# A Moment to Break The Ice

## Researching the Effects of "Icing" The Kicker in the NFL

Joshua LaFronz

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## Introduction

There are moments in sports that highlight how lonely it can be. Despite the thousands of fans present, a player can feel as if he's on an island. Take a closing pitcher on the wrong end of a walk-off home run or a soccer player sailing the ball into the stand during a penalty shootout. These are team games, but in a moment's notice, fair or not, a player wears all of the blame for an entire game's worth of events.

Another example is the nightmare scenario for one of the more thankless jobs in sports: Being an NFL place kicker. They're expected to always deliver in critical moments because "it's their only job," and a disproportionate amount of blame is placed on them when they miss. Take a very recent example: Giants @ Broncos in Week 7. The Broncos won a 33-32 thriller after a furious fourth quarter comeback. That's an atypical box score; 32 points is not a usual number. That odd score is, in part, due to the struggles of (former) Giants kicker Jude McAtamney. He missed two extra points in the Giants' collapse, the latter of which was very significant. If he converted the last attempt, the score would have been 33-30, and the Broncos' mad dash to field-goal range would have merely tied the game instead of winning. There is no denying that he had a miserable day, however, to highlight that moment is reductive. The Broncos would have never been in position to win the game if the Giants' defense didn't allow Denver to score 33 points in a quarter. There's a reason Giants edge rusher Brian Burns was cursing out the Giants' defensive coordinator and not the kicker; allowing that many points in a single quarter is far more egregious than missing an extra point, even if the situation was crucial. The G-Men allowed two successful two-point conversions and a frantic 56-yard drive in less than 40 seconds in which the Broncos lacked a single timeout. Yet, the kicker wears the blame in the minds of fans. That's pressure.

With that level of pressure in win-or-lose moments, opposing coaches like to find ways to ramp it up even further. One such strategy is called "icing the kicker," an act of psychological warfare where the opposing coach waits until the last moment possible to call a timeout before the kicker attempts a crucial field goal. The idea is that the sudden adrenaline drop will rattle the kicker and give him more time to think about the moment. There's a reason why this is such a widespread tactic; there are compilations of it working.

However, with any sports superstition or distraction technique, the virality of it can outweigh its actual effectiveness. To briefly shift the lens to the NBA, let's flash back to the 2021 NBA playoffs. One of the more annoying practices that emerged was a taunt at the expense of NBA champion Giannis Antetokounmpo. Opposing arenas created a

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derisive chant in which they would count the seconds Giannis spent at the free throw line. He was called for a violation at one point and his lengthy routine became a talking point. It was funny at first, but it got old very quickly. Giannis averaged ten free throws a game in his crowning 2021 title run, and with half of those attempts in opposing arenas, that's a long time to keep the joke going. Did the taunting work? Arguably, yes.

| Venue | FTM | FTA | FT% | PPG |
|-------|-----|-----|------|------|
| Home  | 70  | 105 | .667 | 33.0 |
| Away  | 51  | 101 | .505 | 27.6 |

Table 1: Giannis's 2021 Playoffs Splits

That is a very wide disparity. However, I believe that this highlights our psychology as sports fans. We are geared to focus on extremes, so we reduce the actual efficacy of the tactic to moments that affirm our bias. Yes, Giannis's free-throw shooting was worse on the road in the playoffs, where the counting was ever present. But extreme examples don't tell the whole story. Many NBA stars like Kobe and Jordan lived for putting 20,000 loud, annoying, and disrespectful fans back in their seats; not to mention–Giannis won a ring in 2021. I want to apply that frame of thinking to icing the kicker. There are some hilarious examples of it working perfectly, but on average, how well does icing the kicker actually work?

## Gathering Data

To answer my question, I needed to collect a lot of kicking data. Relying on the amazing *Pro-Football Reference*, I scraped 25 years of field goals. I created a loop in Python that combed through NFL play-by-play data from 2000-24. It looked for field goal attempts and if the opposing coach took a timeout directly before the attempt. The NFL can be very chaotic, and there were several edge cases and scenarios to account for when creating the scraping loop. It required nearly a dozen different iterations to eliminate field goals that were left out and erroneous additions. Play-by-play data isn't perfect; some field goals were absent from the play-by-play log for whatever reason, but my loop was almost perfect (captured 99.8% of field goals from 2000-2024).

Here's a brief codebook of my dataset[1]:

- year - season (discrete)

- date - game date

- Player - kicker's name (string)

- pURL - kicker's URL (string)

- team - kicker's team (string)

- HA - if the kicker's team was the home team (boolean)

- post - if the game was a postseason game (boolean)

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[1]If I were to repeat this data gathering, I would find a way to add a weather column. Football-Reference does not mention whether it was snowing or raining, just temperature, wind and humidity

- dome - if the game was played under a closed roof (boolean)

- turf - if the game was played on turf instead of grass (boolean)

- make - if the attempt was made (boolean)

- iced - if the attempt was iced by the opposing team (boolean)

One note: there are no recorded instances of teams icing their own kicker. That hilarious scenario will not be reflected because it is very common for teams to take a timeout before attempting a pivotal late-game kick. And opposing coaches icing the kicker is a deliberate choice, while the other way around is a faux pas. So again, funny occurrences like Jason Garrett icing his kicker Dan Bailey will be recorded as simple misses with the binary "iced" variable set to 0, as those situations are not examples of this tactic.

## A New Approach

Upon first glance, this question appeared simple to answer. I use bootstrapping to determine the confidence interval of the ratio of field goal accuracy when the kicker is and isn't iced.

$$\theta^{(B)} = FG\%^* / FG\%^*_{iced} \tag{1}$$

Where $\theta^{(B)}$ is the parameter of interest; $FG\%^*$ is a bootstrap sample of field goal accuracy (where "iced" $= 0$) and $FG\%^*_{iced}$ is a bootstrap sample of accuracy on iced field goal attempts.

$$Ho : \theta = 1$$
$$Ha : \theta > 1$$
$$B = 10,000 \text{ iterations}$$
95% CI: $[1.043, 1.102]$
Interval does not contain 1
Verdict: Reject $Ho$

Given the other variables in my dataset, this analysis seems too simple and reductive. For one, distance is the biggest factor in field goal accuracy, and it's absent from this bootstrapping problem. Given the nature of kicking, when distance increases, accuracy generally decreases. That creates a couple of issues in the previous bootstrapping problem. First, it assumes that the average field goal distances between iced and uninterrupted attempts are the same. This assumption needs to be verified in order to give weight to the previous interval.

Similar to the previous test, a non-parametric difference test is best for verifying this. The distribution of field goal attempt distances is ambiguous, but certainly not normal,
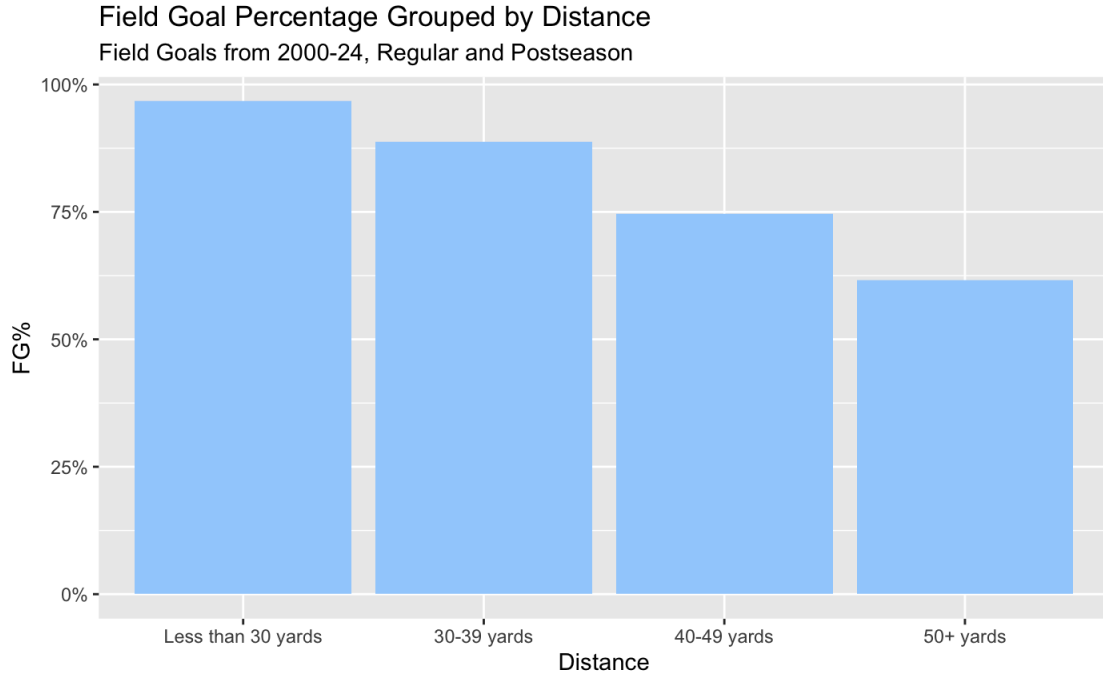
Figure 1: How field goal accuracy differs by distance

so I performed a Mann-Whitney U Test:

$$\theta = \text{dist} - \text{dist}_{iced}$$
$$Ho : \theta = 0$$
$$Ha : \theta \neq 0$$
$$0 \leq p < 2.2 \times 10^{-16}$$
$$95\% \text{ CI: } [-4, -2]$$
$$\text{Interval does not contain } 0$$
$$\text{Verdict: Reject } Ho$$

This result effectively renders the initial bootstrapping interval meaningless. There could very well be a difference in accuracy between field goal attempts, but the bootstrap interval is not nuanced enough to answer that. With that in mind, I shifted my strategy to a logistic regression model:

$$p(Y = 1|X) = logistic(\beta_0 + \beta_1 \times \text{dist} + \beta_2 \times \text{iced}) \qquad (2)$$

Since distance factors into the difficulty of a field goal attempt, I included it within the model. Using R, I made two binomial logistic regression models and performed a Likelihood Ratio Test to determine the difference in fit when *iced* was added as a predictor.

| Model | Residual Df | Residual Deviance | Df | Deviance | Chi Sq. P |
|---|---|---|---|---|---|
| $Y \sim \beta_0$ (Null) | 25593 | 23450 | | | |
| $Y \sim X_1$ (dist) | 25592 | 20447 | 1 | 3003 | $\approx 0$ |
| $Y \sim X_1$(dist) + $X_2$(iced) | 25591 | 20444 | 1 | 2.87 | 0.0902 |

Table 2: R results for LRT

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There was not much improvement when *iced* was included; this is further demonstrated by examining the 95% coefficient confidence intervals, where zero is present:

$$\text{dist} : [-0.1029, -0.0950]$$
$$\text{iced} : [-0.2524, 0.0186]$$

This leads to the conclusion that *iced* is a weaker explanatory variable. For thoroughness's sake, I replicated Table 2, but with *iced* being the first predictor included in the sequential analysis.

| Model | Residual Df | Residual Deviance | Df | Deviance | Chi Sq. P |
|---|---|---|---|---|---|
| $Y \sim \beta_0$ (Null) | 25593 | 23450 | | | |
| $Y \sim X_1$ (iced) | 25592 | 23420 | 1 | 29.47 | $5.689 \times 10^{-8}$ |
| $Y \sim X_1(\text{iced}) + X_2(\text{dist})$ | 25591 | 20444 | 1 | 2976.37 | $\approx 0$ |

Table 3: R results for LRT, ver. 2

Icing the kicker was a significant predictor compared to the null model, but distance clearly does the heavy lifting in the multivariate model. Here are some other goodness-of-fit metrics to further cement that claim:

| Model | Log Likehood | Pseudo-$R^2$ |
|---|---|---|
| $Y \sim \beta_0$ (Null) | -11724.89 | |
| $Y \sim X_1$ (dist) | -10223.4 | 0.1281 |
| $Y \sim X_1$ (iced) | -11710.15 | 0.001257 |
| $Y \sim X_1(\text{iced}) + X_2(\text{dist})$ | -10221.97 | 0.1282 |

Table 4: Psuedo $R^2$ among the model candidates

It should be noted: this model is next to useless when it comes to predicting, but I'm focused on explaining why certain field goals were missed. Since NFL kickers are professionals, the dataset is highly unbalanced, meaning that assessing model accuracy on a test set doesn't really indicate how helpful the model is. The AUC-ROC value was 0.53 for the multivariate model, meaning that it's about as effective as guessing.

## Hail Mary

Given that *iced* has been shown to be a weak predictor, I decided there was one last test to run: partitioned bootstrapping. Since I showed that iced and unimpeded attempts have a significantly different median distance, I partitioned the field goal attempts based on their distance, and performed bootstrapping on the accuracy between the two groups. I also verified that the median distance among iced and non-iced attempts within these partitions were not significantly different.

$$\theta^{(B)} = FG\%^*/FG\%^*_{iced}$$
$$Ho : \theta = 1$$
$$Ha : \theta > 1$$
$$B = 10,000$$
$$\alpha = .05$$

| Distance | LB | UB | $1 \in$ CI? | Verdict |
|---|---|---|---|---|
| $\leq 29$ yards | 0.9930 | 1.0477 | Yes | Fail to Reject $Ho$ |
| 30-39 yards | 0.9602 | 1.0258 | Yes | Fail to Reject $Ho$ |
| 40-49 yards | 0.9964 | 1.1222 | Yes | Fail to Reject $Ho$ |
| 50-54 yards | 0.9355 | 1.1603 | Yes | Fail to Reject $Ho$ |
| 55-59 yards | 0.8470 | 1.340 | Yes | Fail to Reject $Ho$ |
| $\geq 60$ yards | 0.5660 | 2.3113 | Yes | Fail to Reject $Ho$ |

Table 5: Partitioned Bootstrapping Analysis

0-for-6. Some of the intervals are close to being significant, suggesting that icing the kicker could have some effect on the accuracy, which is similar to the story being told by logistic regression. Some of the intervals are nearly significant and the *iced* predictor was nearly significant at the threshold of $\alpha = .05$. Overall, icing the kicker does not appear to have a significant impact on the kicker's accuracy over the sample of 25,000+ attempts from 2000-2024. However, this result won't deter coaches from icing the kicker. As I previously stated, it's an act of psychological warfare. It's a tactic designed to test the kicker's mettle. Look at Week One of the 2025 season: the Falcons have a chance to tie the game against the Buccaneers. Right before Younghoe Koo attempts the 44-yard field goal, the Bucs call a timeout. Iced! On the second attempt, Koo missed it wide right, and was promptly released by the Falcons. He remained unemployed until the Giants gave him a call to address their kicker troubles. Despite Koo's faux-pas, he was not significantly affected by icing, according to the dataset:

| Iced? | FGM | FGA | Pct | Avg. Dist. |
|---|---|---|---|---|
| No | 162 | 188 | 86.17% | 38.65 yds |
| Yes | 17 | 20 | 85% | 38.45 yds |

Table 6: Younghoe Koo's experience with icing the kicker

Unsurprisingly, the bootstrap interval for Koo showed no significant difference between iced and uninterrupted attempts. However, that missed kick lost the Falcons the game and temporarily cost Koo his job. Try telling him that icing the kicker isn't real!

# References

[1] "NFL 'Icing The Kicker' Compilation." *YouTube*, uploaded by Highlight Heaven, 17 Jul. 2018, URL.

[2] "Jason [Garrett] ices his own kicker, leading to [Cardinals] victory in OT." *YouTube*, uploaded by MrWholesome, 10 Aug. 2022, URL.

[3] Statistics taken from Pro-Football Reference.

[4] Data manipulation and analysis done using R.