After the Break Small Study V1

V1.0 final | 4 October 2026 | Narrow review PASS | Frozen; not published

Executive summary

In charted matches, how much do next-service hold rates differ after a break versus after a hold, and can that raw gap be interpreted as a within-player after-break effect?

Across 9,198 Match Charting Project matches from 2010 onward passing internal completeness checks, the next same-set service game was held less often in after-break observations. The gap is −7.9 percentage points for men and −8.0 for women. This is a transition-weighted descriptive association across observed games.

2010+	After hold	After break	Gap pp [95% CI]
Men	81.59%	73.72%	-7.87 [-8.61, -7.12]
Women	68.83%	60.78%	-8.04 [-9.29, -6.79]

Player-match composition alone can generate a gap of similar magnitude. After-break observations are disproportionately drawn from player-match units with lower overall hold rates. The raw contrast does not show that being broken changes subsequent performance.

The existing 2020+ and top-five-player deletion checks preserve the raw negative direction. They do not remove composition, confounding or selection. Repeated-player and match dependence is accounted for under a dyadic dependence model; intervals are approximate, not a guarantee of coverage.

The dataset contains 172,369 eligible same-set transitions, including 40,388 after-break observations. Break events are not randomized: player and opponent strength, score state, fatigue and selection into continued play can confound the pattern.

Conclusion: a reproducible raw gap is present in this selected dataset. Its size cannot be read as how much the same player changes after being broken. No new empirical analysis was added in this revision. V1 is frozen with Eric’s approval after narrow review PASS. Publication remains subject to Eric’s final approval.

Exact selected sample definition

The analysis sample is pinned and V1 is frozen. Reuse audited transitions at source commit 1813a1309b7ed7ebf1c7e884b32bf675d00e4edf; retain strict_match=True and year>=2010. Analyze men and women separately. No new data ingestion, external joins or competition exclusions.

Strict matches have unambiguous usable metadata, intact point/game sequences from match start, internally valid scoring, and a match-winning set total. Unsupported short-set and match-tiebreak contexts are excluded. Completeness is checked internally, not against official match records. Excluding unfinished records is outcome-adjacent selection.

Each transition links the same server's consecutive regular service games within one set, with exactly one valid opponent service game between. Source, middle and target games must be consecutive, point-contiguous and validated, with the same set state. No cross-set or tiebreak endpoints; both held and broken targets are retained. Linkage is established before filtering failed games, so no invalid game is skipped.

After break means source winner differs from server; next hold means target winner equals that same server. The intervening return-game result is not included as an ordinary pre-treatment control.

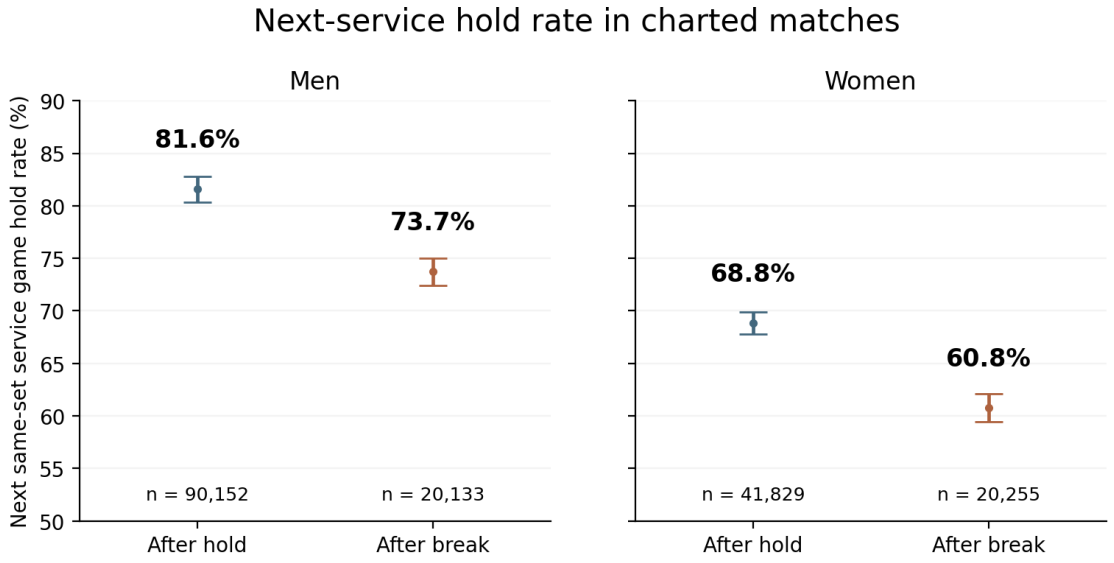
Sample	Matches	Transitions	After break	After hold
Men 2010+	5,416	110,285	20,133	90,152
Women 2010+	3,782	62,084	20,255	41,829
Men 2020+	3,250	66,716	12,140	54,576
Women 2020+	2,518	41,284	13,387	27,897

Matches are volunteer-charted and self-selected, potentially favoring prominent players and matches. Competition labels include challenger, ITF, team, junior and exhibition events; no formal competition classification was performed. This is not a representative or formally classified tour sample, and not every record is verified professional competition.

Underlying metadata end on 21 May 2026 for men and 9 September 2026 for women. Exact recorded names identify players; spelling aliases are unresolved. Same-set eligibility also conditions on continued observed play.

Raw result and main figure

2010+	Prior service	Held / eligible	Hold rate	95% CI
Men	Held	73,551 / 90,152	81.59%	80.36 to 82.82%
Men	Broken	14,842 / 20,133	73.72%	72.43 to 75.01%
Women	Held	28,789 / 41,829	68.83%	67.78 to 69.87%
Women	Broken	12,312 / 20,255	60.78%	59.47 to 62.10%



2010+ strict sample. Whiskers: approximate 95% CIs under a dyadic dependence model.
Axis begins at 50%. Group rates describe selected observations, not a within-player effect.

Gap = after-break rate minus after-hold rate: men −7.87 pp [−8.61, −7.12]; women −8.04 pp [−9.29, −6.79]. Both directions agree; no formal sex-difference test was specified. Whiskers quantify approximate uncertainty under shared-player dependence assumptions, not selection, measurement error or confounding.

Player-match composition alone can generate a gap of similar magnitude. After-break observations are disproportionately drawn from player-match units with lower overall hold rates. The raw contrast does not show that being broken changes subsequent performance.

Existing bounded descriptive checks

Comparison	Men gap pp [95% CI]	Women gap pp [95% CI]
2010+ primary	-7.87 [-8.61, -7.12]	-8.04 [-9.29, -6.79]
2020+ subset	-7.97 [-8.73, -7.22]	-7.69 [-9.32, -6.06]
2010+ excluding top five	-7.95 [-8.81, -7.09]	-7.75 [-8.85, -6.65]

2020+ contains 5,768 matches and 108,000 transitions. The era restriction retains the negative raw direction. This is not evidence that composition or temporal confounding has been eliminated.

Men: Novak Djokovic, Roger Federer, Hubert Hurkacz, Rafael Nadal, Jannik Sinner. These five supply 16.5% of primary serving transitions. Removing every match involving any of them in either role removes 1,605 matches and leaves 76,685 transitions.

Women: Iga Swiatek, Bianca Andreescu, Elina Svitolina, Caroline Wozniacki, Elena Rybakina. These five supply 11.4% of primary serving transitions. Removing every match involving any of them in either role removes 824 matches and leaves 48,659 transitions.

The pattern is not solely driven by these five servers. This bounded deletion is not an exhaustive influence audit and does not remove broader player-match composition. Rankings were determined from primary transition counts, with alphabetical tie breaking.

What the raw gap can establish

Player-match composition alone can generate a gap of similar magnitude. After-break observations are disproportionately drawn from player-match units with lower overall hold rates. The raw contrast does not show that being broken changes subsequent performance.

The reviewer’s bounded null diagnostic demonstrates compatibility with a composition explanation; it does not prove zero temporal dependence. It conditions on observed sequence structure and hold totals, may produce sequences that do not correspond to legal tennis score paths, removes within-unit time trends, and does not simulate opponents’ return games. It is not a causal null test or a bias-corrected effect estimate.

A negative difference across groups does not identify a within-player change. No conclusion about psychological collapse, rebound, or a randomized causal effect is supported.