%	0.38
Turnovers	2.7%	0.51
Both	3.4%	0.63

Seasons with no usable team stats at all take the average of the first five observed NBA seasons.

Game minutes. Where a game's minutes were not recorded, each player's minutes are predicted from that game's box score (points, shots, free throws, rebounds, assists, fouls, whether he started) and his season minutes per game. The predictions are then raked so each team-game adds to 240 (plus 25 per overtime) and each player's season adds to his recorded season total. Tested on seasons with real minutes, with stats randomly hidden the way old box scores hide them:

Method	Typical miss (minutes per game)	Correlation with real minutes
Season average only	7.2	0.80
Model + raking, full box	4.0	0.94
Model + raking, 1960s box (no FGA, rebounds, assists)	5.0	0.91

The share of each player's minutes that was estimated is published with every rating. Seasons before 1951-52 have no minutes anywhere; there the model works from game appearances and box stats alone, and its box prior is shrunk further (see Early leagues).

Player ratings (LEGACY)

LEGACY (Lineup-Estimated Game-Adjusted Contribution by Year) is a player's net impact in points per 100 possessions versus a league-average player that season. It is one ridge regression fit jointly over every season from 1946-47 on, using every game a player played: regular season, play-in and playoffs.

What the model explains. From 1996-97 on, each game is split into stints with the same ten players on the floor (over 1.1 million of them). Each stint's margin per 100 possessions should equal the five home players' ratings minus the five away players', plus home court. Before 1996-97, each game's margin should equal the sum of each player's rating times his share of the team's minutes, own team minus opponent.

Three pulls on every rating. The fit minimizes the misfit to games plus two penalties:

$$\sum_{\text{rows}} w \cdot (y - x\beta)^2 \; ; + \; \lambda_{\text{prior}} \sum_{p,s} (\beta_{p,s} - \text{box}_{p,s})^2 \; ; + \; \lambda_{\text{smooth}} \sum_{p,s} (\beta_{p,s+1} - \beta_{p,s} - \text{aging}_{\text{age}})^2$$

- **Box-score prior** ($\lambda = 100$): ratings are pulled toward what the player's box score predicts.
- **Neighboring seasons** ($\lambda = 200$): each season is pulled toward the same player's seasons before and after it, shifted by the aging curve. This is how Pippen's 1993-94 season without Jordan helps separate the two in the years they shared. Because later seasons inform earlier ones, past ratings can move a little when a new season is added (see Daily updates for how that is contained).
- **Aging curve**: the average change in rating from one season to the next by age (19 to 38), smoothed.

The box-score prior. A ridge regression (penalty 10) trained on 1996-97 to 2025-26, predicting each player-season's lineup-based plus-minus from per-100 rates (points, true-shot attempts, threes, assists, offensive and defensive rebounds, steals, blocks, turnovers, fouls), minutes per game, and shooting shape terms. Rates are padded with 300 possessions of league-average play, and shooting efficiency with 100 true-shot attempts, so small samples aren't taken at face value. Each era gets a version trained only on the stats that era recorded. Held-out accuracy by stat set:

Stats available	R ² on held-out seasons
Full box score	0.507

Stats available	R ² on held-out seasons
No three-point attempts	0.494
No steals or blocks	0.451
No 3PA, turnovers, steals, blocks or rebound split	0.414
Same, without minutes per game	0.379
Points, shots, assists, fouls only	0.347

Two shrink factors keep the modern-trained prior from overreaching in old seasons: $\times 0.7$ where steals and blocks weren't recorded (forward test 1956–75: team R² 0.482 at 0.7 vs 0.421 at full strength), and $\times 0.1$ where no minutes were recorded at all (1946–47 to 1950–51; see Settings). A low-minute season, and the first games of a season, lean on the player's previous prior rather than a few games of noisy box stats; a rookie leans on the typical low-minute player.

Team adjustment. After the fit, each team-season's leftover, its opponent-adjusted net rating minus the minutes-weighted sum of its players' ratings, is spread across its players by minutes. A team's published ratings therefore add up to how it actually played. During a season in progress, team results are shrunk toward what the roster predicts, by how much a few games can be trusted: the penalty is re-measured each build from completed seasons since 1976–77 (about 6.9, so one game keeps about 12% of a team's result and 20 games about 74%).

Tested and not used. A split into offense and defense predicted slightly worse (team R² 0.639 vs 0.655, 1999–2026) and isn't published.

Early leagues

Every rating is relative to its own league-season, so the early leagues are rated on the same scale as today and then discounted separately for how strong the league was (see Era adjustment). This section covers how they are rated at all.

Before the shot clock and before minutes (1946–47 to 1950–51). No minutes were recorded, game or season, so per-minute box rates rest on estimated minutes. The box prior is shrunk to 10% of its modern-trained value in these seasons. A forward test of the four seasons 1947–48 to 1950–51 showed 0.1 to 0.4 tied (within 0.02 points of team R²), all beating 0.55 and above; 0.1 was chosen.

BAA to NBA (1949-50). The BAA and the NBL merged to form the NBA, so the 1949-50 NBA continues the BAA directly and no league gap applies between them. The BAA's lower quality relative to later seasons is handled by the era adjustment, like any other season.

The ABA (1967-68 to 1975-76). ABA seasons are rated on their own games, like the NBA. Its gap with the NBA is measured from players who switched leagues: ex-ABA players' ratings fell about 0.3 per player more than other team-changers' through 1974-75, a gap of about 1.5 points per 100 at the team level. By the 1976 merger it had narrowed to about 0.3 per team.

The NBL (1937-38 to 1948-49). The NBL recorded only season games, field goals and free throws made, free-throw attempts (from 1946-47) and points, plus team points for and against. With no minutes and no game results, there is no plus-minus. Each player-season gets:

1. A box estimate: what those per-game stats, relative to team and league, predict for a LEGACY rating, learned from 1951-52 to 1964-65 NBA players (the closest seasons with full data). Held-out R^2 0.74.
2. A minutes estimate, learned the same way (held-out R^2 0.89), scaled so each team's shares add to five players.
3. The team adjustment: the team's margin per 100 possessions (possessions from the BAA's 0.739 points per possession) minus its players' minutes-weighted box estimates, spread over its players by minutes.

The NBL's gap with the BAA comes from players who moved: next-season rating regressed on this season's rating plus an NBL indicator, against BAA/NBA players' own year-to-year changes (players with 300+ minutes in both seasons; seasons with fewer than 10 movers can't be measured). Measured gaps: 0 for 1947-48 (floored at zero) and about 5.0 points per 100 for 1948-49, when the strongest NBL teams had already left for the BAA. Earlier NBL seasons are chained to 1947-48 through the NBL's own returning players (500+ minutes). NBL titles count very little as a result: about 0.1 to 0.2 of an average title.

Validation

The test: predict each team's net rating for a season from the previous season's player ratings (plus a year of aging) times the minutes players actually played. The model is refit on data through each season only, so it never sees the season it predicts. This is the same

forward test EPM and DARKO are judged by.

LEGACY beats every comparison over that metric's own seasons, even though each outside metric gets the scale factor that suited it best in hindsight:

Metric	Seasons	Its R ²	LEGACY R ²	Its miss (pts/100)	LEGACY miss
LEBRON	2010-11 to 2025-26	0.606	0.676	3.12	2.81
DARKO (its own preseason projection)	1998-99 to 2025-26	0.634	0.656	2.93	2.84
RAPTOR	1977-78 to 2021-22	0.597	0.644	2.89	2.71
BPM	1974-75 to 2025-26	0.553	0.635	3.00	2.72
Win shares per 48	1954-55 to 2025-26	0.412	0.579	3.14	2.64
Last season's team net rating	1954-55 to 2025-26	0.357	0.579	3.37	2.64

By era, LEGACY's forward-test R² is 0.494 for 1956–75, 0.613 for 1976–96 and 0.655 for 1999–2026. Older eras predict worse because their box scores and minutes are thinner, as expected.

Tuning without overfitting. Settings were tuned on 2010-11 to 2018-19 and then confirmed on seasons the tuning never saw (1998-99 to 2009-10 and 2019-20 on). Several candidate improvements that helped on the tuning seasons, including three-point and free-throw luck adjustments, age, experience, height and weight features, and different rate padding, did not hold up on the confirmation seasons. The conclusion was that the model is near the limit of what this data supports.

Wins Added

Wins Added converts a season's rating into wins over a replacement-level player:

$$\text{wins added} = \frac{\text{rating} - \text{replacement}}{100} \times \text{on-court possessions} \times \frac{b}{\text{league points per game}}$$

- **Replacement level** is measured per league-season: the minutes-weighted rating of players outside each team's top 9 by minutes, smoothed over the 7 surrounding seasons. It runs about -1.5 to -2 points per 100.
- **On-court possessions** are summed game by game: share of the game on the floor times the game's possessions, regular season and playoffs separately.
- **Wins per point**: $\text{team win\%} - 0.5 = b \times (\text{margin per game} / \text{league points per game})$, fit on every team-season. A point of margin is worth less when scoring is high, so today about 36 points of season margin make one win.

Playoff wins use the same conversion and the player's season rating.

Rings Added

Rings Added is how many championships a player's impact was worth. Each season hands out a pool of rings, and players earn shares of it by how much they raised title odds.

$$\text{\text{rings in a season}} = 5 \times \text{\text{difficulty}} \times \text{\text{league strength}}$$

Five because five players on the floor win each title. Across 101 league-seasons the pool sums to about 520 rings, a little above 505 (5×101) because harder titles and stronger leagues tend to fall in the same seasons.

Title odds. Each playoff game's win chance comes from the two teams' strength gap plus home court, through a probit model fit on historical playoff games (0.099 per point of strength per 100, home court worth 0.38 on the probit scale). Series odds follow from best-of-N with the real home-court pattern, and title odds are computed exactly over each season's actual bracket, summing over every possible opponent in every round. No simulation is needed. A team's playoff strength is its players' ratings weighted by playoff minutes.

Difficulty. For each season, a logistic curve of title odds against team strength is fit to every playoff team's exact odds. Difficulty is the strength a team needed for even title odds that season, divided by the average across history, so it averages 1.00. It ranges from 0.39 to 2.25:

Seasons	Average difficulty
1937-38 to 1954-55	0.85

Seasons	Average difficulty
1955-56 to 1969-70	0.69
1970-71 to 1979-80	0.86
1980-81 to 1989-90	1.07
1990-91 to 1999-2000	1.25
2000-01 to 2009-10	1.26
2010-11 to today	1.31

Difficulty reflects league size, the playoff format and how strong the top rivals were. In the 8–10-team leagues, a team needed far less of an edge over the league to be the favorite, because it beat fewer opponents over fewer rounds. **League strength** is a separate question: how good the players in that league were (next section). Without the difficulty weight, a title in an 8-team, 2-round league would count the same as one in a 30-team, 4-round league; league strength doesn't cover that, because it measures how good the players were, not how many teams stood in the way.

As a check, removing difficulty (rings = $5 \times$ league strength only) moves Russell from 5th to 3rd, Chamberlain from 8th to 4th and Mikan from 22nd to 12th, and brings Pettit, Cousy, Sam Jones and Schayes into the top 25. Both factors measure something real and they barely overlap, so both stay.

Regular season vs playoffs. Each season's pool is split by how much of that season's title each part decides (after Neil Paine's Championship Probability Added). The playoff share averages 0.44 and ranges from 0.10 to 0.66.

- **Regular-season half:** put the player on a league-average team in place of a replacement-level player and read the rise in title odds off that season's curve. The shift in team strength is his share of the team's minutes times his rating above replacement. Seasons below replacement earn nothing. An average team only contends with a star, so peak seasons count far more than good ones, as real title odds do.
- **Playoff half:** every series a team wins raises its title odds, computed exactly before and after the round. That gain is shared among its players by playoff minutes times rating above replacement. Deep runs and upsets count most; losing a series costs nothing.

The regular-season half is context-neutral on purpose: it doesn't reward a player for having great teammates. The playoff half rewards what actually happened.

Era adjustment (league strength)

Ratings are relative to each season's league, so on their own they can't say whether the league itself got better. League strength measures that from two independent sources, then turns it into how much a title counts.

1. Returning players. When the league improves, a returning player looks a little worse than his age alone predicts, because everyone around him improved. For each season, the minutes-weighted gap between returning players' actual change and the aging curve (players with 1,000+ minutes in both seasons) measures how much the league moved. Adding those season-to-season moves up gives every season's strength relative to the others, up to one unknown: a small constant drift per season (the aging curve itself absorbs some league improvement) that compounds over 80 years.

2. Free throws. League free-throw percentage is pure skill, with no defense and the same distance in every era. Its gap from 2021-22 to 2025-26, converted to points per 100 possessions at today's free-throw rate, directly measures how much one skill improved. It is smoothed over 5 seasons.

Combining them. The drift and a scale factor are fit by least squares so the returning-player index matches the free-throw index as closely as possible across every season. No year is assumed to be a fixed reference. Fitted, the overall gaps come out a little over twice the free-throw gaps, with the same shape over 80 years.

From strength to title value. A title counts by the chance that season's champion would beat an equally dominant champion of the average league in history in a seven-game series, times 2, so an average-league title counts 1.00. Factors are then scaled to average exactly 1.00 across history, like difficulty.

Uncertainty. The returning-player index rests on a finite set of players, so the whole fit is repeated over resamples of players and the title factor is averaged over them. An uncertain gap is then neither ignored nor taken at face value. The number of resamples comes from a precision target: a 200-resample pilot measures each factor's spread, and the run uses enough resamples, $(1.96 \times \text{sd} / 0.01)^2$, to put every factor within ± 0.01 of its limit 19 times in 20. That is currently 957.

League-season	Strength vs average league (pts/100)	Plausible range	Title counts
NBL 1939-40	-8.1	-11.9 to -4.8	0.12
BAA 1946-47	-3.9	-5.6 to -2.3	0.40
NBA 1949-50	-2.1	-3.6 to -0.7	0.63
NBA 1954-55	+1.2	+0.2 to +2.3	1.16
NBA 1964-65	+2.8	+2.1 to +3.5	1.40
NBA 1972-73	-2.0	-2.7 to -1.2	0.65
ABA 1971-72	-3.3	-4.0 to -2.6	0.46
NBA 1979-80	+1.5	+0.7 to +2.4	1.21
NBA 1989-90	+2.9	+2.0 to +3.9	1.41
NBA 2004-05	+0.4	-0.4 to +1.2	1.03
NBA 2025-26	+2.8	+2.1 to +3.6	1.40

The dips line up with known history: the early-1970s expansion and the ABA split talent across 27 to 28 teams, and the late-1990s and early-2000s expansion (Toronto, Vancouver, Charlotte) shows the same pattern. ABA and NBL seasons take that season's (or the nearest) NBA strength minus their measured gap.

Alternatives considered.

Option	Why not
League gaps only (ABA, NBL), no era adjustment	Treats a 1947 title the same as a 2025 one; rejected as a clear miss.
Fixing the drift with a baseline year (e.g., 1980 on)	The result hinged on an arbitrary year: Mikan moved from 6th to 61st depending on the year chosen.
Anchoring to league points per 100 instead of free throws	Scoring rates also reflect pace, rules and style, not just skill; it came out too harsh on every early era.

Option	Why not
Shrinking uncertain strengths toward zero	Made 1946-47 look stronger than 1972-73, which no measure supports. Averaging the title factor over resamples replaced it.
Today's league as the reference	Works, but every factor below 1 reads as a discount on history; the average league is the neutral reference and keeps the factors averaging 1.

Projections

During a season the site projects each team's final wins, playoff and play-in odds, seeds and title odds, both as of today and as they stood before opening night.

Team strength. Players' LEGACY ratings weighted by their share of the team's minutes over its last 10 games, so injuries and trades show up as they happen. Before opening night it's last season's ratings plus a year of aging, with the opening-night rotation. This roster strength is blended with the team's opponent-adjusted results so far: early in the season the roster counts for about two thirds, by midseason the results do. The blend at each point in the season was set by the backtest, not by hand.

Game odds and win totals. Each remaining game's odds come from the two teams' strengths plus home court, through a probit model fit on 1983-84 onward. A team's true strength isn't known exactly, so it carries a spread, set so projected win totals spread exactly as much as actual results did in the backtest (about 3.75 points per 100 preseason, 2.5 early, 2.25 by midseason). Win totals and their range are computed exactly, game by game, with no simulation.

Standings, seeds and titles. Playoff, play-in and seed odds depend on every team's results at once, so they come from simulated seasons: 38,415, the number that keeps every percentage within ± 0.5 points 19 times in 20 ($1.96^2 \times 0.25 / 0.005^2$). Ties are broken at random; seeds go by record (before 2016, division winners were guaranteed top seeds). For each simulated playoff field, title odds are computed exactly with the same playoff game model used for Rings Added.

Backtest. Every season from 1983-84 (when the playoffs went to 16 teams) through 2025-26, except the 2019-20 bubble, before opening night and after every tenth of the season. At each point the ratings are refit using only games played by then. LEGACY beats both

simpler projections at every checkpoint:

Point in season	Wins miss: record pace	Wins miss: results only	Wins miss: LEGACY	Playoff Brier: LEGACY	Champion's median title odds
Preseason	12.4	12.4	8.6	0.154	16%
10%	13.3	8.8	7.4	0.131	14%
30%	7.2	5.9	5.6	0.106	21%
50%	4.7	4.3	4.2	0.080	19%
70%	3.1	2.8	2.8	0.053	21%
90%	1.5	1.4	1.4	0.030	22%

Wins miss is the typical error in a team's final win total. The Brier score for playoff odds is 0 when perfect and 0.25 for always saying 50%. Results only projects from each team's opponent-adjusted margin, without player ratings.

Daily updates

History changes once a year, after the Finals; the current season updates every night.

Because the ratings are fit jointly, adding a night of games could otherwise nudge past seasons and reshuffle career leaderboards daily. To prevent that, completed seasons' ratings, Wins Added, team strengths and box priors are frozen after each full rebuild. A nightly run refits the model, then restores every completed season from the frozen copy, so only the season in progress changes.

Step	Nightly	After the Finals
Fetch new games and play-by-play	Yes	Yes
Refit ratings, Wins Added	Current season only; history restored from the freeze	Every season, then re-frozen
Projections	Yes	Yes
Title odds, Rings Added, aging curve, NBL, era adjustment	No	Yes
Publish the site	Yes	Yes

A full rebuild also runs if the frozen copy is missing or Rings Added hasn't been computed. A season's Rings Added appears only once its Finals are over; until then the site shows “—”.

How it runs. A Windows scheduled task starts at 3 a.m. and retries hourly for 18 hours until one run succeeds. The run keeps the laptop awake while it works, so it runs with the lid closed as long as the laptop is on the charger (sleep on AC power is set to never, and closing the lid does nothing). Each run writes a dated log, and marker files record the last successful day and the latest game included, so a retry never marks a day done without a rebuild. The site is hosted on Cloudflare Pages.

Settings and how each was chosen

Every number below was either measured, set by a forward test, derived from a precision target, or is a definition. Where a test showed a tie, the tie is noted.

Setting	Value	How it was chosen
Box prior strength	100	Forward test: stints tuned 2010–16, pre-1997 tuned 1960–96
Season-to-season smoothing	200	Forward test
Aging curve in smoothing	On	Forward test (aging backtest)
Box model ridge penalty	10	Tie with 1 and 100 in the 2026 audit; kept
Rate padding	300 possessions	Tie with 150 in the audit; kept
Shooting padding	100 true-shot attempts	Tie with 50–200 in the audit; kept
Thin-box prior scale (no steals/blocks)	0.7	Forward test 1956–75: 0.482 vs 0.421 at 1.0 and 0.475 at 0.5
No-minutes prior scale (1947–51)	0.1	Forward test: 0.1–0.4 tie, all beat ≥ 0.55

Setting	Value	How it was chosen
Replacement level	Players outside each team's top 9, smoothed 7 seasons	Tie in the audit; kept
Titles per season	5	Definition: five players on the floor
Difficulty and league strength normalization	Average 1.00	Definition: an average season or league counts 1
Era smoothing	5 seasons	Tie in the audit; kept
Era player threshold	1,000 minutes (NBL 500)	Kept; the NBL threshold is lower because its seasons were short
Era resamples	957	Precision target: every title factor within ± 0.01 , 19 times in 20
Free-throw reference	2021-22 to 2025-26	Definition of "today" for the free-throw index
ABA gap	1.5 per 100 (0.3 in 1975-76)	Measured from league switchers
NBL gap	0 (1947-48), 5.0 (1948-49)	Measured from league switchers
Projection window	Last 10 games	Tie with 5, 20 and full season in the backtest; kept
Projection blend and spread	By checkpoint	Fit in the backtest (spread by variance matching)
Projection simulations	38,415	Precision target: every percentage within ± 0.5 points, 19 times in 20
Projection backtest start	1983-84	First season with 16-team playoffs

Limitations and open questions

- **Old defense is mostly invisible.** Before 1973-74 there are no steals, blocks or rebound splits, so defensive value in those seasons comes mainly from game results and teammates' minutes. Ratings for that era carry wider uncertainty than modern ones.
- **Estimated minutes.** Before 1983-84 many game minutes are model estimates (typical miss 4-5 minutes per game). The share estimated is published with each rating.
- **The NBL rests on very little.** No minutes, no game results and only scoring stats; NBL ratings are box estimates anchored to team margins, and NBL titles count for little partly for that reason.
- **The era adjustment compares leagues, not players head to head.** It says how deep the competition was, not how a 1950s player would fare today. Its fit assumes the returning-player and free-throw measures share the same long-run shape.
- **Difficulty and league strength are correlated.** Harder titles and stronger leagues tend to fall in the same seasons, so the ring pool totals about 520 rather than exactly 505. This is reported, not forced away.
- **History moves once a year.** Because seasons inform each other, each post-Finals rebuild can shift past ratings slightly. Between Finals, history is frozen.
- **Ratings use playoff games.** A player's season rating includes his playoff games, so the playoff half of Rings Added isn't fully independent of the rating it multiplies.