

# **Cheers vs. Jeers: Effects of Audience Feedback on Individual Athletic Performance**

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Both athletes and fans believe that audience support (e.g., cheering) is one of the top influences on a team's success, particularly at home when the crowd is predominantly supportive, possibly contributing to reported home-field advantage (Courneya & Carron, 1992). Yet there are few experimental investigations of whether distinctive types of audience feedback have differential effects on athletes' performance of particular sports skills. In this study, college athletes performed a familiar task in their respective sport (pitching, free throw shooting, hitting a golf ball) in front of audiences who cheered, jeered, and remained silent, depending on the assigned condition. Basketball players' free throw performance was unaffected by audience condition, but jeers hurt performance for baseball pitchers, and jeers and cheers resulted in worse performance for golfers. Audiences or fans can impact performance, but impact may depend on sport, the specific sport skill, and specific audience behavior. Implications for understanding the role of audiences and home-field advantage are considered.

There are a number of factors that can influence an athlete's performance during a game other than the athlete's skill. Athletes must perform in front of crowds in every game, and crowds express their feelings about athletes' performances by, for instance, cheering (supporting them) or jeering (discouraging them). The presence of such an audience may affect team and individual athlete performance.

Social facilitation has been characterized as the effect of observers on individual performance (Butler & Baumeister, 1998; Zajonc, 1965). In general, research shows the presence of one or more spectators can enhance performance if the skill is easy or well learned, but performance may decrease if the task is difficult or unfamiliar (Cottrell, Wack, Sekerak, & Rittle, 1968; Forgas, Brennan, Howe, Kane, & Sweet, 1980; Strauss, 2002a; Zajonc, 1965). For example, in one of the earliest studies on social facilitation, Travis (1925) found that participants engaged in a pursuit-rotor task performed significantly better (made fewer tracking

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errors) when they were observed by an audience of four to eight people compared to when they performed alone. Michaels, Blommel, Brocato, Linkous, and Rowe (1982) showed that better pool players improved their performance when they had a small group of spectators, but mediocre players had a decrease in performance when being watched. Taken at face value, then, given that the skills athletes perform during their sport are familiar, well-practiced ones, one might expect positive effects of social facilitation to exist for athletes during sporting games (cf., Carron, Burke, & Prapavessis, 2004).

But of course, audiences for sporting events are not merely present; they do not merely observe the performance of athletes during a game. Rather, they engage in a variety of behaviors that interact with the players for each team in games (Cox, 1985). They may applaud when a receiver catches the football and heads for the end zone. They may heckle the batter on deck for the opposing team. They may offer silence for the player shooting from the foul line if she or he is on their preferred team, or they may rumble loudly trying to distract the shooter if she or he is on the non-preferred team. In simple terms, audiences cheer and jeer. Audience effects, then, may be very different than mere spectator effects. Studies have shown clearly that audiences can impact physiological variables of athletes (e.g., arousal, cardiac performance), as well as cognitive variables such as self-concept and perceptions of performance (e.g., see Jones, Bray, & Lavallee, 2007). However, less is known about how particular audience behaviors, like cheering or jeering, influence athletes' actual performance.

The notion that what audiences do interacts with and has an effect on the performance of athletes ostensibly is substantiated in the home-field advantage literature. Home-field advantage refers to the established finding across several sports that, given a balanced home and away schedule, teams typically win more home games than away games (Courneya & Carron, 1992; McCutcheon, 1984; Nevill & Holder, 1999). Many aspects of the sports situation, such as facility familiarity, relative fatigue, referee bias, and territorial defense effects have been proffered as influential factors in home-field advantage (Moore & Brylinsky, 1993; Salminen, 1993; Schwartz & Barsky, 1977). But researchers, athletes, and fans repeatedly assert that the crowd is a key element. More specifically, it is widely believed that "crowd support," "supportive audience," "home crowd," "home team fans" is one of the aspects that gives the home team the edge (Courneya & Carron, 1992; Schwartz & Barsky, 1977; Tauer, Guenther, & Rozek, 2009).

Presumably, having a supportive and encouraging audience motivates the athletes to perform better. Some studies have investigated whether having an audience present enhances performance, and have found rather

surprising results. For example, taking advantage of quarantine due to a measles outbreak that resulted in some season basketball games being played with an audience and others without, Moore and Brylinsky (1993) found measures of team performance did not differ depending on audience presence, by one analysis. However, by a second analysis examining effect sizes, they concluded that team performance was actually better when there was no audience. In one of the few experimental studies in the area, Forgas, et al. (1980) systematically varied the composition of the audience for squash players, with no audience, female audience, and male audience, and found overall, the presence of an audience decreased performance. But importantly, these audiences were spectator-only; the observers did not interact with the players in any way.

Other studies have tried to consider the mood or reactions of the audience as a predictive variable for team performance. For instance, Salminen (1993) studied Finnish soccer, hockey, and basketball matches, with a focus on the relationship between audience reactions and goals and penalties, based on 5-minute game intervals. Results suggested neither enhancing effects of a supportive audience nor inhibiting effects of an unsupportive audience. Focusing more exclusively on moments of negative or unsupportive audience action, Greer (1983) found the five minutes following particularly noticeable audience protesting behaviors (e.g., collective booing) were associated with basketball home teams gaining advantage (more scoring, fewer violations/turnovers) simultaneous with visiting teams suffering decline (fewer successful shots, more violations/turnovers). They suggested the primary contributor to home-team advantage may be the visiting team performance being actively hurt by unsupportive audience behavior (rather than, say, that the audience behavior generated a bias in refereeing). Thirer and Rampey (1979) discovered interesting relationships between *extreme* negative audience behavior and team performance in basketball. Normal audience conditions were associated with fewer fouls and turnovers for the home team compared to visiting teams. Yet, in 5-minute periods following extreme negative audience tactics (i.e., behavior beyond normal 'booing', such as throwing objects, fighting, chanting obscenities), the home team tended to have more infractions than visitors. That is, extreme anti-social behaviors of the audience were predictive of performance decrements for the home team; this audience behavior was not related to changes in performance of visiting teams.

Ultimately, years of research have revealed contradictory results about both the reality of the home-field advantage and the specific role of audiences (e.g., Baumeister, Hamilton, & Tice, 1985; Baumeister &

Steinheilber, 1984; Schlenker, Phillips, Boniecki, & Schlenker, 1995; Smith, 2005; Strauss, 2002b; Tauer, et al., 2009; Wright, Voyer, Wright, & Roney, 1995). Yet despite these equivocal findings, perception and belief in enhancing effects of the home crowd remain strong in fans and athletes alike, as well as researchers and the media (e.g., Bray & Widmeyer, 2000; Schlenker, et al., 1995; Smith, 2005; Wallace, Baumeister, & Vohs, 2005; Wang, 2006; Wolfson, Wakelin, & Lewis, 2005). Moreover, it is worth noting that most of the studies that consider audience factors and sports performance have been archival, observational, or quasi-experimental; there has been no systematic control over the behavior of the audience, for example. In addition, most studies have looked at whole game situations and overall team performance (e.g., number of points, wins/losses, RBIs, etc.). Of course, these are important, as indeed the performances of interest do occur in real games, with uncontrolled audiences and whole teams (Greer, 1983; Moore & Brylinsky, 1993; Tauer, et al., 2009). But there seem to be two largely untested issues embedded in conclusions about the role of interactive audiences in home advantage: (1) that team outcomes reflect performance across individual athletes and various skills; and (2) that specific audience behaviors are at least partially responsible for individual athletic performance leading to team outcomes. That is to say, it is commonly presumed that the crowd's cheering and jeering offers social support to their team and that such behavior actually affects specific skills of individual athletes in ways that produce differential outcomes for the teams (cf., Greer, 1983; Nevill & Holder, 1999; Tauer, et al., 2009).

The assumption is not without merit. After all, we know that supportive behavior from coaches reinforces specific team and individual skills, at least during practices. Operant techniques have been used widely to develop and improve motor behaviors, many related specifically to performance in sports. For example, contingent access to music increased the productive practice behaviors and decreased the nonproductive behaviors of teenaged competitive swimmers (Hume & Crossman, 1992). Also working with swimmers, McKenzie and Rushall (1974) found that social reinforcement from peers and praise from coaches increased practice attendance as well as the number of laps individuals swam each day. Allison and Ayllon (1980) showed that specific consequences delivered by coaches affected the blocking skills of teenage football players. Given encouraging responses (e.g., "good," "that's better") from the coach for correct blocks and unsupportive responses (e.g., "you lack courage," "horrible") plus having to run laps after incorrect blocks, the young players' good blocks increased and their errors decreased compared to baseline performance. Similar behavioral

coaching resulted in improvements for three gymnastics skills and three tennis strokes as well (Allison & Ayllon, 1980). Such behavioral coaching (i.e., praise, corrective feedback, tracking data/performance charts) also has been shown effective for increasing correct tags of inline roller speed skaters (Anderson & Kirkpatrick, 2002) and for improving punching and kicking techniques of martial artists (Harding, Wacker, Berg, Rick, & Lee, 2004). These studies primarily consider the effects of coaches' behaviors on athletes' performance, but it seems a plausible extension, and certainly congruent with popular opinion, that cheering (praise) from fans also could be a reinforcing consequence of individual athletic skills and jeering could be a punishing consequence. Yet, there is little direct experimental evidence to support this contention.

The present experiment investigated the effects of differential audience behavior (cheers, jeers, silence) on individual golf, baseball, and basketball players' performance of a particular sport-specific skill. Given that in golf, silence is encouraged in the audience, it was hypothesized that athletic performance in golfers would be best when the audience was silent as opposed to cheering or jeering. However, it was hypothesized that athletic performance for baseball and basketball would increase when the audience cheered over being silent and that performance would be lowest with the jeering audience.

## METHOD

This study used a 3 x 3 mixed factor design. The independent variables were type of audience feedback (cheers, jeers, or silent), a within subjects manipulation, and type of sport played (golf, baseball, and basketball), a between subjects variable. The dependent variable was accuracy for the sport-specific tasks. These tasks were operationally defined as the distance from the flag where the golf ball stopped, number of strikes pitched by baseball players, and number of successful free throws by basketball players.

### Participants

*Athletes.* Thirty-two college athletes at a small Division III all-male college volunteered as participants in this study: 8 golfers, 10 baseball players, and 14 basketball players. All participants were undergraduate students who played their respective sports regularly as members of the college teams.

*Audience.* The audience consisted of undergraduate students from the same college who volunteered from introductory psychology classes and a campus fraternity. Audience size was always 10 students. In order to control extraneous variables during each feedback condition, each audience member was randomly assigned a specific "cheer" (e.g., "Yeah!

Great job!"; "You are the man!") and "jeer" (e.g., "Miss it!"; "You suck!") to use in the good (cheer) and bad (jeer) feedback conditions. Audience members were told to speak from the script only, and they shouted their various cheers or jeers through each of 10 trials in each condition. In the silent condition, the audience was present but not interactive for 10 trials (i.e., spectator only).

### **Materials**

Testing for baseball took place on the college baseball field. Materials used included a regulation baseball, a regulation height pitching mound, and a net with a target 30 inches high and 17 inches wide (i.e. strike zone). Testing for the basketball task took place in the college basketball gymnasium. Materials used included a regulation basketball, a regulation basketball goal (10 feet high), and a regulation free throw line (15 feet from the goal). Testing for golf was examined on the college campus driving range. The materials for this sport included 30 regulation golf balls, a 9-iron golf club, and a flag 100 yards from the hitting point. A 100 ft measuring tape measured the distance, in yards, each ball stopped from the target.

### **Procedure**

Testing took place in different sessions according to the sport. As participants arrived, they signed an informed consent form. All athletes were allowed to warm up for 10 minutes before the test trials began. Athletes were told they would perform their sport skill 30 times in front of an audience comprised of fellow students at the college. Given the small size of the college, athletes may have known some of the audience members. The audience was then put into the stands around the test area. Athletes were brought in one at a time, and each completed 10 sport specific task performances in the good, bad, and silent conditions for a total of 30 trials (golfers hit the balls from 100 yards away from the target; baseball pitchers pitched from the pitching mound; basketball players shot from the free throw line). The order of the audience conditions was randomized across participants in each sport. Each audience member was assigned a feedback statement for the session to make sure that each feedback statement was used equally. During the cheering condition, the audience was asked to clap and shout positive remarks to the athlete such as, "Way to go!" or "You can do it!" During the jeering condition, the audience was asked to boo and shout negative comments such as, "Choke!" or "You suck!" During the silent condition, the audience was asked to be completely silent while the participant completed his 10 hits, pitches, or shots. In golf, the cheers and jeers began as the golfer set up for his swing, continued through the swing and

stopped after the ball had been hit. In baseball, the cheers and jeers began as the athlete set up before the pitch, continued through the pitch and stopped after the ball had been thrown. Similarly in basketball, the cheers and jeers began as the athlete set up to shoot a free-throw, continued through the throw and stopped after the ball was shot. All participants were debriefed at the end of the performances and asked not to talk about the experiment with other athletes that may also be in the study.

## RESULTS

The design was a 3 x 3 mixed factor design with audience condition as a within subject factor and sport as a between subject factor, and accuracy of performance as the dependent variable. Accuracy for baseball was measured by number of strikes out of 10 pitches. Similarly, basketball accuracy was the number of baskets made out of 10 free throws. In contrast, the distance from the target in yards represented golfers' hitting accuracy. Table 1 provides the means and standard deviations for each audience condition for each sport separately (i.e., number of successes for baseball and basketball and distance in yards for golf). Given dependent measures of different metrics, audience condition and sport could not be considered together. Thus, for each sport, collapsed across audience condition, data were transformed to *z*-scores so that all the data could be analyzed together. A 3 x 3 repeated measures ANOVA analyzed the transformed data. Because the data were transformed within each sport, giving each sport a mean *z*-score of 0, the

TABLE 1 Performance Accuracy in Each Audience Condition

Sport	Audience Condition					
	Silent		Cheers		Jeers	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Baseball	5.200	0.789	4.700	2.363	2.800	1.229
Basketball	8.214	1.477	8.214	1.762	8.214	1.578
Golf	10.391	1.857	11.889	2.492	12.713	3.471

*Note.* Accuracy is in terms of number of successes (of 10 attempts) for baseball and basketball but distance (yards) to the flag for golf.

analysis for a main effect of sport is virtually meaningless,  $F(2, 29) = 0.00$ ,  $p = 1.00$ . There was no main effect of audience condition on performance,  $F(2, 58) = .838$ ,  $p = .438$ . However, there was a significant interaction between sport and audience condition on performance,  $F(4, 58) = 5.077$ ,  $p = .001$ ,  $\eta_p^2 = .259$ , indicating that the effect of audience condition differed depending on the specific sport.

Simple main effects revealed that audience condition did not affect the success of basketball free throws,  $F(2, 58) = 0.00, p > .05$ . Indeed, a glance at the means for basketball in Table 1 reveals that on average basketball players missed very few of their free throws and the means of the three conditions were essentially identical (to the 16<sup>th</sup> decimal); basketball players shot with 80% success on average. Simple main effects on the data from baseball players showed audience condition did significantly affect pitching performance,  $F(2, 58) = 8.527, p < .01, \eta_p^2 = .512$ . Post-hoc LSD tests indicated that jeers resulted in worse performance compared to both cheers ( $p = .002$ ) and silence ( $p = .001$ ), but pitching did not differ significantly between the cheers and silent audience conditions ( $p = .521$ ). Audience condition also significantly influenced the hitting performance of golfers,  $F(2, 58) = 5.084, p < .05, \eta_p^2 = .359$ . Specifically, golfers' accuracy decreased in both the jeers and cheers conditions compared to the silent audience condition (both  $p$ 's  $< .05$ ), but performance was not different between cheers and jeers ( $p = .459$ ).

### DISCUSSION

The purpose of this experiment was to examine the effects of differential crowd behavior (cheers, jeers, and silence) on individual golfer, baseball, and basketball players' performance. The effect of audience condition differed depending on the sport. Pitchers threw significantly fewer strikes given an unsupportive audience than they did given supportive or silent audiences. Golfers performed best when the audience was silent and performed worse given both jeering and cheering audiences. Yet audience condition did not affect the success of basketball free throws at all. These findings suggest a number of considerations for understanding audience effects, the home advantage, and future research.

The present study is one of few experimental studies in the area, and possibly the only study involving systematic manipulation of audience behavior and its effects on performance of specific sport skills by athletes. In general, the nature of the audience did matter, at least for the athletic skills tested in baseball and golf. Thus, the present findings provide additional support, at the individual athlete level, for archival and quasi-experimental studies concluding that differential crowd behavior creates changes in performance. Furthermore, congruent with studies like Greer (1983) and Thirer and Rampey (1979), the present results especially highlight the role of negative audience behavior like jeering. As such, this study and its findings serve as a call for more attention to changes in performance of individual athletes, as well as on specific skills as individually contributing factors to home advantage. It may be that it is the susceptibility of certain athlete behaviors to differential crowd behavior that contributes to home advantage. For instance, maybe



pitching is particularly important in baseball, or possibly a combination of pitching and changes in reaction times for outfielder plays. Perhaps in basketball, it is not free throws that are the issue, but changes in rebounds or 3-pointers. Simply put, there may be value in dissecting both what the audience is doing and which sport skills are affected.

It is not clear why the nature of the audience would affect the three sport skills differently, but one possibility is that the specific skills chosen may not have been of equal complexity. For example, basketball players made 80% on average across conditions, suggesting that the free throw is perhaps an excessively easy task for the athletes. To this end, as a simple task, it is possible that the basketball results reflect a general social facilitation effect, wherein the mere exposure of an audience (regardless of specific behavior) boosted performance (cf. Platania & Moran, 2001). But because this study was focused on the influence of differential audience behavior, there was no "no audience" condition; thus, whether the basketball players would have had similar or lower success in free throw shooting compared to having an audience cannot be confirmed. Nevertheless, the fact that baseball pitchers and golfers showed changes in performance as a function of changes in audience behavior rules out a simple social facilitation effect (cf. Guerin, 1986).

Golf performance here could be interpreted to suggest that self-presentation played a role such that positive audience support may have increased the chances of the golfers "choking" (cf., Baumeister and Steinhilber, 1984; Wright, Jackson, Christie, McGuire, & Wright, 1991). Golfers did perform worse when a supportive audience cheered (compared to silence); of course, they performed equally poorly with the unsupportive audience. This was also not a particularly high-pressure situation (cf. Baumeister & Steinhilber, 1984). Furthermore, the same self-presentation concerns were possible for baseball and basketball players as well, yet the cheering audience did not lead to worse performance for those athletes. Thus it is unlikely that self-presentation concerns were a primary contributing factor in this study. Much more likely is the fact that accepted audience behavior is quite different for golfing than for baseball and basketball games. It is common for golf audiences to be silent, thus cheering and jeering might be equally distracting, leading to similar performance decrements compared to the silent condition. Indications are that the days of pure silence are over in golf (Hawkins, 2002; Verdi, 2001), though, so it may become increasingly interesting to study audience behavior effects on skills within golf. For example, there could be a golf skill that actually improves under cheering conditions or one that is differentially hindered by jeering. Considering which skills may be most affected by audience

behavior may shed light on some of the inconsistent or contradictory findings in the traditional home advantage research.

Nevertheless, fans commonly believe that their cheering matters (e.g., Bray & Widmeyer, 2000), and research has shown that supportive feedback, at least in coaching, can effectively improve athletic performance (e.g., Allison & Ayllon, 1980). In contrast, the present results showed that having a supportive audience, compared to a silent audience, did not improve performance for baseball, basketball, or golf, and in fact, actually harmed performance of golfers. On the other hand, the unsupportive audience (jeers) did result in lower accuracy for both baseball pitchers and golfers. Under these conditions, then, cheers did not function as a reinforcer for any of the tested behaviors, but jeers functioned as a punisher for throwing strikes and accurate golf hits. These results may suggest the real value of fan behavior during a sporting event is in their antagonism of the opposing team (though the authors are not advocating encouraging this among fans). Interestingly, this also has implications for our understanding of the so-called home-field advantage.

Like other studies (e.g., Salminen, 1993; Strauss, 2002b), the present study found no evidence for an enhancing effect of supportive audience behavior (cheering). Nor did the present study find a detrimental effect of cheering, as has been suggested by other studies (e.g., Baumeister & Steinhilber, 1984; Wright, et al., 1991). Jones, et al. (2007) noted the difficulty in resolving the seeming contradiction between general findings that supportive audiences do not seem to improve athletic performance and the fact that home teams still win more often. The beginnings of a resolution may be in a reinterpretation of the home advantage. Specifically, the home advantage may be better conceptualized as a visitor disadvantage due to effects of unsupportive audience behavior. That is, "bad" (the jeers) may simply be more powerful than "good" (cf., Baumeister, Bratslavsky, Finkenauer, & Vohs, 2001). In this study, cheers did not lead to better performance for the baseball players, but jeers hurt performance. In a typical home game, the larger (and louder) portion of the audience tends to be the home-team fans. Although the visiting team's fans surely jeer the home team, the home crowd's cheers may drown out those jeers. Thus, perhaps cheers are not improving performance, but rather providing a shield against the negative effects of jeers. On the other hand, the visiting team's fans may cheer, but they cannot overcome the louder jeers from the comparatively larger home team fans. Consequently, performance of the visiting team is disadvantaged because there is no insulation against the negative effects of jeers. Of course, this is a possibility only suggested by the baseball data in the present study, and warrants further investigation.

Conclusions from this study are limited by a few considerations. First, the sample sizes for each sport were fairly small. Yet, it should be noted that despite such small samples, effects were still found. Certainly, the ability to detect an effect was strengthened by the within-subject manipulation, which again also points to the potential value of more research attention on changes in individual athletic performance across audience conditions. As a small-scale study, the present study offers a cautious starting point with interesting effects that provide some fodder for future investigations.

Second, there were no audience effects on basketball free throw accuracy. Initially, this result is odd given that evidence of a home advantage and arguments for crowd support as a major player in home advantage have often been among the strongest in basketball (Courneya & Carron, 1992; Nevill & Holder, 1999; Schwartz & Barsky, 1977; Tauer, et al., 2009). Recall, though, that there is some contrary evidence of the importance of crowds in basketball performance (e.g., Moore & Brylinsky, 1993). Furthermore, in the present study, only free throws were considered. It may be that the skill chosen here is simply too easy under these conditions, not a skill affected by crowd behavior, and/or not one that contributes to scoring changes that produce part of the home advantage (cf., Greer, 1983). A future study might involve a more challenging task for basketball players such as shooting from the three-point-line.

Third, participants were college athletes who engaged in these sport skills in front of audiences regularly, but the empirical situation was nonetheless contrived. That is, the athletes were not playing in a real game and could not win or lose as they can in a real game. Such an environment may not induce the same pressure of performing well or desire to win; the player was essentially competing against himself. Moreover, the audiences in the present study were comprised of 10 people, certainly smaller than in a typical game situation. This may have been a factor, but research has shown audience size does not predict crowd effects or home advantage results well (though audience density may play some role; for an overview, see Jones, et al., 2007). Finally, athletes performed a single sport-specific task as individuals rather than as part of a team. Research has shown a positive relationship between team cohesion and individual performance suggesting that individuals might perform better on a team than by themselves (Carron, et al., 2004). Prapavessis and Carron (1996) suggested that this relationship might exist in part due to the increased efforts of group members, which may lead individual athletes to believe that they have more responsibility to perform well for the group.

In any case, it is not known if performing in a team situation or more authentic game environment would alter the differential effects of audience behavior on individual athletic skill performance found here. One might argue that the current study offered a deconstructed home-team situation, wherein the focus was on individual performances (which make up team performance) and one isolated sport-specific skill (which is a regular and necessary skill of a game), in front of a small group of fans (i.e., as fellow students at the college, the audience members could reasonably be assumed to be fans), who engaged in behaviors typical of audience members (cheering and jeering). How all of the aspects of game situations may contribute individually or together remain empirical questions. Nevertheless, the somewhat surprising results of the present study indicate that future research in this area should continue to consider not just an audience, but the behavior of that audience as well. There are numerous avenues to pursue in this regard. For example, studies might test for similar effects with additional isolated skills in baseball, such as hitting, catching, or throwing for distance and accuracy. Others might add elements systematically to approximate real-game situations, such as having other players, who contribute to the cheering typically, on the field with the pitcher. Still another avenue might include testing the notion that the home crowd behavior is blocking the effects of jeers by having two audiences present during individual athlete performance, manipulating the behavior and volume of each audience. Ultimately, it may be the case that such deconstructions of the elements will allow experimental analyses of the relevant variables, which can then be systematically recombined in efforts for synthesis and a more complete understanding of role of the audience in sports.

#### REFERENCES

- Allison, M. G. & Ayllon, T. (1980). Behavioral coaching in the development of skills in football, gymnastics, and tennis. *Journal of Applied Behavioral Analysis*, 13, 297-314.
- Anderson, G., & Kirkpatrick, M. A. (2002). Variable effects of a behavioral treatment package on the performance of inline roller speed skaters. *Journal of Applied Behavior Analysis*, 35, 195-198.
- Baumeister, R. F., Bratslavsky, E., Finkenauer, C., & Vohs, K. D. (2001). Bad is stronger than good. *Review of General Psychology*, 5, 323-370. DOI: 10.1037/1089-2680.5.4.323
- Baumeister, R. F., Hamilton, J. C., & Tice, D. M. (1985). Public versus private expectancy of success: Confidence booster or performance pressure? *Journal of Personality and Social Psychology*, 48, 1447-1457.
- Baumeister, R. F. & Steinhilber, A. (1984). Paradoxical effects of supportive audiences on performance under pressure: The home field advantage in sports championships. *Journal of Personality and Social Psychology*, 47, 85-93.

- Bray, S. R., & Widmeyer, W. N. (2000). Athletes' perceptions of the home advantage: An investigation of perceived causal factors. *Journal of Sport Behavior*, 23, 1-10.
- Butler, J. L. & Baumeister, R. F. (1998). The trouble with friendly faces: Skilled performance with a supportive audience. *Journal of Personality and Social Psychology*, 75, 1213-1230.
- Carron, A. V., Burke, S. M., & Prapavessis, H. (2004). Self-presentation and group influence. *Journal of Applied Sport Psychology*, 16, 41-58. DOI: 10.1080/10413200490260044
- Cottrell, N. B., Wack, D. L., Sekerak, G. J., & Rittle, R. H. (1968). Social facilitation of dominant responses by the presence of an audience and the mere presence of others. *Journal of Personality and Social Psychology*, 9, 245-250.
- Courneya, K. S. & Carron, A. V. (1992). The home advantage in sport competitions: A literature review. *Journal of Sport and Exercise Psychology*, 14, 13-27.
- Cox, R. H. (1985). *Sport psychology: Concepts and applications*. Dubuque, IA: Wm. C. Brown Publishers.
- Forgas, J. P., Brennan, G., Howe, S., Kane, J. F., & Sweet, S. (1980). Audience effects on squash players' performance. *The Journal of Social Psychology*, 111, 41-47.
- Greer, D. L. (1983). Spectator booing and the home advantage: A study of social influence in the basketball arena. *Social Psychology Quarterly*, 46, 252-261.
- Guerin, B. (1986). The effects of mere presence on a motor task. *The Journal of Social Psychology*, 126, 399-401.
- Harding, J. W., Wacker, D. P., Berg, W. K., Rick, G., & Lee, J. F. (2004). Promoting response variability and stimulus generalization in martial arts training. *Journal of Applied Behavior Analysis*, 37, 185-195.
- Hawkins, J. (2002, July 19). Come on, feel the noise. *Golf World*, 56(5), 56.
- Hume, K. M., & Crossman, J. (1992). Musical reinforcement of practice behaviors among competitive swimmers. *Journal of Applied Behavior Analysis*, 25, 665-670.
- Jones, M. V., Bray, S. R., & Lavalley, D. (2007). All the world's a stage: Impact of an audience on sport performers. In S. Jowett & D. Lavalley (Eds.), *Social Psychology in Sport* (pp. 103-113). Champaign, IL: Human Kinetics.
- McCutcheon, L. E. (1984). The home advantage in high school athletics. *Journal of Sport Behavior*, 7, 135-138.
- McKenzie, T. L. & Rushall, B. S. (1974). Effects of self-recording on attendance and performance in a competitive swimming training environment. *Journal of Applied Behavior Analysis*, 10, 657-664.
- Michaels, J. W., Blommel, J. M., Brocato, R. M., Linkous, R. A., & Rowe, J. S. (1982). Social facilitation and inhibition in a natural setting. *Replications in Social Psychology*, 2, 21-24.
- Moore, J. C., & Brylinsky, J. A. (1993). Spectator effect on team performance in college basketball. *Journal of Sport Behavior*, 16, 77-84.
- Nevill, A. M., & Holder, R. L. (1999). Home advantage in sport: An overview of studies on the advantage of playing at home. *Sports Medicine*, 28, 221-236.

- Platanias, J., & Moran, G. P. (2001). Social facilitation as a function of the mere presence of others. *The Journal of Social Psychology, 141*, 190-197.
- Prapavessis, H., & Carron, A. V. (1996). Effect of group cohesion on competitive state anxiety. *Journal of Sport and Exercise Psychology, 18*, 64-74.
- Salminen, S. (1993). The effect of the audience on the home advantage. *Perceptual and Motor Skills, 76*, 1123-1128.
- Schlenker, B. R., Phillips, S. T., Boniecki, K. A., & Schlenker, D. R. (1995). Championship pressures: Choking or triumphing in one's own territory? *Journal of Personality and Social Psychology, 68*, 632-643.
- Schwartz, B., & Barsky, S. F. (1977). The home advantage. *Social Forces, 55*, 641-661.
- Smith, D. R. (2005). Disconnects between popular discourse and home advantage research: What can fans and media tell us about the home advantage phenomenon? *Journal of Sports Sciences, 23*, 351-364.
- Strauss, B. (2002a). Social facilitation in a motor task: A review of the research and theory. *Psychology of Sport and Exercise, 3*, 237-256.
- Strauss, B. (2002b). The impact of supportive spectator behavior on performance in team sports. *International Journal of Sport Psychology, 33*, 372-390.
- Tauer, J. M., Guenther, C. L., & Rozek, C. (2009). Is there a home choke in decisive playoff basketball games? *Journal of Applied Sport Psychology, 21*, 148-162. DOI: 10.1080/10413200902795331.
- Thirer, J., & Rampey, M. (1979). Effects of abusive spectator behavior on the performance of home and visiting inter-collegiate basketball teams. *Perceptual and Motor Skills, 48*, 1047-1053.
- Travis, L. E. (1925). The effect of a small audience upon hand-eye coordination. *Abnormal and Social Psychology, 20*, 142-146.
- Verdi, B. (2001, January 26). Out of control? Golf fans are making more noise than ever, causing tournaments to find ways to marshal the new behavior. *Golf World, 54*(26), 48-52.
- Wallace, H. M., Baumeister, R. F., & Vohs, K. D. (2005). Audience support and choking under pressure: A home disadvantage? *Journal of Sports Science, 23*, 429-438.
- Wang, S. (2006). Sports complex: The science behind fanatic behavior. *APS Observer, 19*(5), 26-32.
- Wolfson, S., Wakelin, D., & Lewis, M. (2005). Football supporters' perceptions of their role in the home advantage. *Journal of Sports Sciences, 23*, 365-374.
- Wright, E. F., Jackson, W., Christie, S. D., McGuire, G. R., & Wright, R. D. (1991). The home-course disadvantage in golf championships: Further evidence for the undermining effect of supportive audiences on performance under pressure. *Journal of Sport Behavior, 14*, 51-60.
- Wright, E. F., Voyer, D., Wright, R. D., & Roney, C. (1995). Supporting audiences and performance under pressure: The home-ice disadvantage in hockey championships. *Journal of Sport Behavior, 18*, 21-28.
- Zajonc, R. B. (1965). Social facilitation. *Science, 149*, 269-274.

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