

Gender Moderates the Relationship between Empathy and Aggressiveness in Sport: The Mediating Role of Anger

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DOI:

[10.1080/10413200.2016.1196764](https://doi.org/10.1080/10413200.2016.1196764)

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Document Version

Peer reviewed version

Citation for published version (Harvard):

Stanger, N, Kavussanu, M & Ring, C 2016, 'Gender Moderates the Relationship between Empathy and Aggressiveness in Sport: The Mediating Role of Anger', *Journal of Applied Sport Psychology*.
<https://doi.org/10.1080/10413200.2016.1196764>

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7 Gender Moderates the Relationship between Empathy and Aggressiveness in Sport:

8 The Mediating Role of Anger

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12 In Press: Journal of Applied Sport Psychology

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Abstract

This research investigated whether gender moderates, and anger mediates, the relationship between empathy (i.e., perspective taking and empathic concern) and aggressiveness in sport. In Study 1, perspective taking and empathic concern were negatively associated with aggressiveness, and this effect was stronger in women compared to men. In Study 2, perspective taking was a negative predictor of aggressiveness and antisocial behavior in sport, and anger mediated these relationships in women, but not in men. Our findings suggest that empathy and emotion-based strategies targeted at reducing aggressiveness in sport need to be tailored for males and females.

Keywords: antisocial behavior, empathic concern, morality, perspective taking.

1 to the tendency to understand the psychological point of view and feelings of others.
2 Empathic concern refers to other-oriented feelings of sympathy and compassion for others
3 (e.g., Davis, 1983; Eisenberg, 2000). Many theorists have argued that empathy inhibits, or at
4 least mitigates, aggressive-related conduct (e.g., Eisenberg, 2000; Hoffman, 2000): When
5 individuals adopt the perspective of others and feel sympathy and compassion for others, they
6 are more likely to refrain from behaving in ways that may cause harm in other people
7 (Eisenberg, 2000). Indeed, several studies in non-sport contexts have found that empathy
8 (both perspective taking and empathic concern) is negatively associated with verbal and
9 physical aggression (e.g., Miller & Eisenberg, 1988; Vachon, Lynam, & Johnson, 2014).

10 Empathy has the potential to reduce aggressiveness in sport. In competitive sport,
11 people are more likely to focus on their own needs thereby being more inclined to engage in
12 aggressive behavior to facilitate fulfilling self-focused goals that relate to outperforming
13 others (Bredemeier & Shields, 1986; Kilduff, Elfenbein, & Staw, 2010). This has been
14 supported by studies that have shown that athletes report antisocial acts (i.e., behavior
15 intended to harm or disadvantage another; Sage, Kavussanu, & Duda 2006), which includes,
16 but is not limited to, aggression, as being more acceptable and frequent in competitive sport
17 than in non-sport contexts (e.g., Kavussanu, Boardley, Sagar, & Ring, 2013; Kavussanu &
18 Ring, 2016). Accordingly, empathy could reduce aggressiveness in sport by helping to
19 maintain reasoning that considers the rights and welfare of others during competition.
20 Moreover, the potentially elevated levels of emotional arousal whilst competing in sport (e.g.,
21 Martens, 1975) may lead athletes to behave impulsively, and cognitive processes that usually
22 regulate aggressive behavior can potentially become impaired. This in turn can result in
23 greater willingness and likelihood to behave aggressively (Zillmann, 1988). Perspective
24 taking as the cognitive component of empathy may enhance the cognitive resources and
25 ability to reduce aggressiveness when athletes are experiencing elevated levels of arousal

1 when competing in sport (Richardson, Hammock, Smith, Gardner, & Signo, 1994; Zillmann,
2 1988).

3 Dispositional empathy has been negatively associated with antisocial behavior in a
4 number of cross-sectional sport studies (Kavussanu & Boardley, 2009; Kavussanu, Stamp,
5 Slade, & Ring, 2009; Kavussanu, Stanger, & Boardley, 2013). Moreover, in one experiment,
6 Stanger, Kavussanu, and Ring (2012) induced empathy by asking participants to take another
7 person's perspective and imagine how they are feeling vs. taking an objective perspective.
8 Participants in the high empathy group reported being less likely to aggress towards an
9 opponent in a hypothetical sporting situation than those in the low-empathy group. Thus,
10 there is accumulating evidence suggesting that empathy has the potential to reduce the
11 propensity to be aggressive in sport. However, studies have yet to determine whether the
12 strength of this relationship is consistent across men and women.

13 Researchers investigating empathy in athletes have tended to measure empathy by
14 combining scales of perspective taking and empathic concern, as this is operationalised to
15 reflect other-oriented empathy (e.g., Kavussanu et al., 2009; Kavussanu, Stanger, et al.,
16 2013). Though this has provided important insight into the role of other-oriented empathy in
17 morally relevant behavior it can miss the potentially discrete role that the cognitive and
18 affective components of empathy can play on aggressiveness. Therefore, we examined
19 perspective taking and empathic concern as separate empathy components.

20 **Moderating Role of Gender**

21 The relationship between empathy and aggressiveness in sport may differ between
22 men and women. Based on social roles and biosocial theories (Eagly, 1987; Eagly & Steffen,
23 1986; Wood & Eagly, 2002), the behavior of men and women is governed by learned social
24 and cultural expectations as well as by their physical attributes. Men develop traits that
25 conform to expectations of a social instrumental role, such as the protector and thrive for

1 independence and competence. In contrast, women develop traits that conform to a social
2 communal role, such as being expressive, caring, and interested in others (Eagly, 1987).
3 From a social role perspective, men's prominent orientation for competence and superiority
4 may lead to greater aggressiveness in competition (e.g., Eagly & Steffen, 1986), and counter-
5 empathic responses in competitive contexts compared to women, whose social role appears to
6 be more congruent with empathy. Indeed, men report greater competitiveness and win
7 orientation in competitive contexts (e.g., Gill, Williams, Dowd, Beaudoin, & Martin, 1996),
8 lower empathy (e.g., Eisenberg & Lennon, 1983; Kavussanu et al., 2009) and higher
9 aggressiveness in sport (e.g., Maxwell & Moores, 2007), than women. Therefore, during
10 competition men may be more likely to experience more counter-empathic responses than
11 women that could reduce the strength of the empathy – aggressiveness relationship in men.
12 Research investigating such gender effects would enhance our understanding of the utility of
13 empathy as a way of reducing aggressiveness in males and females.

14 **Empathy, Anger and Aggressiveness**

15 One variable that could explain how empathy may reduce aggressiveness in sport is
16 anger. Anger is a high arousal emotion evoked by events that are interpreted as an offense
17 (Kaufman, 1970; Lazarus, 1991), which can lead to an aggressive act when accompanied by
18 thoughts and intentions to harm another person (Kaufman, 1970). Anger has been positively
19 associated with aggressiveness in sport (e.g., Maxwell & Moores, 2007; Visek, Watson,
20 Hurst, Maxwell, & Harris, 2010), and shown to be elicited following provocation (Mohr,
21 Howells, Gerace, Day, & Wharton, 2007).

22 Empathy may help to reduce anger in two ways. First, perspective taking skills may
23 decrease the likelihood that a person may perceive provoking events in a way that could
24 result in blame. Research showing that empathy is negatively associated with cognitive
25 distortions, such as attribution of blame (Barriga, Sullivan-Cosetti, & Gibbs, 2009; Larden,

1 Melin, Holst, & Langstrom, 2006) supports this argument. Second, perspective taking may
2 be influenced by provocation. At high levels of arousal, cognitive functioning which usually
3 helps to mitigate aggression can be impaired (Zillmann, 1988). Accordingly, perspective
4 taking as the cognitive component of empathy, may be the central component to help
5 maintain a higher level of cognitive functioning which, in turn, should help reduce anger
6 following provocation.

7 In support of the above assertions, Mohr et al. (2007) found that dispositional
8 perspective taking was a negative predictor of both expressing anger and anger following
9 provocation, and a positive predictor of anger control. In contrast, empathic concern was
10 negligibly associated with anger although it was negatively and weakly linked with
11 suppressed anger. Thus, it is the cognitive component of empathy rather than the emotional
12 component that appears central to reducing anger. Given that perspective taking is inversely
13 related with anger (Mohr et al., 2007) and that anger is positively associated with
14 aggressiveness in sport (e.g., Maxwell & Moores, 2007; Visek et al., 2010), perspective
15 taking may reduce aggressiveness via a reduction in anger. However, research examining the
16 potential mediating role of anger in the perspective taking - aggressiveness relationship in
17 sport has yet to be conducted.

18 Due to the men's proposed gender role, when competing in sport men may experience
19 higher emotional excitation and are exposed to more aggressive conduct (e.g., Kavussanu et
20 al., 2009; Maxwell, 2004), which could make male athletes more susceptible to provocation
21 in sport than their female counterparts. As a result, the ability for perspective taking to
22 reduce anger, and in turn, aggressiveness may be more impaired in sport in men than in
23 women. Indeed, research has indicated that the ability of perspective taking to reduce
24 aggression becomes over-ridden under conditions of high provocation in men, but not in
25 women (Phillips & Giancola, 2007; Stanger, Kavussanu, McIntyre, & Ring, 2016). Thus, it is

1 possible that perspective taking may help to reduce the anger often experienced in sport,
2 which in turn could reduce aggressiveness more in women than in men.

3 **The Present Research**

4 Although empathy has been inversely related to aggression and antisocial behavior in
5 sport (e.g., Kavussanu, et al., 2009), we still do not know whether the relationship between
6 empathy and aggressiveness in sport is moderated by gender and whether anger mediates this
7 relationship. The current research was designed to investigate these research questions. In
8 Study 1, we examined whether dispositional perspective taking and empathic concern are
9 associated with reduced aggressiveness in sport and whether gender moderates these
10 relationships. We predicted that both empathy components would be negatively associated
11 with aggressiveness and that this relationship would be weaker in men than in women. In
12 Study 2, we investigated whether anger mediated the relationship between perspective taking
13 and aggressiveness as well as antisocial behavior in sport. This research is important to help
14 improve the evidence base for the potential use of empathy and emotion based training
15 strategies to reduce aggressiveness in sport and whether such strategies need to be tailored for
16 men and women.

17 **Study 1**

18 **Method**

19 **Participants.** Participants were 486 university student athletes (281 men and 205
20 women), whose average age was 19.73 ($SD = 1.71$) years. They competed in soccer ($n =$
21 221), rugby ($n = 81$), netball ($n = 66$), field hockey ($n = 61$), basketball ($n = 31$), American
22 football ($n = 14$), lacrosse ($n = 9$), and korfbal ($n = 3$). Participants competed in their
23 respective sports at international/ national (9%), regional/ county (51%) and club (40%)
24 levels for an average of 8.30 ($SD = 3.81$) years.

25 **Measures.**

1 **Empathy.** Dispositional perspective taking and empathic concern were measured
2 using their respective 7-item subscales from the Interpersonal Reactivity Index (Davis, 1980).
3 Participants were asked to rate how well the items described them on a 5-point scale with
4 anchors of 1 (*does not describe me well*) and 5 (*describes me very well*). Example items are
5 “before criticizing somebody, I try to imagine how I would feel if I were in their place” for
6 perspective taking, and “I would describe myself as a pretty soft-hearted person” for
7 empathic concern. Davis (1980, 1983) provided psychometric support for the construct
8 validity of each subscale of the IRI, and scores have been shown to display very good internal
9 consistency (alpha range = .71 to .77). The average of each subscale was computed and used
10 in all analyses. This procedure was followed for all measures used in this research.

11 **Aggressiveness.** Aggressiveness in sport was measured using the 6-item
12 aggressiveness subscale of the Competitive Aggressiveness and Anger scale (Maxwell &
13 Moores, 2007). The stem "*When playing your sport how often have you behaved, felt or*
14 *thought that ...*" was followed by six items measuring aggressiveness. An example item is
15 “*Violent behavior directed toward an opponent is acceptable*”. Each item was rated on a 5-
16 point scale, anchored by 1 (*never*) and 5 (*very often*). Maxwell and Moores (2007) provided
17 psychometric support for the subscale’s construct validity and internal consistency (alphas =
18 .83 to .84) and test-retest reliability ($\alpha = .84$).

19 **Procedure.** Participants were approached by one of the investigators, and after
20 signing an informed consent form, they completed the measures described above. To reduce
21 potential reporting bias, participants were asked to answer all questions honestly, were
22 informed that responses would be confidential, and completed all questionnaires
23 anonymously. The study was approved by the university research ethics committee prior to
24 data collection.

25 **Results**

1 **Internal consistency, descriptive statistics, and correlations.** Cronbach's (1951)
2 alpha coefficients were good for perspective taking ($\alpha = .78$), and empathic concern ($\alpha = .78$)
3 and very good for aggressiveness ($\alpha = .82$). Participants reported moderate to high levels of
4 perspective taking ($M = 3.34$, $SD = 0.65$) and empathic concern ($M = 3.72$, $SD = 0.59$) as well
5 as relatively low levels of aggressiveness ($M = 2.22$, $SD = 0.70$). Multivariate Analyses of
6 Variance (MANOVA) revealed a multivariate effect for gender on the two empathy
7 subscales, $F(2, 483) = 32.02$, $\eta_p^2 = .06$. Follow-up Analyses of Variance (ANOVA) showed
8 that compared to women, men reported lower perspective taking (Men: $M = 3.24$, $SD = 0.64$;
9 Women: $M = 3.47$, $SD = 0.63$), $F(1,484) = 14.94$, $\eta_p^2 = .03$, and empathic concern, (Men: M
10 $= 3.60$, $SD = 0.56$; Women: $M = 3.89$, $SD = 0.60$), $F(1,484) = 28.58$, $\eta_p^2 = .06$. Correlational
11 analyses revealed that perspective taking ($r = -.32$, $p < .001$) and empathic concern ($r = -.32$,
12 $p < .001$) were both negatively associated with aggressiveness, and that perspective taking
13 and empathic concern were positively associated with each other ($r = .43$, $p < .001$).

14 **Gender as a moderator.** Moderated hierarchical regression analysis (i.e., Aiken &
15 West, 1991) was used to examine whether gender moderated the relationship between the two
16 empathy components and aggressiveness in sport. Due to the potential effects of sport type
17 (collision vs. contact sports) on aggressiveness in sport (e.g., Visek et al., 2010), we
18 controlled for this variable in our analyses. Collision sports comprised rugby, American
19 football and men's lacrosse, whereas contact sports comprised soccer, netball, field hockey,
20 basketball, korfbal and women's lacrosse. The variables were entered in a 3-step process.
21 We entered sport type (coded: 0 = collision, 1 = contact) and gender (coded: 0 = men, 1 =
22 women) in Step 1, empathy component (i.e., perspective taking or empathic concern) in Step
23 2, and the product term of gender and mean-centered empathy components in Step 3 (e.g.,
24 Aiken & West, 1991).

25 The results of the analysis for perspective taking on aggressiveness are presented in

1 Table 1. Significant main effects for gender and sport type on aggressiveness were revealed
2 in Step 1. Specifically, men ($M = 2.49$, $SD = 0.65$) reported higher aggressiveness than
3 women ($M = 1.84$, $SD = 0.57$), and athletes in collision sports ($M = 2.59$, $SD = 0.66$) reported
4 higher aggressiveness than those in contact sports ($M = 2.13$, $SD = 0.67$). In Step 2, we found
5 that perspective taking was a negative predictor of aggressiveness. In Step 3, a significant
6 perspective taking \times gender interaction was revealed: Gender moderated the effect of
7 perspective taking on aggressiveness. As displayed in Figure 1, perspective taking was a
8 stronger negative predictor of aggressiveness in women, $b = -.38$, $t = -6.59$, $R^2 = .17$, $p <$
9 $.001$, than men $b = -.19$, $t = -3.16$, $R^2 = .03$, $p <.01$. The results of the hierarchical regression
10 analysis for empathic concern were very similar to the results reported for perspective taking,
11 so they are not reported here. Specifically, this analysis revealed that gender also moderated
12 the relationship between empathic concern and aggressiveness whereby empathic concern
13 was a stronger negative predictor of aggressiveness in women compared to men. ¹

14 Discussion

15 The purpose of Study 1 was to investigate whether perspective taking and empathic
16 concern negatively predicted aggressiveness in sport and whether gender moderated this
17 relationship. In line with previous research (e.g., Miller & Eisenberg, 1988), we found that
18 both empathy components negatively predicted aggressiveness, and men reported lower
19 empathy (Eisenberg & Lennon, 1983) and higher aggressiveness (e.g., Archer, 2004;
20 Maxwell & Moores, 2007) than women. Moreover, perspective taking and empathic concern
21 were stronger negative predictors of aggressiveness in women than men. However, it is
22 worth highlighting that these moderation effects were small and that both perspective taking
23 and empathic concern were negative predictors of aggressiveness for both men and women.

24 Study 2

25 One limitation of Study 1 is that we did not include a measure of behavior. A variable

1 strongly associated with aggressiveness is antisocial behavior (e.g., Kavussanu, Stanger, et
2 al., 2013). Thus, those athletes who are high in aggressiveness in sport may be expected to
3 engage in antisocial behavior in sport. Therefore, in Study 2, we examined this variable. We
4 also investigated whether anger mediates the relationship between empathy components
5 (perspective taking and empathic concern) on aggressiveness and antisocial behavior.
6 Previous research has revealed that perspective taking is associated with lower anger (e.g.,
7 Mohr et al., 2007), and anger is a positive predictor of aggressiveness (e.g., Maxwell, 2004;
8 Maxwell & Moores, 2007). The aim of Study 2 was to examine (a) whether anger mediated
9 the relationship between perspective taking and aggressiveness, and perspective taking and
10 antisocial behavior, and (b) whether any effects were moderated by gender.

11 **Method**

12 **Participants.** Participants were 128 university team sport athletes (76 men and 52
13 women) with an average age of 20.23 ($SD = 2.37$) years. They competed in soccer ($n = 57$),
14 rugby ($n = 23$), netball ($n = 15$), field hockey ($n = 14$), basketball ($n = 13$), water polo ($n = 3$),
15 korfbal ($n = 2$) and American football ($n = 1$). Participants competed in their respective
16 sports at international/ national (19%), regional/ county (45%) and club (36%) levels for an
17 average of 8.14 ($SD = 4.04$) years.

18 **Measures.**

19 ***Empathy and aggressiveness.*** The perspective taking and empathic concern
20 subscales from the Interpersonal Reactivity Index (Davis, 1980), and the aggressiveness
21 subscale from the Competitive Aggressiveness and Anger scale (Maxwell & Moores, 2007)
22 were used to assess empathy and aggressiveness in sport respectively, as per Study 1.

23 ***Anger.*** The 6-item competitive anger subscale from the Competitive Aggressiveness
24 and Anger Scale (Maxwell & Moores, 2007) was used to measure anger in sport on a 5-point
25 Likert scale with anchors of 1 (*never*) and 5 (*very often*). The participants rated how often

1 they experienced thoughts and feelings relating to competitive anger. An example item is
2 “Officials’ mistakes make me angry” and “I find it difficult to control my temper during a
3 match”. Maxwell and Moores (2007) have provided evidence for the construct validity,
4 internal consistency (α s = .78 to .83) and test-retest reliability of this subscale (α = .86).

5 **Antisocial behavior.** Antisocial behavior in sport was measured using the 8-item
6 antisocial behavior towards opponent subscale from the Prosocial and Antisocial Behavior in
7 Sport Scale (Kavussanu & Boardley, 2009). Participants were asked how often they engaged
8 in a range of behaviors while playing their main sport on a 5-point scale, anchored by 1
9 (*never*) to 5 (*very often*). Example items include “deliberately fouled an opponent” and “tried
10 to injure an opponent”. The scale has received extensive support for its validity and reliability
11 in previous research (e.g., Kavussanu & Boardley, 2009; Kavussanu, Stanger, et al., 2013).

12 **Procedure.** Participants were recruited by one of the investigators at university sport
13 events or classes. Instructions were identical to those in Study 1, and participants provided
14 informed consent and completed the measures described above. Prior to the data collection,
15 the study was approved by the university research ethics committee.

16 **Results**

17 **Internal consistency, descriptive statistics and correlations.** Cronbach’s (1951)
18 alpha coefficients, descriptive statistics, and zero-order correlations are presented in Table 2.
19 Internal consistency was very good for all measures. Athletes indicated moderate to high
20 levels of empathy, relatively low levels of aggressiveness, sometimes felt anger and
21 sometimes engaged in antisocial behaviors towards opponents, during competitive sport.
22 Perspective taking was positively correlated with empathic concern. Both perspective taking
23 and empathic concern were negatively linked with anger, aggressiveness and antisocial
24 behavior. Anger, aggressiveness and antisocial behavior were all positively correlated.
25 Finally, gender differences were noted for empathic concern, aggressiveness and antisocial

1 behavior whereby men reported lower empathic concern and higher aggressiveness and
2 antisocial behavior than women. No gender differences were noted for perspective taking or
3 anger. In addition, there were no differences for the variables across sport type (collision vs.
4 contact) apart from aggressiveness, which was higher in athletes from collision sports than
5 contact sports.

6 **Moderated mediation analysis.** The purpose of this study was to determine whether
7 the relationship between empathy components and aggressiveness were mediated by anger
8 and moderated by gender. To examine this purpose, we used bootstrapping, which is
9 considered one of the most powerful methods when testing for indirect effects (Hayes, 2009;
10 Preacher, Rucker, & Hayes, 2007) using the PROCESS macro for regression analyses
11 conducted via the Statistical Package for the Social Sciences (SPSS) v2.1 (Hayes, 2013).
12 Each model was run with 5,000 bootstrap samples to estimate the indirect effect and 95%
13 confidence intervals (CIs). When the confident interval of an indirect effect does not contain
14 zero, there is evidence of mediation. We also examined whether gender moderates the
15 indirect effect of perspective taking and empathic concern on aggressiveness and antisocial
16 behavior through anger by calculating the index of moderated mediation (available in the
17 PROCESS macro for SPSS; Hayes, 2013). This index equates to the difference between the
18 conditional indirect effect (through anger) in men versus women (Hayes, 2015). If the
19 confidence interval of this index excludes zero, there is evidence of moderated mediation.

20 As shown in Figure 2A, perspective taking was a negative predictor of anger (the
21 mediator) for both men and women, whereas anger was a positive predictor of aggressiveness
22 only in women. Perspective taking was a significant negative predictor of aggressiveness in
23 women and a marginal predictor in men. Moreover, the relationship between perspective
24 taking and aggressiveness when controlling for anger was reduced more so in women than
25 men. Similar results were revealed for antisocial behavior (see Figure 2B).

1 Mediation analyses revealed that the indirect effect of perspective taking on
2 aggressiveness through anger was significant in women (point estimate = -0.26 , 95% CI of $-$
3 0.56 to -0.06), but not in men (point estimate = -0.06 , 95% CI of -0.18 to 0.01). However,
4 the index of moderated mediation was not significant (-0.21 , 95% CI = -0.51 , 0.02). The
5 indirect effect of perspective taking on antisocial behavior through anger was also significant
6 in women (point estimate = -0.45 , 95% CI of -0.78 to -0.17), but not in men (point estimate
7 = -0.04 , 95% CI of -0.15 to 0.02). The index of moderated mediation was significant ($-$
8 0.42 , 95% CI = -0.75 , -0.13), thereby confirming that the mediating role of anger on the
9 perspective taking-antisocial behavior relationship was moderated by gender.

10 When the mediation models were ran for empathic concern, no indirect effect for
11 anger was found for women, or men on either aggressiveness or antisocial behavior. Thus,
12 anger did not mediate the relationship between empathic concern and aggressiveness or
13 empathic concern and antisocial behavior in women or men.²

14 **Discussion**

15 Our findings indicate that perspective taking was a negative predictor of
16 aggressiveness and anger. Also, anger positively predicted aggressiveness in sport only in
17 women. The key finding concerned the mediating role of anger on the relationships between
18 perspective taking and aggressiveness as well as perspective taking and antisocial behavior in
19 women, but not in men. This finding suggests that perspective taking is associated with
20 reduced aggressiveness and antisocial behavior in women by reducing feelings of anger.

21 **General Discussion**

22 Previous research has highlighted that empathy may reduce the propensity to be
23 aggressive in sport (e.g., Stanger et al., 2016; Stanger et al., 2012). However, research
24 determining whether the strength of the relationship between empathy components and
25 aggressiveness is consistent across men and women, and whether anger mediates this

1 relationship is lacking. The purpose of this research was to examine: (a) whether perspective
2 taking and empathic concern were negatively associated with aggressiveness in sport; (b) the
3 moderating role of gender; and (c) the mediating role of anger in the relationships between
4 perspective taking and aggressiveness, and perspective taking and antisocial behavior in
5 sport.

6 **Empathy and Aggressiveness**

7 Perspective taking and empathic concern were negatively associated with
8 aggressiveness (Studies 1 and 2) and antisocial behavior (Study 2) in sport. These findings
9 are in line with previous research investigating such links in studies assessing empathy (e.g.,
10 Kavussanu et al., 2009; Miller & Eisenberg, 1988) or experimentally manipulating empathy
11 (e.g., Stanger et al., 2012, 2016). Gender had a small moderating effect on the empathy –
12 aggressiveness relationship whereby perspective taking and empathic concern were slightly
13 stronger negative predictors of aggressiveness in women than men.

14 Men may be more inclined than women to demonstrate an orientation of superiority
15 and competence (Eagly, 1987) and possess greater competitiveness and win orientation (Gill
16 et al., 1996) and can become more exposed to aggressive conduct which could potentially
17 increase the perceived legitimacy of aggressive behavior in competitive contexts (e.g.,
18 Bredemeier & Shields, 1986; Conroy, Silva, Newcomer, Walker, & Johnson, 2001). As a
19 result, men may experience higher emotional excitation and cognitive incapacitation (cf.
20 Zillmann, 1988) than women, which in turn, may reduce men's ability to take the perspective
21 of others compared to women in sport competition. A combination of these factors may
22 explain why the empathy – aggressiveness in sport relationship may be slightly weaker in
23 men.

24 **The Mediating Role of Anger**

1 Anger mediated the relationships between perspective taking and aggressiveness as
2 well as antisocial behavior in women, but not in men. Thus, perspective taking may help to
3 mitigate aggressiveness and antisocial behavior by reducing anger in women. These findings
4 are reminiscent of previous research that has looked at the effects of empathy on reactive
5 aggression under differing levels of provocation. Specifically, under anger-invoking
6 conditions such as following high provocation, the effects of empathy on reactive aggression
7 appear to become neutralised in men, whereas empathy has been shown to reduce reactive
8 aggression at high provocation in women (e.g., Phillips & Giancola, 2007; Stanger et al.,
9 2016). Therefore, perspective taking may help reduce anger, and in turn, transgressions in
10 women, but less so in men (e.g., Richardson et al., 1994; Zillmann et al., 1988).

11 The relationship between perspective taking and both aggressiveness and antisocial
12 behavior in men may be explained by other affective mechanisms, such as guilt. Previous
13 research has found that guilt mediates the suppressing effects of empathy on likelihood to
14 aggress in sport (Stanger et al., 2012) and reactive aggression during a competitive task
15 (Stanger et al., 2016) in men. This differential mediating role of anger across gender may be
16 explained by perspective taking ability being less effective at reducing blame to opponents
17 (Mohr et al., 2007) or enhancing cognitive functioning following provocation (Zillmann,
18 1988) in men due to the more prevalent exposure of being the recipients of aggressive related
19 conduct in sport. Men may also perceive provoking events in sport from opponents as more
20 intentional that can nullify empathic reactions (e.g., Betancourt & Blair, 1992). In future,
21 researchers could determine the potentially mediating role of anger in the perspective taking-
22 aggressiveness and antisocial behavior relationship when considering the extent of perceived
23 intentionality and blame attributed to the victim.

24 **Applied Implications**

1 Based on the current findings, some implications for practitioners, coaches and policy
2 makers wishing to reduce aggressiveness and antisocial conduct in sport can be suggested.
3 Assuming the athlete does not possess impaired capacity to enhance their empathy (e.g.,
4 psychopaths), interventions targeted at increasing empathy have the potential to reduce
5 aggressiveness in sport for both males and females. Several studies have shown that empathy
6 can be enhanced using the appropriate training which involves being taught to identify
7 affective states in others, role-play a range of social interactions, and imagine how the world
8 would look to them from various perspectives (e.g., Pecukonis, 1990; Şahin, 2012). Similar
9 empathy training could be implemented in athletes. For example, players could be presented
10 with video-taped real-match situations involving violent behaviors and asked to try to take
11 the other person's perspective and think about the implications that these actions might have
12 for others. Such training could be used as an intervention with youth players, or a practitioner
13 working with an athlete who may have a poor disciplinary record and looking to reduce his or
14 her aggressiveness or antisocial conduct in sport.

15 The use of empathy-based approaches would appear to potentially be more effective
16 to reduce aggressiveness in females. Specifically, perspective taking interventions have the
17 potential to reduce aggressiveness and antisocial conduct in females partly by reducing anger.
18 As anger was predictive of aggressiveness and antisocial behavior particularly in women,
19 anger control strategies such as arousal control, cognitive restructuring, problem-solving and
20 trigger recognition (see Abrams, 2010) could potentially be applied in conjunction with
21 enhancing empathy to help reduce anger. Increasing empathy in men could also help to
22 reduce their aggressiveness, and it could be beneficial to direct empathy based strategies at
23 men who are lower in empathy (e.g., Kavussanu et al., 2009). Given the moderating effect of
24 gender on the empathy – aggressiveness relationship and the differential mediating role of

1 anger, strategies aimed at reducing aggressiveness and antisocial behavior in sport may need
2 to be tailored for males and females.

3 **Limitations and Directions for Future Research**

4 Although this research has revealed novel and important findings, there are some
5 potential limitations that should be considered when interpreting them and addressed by
6 future work. First, both studies were cross-sectional so the causal direction of these
7 relationships cannot be established with certainty. Future research could extend our findings
8 by investigating the effects of an empathy training intervention on athletes' behavior and
9 further examine the mechanisms that explain any effects. It would also be interesting to
10 investigate whether moral identity, which has been linked to antisocial behavior in sport
11 (Kavussanu, Stanger, & Ring, 2015) influences the relationship between empathy and
12 antisocial behavior. It is possible that moral identity accentuates this relationship. Second,
13 the study was reliant on self-reports that can potentially be sensitive to social desirability and
14 reporting bias. Future research may wish to corroborate more objective measures and
15 methodologies to further explore the role of empathy on moral conduct in athletes. For
16 instance, researchers could corroborate self-report measures of behavior with observational
17 methods.

18 It is possible that the effects of empathy on aggressiveness are influenced by
19 personality traits. For instance, the empathy-aggressiveness relationship could be negated in
20 athletes who have impaired capacity for empathy such as psychopaths (e.g., Blair, Mitchell,
21 & Blair, 2005), or athletes with overstated or unstable self-esteem (e.g., narcissists), who are
22 prone to anger and aggression, particularly under circumstances when their self image is
23 threatened (e.g., Anderson & Bushman, 2002; Bushman & Baumeister, 1998). Researchers
24 may wish to examine the potentially moderating role of such personality characteristics when
25 investigating the relationships among empathy, anger, aggressiveness and antisocial behavior.

1 Future research could also measure a broader range of anger dimensions. One measure that
2 considers a range of anger dimensions (e.g., anger control, anger expressed inwards or
3 outwards) is the State Trait Anxiety Inventory-2 (STAXI-2; Spielberger, 1999). Studies
4 investigating the development of a sport-specific measure that assesses these dimensions of
5 anger would be an important addition to the literature. Lastly, this paper focused on
6 aggressiveness rather than aggressive *behavior*. Although there is some lack of consensus
7 over generally accepted definitions of aggression in sport (e.g., Abrams, 2010; Husman &
8 Silva, 1984; Kerr, 2005; Maxwell, 2004; Tenenbaum, Stewart, Singer, & Duda, 1997), the
9 literature would benefit from research on, and measurement development of, the different
10 forms of aggression (e.g., instrumental vs. reactive; sanctioned vs. unsanctioned) or violence
11 in sport to facilitate understanding of antecedents that are specific to different types of
12 aggressive behavior.

13 **Conclusion**

14 In conclusion, empathy is a negative predictor of aggressiveness in sport, though this
15 effect appears to be stronger for women than men. Moreover, anger mediated the
16 relationships between perspective taking and aggressiveness as well as antisocial behavior in
17 women, but not in men. Our findings suggest that empathy could be beneficial to mitigate
18 aggressiveness and antisocial behavior in sport, though such strategies may need to be
19 tailored for males and females. Research investigating the effects of empathy and emotion
20 based interventions on aggressiveness and antisocial behavior in sport is now needed.

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1 Endnotes

2 ¹Hierarchical regression analysis was run for empathic concern. In Step 2, a main effect for
3 empathic concern on aggressiveness was found, indicating that empathic concern was a
4 negative predictor of aggressiveness ($b = -.25$, $\beta = -.21$, $p < .001$, $R^2 = .04$). In Step 3, an
5 empathic concern \times gender interaction was found, $b = -.20$, $\beta = -.12$, $p = .033$, $R^2 = .01$.
6 Specifically, empathic concern was a stronger negative predictor of aggressiveness for
7 women, $b = -.37$, $t = -5.95$, $R^2 = .15$, $p < .001$, than men, $b = -.18$, $t = -2.60$, $R^2 = .02$, p
8 $< .01$. The coefficients and strength of these effects were very similar to those for perspective
9 taking presented in Table 1 and Figure 1.

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11 ² To examine whether sport type influenced the results of the moderated mediation analyses,
12 we controlled for sport type in these analyses. The effects were very similar thereby
13 indicating sport type did not affect these findings.

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1 Table 1

2 *Hierarchical Regression Analysis for Aggressiveness in Sport on Gender and Perspective*3 *Taking for Study 1 (N = 486)*

Step	Predictor variable	<i>B</i>	<i>SE B</i>	β	ΔR^2	ΔF
1	Sport type	-.29	.07	-.16	.24	75.75***
	Gender	-.59	.058	-.42***		
2	Gender	-.54	.056	-.38***	.06	38.07***
	Perspective taking	-.26	.042	-.24***		
3	Gender	-.53	.056	-.38***	.01	5.74*
	Perspective taking	-.18	.054	-.16**		
	Gender \times Perspective taking	-.20	.085	-.12*		

4 *Note.* * $p < .05$, ** $p < .01$, *** $p < .001$. Sport type was coded as 0 (collision) and 1

5 (contact). Gender was coded as 0 (male) and 1 (female). The products were formed by

6 multiplying Gender by mean-centered Perspective taking.

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1 Table 2

2 *Correlations, Internal Consistency and Descriptive Statistics for Study 2 (N = 128)*

	1	2	3	4	5
1. Perspective taking	(.71)				
2. Empathic concern	.42***	(.74)			
3. Aggressiveness	-.31***	-.41***	(.79)		
4. Anger	-.40***	-.28**	.35***	(.75)	
5. Antisocial behavior	-.34***	-.39***	.83***	.41***	(.82)
6. Gender	.11	.28**	-.42***	-.08	-.34***
7. Sport type	.02	.12	-.22*	-.06	.16
<i>M</i>	3.31	3.65	2.12	2.71	2.19
<i>SD</i>	0.61	0.61	0.77	0.65	0.72

3 *Note: * $p < .05$, ** $p < .01$, *** $p < .001$. Cronbach's Alpha coefficients are presented in*
 4 *parentheses on the diagonal. Scale ranges were 1-5 for all variables.*

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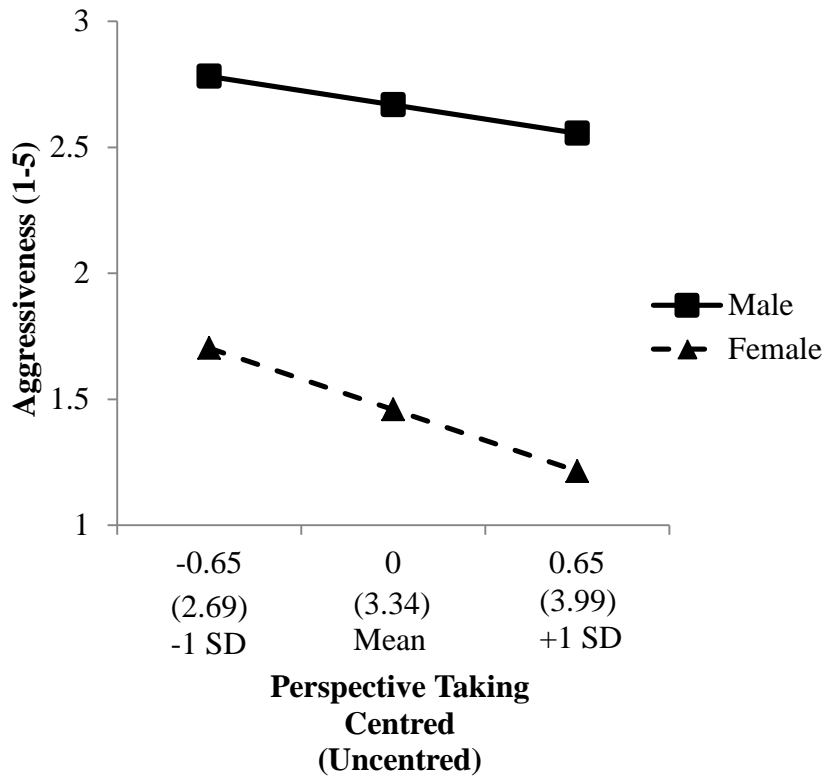
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3 *Figure 1.* The moderating effect of gender on the relationship between perspective taking and
 4 aggressiveness in Study 1.

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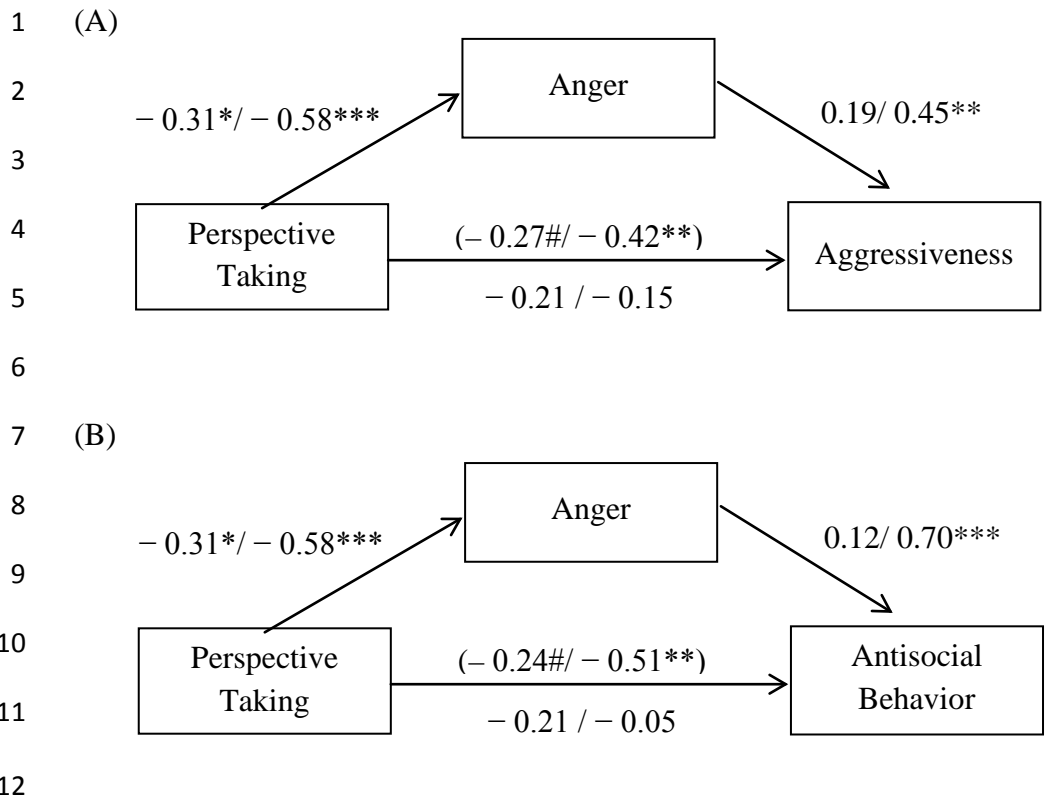
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13 *Figure 2.* Models for the mediating role of anger in Study 2. Unstandardized regression
 14 coefficients are presented before the slash for males and after the slash for females. The
 15 uncorrected coefficient for the link between perspective taking and aggressiveness as well as
 16 perspective taking and antisocial behavior are in parentheses.

17 # $p < .06$; * $p < .05$; ** $p < .01$; *** $p < .001$.

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