

## Is There a Home Choke in Decisive Playoff Basketball Games?

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Previous studies (Baumeister & Steinhilber, 1984; Schlenker, Phillips, Boniecki, & Schlenker (1995a) have found conflicting results regarding whether home teams have an advantage or not in athletic performance. We conducted two studies to explore the effects of basketball teams playing at home in playoff competition. We archived more than fifty years of National Basketball Association (NBA) playoff data, extending previous research to include a longer range of time and broader sample of NBA playoff games. We also extended previous studies by archiving a unique sample of college playoff basketball competition. Results are discussed in terms of both theoretical and applied implications. In sum, we found virtually no evidence of a home choke and strong evidence in favor of a home court advantage.

There is a common belief in athletics that competing on one's home field or court provides a distinct advantage over one's opponent. Athletes, coaches, spectators, and commentators alike frequently advocate the merits of playing at home, due in part to familiar surroundings and a supportive audience. A major reason sporting teams strive to perform well throughout a season is to gain home-field advantage during playoff competition. Athletes regularly comment about the importance of having the home field or court during high-profile contests, such as championship games or the pivotal game of a playoff series.

History has demonstrated that such beliefs are more than simple naïve assumptions on the part of sports fanatics. For example, in the 5 year time period spanning from 2001 to 2006, the average home-court winning percentage during the regular season for professional teams in the National Basketball Association (NBA) was 61% ([www.espn.com](http://www.espn.com)). Similarly, across all best-of-seven playoff series in Major League Baseball (MLB), the NBA, and the National Hockey League (NHL) history, the team playing Game 1 at home has a series win-loss record

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of 649-307—a winning percentage of 68%, a number consistent with statistical modeling of home team performance (Bassett & Hurley, 1998). The series win-loss record for MLB, NBA, and NHL teams playing Game 1 at home in a finals series is 147-75 (66% winning percentage) ([www.whowins.com](http://www.whowins.com)). Thus, home-team performance across a variety of sports domains has validated the supposition that having home-court advantage enhances the likelihood of success.

However, despite this seemingly robust empirical validation, research examining how the presence of supportive audiences influences athletic performance and game outcome has yielded mixed results (e.g., Baumeister & Steinhilber, 1984; Schlenker, Phillips, Boniecki, & Schlenker, 1995a). Most prominently, in a provocative and counterintuitive article, Baumeister and Steinhilber (1984) posited a home-choke hypothesis, where rather than providing a distinct advantage, playing at home actually leads to a disadvantage for competitors, particularly in deciding games of a playoff series.

To test their hypothesis, Baumeister and Steinhilber (1984) examined archival data from every baseball World Series (excluding 4-game sweeps) from 1924 to 1982, as well as data from NBA finals and semifinals series from 1967 to 1982. Their analyses revealed solid support for the home-choke hypothesis. For example, they found that in what proved to be the last game (5, 6, or 7) of a given World Series the home team won only 40% of the time, and in the decisive seventh game of a World Series the home team won only 39% of the time. In NBA championship and semifinal series from 1967–1982, they found the home team won 70% of games 1-4, but only 46% of last games and 38% of seventh games. These findings led Baumeister and Steinhilber (1984) to conclude that while the home-team may experience an advantage during the majority of competitive events, they may experience a pronounced disadvantage when on the verge of a series victory—as in clinching a World Series or NBA title.

Since its initial proposition, the home-choke hypothesis has received additional support from archival research in domains such as golf (e.g., Wright, Jackson, Christie, McGuire, & Wright, 1991) and ice hockey (e.g., Voyer, Kinch, & Wright, 2006; Wright, Voyer, Wright, & Roney, 1995), as well as in studies of professional baseball and basketball (e.g., Benjafield, Lidell, & Benjafield, 1989; Heaton & Sigall, 1989).

In addition to the evidence provided by archival research, data demonstrating the potentially harmful effects of supportive audiences on skillful performance have also been gathered in laboratory settings (e.g., Baumeister, 1984; Baumeister, Hamilton, & Tice, 1985; Baumeister, Hutton, & Cairns, 1990). Baumeister (1984) argued that pressure increases self-awareness and conscious attention to performance execution, and consequently leads to decrements in performance. Baumeister et al. (1985) demonstrated that although participants' private expectations of success led to enhanced performance, an audience that expected participants to succeed lowered subsequent performance when participants did not believe they could meet those expectations. Additionally, Baumeister et al. (1990) found that praising performers for peak performances led to decreases in performance on subsequent trials. The primary mechanism by which Baumeister and colleagues argued choking occurs is the increased conscious attention performers give to skillful execution induced by expectations of repeated success. Other researchers have also shown that increasing attention to well-learned processes can lead to decrements in skillful execution (e.g., Beilock & Carr, 2001; Beilock, Kulp, Holt, & Carr, 2004; Wicklund, 1975). Thus, to the extent that playing a sporting event in front of a supportive audience increases the importance of performing well, the results of Baumeister's (1984) studies lend credence to the argument that supportive audiences may hinder skillful performance by increasing athletes' attention to athletic execution.

### **Challenges to the Home Choke: Evidence of the Home-Field Advantage**

For many athletes, coaches, and spectators the finding that performing in front of one's home audience may decrease performance is counterintuitive. It is possible that a supportive audience may add pressure but also provide benefits to the home team. Other researchers have examined evidence supporting the home choke and argued that evidence of the home choke is weak or non-existent (e.g., Courneya & Carron, 1992; Gayton, Matthews, & Nickless, 1987; Schlenker et al., 1995a; 1995b). Most notably, Schlenker et al. (1995a; 1995b) performed a re-analysis of the data examined by Baumeister and Steinhilber (1984), bolstering the sample with the results of championship series played over the subsequent 11-year span following the initial publication, and failed to obtain support for the home choke hypothesis. In their re-analysis, Schlenker et al. (1995a; 1995b) found that home teams won as often in deciding games of a series as they did early on, and that any evidence of the home choke was limited to a distinct era in baseball history.

In their re-analysis of championship performances in professional basketball, Schlenker et al. (1995a; 1995b) found another restriction for the home choke—it primarily pertains to teams whose regular season record characterizes them as underdogs. In professional baseball, the same team hosts Games 6 and 7, whereas in professional basketball, Game 6 is often played on the home court of the team with a worse regular season record and Game 7 is always played at the site of the team with the better regular season record. For example, in all semifinals and many championship series throughout NBA history the series have been played in a “2-2-1-1-1” format—the first two games are played on the home court of the team with the better regular season record, the following two on the home court of the team with the worse regular season record, and the last three alternating between these locations. Consequently, the home team in Game 6 of a series of this format has been the team having the worse regular season record. Other series formats have been implemented in professional basketball that put Games 6 and 7 at differing locations (e.g., 1-1-1-1-1-1, 1-2-2-1-1). Thus, showing that the home team wins only 41% of decisive sixth games versus 58% of decisive seventh games (during which the better team is at home) may not be demonstrating a home choke, but rather a discrepancy attributable to differential abilities of the home teams. Thus, we will examine not only the outcome of sixth games, but also whether home teams performed differently depending on whether they had a better or worse regular season record than their opponents.

An additional factor that may affect evaluation of the home choke is the statistical concept of regression to the mean. For example, a team leading a series 3–1 won at least one, and probably both of their home games. Thus, it should not be entirely surprising when their performance in Game 5 does not equal or surpass their previous home performance. As far back as Sir Francis Galton (Stigler, 1986), researchers have discussed regression to the mean. In sport, it follows that superb (or abysmal) performance will typically be followed by performance closer to the overall mean. Thus, teams that lead a series may seemingly perform more poorly later in the series, and teams that trail a series may seemingly perform better, when in reality regression to the mean may be at work in both cases. Morris has provided convincing evidence in data taken from baseball that regression to the mean is a key factor to consider when predicting individual or team performance (Efron & Morris, 1973, 1975; Morris, 1998).

So what effect does playing at home have in a deciding game of a playoff series? Does the counterintuitive home choke exist, or is the lay perception that the home field provides a distinct advantage more accurate? In an 11-year time span, how did Baumeister and Steinhilber (1984) and Schlenker et al. (1995a; 1995b) reach such strikingly different conclusions? We address these questions in two ways. First, we compare home performance to multiple baseline

measures to be used as comparison standards for home performance. Second, we examine home team performance at different points in time during a series to examine whether teams perform similarly when they trail or are ahead in a series. Third, we examine whether the home choke exists in small college basketball.

### **What Defines Choking? Identification of Baseline Comparisons**

What defines choking under pressure? To what standard should performance in championship games be compared when assessing whether a team has choked or excelled on their home court? The selection of a baseline standard is one factor that must be considered when examining the home-choke hypothesis.

In their investigation of baseball championships, Baumeister and Steinhilber (1984) elected to assess choking by comparing how the home team performed in the final game of each series to home performance in Games 1 and 2 of that series. Baumeister and Steinhilber (1984) could accurately use Games 1 and 2 as a baseline standard against which to assess whether home performance in decisive games improved or declined because the home team in Games 1 and 2 also hosted Games 6 and 7. Thus, one baseline standard that ought to be used to investigate the home-choke hypothesis is how the home team of a potential decisive game performed in their first two home games of a given series.

A second baseline standard that can be used is to compare home-team performance in decisive games to how all home teams performed in games prior to the decisive contest (e.g., Games 1–4), thus creating a more general home-performance baseline. Using home performance in Games 1 and 2 as a baseline against which to compare home performance in Games 6 and 7 is inappropriate for the NBA because often times the home team in Game 6 was not the home team in Games 1 and 2. To deal with this issue, both Baumeister and Steinhilber (1984) and Schlenker et al. (1995a; 1995b) chose to use home performance in Games 1–4 as a standard for comparison, providing a legitimate, albeit very general baseline measure of average home performance in the first four games of a series.

A third, simple baseline standard that may be used to assess whether a home advantage exists is to examine whether home teams win significantly more than 50% of their decisive games. If neither the home choke nor home field advantage exist, one would expect the home team to win at nothing more or less than a chance rate—50%. If, however, either of these phenomena does exist, we would expect the home team's winning percentage in decisive games to vary systematically from this chance level, being either significantly lower or higher than 50%. Neither Baumeister and Steinhilber (1984) or Schlenker et al. (1995a; 1995b) included this baseline in their analyses.

### **Series Standing and Choking Under Pressure**

In addition to examining how the home team performs in a decisive game, it may also be important to examine how different situations within a series influence home performance. For example, a potential series deciding game in which the home team leads a series 3-1 or 3-2 may lead to a different mindset among players than a series in which the home team trails 3-1 or 3-2. Baumeister and Steinhilber (1984) discussed at length the possibility that home teams that have the opportunity to clinch a series may be distracted by the thoughts of impending success and consequently experience decrements in performance. On the other hand, a home team trailing 3-2 or 3-1 may play with a sense of urgency and desperation that is unmatched at other points in a series.

Baumeister and Steinhilber (1984) argued that skillful performance may deteriorate in front of supportive audiences in decisive contests due to heightened levels of self-awareness.

Self-awareness theory (Duval & Wicklund, 1972) posits that self-awareness is an increase in self-attention that detracts from attention to the surrounding environment. However, there are also a variety of reasons to expect that the simple act of playing at home may counteract and even override the pressure of a supportive audience. Koning (2005) demonstrated that speed skaters performed better in front of a supportive audience. In addition, sports such as basketball that are continuous in nature demonstrate the strongest home advantages (Pollard & Pollard, 2005). Sports that are moderately continuous such as American football demonstrate smaller home advantages, and baseball, with breaks after every pitch, shows the lowest home advantage. Schlenker et al. (1995a; 1995b), Pollard (2006), and Stefani (2008) discussed several major factors that help us understand the home field advantage, including (a) players' familiarity with their surroundings at home, (b) players' ability to stick to a regular daily routine at home, (c) less fatigue from travel, and (d) the direct and indirect benefits of crowd support.

For example, basketball players have shot thousands of shots on their home court, providing a perceptual advantage for members of the home team when shooting in a game. In addition, practicing on a court day after day may provide additional confidence to athletes through feelings of comfort. Travel is another factor that makes playing on the road challenging. Pollard (2006) found that the distance traveled by road teams in European football matches was a significant predictor of home field advantage effects. This effect may be driven by fatigue, lack of focus due to distractions, or a general lack of comfort that takes away from performance. Finally, although a supportive crowd may place additional pressure on the home team, it may also create a hostile environment for the road team, while energizing the home team. Furthermore, officials may inadvertently favor home teams with critical calls that can easily shift the outcome of a close contest (Nevill & Holder, 1999). Taken together, it is clear that playing at home provides familiarity with surroundings that can lead to increased performance. Even if familiarity only serves to keep a contest close, home teams may be more rested at the end of an exhausting contest, and be the beneficiary of close calls by officials. All of these factors may conspire to provide a significant home field advantage in sports, especially one such as basketball that is continuous in nature.

## THE PRESENT STUDY

The present study revisits the home choke to gain a more comprehensive view of whether it exists in basketball. There are multiple reasons this study is an important contribution to the literature. First, previous analyses of the home-choke hypothesis (e.g., Baumeister & Steinhilber, 1984; Schlenker et al., 1995a; 1995b) have varied in the comparison standards used to assess changes in home performance during redefining contests, which provide a team with an opportunity to achieve a new level of success (e.g., winning a championship). Furthermore, not all of the appropriate comparison standards (e.g., 50% winning percentage) have been used while examining the hypothesis. Thus, to gain a better understanding of whether the home choke exists it is imperative to re-analyze the hypothesis using a range of possible baselines as comparison standards for decisive game performance.

Second, since Schlenker et al.'s (1995a; 1995b) most recent analysis, several years of playoff competition have passed. To gain the most comprehensive view of the home-choke hypothesis, it is important to extend the analysis of home performance in years as well as beyond just that of performance in finals competition. Baumeister and Steinhilber (1984) contended that the home choke primarily pertains to home performance during decisive or redefining contests. Thus, they limited their analysis to examining home performance in championship and semifinal

series. However, for some teams and athletes victory in the deciding game of a quarterfinal or semifinal series may represent an immense hurdle. To obtain the most inclusive analysis of the home-choke hypothesis possible, we extended this analysis to include quarterfinal, semifinal, and championship series. Although Schlenker et al. (1995a; 1995b) made several sound arguments in their paper, Baumeister's (1995) response did not indicate agreement that the home choke was dead. In addition, it is still the case that some textbooks mention the home choke as if it is true: "Indeed, based on current literature we must conclude, albeit counterintuitively, that athletes do not respond positively to performing in front of a supportive audience." (p. 110) (Jones, Bray, & Lavallee, 2007). We hope these studies will provide coaches and sport psychologists with knowledge of factors that may affect both home and road team performance.

### STUDY 1: REPLICATION/EXTENSION OF BAUMEISTER AND STEINHILBER (1984) AND SCHLENKER ET AL. (1995a; 1995b)

#### METHOD

##### Selection of Archives

Given the relatively small sample of data reported in the original pair of studies (Baumeister & Steinhilber, 1984; Schlenker et al., 1995a; 1995b), along with the conflicting results, it seems advantageous to explore whether similar patterns emerge with an increased sample size of playoff series. Thus, we archived the result of every NBA Quarterfinals, Semifinals, and Finals playoff series that were not four-game sweeps, during the period from 1947–2005, for a total of 307 playoff series encompassing 1,802 games. Table 1 presents a summary of the combined NBA finals, semifinals, and quarterfinals results (1947–2005). The year-by-year win-loss records were obtained from the official website of the National Basketball Association ([www.nba.com/history](http://www.nba.com/history)), and specific statistical data from NBA finals were obtained from <http://webuns.chez-alice.fr/home.htm>. We also analyzed data for semifinal and final series only from 1967–2005, and from 1947–2005, providing more direct replications of Baumeister and Steinhilber (1984) and Schlenker, et al. (1995a; 1995b). In both of these datasets, we

**Table 1**  
**National Basketball Association Quarterfinal, Semifinal, and Final Results (1947–2005)**

	Home record	Better team record	Worse team record	Baseline A	Baseline B	Baseline C
Home leads 3-1						
Game 5	67-27 (71%)	66-25 (73%)	1-2 (33%)	*163-25(87%)	797-431 (65%)	+50%
Home leads 3-2						
Game 6	43-22 (66%)	8-2 (80%)	35-20 (64%)	*111-19(85%)	797-431 (65%)	+50%
Home trails 3-1						
Game 5	34-19 (64%)	29-14 (67%)	5-5 (50%)	+46-60 (43%)	797-431 (65%)	+50%
Home trails 3-2						
Game 6	63-53 (54%)	3-3 (50%)	60-50 (55%)	144-88 (62%)	*797-431 (65%)	50%
Series tied 3-3						
Game 7	71-15 (83%)	71-15 (83%)	0-0	+118-54(69%)	+797-431 (65%)	+50%

*Note.* Baseline A represents home team performance in the first two games of the series. Baseline B represents all home teams' performance across the first four games of playoff series. Baseline C is 50%. \*Home choke,  $p < .05$ . + Home advantage,  $p < .05$ .

found a similar pattern of findings as those observed in Study 1, albeit with weaker results due to the smaller sample size. For parsimony in the presentation of results, we have not included those findings.

### **Selection of Baselines**

One crucial aspect of our analysis that diverged from that conducted by Baumeister and Steinhilber (1984) was in the selection of a baseline against which to evaluate home performance. They elected to use the results of Games 1-4 as a home performance baseline in their analysis of basketball championships. Although this is one way to evaluate home performance, it may be more appropriate to compare final game performances to how well that particular team performed in their first two home games of that series. Finally, an additional test of whether a home advantage exists is to examine whether home teams win significantly more than 50% of their games. Because each of these baseline measures has merit, but none is perfect, we have reported analyses on all three of them: (a) how that particular team performed in its first two home games of that series (e.g., Games 1 and 2, or Games 3 and 4), (b) all home teams' performances in the first four games of a series, and (c) 50%. Using these baseline measures ought to provide us with a more comprehensive analysis than previous studies of the performance of home teams in potential series deciding games. For example, if teams performed poorly compared to the first two games of a series, but still better than 50%, one could argue that this would not be a home choke. On the other hand, if home teams performed better or worse than all three baselines in a particular game, that would be convincing evidence of either a home-field advantage or choke.

### **Performance and Series Standing**

Further we extended our analysis to consider two additional factors. First, we considered whether the team with the better regular season record was at home or on the road in deciding games. Schlenker et al. (1995a; 1995b) pointed out that a team's ability and home court advantage are confounded, and we followed their lead in considering this in our analyses. To deal with this, we examined home team performance at several different points in a series, while simultaneously considering which team had the better regular-season record.

Second, rather than focusing exclusively on games that ended a series, we examined separately five different types of series that had the potential to end in the next game. These games include when the home team is ahead 3-1 or 3-2, when the home team trails 3-1 or 3-2, and when the series is tied 3-3. This analytic strategy allowed us to examine home team performance when they needed to win (i.e., being behind 3-1 or 3-2 in a series), had a chance to clinch (i.e., being ahead 3-1 or 3-2 in a series), or both (i.e., tied 3-3 entering a decisive Game 7).

## **RESULTS**

When home teams led 3-1, they performed significantly more poorly in Game 5 (71%) than Baseline A (87%),  $X^2(1, N = 282) = 9.91, p < .01$ . There was no significant difference between home performance and Baseline B (65%),  $X^2(1, N = 1322) = 1.57, p > .05$ , however home teams did win significantly more than 50% of these games,  $X^2(1, N = 94) = 17.02, p < .01$ .

When home teams led 3-2, they also performed more poorly (66%) in Game 6 compared to Baseline A (85%),  $X^2(1, N = 205) = 9.65, p < .01$ . Although that is true, these home teams still performed better than 50%,  $X^2(1, N = 65) = 6.78, p < .01$ . There was no significant difference between home performance and Baseline B (65%).

When the home team trailed 3-2, performance also suffered in Game 6, with a winning percentage of only 54%. Although not significantly different than Baseline A or Baseline C, this was significantly lower than Baseline B (65%),  $X^2(1, N = 1344) = 5.16, p < .05$ .

We also found evidence that home teams performed better when they were in most desperate need of a win. Specifically, home teams trailing 3-1 won more Game 5's (64%) than Baseline A (43%),  $X^2(1, N = 159) = 6.09, p < .01$ . Game 5 performance was also significantly better than 50%,  $X^2(1, N = 53) = 4.25, p < .05$ .

The most critical test of the home choke occurs in Game 7. This is the one situation where a win equals a championship and a loss signals the end of the season. In all other situations that we have analyzed, only one of those possibilities existed. We did not find any evidence that Game 7 performance was hampered by being at home, or even that the home court had a neutral effect. Rather, home teams won 83% of their game 7's, a significantly higher percentage than Baseline A (69%),  $X^2(1, N = 258) = 5.70, p < .05$ , Baseline B (65%),  $X^2(1, N = 1314) = 11.17, p < .01$ , and Baseline C (50%),  $X^2(1, N = 86) = 36.47, p < .01$ .

## DISCUSSION

We observed home teams underperforming relative to Baseline A (home performance in the first two games of a series) when leading 3-1 or 3-2, and outperforming Baseline A when trailing 3-2. These findings likely represent regression to the mean instead of a home choke given that teams had won 87% and 85%, respectively, of their first two home games. The 71% and 66% winning percentages in potential clinching games hardly represents a choke; in fact both percentages are significantly higher than 50%. One might also argue that to choke implies a sense of anxiety or nervousness, which seems inconsistent with Baumeister and Steinhilber's (1984) conceptualization of a team being distracted by the possibility of success. When trailing 3-1, presumably there was a greater sense of urgency, and teams won 64% of their games. Interestingly, this winning percentage is close to that of home teams when they led 3-1 or 3-2, only in this case, it emerged as a home field advantage because of poor performance early in the series. In sum, all three of these findings seem to indicate that home teams won approximately 67% of their games when leading 3-1 or 3-2, or trailing 3-1. Inferring that these results imply both home advantage and disadvantage seems less accurate than attributing these findings to regression to the mean (in both positive and negative directions).

In the clearest test of the home choke, we observed that home teams in Game 7 outperformed all three baselines. It is important to note that across the five scenarios (down 3-1 or 3-2, up 3-1 or 3-2, and tied 3-3); this was the only effect that was significant compared to all three baseline measures. Contrary to the notion of a home choke, we observed strong, consistent evidence that home teams performed significantly better in Game 7 than they did earlier in the series, than the average of all teams did early in a series, and compared to 50%. This robust advantage that home teams have been found to enjoy in deciding Game 7's strongly suggests that the counterintuitive concept of the home choke does not exist.

### Ancillary Analyses

We conducted additional analyses to more fully test some of the hypotheses generated by Baumeister and Steinhilber's (1984) original paper. One of the most vivid accounts of home choking comes in Baumeister and Steinhilber's (1984, p. 86) paper when they wrote, "To give a crude but relevant example, the (baseball) shortstop who is busy imagining himself celebrated as a World Series hero in a victory parade may misjudge the ball bouncing toward him and make a fielding error." If this choking scenario is likely, then home teams should be more likely

to lose a lead late in a potential series clinching game. If, on the other hand, the home choke does not exist, we should observe home teams successfully protecting leads late in games.

We analyzed all NBA finals games and found that when home teams led or were tied after three quarters in a game where they could clinch a championship, their record was an impressive 24-2 (92%), compared to visitors who could clinch a title and led or were tied entering the fourth quarter (11-4, 73%),  $X^2(1, N = 41) = 2.74, p < .10$ . On the other hand, there was no difference between home and visiting teams who led entering the fourth quarter in a game where they could be eliminated (10-5 and 11-5, respectively).

We also examined whether home teams performed differently in potential series ending games when they led (3-2 or 3-1) compared to when they trailed (2-3 or 1-3). Baumeister and Steinhilber (1984) articulated a view of home teams ready to attain glory becoming distracted by their impending success, leading to a home choke. If this is the case, home teams leading a series 3-2 or 3-1 should perform more poorly than those trailing in a potential series ending game. In fact, we found the opposite, where teams leading a series 3-2 or 3-1 performed significantly better (110-49, 69%) than teams trailing 3-2 or 3-1 (97-72, 57%),  $X^2(1, N = 328) = 4.89, p < .05$ , providing further evidence against the notion of a home choke. This finding is consistent with Schlenker et al.'s (1995a; 1995b) analysis of errors in baseball, where they found that home teams were significantly more likely to make errors when they were trailing compared to when they were ahead in seventh games of World Series.

Finally, because home advantage and regular season records are partially confounded, we focused on home team performance only when the team with the better regular season record was at home, as is the case with all Game 7's. We found that teams with better regular season records than their opponents performed better in Game 7's (71-15, 83%) compared to the other four scenarios (i.e., 3-1, 3-2, 2-3, 1-3) described above (106-44, 71%),  $X^2(1, N = 236) = 4.12, p < .05$ , providing more evidence that in the ultimate test for home teams, they perform better than other games that can decide a series.

## **STUDY 2: SMALL COLLEGE BASKETBALL CONFERENCE PLAYOFFS (1984–2007)**

To test the generalizability of these results, we extended our analysis one step further, into a different domain within the sport of basketball. We chose National Collegiate Athletic Association (NCAA) Division 3 college basketball, a setting different from the glitz and glamour of the National Basketball Association. In NCAA Division 3, there are no athletic scholarships and few games are televised. Those that are televised are broadcast on local cable channels. Thus, the pressure from the media is much less than in the NBA.

A berth in the national tournament rests on winning one's conference playoff championship. As a result, this pressure better simulates that experienced by NBA players in the days before games were televised and players were paid millions of dollars. Similar to the situation Baumeister and Steinhilber (1984) described, these playoff games are typically sold out, with standing room only crowds that arrive well before the game to get a seat. On the other hand, regular season games in Division 3 typically have small to moderate crowds, and even subsequent Division 3 National Tournament games tend to have many seats available. Finally, it is safe to assume that players in Division 3 are less experienced dealing with pressure than NBA players, making this type of home-court game the ultimate they may experience in terms of crowd support. This pressure-packed playoff environment presumably amplifies any home court effects in small college basketball.

## METHOD

We identified three Division 3 conferences in the same region of the country (Minnesota Intercollegiate Athletic Conference (MIAC), Wisconsin Intercollegiate Athletic Conference (WIAC), and Iowa Intercollegiate Athletic Conference (IAC)) that have all member schools play each opponent twice during the regular season, once at each school's gymnasium. Thus, when two schools meet in the conference playoff, it is their third meeting of the season, providing an excellent baseline measure based on the outcome of the regular season game at the same site. We archived results from all conference semifinal and final playoff games (MIAC, 2007; WIAC, 2007; IAC, 2007). The MIAC instituted a playoff system in 1984, while the WIAC and IAC established conference playoffs in 1999.

For this investigation, we compared home playoff performance to three baselines: (a) the outcome of the regular season game at the same site, (b) the outcome of the regular season game at the other school's gym, and (c) 50%.

## RESULTS

Home teams won 80% of their home playoff games (98-25 record), which was not significantly different than the home team's regular season winning percentage in games played at the same site (100-23 record, 81%),  $X^2(1, N = 246) = .10, p > .70$ . Home teams in the playoffs did perform significantly better than they did versus the same opponent on the road during the regular season (63%),  $X^2(1, N = 246) = 7.99, p < .01$ . Finally, home team playoff performance was significantly better than 50%,  $X^2(1, N = 123) = 43.33, p < .01$ . Once again we found no evidence of a home choke, but did find a home advantage compared to two of three baseline measures.

## GENERAL DISCUSSION

We set out to examine the effects of playing on one's home court in basketball. Previous analyses had led to conclusions ranging from a home choke to a home advantage. Across two studies, we found little evidence of a home choke in basketball. In fact, the evidence indicates that playing at home provides a strong advantage at several points during a series. This finding was the case when teams led a series 3-1, 3-2, or trailed a series 3-1. The sole exception occurred in Game 6's when the home team trailed 3-2, most of which were played on the floor of the team with a poorer regular season record. The fact that poorer teams lose many of these games is not surprising. This single case of home choking is likely attributable to regression to the mean, where poorer teams performed better than expected early in a series only to return to anticipated levels later in the series. Importantly, these teams still did not perform more poorly than 50%.

In the ultimate game of professional basketball series, we observed home teams performing exceptionally well in Game 7's. In fact, the most consistent effect we observed was in Game 7's where home teams performed better than all three of our baseline measures.

### **Extension of Baumeister and Steinhilber (1984) and Schlenker et al. (1995a; 1995b)**

In this paper we expanded on Baumeister and Steinhilber (1984) and Schlenker et al.'s (1995a; 1995b) work in multiple ways. First, we explored a longer time period of games, extending Baumeister's analysis by 20 years, and Schlenker et al.'s by a decade. Second, we conducted analyses on three types of series (finals, semifinals, and quarterfinals). We found that

as we broadened the sample to include quarterfinals games, results became even stronger in the direction of a home advantage. Third, we included multiple baseline measures of performance. We believe this analytic strategy allows for a thorough and objective evaluation of home-court effects. Fourth, we examined game results from different scenarios that provided must-win or a chance to clinch a series opportunities. Finally, we obtained data from a separate sample of games in NCAA Division 3 basketball. In this final study, we observed non-scholarship college basketball teams performing well in must-win games to advance to the national tournament. Taken together, these results provide support for a home court advantage.

### **Explaining the Home-Court Advantage**

One clear drawback to this type of archival research is the absence of the measurement of potentially mediating variables that may more clearly explain the motivational processes behind a home-court choke or advantage. Although we can speculate on the emotional arousal and valence of players and teams, archival research does not allow us access to athletes' feelings and emotions before and during a competition. Although heightened arousal has the potential to help through social facilitation, Baumeister and Steinhilber (1984) argued that home teams experience unpleasant self-awareness due to the pressure of living up to their fans' high expectations. In today's world, virtually every NBA playoff game is televised to a national audience. Therefore, in the NBA, heightened self-awareness should affect home and road teams similarly because they are both on a global stage. At the same time that both teams experience similar levels of self-awareness, we hypothesize that only the home team will benefit from familiarity with their routine and surroundings.

It is important to note that our findings are not limited to games with a national or international audience. Study 2 examined small-college basketball, a sports world where playoff games are not televised and the only way to guarantee advancement to the national tournament is by winning the conference tournament. These games are typically sold out, and the home team receives the vast majority of the allotted tickets. Thus, these games are nearly entirely partisan crowds, simulating the supportive audience Baumeister and Steinhilber (1984) described. In this scenario, knowing that their seasons, and careers, could be over with one loss, home teams won nearly 80% of their games. In this sample of small-college basketball, an encouraging crowd seems to provide a significant advantage to the home team.

Finally, these results are noteworthy because of the setting of the study and the nature of the dependent variable. Uncontrolled field studies of athletics, using the dichotomous dependent variable of winning/losing do not provide the most statistically powerful measures of performance. Without more sensitive measures of performance or arousal, we are left to speculate about the specific mediational processes at work. The fact that such a clear home court advantage exists using this dichotomous measure further supports the powerful edge obtained by being at home, particularly given the narrow margins of victory in many playoff games.

### **Applications of the Home-Court Advantage**

There are several ways in which the results of these studies on home team performance can be used by basketball coaches and sport psychologists. First, across all games, we found no instances where the home team won fewer than 50% of their home games. The majority of the findings compared to our three baselines displayed a clear home advantage. As a result, coaches should absolutely push their teams to earn the home field advantage. It is difficult to imagine that there are other single variables that provide as strong of an advantage as the home court.

Second, we observed regression to the mean effects in several scenarios during a series. Coaches whose teams take early leads in a series ought to communicate with players that merely winning games early in a series does not increase the likelihood of winning later games. Such communication is particularly important given the strong belief that momentum developed by early success should enhance performance later in the series (Markman & Guenther, 2007). Each game is its own entity, and the one game at a time mantra preached by some coaches seems wise.

It is possible that basketball is a sport likely to demonstrate a home advantage due to the nearly continuous action during the game (Pollard & Pollard, 2005). Compared to sports with many stoppages and breaks in the action, basketball may produce lower levels of self-awareness. For example, baseball pauses between every pitch, providing both batter and pitcher with several seconds to become keenly aware of exactly what is at stake with the next pitch. Thus, the heightened self-awareness Baumeister and Steinhilber (1984) described may be more likely to affect performance in sports such as baseball or golf, where competitors are afforded many opportunities to engage in paralysis by analysis. Sports such as basketball or hockey seem less likely to demonstrate negative self-awareness effects, and more likely to show positive social facilitation effects. Practitioners should take note of the continuity of action in a sport in assessing the likely effect of playing at home or on the road.

Previous research (Pollard, 2006; Schlenker et al., 1995a; 1995b; Stefani, 2008) has identified three major factors that help explain the home field advantage. These factors can best be summarized as ranging from physiological (travel) to psychological (direct and indirect crowd effects) to tactical (familiarity with playing conditions). Each of these three factors can be applied in important ways by coaches and psychologists.

Travel can be exhausting for road teams, particularly when teams finish a game, immediately head to the airport, and then take a late night or early morning flight to a new destination. Coaches should work to make the travel as smooth and comfortable as possible to ensure rested athletes. In examining playoff competition, we believe this factor to be less significant because in most cases, both teams are traveling at the same time to the same place. With the exception of the start of a series, both home and road teams travel to and from the same sites throughout a playoff series. Thus, while travel can have a significant effect on performance (Pollard, 2006), it should have a smaller influence during the playoffs.

Coaches and sport psychologists can take several steps to increase the familiarity athletes have with their surroundings. For the road team, becoming familiar with an arena is critical. Players should be allowed significant time to adjust perceptually to the nuances and size of an arena. Players should spend extra time shooting, scrimmaging, and even just relaxing in the arena so that they feel comfortable when the game begins. As much as possible, the goal is to feel as comfortable on the road as one does at home. In addition to making travel easy and keeping players rested, coaches and sport psychologists can help foster confidence in athletes prior to and during the athletic competition. Confidence comes from preparation before the game, and also from the realization that any one game, even the seventh game of a series, still operates under the same rules as any other game. There is a classic scene in the movie *Hoosiers*, where Gene Hackman, the coach of a small, underdog high school takes his players to the large fieldhouse at Butler University and measures the height of the basket. His confused players relax when he lets them know that his point is that the playing floor is exactly the same as those they had played on their whole lives.

It's important that coaches of the home team maintain as much of a routine as possible for their players. The first author is also a college basketball coach. During the past two seasons, his teams have not lost a single regular-season home game, yet lost both of their home games in the national tournament. Before both of those games, his teams have had a walk-through

practice and pregame meal, two things they do not do before any other home games. Of course, the level of competition is better in the national tournament than during conference play. But we wonder if activities such as these make a game seem markedly more important, and more difficult, potentially leading players to enter a contest with a different frame of mind than that which they take to other home games during the year. To the extent that a home or road coach can have a team simulate their normal routine and mindset during a playoff game, chances are good this will benefit a team's performance. This preparation may also involve providing players on the road with more freedom as far as their sleep and eating schedules. At home, players generally eat and sleep when they want to, providing additional comfort and relaxation.

Another major challenge for road teams is a hostile crowd. Although the evidence is mixed on the effects of a supportive audience, clearly road teams would be wise to work at simulating these hostile conditions so it is not a shock to their players' systems. Coaches and psychologists may also talk to athletes about strategies for stopping the momentum a team can gain from crowd support. For example, there may be several ways to make basketball less continuous, including the use of time outs, frequent substitutions, and generally having players slow down between plays and at the free-throw line to increase the length of short breaks and generally slow down the continuous nature of the game.

On the other hand, home teams may work to create a frenzied continuous pace marked by extreme crowd involvement. In particular, referees' calls may be unintentionally biased during those moments of crowd noise and intensity (Nevill & Holder, 1999). The home team may be able to create a situation where the game flows quickly and the crowd applies pressure on referees at critical times.

## CONCLUSION

In sum, there are a number of ways that coaches and psychologists can apply these results supporting home court advantage to benefit either a home team or a road team. We hope this set of studies will encourage authors of sport and social psychology textbooks to remove mention of the home choke and give it the same exit that most home teams give road teams in the playoffs. We have observed clear and consistent evidence in both professional and college basketball that the home-court advantage exists. We believe coaches and players everywhere would concur if given a choice of where they would like their teams to play: Home, sweet home.

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