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## **Referees' Decision-making and Player Gender: The Moderating Role of the Type of Situation**

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The influence of player gender on referees' decision-making was examined in 30 handball matches played at the highest regional level. The results indicated that referees make more lenient decisions toward male players when administering sporting sanctions, but more severe decisions toward male players when administering disciplinary sanctions, depending on whether or not the players were able to succeed in their action despite the foul. The findings are congruent with the hypothesis that referees use player gender as a judgmental heuristic. We suggest that further experimental studies examining the effects of referee gender and level of expertise, and of level of competition are needed to better understand the extent and limits of referees' use of player gender as a decision-making heuristic.

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Team contact sport refereeing is an excellent context in which to study complex decision-making, with features that are relevant to a number of areas in which people have to make decisions quickly (Plessner, 2005). Faced with making complex decisions in limited time, research has shown that referees rely on judgmental heuristics (i.e., quick and easy decision rules) to help them make their decisions (Mascarenhas, O'Hare, & Plessner, 2006; Plessner & Haar, 2006). Also, numerous studies from the perspective of social role theory have revealed that individuals tend to use stereotype-based expectations related to gender when making decisions in both feminine and masculine domains. Specifically, women and men are likely to face social sanctions when they violate their prescribed gender roles (Deaux & LaFrance, 1998; Eagly, Wood, & Diekmann, 2000).

Although this process has been shown to be particularly powerful for men who violate gender-based expectations (e.g., Sirin, McCreary, & Mahalik, 2004), women in masculine domains are also likely to face disapproval because they violate the central female gender role prescription of not being aggressive (Eagly, 2007; Eagly & Karau, 2002). Consistent with this view, two previous laboratory-based studies have suggested that male referees may use player gender as a judgmental heuristic when making decisions in team contact sports (Coulomb-Cabagno, Rasclé, & Souchon, 2005; Souchon, Coulomb-Cabagno, Traclet, & Rasclé, 2004), which are traditionally a masculine domain (Koivula, 1999; Krane, 2001).

Nevertheless, these laboratory studies examined only a limited range of refereeing decisions. Specifically, they focused only on instances in which the referee decided to give back the ball to the victim of a transgression (a *sporting* sanction). They did not focus at all on decisions involving more severe disciplinary sanctions (e.g., to exclude a player from the game). Moreover, they did not investigate the specific conditions under which referees use gender as a judgmental heuristic. The aim of the present study was to build upon previous analyses by examining the full range of sanctions available to referees, and to test whether some contexts increase referees' use of player gender to inform decisions.

## REFEREEING DECISIONS AND GENDER

One reason why sport provides an excellent context in which to examine the effect of expectations and stereotypes on decision-making is that referees have to make decisions under pressure coming from players, coaches, spectators, and media (e.g., Kaissidis-Rodafinos, Anshel, & Sideridis, 1998). Referees also make decisions under time pressure (e.g., Plessner & Betsch, 2002) and with varied, suboptimal viewing positions (e.g., Plessner, 2005). Refereeing is thus a complex decision-making activity, in which the need to intervene (i.e., when a foul is perceived) is not self-evident or obvious in most cases (Mascarenhas et al., 2006; Plessner, 2005; Ste-Marie, 2003). Under such conditions, it is not surprising that referees rely on judgmental heuristics to make decisions (Nevill, Balmer, & Williams, 2001; Plessner & Betsch, 2002), and that this reliance on heuristics can bias referees' decision-making. For example, Frank and Gilovich (1988) showed that referees developed expectations concerning players' aggressiveness by calling more penalties to the team wearing black clothing. Jones, Paull, and Erskine (2002) also provided evidence that soccer players with an aggressive reputation were penalized more severely than players with no aggressive reputation. Furthermore, earlier work has suggested that referees may use gender stereotypes to help them make their decisions (Coulomb-Cabagno et al., 2005; Souchon et al., 2004).

Sex is the strongest basis of social categorization and stereotype development (Deaux & LaFrance, 1998). Stereotypes, which are a kind of judgmental heuristic, can be defined as the sum of beliefs, knowledge, and expectations individuals develop toward the members of social

categories (Hamilton & Sherman, 1994). Concerning gender stereotypes, social role theory suggests that because men and women have traditionally been socialized to assume different roles in society, with men serving as breadwinners and women as homemakers, expectations develop regarding gender-appropriate behavior (Eagly et al., 2000). In particular, there is an expectation that women will be communal, manifesting traits such as kindness, concern for others, warmth, and gentleness, and that men will be agentic, manifesting traits such as confidence, aggressiveness, and self-direction (for a review see Deaux & LaFrance, 1998). Moreover, individuals tend to expect that women will display a high level of competence in traditionally "feminine" domains, and that men will display a high level of competence in traditionally "masculine" domains (Eagly & Diekmann, 2005; Eagly & Koenig, 2008; Eagly, Makhijani, & Klonsky, 1992).

These gender stereotypes may influence referees' decision-making in several ways. For example, stereotypes influence the interpretation of ambiguous behaviors in the direction of confirming prior expectations (Bless, Fiedler, & Stack, 2004; Chaiken, Liberman, & Eagly, 1989; Hamilton & Sherman, 1994). Because team contact sport is perceived to be a masculine domain (Koivula, 1999; Sheldon & Aimar, 2001), female players may be perceived by referees as being less competent than male players. This perception in turn could affect referees' decisions. Specifically, previous research has shown that women who conform to the traditional female role (e.g., child caring) may activate benevolent sexism (Glick & Fiske, 1996). Benevolent sexism may be defined as a subjectively favorable, chivalrous ideology that offers protection and affection to women who embrace conventional roles (Glick & Fiske, 2001). In masculine domains such as team contact sport (Eagly & Koenig, 2008), benevolent sexism could result in male referees awarding stronger sanctions against female players who are seen as acting in a dangerous manner toward their counterparts, thus helping to protect less aggressive (i.e., "feminine") athletes from more aggressive (i.e., "masculine") athletes (Coulomb-Cabagno & Rasclé, 2006).

Other research has shown that people evaluate both men and women more positively when they conform to their traditional gender roles (Burgess & Borgida, 1999; Eagly & Diekmann, 2005; Sirin et al., 2004). From this perspective, women who violate gender role prescriptions can trigger hostile sexism (e.g., Eagly & Karau, 2002). For example, female leaders (e.g., authoritarian women) elicit more negative evaluations than male leaders because they tend to behave "like a man" in this role (Eagly, 2007; Rudman & Kilianski, 2000). This process becomes even more important when women lead in a "masculine" context such as sport (Eagly et al., 1992). Consequently, gender stereotypes may also influence referees' decision-making in team contact sports by increasing the likelihood of sanctions against players who violate traditional gender roles by displaying forceful or aggressive behaviors (Eagly, 2007; Eagly & Karau, 2002).

Gender stereotypes are therefore particularly relevant in the context of male referees' decisions toward female players. Accordingly, different laboratory studies have examined video of actual games in soccer (Coulomb-Cabagno et al., 2005) and handball (Souchon et al., 2004) to test the hypothesis that male referees' decisions are influenced by the gender of players. Results revealed that, although male players committed more transgressions than female players, male referees tended to penalize proportionally more female players (in games between women) than male players (in games between men) with sporting or technical sanctions (e.g., free-kick or penalty in soccer; 9-m throw or 7-m throw in handball). In other words, male referees applied proportionally more sporting sanctions to female players than to male players.

Nevertheless, these previous studies examined the effect of player gender only in general terms. There is a need to analyze more closely the specific conditions under which referees use player gender as a judgmental heuristic. Previous research has shown that individuals can

apply their stereotypes in ambiguous situations where several meanings are possible, but not in unambiguous situations where only one meaning is conceivable (Bless et al., 2004; Chaiken et al., 1989, Hamilton & Sherman, 1994). It is this principle that we seek to examine in the context of referees' decision-making in this study.

## REFEREES' DECISIONS AND THE ADVANTAGE RULE

A key indicator of gender bias in referees' decision-making is in their application of the advantage rule. According to this rule, which is common in many sports (e.g., handball, soccer, rugby), referees have to interpret players' transgressions in relation to their consequences for the victim. Referees should not penalize a team that has transgressed if their opponents would gain an advantage from letting play continue. If, however, referees perceive that the player in possession of the ball was disadvantaged by the transgression, they should stop the game and return the ball to the victim's team through a sporting or a technical sanction (e.g., free kick in soccer).

When examining the application of the advantage rule, the role of situational ambiguity and gender have to be analyzed at two different time intervals. At the first interval, the rule enables referees to intervene immediately after the player in possession of the ball is subject to a defensive transgression, but before he or she has the opportunity to pass the ball or shoot. At this stage, referees have to decide whether or not to stop the game by assessing the victim's ability to continue *and* by judging the forcefulness of the transgression. These decisions are difficult because of ambiguity in assessing the players' abilities to continue (Stone, Perry, & Darley, 1997) and the forcefulness of the transgression in team contact sport (Mascarenhas et al., 2006; Plessner & Haar, 2006). Gender could affect this judgment of ability to continue after the transgression because gender stereotypes typically assert that women are less competent than men, especially in male domains (Eagly & Diekmann, 2005). Consequently, referees could regard female players as less able to continue and intervene immediately after a transgression more frequently for female players than male players.

The second interval is relevant if referees decide to let the game continue despite the transgression on the attacking player (i.e., they apply the advantage rule). In this case, two scenarios could be considered: (a) the attacking player succeeds in his or her action (i.e., successful pass or shot) despite the transgression, or (b) the player is unsuccessful in his/her action. In the first scenario, referees do not intervene, and merely have to award points if the player shoots successfully. These situations present no ambiguity and, consequently, should not facilitate the use of gender as a judgmental heuristic. Gender stereotypes are more relevant to the second scenario. That is, according to the advantage rule, referees should take action on the initial transgression if the attacking player did not succeed in his or her action.

Nevertheless, evidence indicates that referees do not rigorously apply this remedial punishment equally to both teams and across all competitions. There are a number of studies that illustrate how referees can be inconsistent in their judgments. For example, Sheldon and Aimar (2001) showed that, in ice hockey, transgressions or aggressive behaviors are often not penalized despite being reinforced by failed outcomes for the attacking team (i.e., benefits to the transgressing team). Similarly, in an ethnographic study of handball during one year with a professional team, Stornes (2001) found that players intentionally seek to transgress against their opponent in situations where they might directly profit from their transgressions, without being sanctioned by the referee who appears reluctant to penalize them. In soccer, Plessner and Betsch (2002) showed that referees in the goal area tend to favor defensive players committing a transgression rather than their victims (i.e., attacking players). Finally, numerous studies

concerning home advantage in different team contact sports revealed consistently that home team players profit more from their transgression than away team players (see for example Nevill et al., 2001). So, referees will, under certain circumstances, not penalize an aggressor who profits from his or her transgression by regaining the ball.

These situations may be perceived as uncertain or ambiguous by referees because, like all human beings, referees have limited cognitive abilities and must circumvent them through “unwritten rules” or rule-of-thumb principles (Mascarenhas et al., 2006; Plessner, 2005; Plessner & Betsch, 2002). For example, referees may reason that defensive players should receive a “fair” chance to recover the ball and should be given the benefit of the doubt in ambiguous situations. It may also be the case that referees apply their gender stereotypes (e.g., performance interpretation, protection or severe sanction toward female players) in these situations, in line with evidence that individuals apply their stereotypes in ambiguous situations or when confronted with ambiguous behaviors (Chaiken et al., 1989; Bless et al., 2004; Hamilton & Sherman, 1994).

In addition to sporting or technical sanctions, referees may apply disciplinary sanctions toward players. In many team sports, disciplinary sanctions can range from a yellow card (caution) to a red card (dismissal from the field of play). This type of sanction is stronger than sporting or technical sanctions. They are awarded according to the danger posed by the foul or the players' intentions to harm their opponents (Mascarenhas et al., 2006). Whatever the team contact sport, if a disciplinary punishment is to be given because of a rule violation, then the referee may decide to interrupt the game immediately if this decision does not cause a sporting disadvantage to the victim. Otherwise, the punishment could be delayed until the existing situation or sequence of play is over.

Each disciplinary transgression can be highly ambiguous because the decision depends on the subjective perception of the danger posed by a foul (Frank & Gilovich, 1988; Jones et al., 2002; Mascarenhas et al., 2006). Moreover, referees may perceive the same situation as more dangerous for women than men (Coulomb-Cabagno et al., 2005; Glick & Fiske, 2001). Congruent with the hypothesis that male referees may use their gender stereotypes to help them make disciplinary decisions, Souchon et al. (2004, study 2) found that male referees, punished female players more severely than males through disciplinary sanctions, when faced with similar male and female transgressions in a video.

Notwithstanding this simple effect of gender on disciplinary decisions, the perception of aggressive behaviors also depends in part on their consequences for the victims (Widmeyer, Dorsch, Bray, & McGuire, 2002). As a result, referees may perceive situations in which the victims of fouls are unsuccessful as more dangerous than situations in which they are successful despite the transgressions. It is therefore plausible that gender influences referees' decisions more strongly in situations that involve a failure for the attacking player than in situations that involve success for the player.

Nevertheless, the role of both gender and victim outcomes in disciplinary decisions have not been simultaneously examined in past research, nor have their effects on disciplinary decisions been examined in a laboratory study with video of actual games. One aim of this study is to address this shortfall by testing whether male referees apply disciplinary sanctions differentially according to player gender.

### **Summary: Aims and Predictions**

The aim of the present study was to extend previous research on the influence of player gender on male referees' decision-making (e.g., Coulomb-Cabagno et al., 2005; Souchon et al., 2004) by considering (a) the application of both sporting and disciplinary sanctions and

(b) the specific conditions under which referees may use gender as a judgmental heuristic in relation to the advantage rule. To do so, this study focused on the sport of handball because of the characteristics of this sport. Specifically, it is a team contact sport, played by a large number of female players, but still perceived as a predominantly or prototypically “male” sport (Koivula, 1999; Krane, 2001).

We predicted that referees would intervene more often for female players than for male players, but that this player gender difference would specifically depend on the type of situation. Concerning the application of sporting sanctions, we expected that immediate intervention situations (i.e., where the referee intervenes immediately) as a proportion of total number of situations would be greater for female players than male players. Also, we predicted that referees would apply sporting sanctions more frequently to female players than male players in unsuccessful advantage situations, but not in successful situations. Concerning the application of disciplinary sanctions, we predicted that referees would apply more disciplinary sanctions toward female players than male players in situations that involve a failure (i.e., where the victim player gains no advantage), but not in successful situations.

## METHOD

### Participants

The study was conducted on 30 games in the French handball championships. Fifteen matches at the highest league level (i.e., pre-national) were videotaped in the male and the female championships. Matches were selected to include as many different referees (13 referees officiated the women’s games and 14 referees officiated the men’s games) and teams (25 women’s teams, 24 men’s teams) as possible. All referees were men. Referees officiated women’s games or men’s games in our sample; no referees officiated in both men’s and women’s games. The research was conducted in accordance with the ethical guidelines of the American Psychological Association and the British Psychological Society. The research was conducted after ethical approval from Rennes University and after players and referees gave their informed consent.

### Measurement

#### *Players’ Transgressions*

The observation criteria used in this study were strictly in accordance with the rules of handball. Any actions (“pushing,” “pushing away,” “bumping into,” “holding back,” “catching and holding,” “seizing the player with possession around the waist”) are considered to be illegal under strict observation of the rules (rule 8.2 of International Handball Federation, 2005). In accordance with rule 13.2 of the International Handball Federation, the advantage rule is mainly applied to actions involving the player in possession of the ball (Souchon et al., 2004). Accordingly, we decided to focus our observations on players in possession of the ball. Observations of organized attack situations were made. An attack was considered to be organized when a player in possession of the ball was located behind a line of at least one set of four opposing defenders. We chose to focus on these attacks because a pilot sample revealed that handball referees considered organized attacks to be more physically and technically demanding (due to continual defensive contact on the player carrying the ball) than counter-attacks. Referees could apply the advantage rule more often in organized attack situations than in counter-attacks. Moreover, organized attacks constitute the biggest part of handball

games (Souchon et al., 2004). We did not consider attackers' fouls because of their scarcity (Coulomb-Cabagno et al., 2005; Souchon et al., 2004).

### ***Refereeing Decisions***

Referees can choose to apply (a) no sanction, (b) either a sporting sanction or disciplinary sanction, or (c) both. The referee's decision was noted for each observed transgression displayed by a defender. Sporting sanctions in handball are a 9-m throw or a 7-m throw against the defensive team, and disciplinary sanctions are, in ascending order of severity, warning from suspension (i.e., yellow card), 2-min. suspension, and red card against the defending player.

### ***Type of Situations***

Three types of situations were distinguished in the study: (a) immediate intervention situations, (b) unsuccessful advantage situations, and (c) successful advantage situations. Immediate intervention situations occurred when the referees intervened immediately (i.e., stopped the game immediately) after the defensive transgression, but before the player had the time to pass or shoot at the goal. In these situations, referees systematically returned the ball to the attacking players for a 9-m throw or a 7-m throw. Referees also decided whether to punish the aggressors through disciplinary action.

We labeled a situation as unsuccessful when the player in possession of the ball missed a pass or shot after the defending team's transgression against him or her. These situations occurred when the referee did not instantaneously interrupt the game and the player in possession (the victim of a transgression) then missed his or her pass (i.e., lost the ball to the opposition) or shot at the goal. In this situation, referees decided to give back the ball to the victim for a 9-m throw or a 7-m throw or let the game continue without intervention. Referees also decided whether to punish the aggressors through a disciplinary sanction.

We labeled a situation as successful when the player in possession of the ball completed a pass or shot, despite the defending team's transgression against him or her. Referees had the same options to apply sporting and/or disciplinary sanctions in this situation as in the unsuccessful situation.

### **Coding**

Before undertaking our final observations, two games (one with women and one with men) were observed by the first author and two handball experts. The rates of agreement between the observers (Kappa coefficients) were between .91 and .96. Two other games were again observed 2 weeks later by the first author (with the agreed intra-observer coefficients of .87 to .94). Because the overall level of these coefficients was satisfactory, each game was then observed by two people only: the first author and one expert who was not informed of the aim of the study to avoid bias. The observations from the first author and the expert were always very similar. Their observations were therefore averaged to provide one single measurement of each variable, including the number of transgressions, number of multiple transgressions, number of immediate intervention situations, number of successful advantage situations, number of unsuccessful advantage situations, number of sporting sanctions (9-m throw, 7-m throw, no intervention), and number of disciplinary sanctions (yellow card, 2-min suspensions and red card).

## RESULTS

### Analytic Strategy

The number of transgressions committed by players in the games is not always equivalent to the number of game situations (immediate intervention game situations + unsuccessful advantages game situations + successful advantage game situations). Occasionally, more than one transgression took place in a game situation (e.g., two different defensive players can “push” the player in possession of the ball before he or she successfully passed the ball to a teammate). For this reason, we first calculated the total number of transgressions, the total number of multiple transgressions, and the total number of immediate intervention game situations, unsuccessful advantages game situations and successful advantages game situations.

To test the prediction that referees would intervene immediately more frequently with female players than male players, we then calculated as a proportion of the total number of situations the number of (a) immediate intervention situations, (b) unsuccessful advantage situations, and (c) successful advantage situations for games with male players and for games with female players. Analysis of the proportion of each type of situation was preferred to an analysis of the absolute number of such situations because the total number of situations could also vary across player gender (e.g., Coulomb-Cabagno et al., 2005). For each of the 30 matches observed, we therefore calculated (a) immediate intervention situations divided by the total number of situations, (b) unsuccessful advantage situations divided by the total number of situations, and (c) successful advantage situations divided by the total number of situations.

Likewise, to test the prediction that referees would more frequently return the ball to female players than male players (i.e., apply sporting sanctions) in unsuccessful advantage situations, but not in successful advantage situations, we calculated the incidence of (a) unsuccessful situations with 9-m throw divided by the total number of unsuccessful situations, (b) unsuccessful situations with 7-m throw divided by the total number of unsuccessful situations, (c) unsuccessful situations with no intervention divided by the total number of unsuccessful situations, (d) successful situations with 9-m throw divided by the total number of successful situations, (e) successful situations with 7-m throw divided by the total number of successful situations, and (f) successful situations with no intervention divided by the total number of successful situations. Again, the proportion of each type of situation was preferred to an analysis of the absolute number of such situations because the total number of situations could also vary across player gender (e.g., Souchon et al., 2004). Finally, we tested our prediction that referees would punish female players more severely than male players (i.e., apply more disciplinary sanctions) in situations that involved a failure for the attacking player (as in immediate intervention or unsuccessful advantage situations) than in situations that involved success for the player (as in successful advantage situations) by calculating eight additional indices for each of the 30 matches. These indices were the number of (a) failure situations with a yellow card divided by the total number of failure situations, (b) failure situations with a 2-min suspension divided by the total number of failure situations, (c) failure situations with a red card divided by the total number of failure situations, (d) failure situations with no disciplinary punishment divided by the total number of failure situations, (e) successful situations with a yellow card divided by the total number of successful situations, (f) successful situations with a 2-min suspension divided by the total number of successful situations, (g) successful situations with a red card divided by the total number of successful situations, and (h) successful situations with no disciplinary punishment divided by the total number of successful situations.

## Statistical Analyses

Number of transgressions, number of multiple transgressions, and number of situations were analyzed by way of a 2 (player gender)  $\times$  3 (immediate intervention, unsuccessful advantage, successful advantage situations) factorial analysis of variance (ANOVA). The hypothesis that player gender would influence the proportion of different situations in a game, especially the prevalence of immediate sporting sanction situations (i.e., immediate sporting situation divided by total number of situations), was tested using a 2 (player gender)  $\times$  3 (immediate intervention, unsuccessful advantage, successful advantage situations) factorial ANOVA. The hypothesis that player gender would influence referees' application of sporting sanctions in unsuccessful and successful advantages situations was tested using a 2 (player gender)  $\times$  2 (successful advantage situations vs. unsuccessful advantage situations)  $\times$  3 (9-m throw vs. 7-m throw vs. no punishment) factorial ANOVA. The hypothesis that player gender would influence referees' application of disciplinary sanctions in failure and successful situations was tested using a 2 (player gender)  $\times$  2 (failure: immediate and unsuccessful vs. successful advantage)  $\times$  3 (yellow card vs. 2-minute suspension vs. non intervention) factorial ANOVA. No red cards were observed and were therefore not included in the analyses.

### *Transgressions*

Results indicated that the main effect of type of situation,  $F(2, 84) = 29.73, p < .01, \eta^2 = .41$ , and a 2-way interaction between player gender and type of situation were significant,  $F(2, 84) = 3.9, p < .03, \eta^2 = .08$ . The interaction is depicted in Table 1. Male players committed more transgressions than female players in successful situations ( $p < .02$ ), but not in immediate sporting situations ( $p = .49$ ), or unsuccessful situations ( $p = .86$ ).

### *Multiple Transgressions*

To reiterate, the number of transgressions in the games is not equivalent to the number of situations. Results indicated that the main effect of player gender,  $F(2, 84) = 14.08, p < .01, \eta^2 = .14$ , and the main effect of the type of situation were significant,  $F(2, 84) = 21.39, p < .01, \eta^2 = .34$ . The main effect of player gender indicated that male players ( $M = 1.82, SD = 2.49$ ) committed more multiple transgressions than female players ( $M = 0.57, SD = 1.07; p < .01$ ). The main effect of type of situation revealed that defensive players committed more multiple transgressions in immediate intervention situations ( $M = 2.73, SD = 2.75$ ) than in unsuccessful advantage situations ( $M = 0.4, SD = 0.67$ ) or successful advantage situations ( $M = 0.46, SD = 0.86; ps < .01$ ). Also, defensive players made as many multiple transgressions in unsuccessful advantage and successful advantage situations ( $p = .87$ ).

### *Number of Situations*

Results revealed a significant main effect of type of situation,  $F(2, 84) = 34.82, p < .01, \eta^2 = .45$ , and a significant 2-way interaction between player gender and type of situation,  $F(2, 84) = 3.6, p < .03, \eta^2 = .08$ . The significant interaction is depicted in Table 1. Male players were involved in more successful advantage situations than female players ( $p < .02$ ), but male players were as frequently involved in immediate intervention situations as female players ( $p = .21$ ). Males players were also as frequently involved in unsuccessful advantage situations as female players ( $M = 36.06, SD = 5.5$  vs.  $M = 37.5, SD = 10.66; p = .74$ ). These moderating effects of gender vindicated our strategy of analyzing the occurrence of situations as a proportion in the analyses below.

**Table 1**  
**Means and Standard Deviations Concerning the Number of Transgressions (TR), Multiple Transgressions (X2) and Situations (SIT) in the Game, Depending on Player Gender, Type of Situations: Immediate (I), Unsuccessful (U), Successful (S), and Proportion of the Different Situations in the Game (SIT/Total)**

	Male				Female			
	I	U	S	Total	I	U	S	Total
TR	38 (13.07)	36.8 (5.72)	65.53* (15.86)	140.33 (25.55)	41.13 (12.61)	37.6 (10.62)	54.13* (14.48)	132.86 (31.79)
X2	3.86 (3.33)	0.73 (0.79)	0.86 (1.06)	5.45 (3.62)	1.6 (1.35)	0.1 (0.2)	0.07 (0.25)	1.77 (1.38)
SIT	34.14 (11.45)	36.07 (5.5)	64.67* (15.41)	134.88 (23.52)	39.53 (12.54)	37.5 (10.66)	54.06* (14.45)	131.09 (31.71)
SIT/Total	0.25* (0.05)	0.27 (0.06)	0.48* (0.06)	1 (1)	0.30* (0.04)*	0.29 (0.05)	0.41* (0.05)*	1 (1)

\* Inter-category male/female difference is significant  $p < .05$ .

**Proportion of Different Situations in the Game**

Results indicated a significant main effect of type of situation,  $F(2, 84) = 95.57, p < .01, \eta^2 = .69$ , and a significant 2-way interaction between player gender and type of situation,  $F(2, 84) = 8.07, p < .01, \eta^2 = .16$ .

Table 1 depicts the 2-way interaction between player gender and type of situation. Female players were more likely to be implicated in immediate intervention game situations than male players ( $p < .02$ ). In contrast, male players were more involved in successful advantage situations than female players ( $p < .01$ ). Males and female players were equally involved in unsuccessful advantage situations ( $p = .49$ ).

**Sporting Sanctions in Unsuccessful and Successful Situations**

Results revealed a significant main effect of severity of sanction,  $F(2, 168) = 1,358.93, p < .01, \eta^2 = .94$ , a significant 2-way interaction between type of situations and severity of sanction,  $F(2, 168) = 1,168.04, p < .01, \eta^2 = .93$ , a significant 2-way interaction between player gender and severity of sanction,  $F(2, 168) = 19.04, p < .01, \eta^2 = .18$ , and a significant 3-way interaction between player gender, type of situation, and severity of sanction,  $F(2, 168) = 12.13, p < .01, \eta^2 = .12$ .

Table 2 depicts the 3-way interaction. This table indicates that referees in unsuccessful advantage situations were more likely to award a 9-m throw to female players than to male players ( $p < .01$ ), but not a 7-m throw ( $p = .39$ ). They were also more likely to let the game continue without intervention with male players than with female players ( $p < .01$ ). Also, referees in successful advantage situations were as likely to award a 9-m throw ( $p = .53$ ), a 7-m throw ( $p = .97$ ), or to let the game continue without intervention ( $p = .53$ ) for male players as for female players.

Furthermore, referees were more likely to award a 9-m throw or a 7-m throw in unsuccessful advantage situations than in successful advantage situations for male players ( $ps < .01$ ) and for female players ( $ps < .01$ ). They were also more likely not to intervene in successful advantage situations than in unsuccessful advantage situations for male ( $p < .01$ ) and female players ( $p < .01$ ).

**Disciplinary Sanctions in Failure and Successful Situations**

Results indicated a significant main effect of severity of sanction,  $F(2,168) = 39,242.52, p < .01, \eta^2 = .99$ , a significant 2-way interaction between type of situation and severity of sanction,  $F(2,168) = 70.95, p < .01, \eta^2 = .46$ , a significant 2-way interaction between player gender and severity of sanction,  $F(2, 168) = 8.80, p < .01, \eta^2 = .09$ , and a significant 3-way

**Table 2**  
**Means and Standard Deviations Concerning Sporting Sanctions for both Unsuccessful Advantage Situations and Successful Advantage Situations, as a Function of the Severity of Sanction and Player Gender**

	Unsuccessful		Successful	
	Male	Female	Male	Female
9-m throw	0.49* (0.09)	0.64* (0.10)	0.03 (0.02)	0.05 (0.04)
7-m throw	0.09 (0.04)	0.07 (0.06)	0 (0.00)	0 (0.00)
No sporting intervention	0.42* (0.11)	0.29* (0.08)	0.97 (0.02)	0.95 (0.04)

\*Inter-category male/female difference is significant  $p < .05$ .

**Table 3**  
**Means and Standard Deviations Concerning Disciplinary Punishment for Situations that Involve a Failure (Immediate and Unsuccessful) and Situations that do not Involve a Failure (Successful), as a Function of the Severity of Sanction and Player Gender**

	Immediate and Unsuccessful		Successful	
	Male	Female	Male	Female
Yellow Card	0.04 (0.02)	0.03 (0.02)	0.01 (0.01)	0.01 (0.01)
2-min suspension	0.05* (0.02)	0.03* (0.03)	0.01 (0.01)	0.01 (0.01)
No punishment	0.91* (0.03)	0.94* (0.03)	0.98 (0.02)	0.98 (0.02)

\*Inter-category male/female difference is significant  $p < .05$ .

interaction between player gender, type of situation, and severity of sanction,  $F(2, 168) = 5.32, p < .01, \eta^2 = .06$ .

The 3-way interaction is depicted in Table 3. The table indicates that referees were more likely to punish male players than female players with a 2-minute suspension ( $p < .02$ ) in situations that involved a failure. In contrast, no significant gender difference emerged for yellow cards in situations that involved a failure. Referees were more likely to not intervene for female players than male players in situations that involved a failure ( $p < .01$ ). Also, no significant gender difference emerged whatever the type of sanction in successful advantage situations.

Furthermore, referees were more likely to punish players with a yellow card or a 2-minute suspension in situations that involved a failure rather than in successful advantage situations for both male ( $ps < .01$ ) and female players ( $ps < .01$ ). They were also more likely not to punish players in successful advantage situations than in situations that involve a failure both for male ( $p < .01$ ) and for female players ( $p < .01$ ).

## DISCUSSION

The aim of this study was to explore the influence of player gender and type of game situation on male referees' decision-making in applying sporting and disciplinary sanctions in handball. We expected that gender would affect referees' applications of sporting and disciplinary sanctions in immediate intervention situations and unsuccessful situations, but not in successful situations. Consistent with this hypothesis, the application of sporting and disciplinary sanctions differed depending on player gender. The effect of player gender in turn depended on the type of situation. This result extends prior evidence that handball and soccer referees penalize female and male players differently and that referees may use gender as a judgmental heuristic to help them make their decisions (Coulomb-Cabagno et al., 2005; Souchon et al., 2004). Incongruent with our expectations, however, disciplinary punishment was more severe for male players than for female players.

Concerning sporting sanctions, it was expected that referees would make different decisions between male and female players in ambiguous situations, but not in unambiguous situations. From this perspective, it is notable that, consistent with our hypothesis, referees tended to (a) intervene immediately more often with female than with male players and (b) return the ball more frequently to female than male players in unsuccessful situations, but not in successful situations. The higher level of immediate intervention with female players than with male players is interesting because the decisions to intervene immediately or to let the game continue

are spontaneous and arise from ambiguous situations. This result is consistent with the idea that, in these contexts, referees unconsciously apply stereotypes that female players are less able to withstand transgressions and, therefore, are more greatly disrupted (Fredericks & Eccles, 2005; Krane, 2001). Team contact sports, including handball, are perceived to be masculine domains (Koivula, 1999) and, in these domains, there is a general stereotype that women are less competent than men (Eagly & Diekmann, 2005; Glick & Fiske, 1996, 2001). If male referees hold these cultural associations or really believe them, they could spontaneously conclude that female players are "neutralized" or unable to continue their actions after transgressions, while male players are able to continue (Souchon et al., 2004). This difference may also arise because male referees are unconsciously shocked by female transgressions to a greater degree than male transgressions and consequently seek to protect female players more than male players (Eagly & Diekmann, 2005; Glick & Fiske, 1996, 2001).

The referees' differentiations between male and female players in unsuccessful situations is interesting because the advantage rule dictates that referees should always return the ball to the victims in these situations to repair the effect of the transgression. From this perspective, results obtained in this study revealed that referees (a) do not consistently return the ball to the victim in situations in which players miss their pass or their shot after a defensive transgression, and (b) return the ball more frequently to female players than male players in these situations. Unsuccessful situations may be difficult to judge and referees may apply an informal rule to give the defensive player a chance to recover the ball (Mascarenhas et al., 2006; Plessner & Betsch, 2002). According to game management theory, referees should attempt to maximize both the flow of the game and fairness. For example, because the referee did not return the ball in an unsuccessful situation for one team, he/she might not give back the ball in an equivalent situation for the other team (Unkelbach & Memmert, 2008).

Whatever the reasons, the transgressions in these situations are ambiguous and referees clearly penalized female players differently to male players. As in immediate sporting situations, referees may have applied stereotypes that lead them to perceive that female players were more greatly affected by the transgressions. Also, referees may be more benevolent with female than male players (Glick & Fiske, 2001) or more shocked by defensive transgressions in female games than in male games (Eagly & Karau, 2002).

Finally, congruent with our expectations, the results showed that referees' decision-making was not affected by player gender in successful situations. Referees stopped games on few occasions in these situations. No difference would have occurred because referees could not apply their gender stereotype in these less ambiguous situations. For the rare interventions in successful situations, referees may warn the defensive players orally or through a non-verbal gesture.

Concerning disciplinary decisions, our results indicated that the effect of player gender interacted with the severity of the sanction and the type of situation. Referees intervened more frequently with male players than female players in situations that involve a failure (immediate intervention or unsuccessful advantage situations), but this result was significant only with 2-minute suspensions. This result is therefore not consistent with a previous experiment indicating that male referees penalized female players more severely than male players (Souchon et al., 2004). Several alternative explanations may explain this inconsistency.

First, referees may punish male players more severely to discourage their aggressive tendencies or because they are perceived to be more dangerous than female players. Consistent with this explanation, Jones et al. (2002) found that referees tend to punish severely players with an aggressive reputation. From this perspective, studies have revealed that male players perceive aggressive behaviors to be more legitimate (Conroy, Silva, Newcomer, Walker, & Johnson, 2001), report stronger intentions to behave aggressively in matches (Bredemeier,

1994), or actually behave more aggressively than female players (e.g., Coulomb-Cabagno & Rasclé, 2006). Therefore, referees could penalize male players more severely than female players because male players display more dangerous and high-intensity behavior than female players. It is possible indeed that defensive players in situations that involve a failure may deliberately commit a particularly aggressive transgression to “neutralize” their opponents. In such cases, referees may then activate and apply a stereotype related to male aggression and punish male players more severely than female players (see Jones et al., 2002).

Second, male players tend to display more multiple transgressions than female players. The more frequent occurrence of multiple transgressions especially in immediate intervention situation among male players may cause the difference in refereeing in situations that involve a failure for the attacking player.

Third, women’s behaviors after fouls may be more conciliatory. Kolnes (1995) found that elite female handball players thought that they should be feminine and charming toward male referees in order not to be penalized too severely. Referees may then activate benevolent feelings toward female players and not penalize them (Glick & Fiske, 2001). In other words, referees may feel culturally more able to be “harsh” toward male than female players in their application of certain forms of sanction.

## CONCLUSIONS

Notwithstanding this unexpected effect of gender on disciplinary decisions, the present findings clearly indicate that referees display a gender bias in their decision-making. This bias is consistent with the hypothesis that referees use gender as a heuristic guide to their decisions and that this process depends crucially on the type of decision and type of game situation. Future research should explore the mechanisms underlying the effect of player gender on male referees’ decision-making through additional experimental or longitudinal research. In particular, it would be useful to examine the influence of referees’ experience in refereeing female matches. It would also be interesting to discover whether female referees display a similar gender bias in their decision-making. Counter-intuitively, there is reason to predict that female referees could be as severe toward aggressive female players as male referees, on the basis of previous evidence that women tend to explicitly adopt the same benevolence norms toward women as men do (Moya, Glick, De Lemus, & Hart, 2007). Also, women tend to implicitly hold the same negative attitudes toward women as men do whenever women transgress (e.g., by being authoritarian) their gender role (Rudman & Kilianski, 2000). We hope that this investigation helps to stimulate further research on these issues, assist training of officials, and inform about a wider appreciation of the cognitive challenges that referees face.

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