

Values and clean sport

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Journal of Sports Sciences

Values and Clean Sport

--Manuscript Draft--

Full Title:	Values and Clean Sport
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Keywords:	Anti-doping; Clean sport; spirit of sport; values
Abstract:	The spirit of sport which encompasses intrinsic values associated with sport participation, is core to the World Anti-Doping Agency's (WADA) strategy for doping prevention. The contribution of these values in clean sport has yet to be established. In this study, athletes rated the importance of spirit of sport values (WADA, 2015) and sport values (Lee et al., 2000, 2008) and indicated their clean sport likelihood in a hypothetical scenario. Clean sport likelihood was positively predicted by the five spirit of sport values (ethics/fair play/honesty, respect for rules/laws, dedication/commitment, teamwork, community/solidarity), two sport value domains (morality, competence), and 11 sport values (contract maintenance, being fair, conscientiousness, sportspersonship, show skills, health/fitness, caring/compassion, team cohesion, achievement, tolerance, obedience). Clean sport likelihood was best predicted by moral values.
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Response to Reviewers:	Robin Jackson BSS Associate Editor Journal of Sports Sciences Ref: Ms. No. RJSP-2020-0872R1 Title: Values and Clean Sport Dear Dr Jackson We would like to thank you for your guidance. Our revised manuscript is attached. Editor Reviewers have now commented on your paper. You will see that they are advising that the paper be accepted for publication. Before we can accept the paper, please provide details of your power analysis. •We have added our power analysis to the Participants section of our manuscript (P 9, L 5-8). Reviewer #2: The authors responded to all of my comments in an adequate way and I support publishing the manuscript in its current form. •Thank-you. Reviewer #4: Thank you for your diligence and willingness to take on suggestions from the Reviewers. I am satisfied with the additional information and changes made in response to my comments. •Thank-you Executive Editor:

Please provide details of your power (or precision) analysis.
•See above

Values and clean sport

KEYWORDS: doping; psychology; sport

1 **ABSTRACT**

2 The *spirit of sport* which encompasses intrinsic values associated with sport participation, is
3 core to the World Anti-Doping Agency's (WADA) strategy for doping prevention. The
4 contribution of these values in clean sport has yet to be established. In this study, athletes
5 rated the importance of *spirit of sport* values (WADA, 2015) and sport values (Lee et al.,
6 2000, 2008) and indicated their clean sport likelihood in a hypothetical scenario. Clean sport
7 likelihood was positively predicted by the five *spirit of sport* values (ethics/fair play/honesty,
8 respect for rules/laws, dedication/commitment, teamwork, community/solidarity), two sport
9 value domains (morality, competence), and 11 sport values (contract maintenance, being
10 fair, conscientiousness, sportpersonship, show skills, health/fitness, caring/compassion, team
11 cohesion, achievement, tolerance, obedience). Clean sport likelihood was best predicted by
12 moral values.

13

1 **Introduction**

2 The use of prohibited substances and methods to improve performance in sport, also
3 known as doping, constitutes a form of cheating by breaking the rules of sport to gain an
4 unfair advantage violates the *spirit of sport* (WADA, 2015) and personal moral standards
5 (e.g., Backhouse et al., 2016; Donovan et al., 2002; Engelberg et al., 2015; Murray, 2018).
6 Although doping has attracted attention from psychologists aiming to understand the
7 reasons why athletes intentionally use banned performance-enhancing substances and
8 methods (for reviews see Blank et al., 2016; Morente-Sanchez & Zabala, 2013; Ntoumanis et
9 al., 2014), there is limited research on doping in relation to values. Values, which act as
10 guiding principles in a person's life, are key elements of the *spirit of sport* (WADA, 2015) and
11 core components of recent clean sport educational programs, such as *TrueSport* (USADA,
12 2012), *100% ME* (UKAD, 2018), and *Sport Values in Every Classroom* (WADA, 2019a).
13 However, the assumption that the *spirit of sport* construct and values are important for anti-
14 doping and thus predict clean sport behavior is awaiting empirical support (for reviews see
15 Geeraets, 2017; Mazanov et al., 2019; Obasa & Bory, 2019; Ritchie, 2013).

16

17 ***Spirit of sport values***

18 The desire to foster intrinsic values associated with participation in sport underpins
19 WADA's anti-doping strategy. The WADA Code 2015 (p. 14) states that "*Anti-doping*
20 *programs seek to preserve what is intrinsically valuable about sport. This intrinsic value is often*
21 *referred to as the spirit of sport. ... The spirit of sport is reflected in values we find in and through*
22 *sport, including: ethics, fair play and honesty; health; excellence in performance; character and*
23 *education; fun and joy; teamwork; dedication and commitment; respect for rules and laws; respect*
24 *for self and other participants; courage; community and solidarity. Doping is fundamentally contrary*
25 *to the spirit of sport*".

1 The *spirit of sport* is a cornerstone of anti-doping policy. The WADA Code 2015 (p. 30)
2 states “A substance or method shall be considered for inclusion on the Prohibited List if WADA
3 determines that the substance or method meets any two of the following three criteria” ... where
4 the third criterion is ... “use of the substance or method violates the *spirit of sport*”. Despite the
5 prominence of the *spirit of sport* values in anti-doping policy, the importance of these values
6 to athletes and their relationships to clean (drug-free) sport have yet to be established (cf.,
7 Mazanov & Huybers, 2016; Mazanov et al., 2019; Pugh & Pugh, 2020). Mazanov and
8 colleagues (Mazanov & Huybers, 2016; Mazanov, et al., 2019) have taken some preliminary
9 steps towards establishing how athletes and non-athletes understand the relative
10 importance of *spirit of sport* values to sport in general and the *spirit of sport* construct.
11 However, the relationship between the importance of *spirit of sport* values and clean sport
12 behavior has yet to be established. Accordingly, the current study was designed to shed light
13 on WADA’s *spirit of sport* values in relation to athletes deciding whether to compete clean
14 (i.e., avoid using an illicit drug) in a situation with many incentives and no constraints. In
15 brief, we assessed the importance of *spirit of sport* values to athletes personally rather than
16 their perceived importance to sport in general (cf. Mazanov & Huybers, 2016; Mazanov, et
17 al., 2019).

18

19 **Sport values**

20 We also examined the relationship between spirit of sport values and Lee’s sport values
21 (Lee & Cockman, 1995; Lee, et al., 2000, 2008) which are based on the Schwartz (1992)
22 theory of human values. Schwartz’s (1992) theory of universal human values built on
23 Rokeach (1973), who identified *personal values*¹ as an individual’s central beliefs about which
24 goals or modes of conduct are preferable to alternatives. Values transcend situations and
25 serve as judgment criteria to guide decisions. Rokeach described a value system as the

1 hierarchy of the relative importance of an individual's values on a continuum. Hence
2 personal values are the appropriate variables to examine in studies of behavior because they
3 prioritize decisions. They are likely to be related to clean sport because they will set the
4 priorities for values, such as winning and fairness, which influence decision-making of
5 competitors.

6 Lee and Cockman (1995) identified 18 discrete personal values that were spontaneously
7 expressed by young competitors in discussions of three moral dilemmas in their own sport
8 (football or tennis). Lee et al (2000) then employed qualitative methods to select suitable
9 proxy items for these values and ensure that they were comprehensible. They constructed
10 the Youth Sport Value Questionnaire (YSVQ) to assess the value system of young
11 competitors across age, gender and sport type. A Canadian replication (MacLean & Hamm,
12 2008), which included an older sample, confirmed that the set of items was comprehensive.
13 International replication confirmed broad consistency at the extremes of the hierarchy with
14 national variation in the intermediate ranks (Gonçalves & Whitehead, 2013). In the present
15 study our measurement of these 18 individual sport values supplements our measurement
16 of the 11 individual *spirit of sport* values.

17 The Youth Sport Values Questionnaire-2 (YSVQ-2) was developed by Lee et al (2008)
18 identified three higher order sport value domains: moral values (fairness, helpfulness,
19 contract maintenance, obedience, sportpersonship), competence values (achievement,
20 showing skill, self-direction), and status values (winning, superiority, leadership, public
21 image). This model demonstrated a good confirmatory factor analysis fit with factor
22 invariance across gender and nations (Hatzigeorgiadis & Whitehead (2013). Lee et al (2008)
23 found that moral sport values negatively predicted attitudes to cheating and gamesmanship.
24 This key finding has been replicated many times (Ádell, et al., 2019; Chan et al, 2013; Fukami
25 et al, 2012; Gymnopolou & Vatali, 2010; Lucidi et al, 2017; Stupuris, et al., 2013). Moral

1 sport values have also predicted other moral variables, including moral disengagement
2 (Šukys & Jansonienė, 2012), antisocial behaviour (Koumeli & Vitali, 2011; Šukys, 2010), and
3 observed cheating behaviour (Lucidi et al, 2017) in sport.

4 No studies, to our knowledge, have examined the relationship between sport values and
5 clean sport. However, there is preliminary evidence that non-sport moral values are
6 negatively associated with doping likelihood (Ring & Hurst, 2019; Ring, Kavussanu, &
7 Gürpınar, 2020; Ring, Kavussanu, & Mazanov, 2019). Moreover, the values of respect for
8 rules/officials and social conventions in sport values are negatively associated with doping
9 behavior (Donahue et al., 2006) and intention (Barkoukis et al., 2011). Hence, we expected
10 moral values in sport to be positively associated with clean sport.

11

12 **Clean sport**

13 It has been argued that the anti-doping deterrence approach cannot eliminate doping
14 (Bowers & Paternoster, 2016), and, instead, anti-doping programs should adopt a
15 preventative approach and promote healthy behavior and competition (e.g., Englar-Carlson
16 et al., 2016). A positive approach to prevention is an emerging theme in the anti-doping
17 strategies of national and international organizations (WADA, 2015). For instance, the
18 *TrueSport* program is a values-based educational program, undergirded by three core
19 principles (character building, sportsmanship, clean and healthy performance) and five values
20 (integrity, respect, courage, responsibility, teamwork), that seeks to promote a positive
21 sport experience (USADA, 2012). Similarly, the *100% Me* program is a values-based
22 educational program, grounded on five values (integrity, respect, determination, enjoyment,
23 passion), that seeks to promote clean sport (UKAD, 2018).

24 Most psychosocial research on doping in sport has focused on identifying predictors of
25 doping (Blank et al., 2016; Morente-Sanchez & Zabala, 2013; Ntoumanis et al., 2014).

1 Surprisingly, only a handful of studies (e.g., Bowers & Paternoster, 2016; Chan, Hardcastle,
2 et al., 2015; Chan, Lentillon-Kaestner, et al., 2015; Englar-Carlson et al., 2016) have
3 investigated the role of psychosocial factors in relation to doping *avoidance*, or the active
4 non-use of doping substances and methods when competing in sport. These studies thus
5 represent agentive non-doping. A similar construct is that of clean sport.

6 A definition of clean sport has yet to be agreed upon by the anti-doping community.
7 According to New Zealand’s anti-doping agency “*clean sport means athletes: compete on a*
8 *level playing field; are rewarded for their hard-work, talent and skills; value the spirit of sport;*
9 *respect and look after their bodies and their health; follow the anti-doping rules; and understand the*
10 *importance of a drug testing regime to catch cheats and protect clean athletes*” (Drug Free Sport
11 New Zealand, 2020). The United States’ anti-doping agency states that “*clean competition*
12 *means reaching athletic potential through proper training, nutrition and rest, not through powders,*
13 *pills and energy drinks*” (USADA, 2012). Finally, the Clean Sport Alliance (2019) defines clean
14 sport as “*values: competing with integrity, morality, honesty and fairness*”. It is reasonable to
15 assume that anti-doping programs, policies and practices can be helped by evidence about
16 what underpins clean sport for athletes. In this study, we focused on investigating the extent
17 to which the likelihood that athletes would compete clean in a tempting hypothetical
18 situation was related to their values.

19

20 **Present study**

21 The policies and practices of international and national anti-doping agencies afford values a
22 key role in their anti-doping activities and programs. Currently, there is no empirical
23 evidence linking the *spirit of sport* values with clean sport. Fortunately, it is possible to draw
24 upon evidence that links sport values to other forms of unethical thoughts and actions, such
25 as attitudes to cheating. Based on this literature, it may be expected that the *spirit of sport*

1 values will be linked with decision to compete clean and reject drug use (i.e., clean sport
2 likelihood).

3 The present study is the first, to our knowledge, to investigate the role of *spirit of sport*
4 and sport values in relation to clean sport. We asked athletes to rate the importance of
5 WADA's *spirit of sport* values as a guiding principle in their life as an athlete, rate the
6 importance of Lee's (2000, 2008) sport values, and rate their likelihood of competing clean
7 in sport. It had three purposes. The first study purpose was to examine the relationships
8 between the *spirit of sport* values and clean sport likelihood. The second study purpose was
9 to examine the relationships between sport values and clean sport likelihood. The third
10 study purpose was to evaluate the extent of the relationship between the *spirit of sport*
11 construct and the sport value domain constructs (i.e., convergent validity).

12

13 **Method**

14 ***Participants***

15 Participants were 233 (91 males, 139 females) university athletes competing in team ($n =$
16 185, 79%) and individual ($n = 48$, 21%) sports in the UK. The team sports included American
17 football, basketball, cricket, football and netball, whereas the individual sports included
18 athletics, badminton, martial arts and swimming. At the time of data collection, the athletes,
19 who were aged between 18 and 25 years, had competed in their sport for 8.95 ($SD = 7.46$)
20 years. Their highest ever competitive standard in their sport was international (7%), national
21 (12%), regional (29%), club (43%), and university (17%).

22 Participants were recruited from sport clubs at the University of Birmingham, UK. We
23 chose to sample university student-athletes since substance use in this population is now
24 widely recognized (e.g., Erickson et al., 2019; Yusko et al., 2008). In the UK, these athletes
25 compete in events organized by the British Universities and Colleges Sport (BUCS), a

1 UKAD- and WADA- compliant organization. For instance, UKAD manages the Clean Sport
2 Accreditation for Universities, organizes anti-doping controls at BUCS events, and trains
3 anti-doping educators who provide Clean Sport education for student athletes at British
4 universities.

5 The GPower 3.1.5 (Faul et al., 2007) software indicated that with a sample size of 233,
6 our study was powered at .80 to detect significant ($p < .05$) relationships between values
7 and clean sport likelihood using Pearson correlation analyses corresponding to a small-to-
8 medium ($r = .19$) effect size (Cohen, 1992).

9

10 **Measures**

11 *Clean sport likelihood.* Clean sport likelihood was measured using a hypothetical scenario
12 describing key temptations to dope identified by previous research (e.g., Huybers, &
13 Mazanov, 2012; Ring, et al., 2018, 2019a; Strelan & Boeckmann, 2006). Participants were
14 presented with the following description: “*Imagine that you are an athlete who is due to*
15 *compete in the most important competition in your sport (e.g. Olympic Games, World Cup, Major*
16 *Tournament). Winning the competition and being recognized as the most valuable competitor at*
17 *the event will earn you great fame and fortune (e.g. cash, sponsorship, endorsements, TV deals,*
18 *awards, book deals, publicity, public adoration), making you the most important athlete of your*
19 *generation. The only way to make this happen is to take a magic pill that will make you perform*
20 *like a superhuman athlete during the competition. You should also know that use of this illicit drug*
21 *will never be detected and will never have any health side effects.” Participants were then asked*
22 *“how likely are you to compete clean (i.e., drug free)” and provided a rating on a 7-point*
23 *scale anchored by 1 (not at all likely) and 7 (very likely), and “how probable is it that you*
24 *would compete clean (i.e., drug free) and provided a rating on a 7-point scale anchored by 1*
25 *(not at all probable) and 7 (very probable). We used two ratings to increase measurement*

1 reliability. The two ratings, which were positively correlated ($r = .85, p < .001$), were
2 averaged ($\alpha = .92$), to provide a measure of clean sport likelihood.

3 *Spirit of sport values.* The importance of the *spirit of sport* values was measured by
4 presenting participants with WADA's (2015) 11 *spirit of sport* values: *ethics, fair play and*
5 *honesty; health; excellence in performance; character and education; fun and joy; teamwork;*
6 *dedication and commitment; respect for rules and laws; respect for self and other participants;*
7 *courage; community and solidarity.* They were instructed to "Read each value and think about
8 how important it is to you in competitive sport. Rate the importance of each value as a
9 guiding principle in your life as an athlete". They rated the importance of each value on a 9-
10 point scale, with anchors of -1 (opposed to my values), 0 (not important), 5 (important), 6
11 (very important), and 7 (of supreme importance). This type of asymmetrical scale, which is
12 recommended by Schwartz (1992) for measuring the importance of personal values,²
13 because it allows for disagreement with some values, has been used by values researchers to
14 assess the importance of individual values (e.g., Lee et al., 2000). The use of this scale also
15 facilitated a comparison of the importance of personal values drawn from both *spirit of sport*
16 and sport contexts. We computed the mean of the 11 ratings as measure of the importance
17 of the *spirit of sport* values ($\alpha = .82$).

18 *Sport values.* Portrait versions of the Youth Sport Values Questionnaire (YSVQ, Lee, et
19 al., 2000) and Youth Sport Values Questionnaire-2 (YSVQ-2; Lee, et al., 2008) were used to
20 measure 18 individual sport values and 3 sport value domains, respectively. The portrait
21 scale format was developed by Schwartz to measure values more concretely and easily
22 (Roccas, Sagiv, & Navon, 2017). Participants were presented with descriptions of the values
23 of different athletes and told to think about how much they were or were not like them.
24 They were asked to rate descriptions (e.g., "It is important to them that they win or beat other
25 people", "It is important to them that they try to be fair", "It is important to them that they improve

1 *their performance*”), using a 6-point scale, anchored by 1 (not like me at all) and 6 (very much
2 like me).¹ The items were phrased in the third person in a portrait format as used by
3 Schwartz (2012) to measure basic values indirectly. The YSVQ comprises single items
4 measuring 18 discrete values whereas the YSVQ-2 comprises 13 items measuring three
5 value domains: competence, moral, and status. In the present study, alpha coefficients for
6 the competence, moral and status value domains were .75, .78 and .59, respectively.

7

8 **Procedure**

9 Participants were informed about the study, and told that participation was voluntary,
10 honesty in responses was vital, and data would be confidential. After consenting, they
11 completed the measures using an online survey to ensure anonymity.

12

13 **Data Analysis**

14 Pearson correlations examined the relations between values and clean sport likelihood. The
15 correlation coefficient, r , was reported as the effect size, with .10, .30 and .50 reflecting
16 small, medium and large associations (Cohen, 1992). Analysis of variance (ANOVA), with
17 value as the within-participant factor, compared the importance of the different values
18 within each measurement context (i.e., *spirit of sport*, sport). Partial eta-squared (η_p^2) was
19 reported as the effect size, with .02, .13, and .25 reflecting small, medium and large effects
20 (Cohen, 1992). We report the multivariate solution to the ANOVAs. Significant effects
21 were followed by post hoc comparisons (t tests). An effect was considered significant when
22 $p < .05$.

23

24 **Results**

1 Our first study purpose was to examine the relationships between the *spirit of sport* values
2 and clean sport likelihood. Pearson correlations showed that the composite *spirit of sport*
3 construct was positively related to clean sport likelihood, with a small effect size (**Table 1**).³
4 Correlations involving the individual *spirit of sport* values (**Table 2**) indicated that five
5 individual values were positively associated with clean sport likelihood. The effect sizes of
6 the relationships were: medium for ethics/fair play/honesty; and small for respect for
7 rules/laws, dedication/commitment, teamwork, and community/solidarity. It is worth noting
8 that three of the four most and least important values were dissociated from the decision to
9 compete clean. Instead, it tended to be the *spirit of sport* values that were of middlemost
10 importance (i.e., ethics/fair play/honesty, respect for rules/laws) that were most closely
11 associated with clean sport likelihood.

12 Our second study purpose was to examine the relationships between sport values and
13 clean sport likelihood. Pearson correlations showed that moral values were positively
14 related (medium effect), competence values were positively related (small effect), and status
15 values were unrelated (no effect) to clean sport likelihood (**Table 1**). Correlations involving
16 the individual sport values (**Table 3**) revealed that 11 values were positively associated with
17 clean sport likelihood. The effect sizes of the relationships were: medium for contract
18 maintenance and being fair; and small for conscientiousness, sportspersonship, show skills,
19 health/fitness, caring/compassion, team cohesion and achievement, tolerance, and obedience.

20 Our third study purpose was to investigate the convergent validity of the *spirit of sport*
21 construct by examining its relationship with sport values (**Table 1**). Pearson correlations
22 indicated that the *spirit of sport* construct was positively related with all three sport value
23 domains, with the effects sizes being medium for moral and competence values but small for
24 status values.

25

1 **Discussion**

2 Our study investigated whether *spirit of sport* values and sport values were associated with
3 clean (drug-free) sport likelihood. Our purposes were to examine the relationships between
4 *spirit of sport* values, sport values, and clean sport likelihood.

5

6 ***Spirit of sport values***

7 Our first study purpose was to examine the relationship between the *spirit of sport* and clean
8 sport likelihood. The *spirit of sport* was positively associated with clean sport likelihood with
9 a small effect size, thereby providing some, albeit limited, support for the predictive validity
10 of the *spirit of sport* as a construct. To explore this issue further we examined the individual
11 values that make up the *spirit of sport*, and found that only five *spirit of sport* values were
12 associated with higher clean sport likelihood; most were unrelated to clean sport likelihood.
13 The top five *spirit of sport* values, in terms of rank order, were ethics/fair play/honesty,
14 respect for rules/laws, dedication/commitment, teamwork, and community/solidarity.

15 Exploratory factor analysis of the *spirit of sport* values revealed that a moral factor
16 showed a stronger, albeit still small, correlation with clean sport likelihood than the
17 composite construct (see Supplementary Material). Notably, only a small proportion of
18 variance in clean sport likelihood was accounted for by the composite *spirit of sport*
19 construct ($r = .18$; 3.2%), but more was explained by a moral factor within the data ($r = .22$;
20 4.8%), and the largest proportion was accounted for by the individual value concerning
21 *ethics, honesty, fairplay* ($r = .29$; 8.4%). These data indicate that it is a mistake to assume
22 that a global constellation of values (i.e., WADA's 11 *spirit of sport* values), with their mixed
23 motivational content, will have a specific influence on clean sport likelihood. In sum, our
24 findings show that clean sport programs should target moral values.

1 The *spirit of sport* and some intrinsic values of sport, adopted from the Canadian Centre
2 for Ethics in Sport and incorporated into WADA's Anti-Doping Code in 2003, continue to
3 be used by WADA to classify anti-doping violations (Ritchie, 2014). Research has
4 demonstrated that the relative importance of the individual values to the *spirit of sport*
5 construct varies across competitive standards and countries (Mazanov & Huybers, 2016;
6 Mazanov et al., 2019). They found that the three most important values were ethics/fair
7 play/honesty, respect for self and others, and teamwork, whereas the three least important
8 values were courage, performance excellence, and character and education. It is worth
9 noting that their rankings are broadly consistent with the rankings concerning the relative
10 importance of *spirit of sport* values to the life of an athlete (see **Table 2**).

11 Notably, the current study showed that only a small selection of individual *spirit of sport*
12 values were related to clean sport. Specifically, the most relevant *spirit of sport* values for
13 clean sport were those comprising ethics/fair play/honesty, respect for rules/laws (cf.
14 Barkoukis et al., 2011; Donahue et al., 2006), and dedication/commitment, all of which
15 capture the importance of *moral foundations* (Graham et al., 2011; Hofman et al., 2014) for
16 the athletes. Accordingly, our findings are compatible with the argument that the decision to
17 compete clean is a moral one, and, therefore, for this reason, we conclude that moral values
18 are most important for clean sport.

19

20 **Sport values**

21 Our second study purpose was to examine the relationship between sport values and clean
22 sport likelihood. At the level of the sport domains, the moral (15%) and competence (4%)
23 values accounted for a cumulative 19% of variance in clean sport likelihood. At the level of
24 individual values, the strongest two relationships with clean sport were for morally-relevant
25 values: contract maintenance and being fair. These values had middle ranks in the sport value

1 system. As with the *spirit of sport* values, these findings are consistent with our expectation
2 that moral values would relate to clean sport likelihood. In line with the definition of clean
3 sport as competing with integrity, morality, honesty and fairness (Clean Sport Alliance,
4 2019), the current findings suggest that the decision to avoid drugs and compete clean is a
5 choice informed by moral values.

6 The hierarchy of individual sport values (**Table 3**) resembles those reported by Lee and
7 colleagues (Lee et al, 2000; Whitehead et al, 2013); the top three values (enjoyment,
8 achievement, sportspersonship) and the bottom two values (conformity, winning) are the
9 same. Indeed, studies have typically found agreement at the extremes of the hierarchy
10 coupled with variation in the intermediate ranks. In line with past evidence (Whitehead et
11 al., 2013), our findings confirm that sport values are important to athletes, and, moreover,
12 that moral and competence values are more important to athletes than status values. This
13 greater importance ascribed to moral sport values may help explain why athletes are likely
14 to compete clean.

15 We now interpret findings for the sport value domains in relation to the first test in
16 sport of Katz's (1960) *value-expressive theory of attitudes*. Lee et al (2008) hypothesized that
17 moral and competence values would predict prosocial attitudes of respect for sport
18 conventions and commitment to sport participation while moral values (negatively) and
19 status values would predict antisocial attitudes to cheating and gamesmanship. Their path
20 model has generalized to other dependent variables. Our findings extend this model to
21 doping in sport.

22 Our moral and competence sport values related directly to clean sport likelihood in line
23 with established relationships between moral and competence values, on the one hand, and
24 prosocial attitudes (Fukami et al, 2012; Lee et al, 2008; Whitehead, Lee, & Hatzigeorgiadis,
25 2002) and prosocial behavior (Sukys, 2010; Stupuris et al, 2013), on the other hand. These

1 findings suggest that sport values exert similar effects on clean sport and other forms of
2 proactive moral behavior in sport (see Kavussanu & Stanger, 2017).

3 The status values⁴ were not expected to relate to clean sport likelihood; this is because
4 they predict antisocial attitudes and should relate to doping rather than clean sport. The
5 initial finding that status values (positively) and moral values (negatively) predicted antisocial
6 attitudes of cheating and gamesmanship has been replicated (Ádell, Castillo, & Alvarez, 2019;
7 Chan et al, 2013; Fukami et al, 2012; Gymnopoulou & Vatali, 2010; Lucidi et al, 2017;
8 Whitehead, Lee, & Hatzigeorgiadis, 2003).

9 Research should explore reasons why values exert their putative effect. Lee et al (2008)
10 found that the effects of competence and status values on prosocial and antisocial attitudes
11 were mediated by task and ego orientation, respectively. The inclusion of these goal
12 orientations not only raised the proportion of variance explained in prosocial attitudes but
13 suggested a cognitive mechanism for the effect. That is, competence values, being self-
14 referenced, could promote a task-oriented view of success which in turn promotes
15 prosocial attitudes. Given that the proportion of variance in clean sport likelihood explained
16 by moral values was modest, and that sport is an achievement situation, it would seem
17 appropriate to include task orientation along with prosocial attitudes in predictive models to
18 help explain clean sport likelihood.

19 Value theory also gives guidance on salient variables to include in value-change
20 interventions. The Schwartz (1992, 2012) circumplex model of value conflict maps intrinsic
21 conflicting and compatible relationships among human values. Bardi and Schwartz (2013)
22 explain how a conflict between the opposing values of winning and fairness may be
23 addressed by promoting a competence value which is both compatible with fairness and of
24 greater importance than winning in the competitor's value system.

1 Our third study purpose was to examine the relationship between the *spirit of sport*
2 construct and the sport value domains. This construct was related to all three sport value
3 domains, showing it to be a value construct with a somewhat generalized nature. Some
4 conceptually related individual values showed similar relationships with clean sport
5 likelihood. For instance, fun and joy (*spirit of sport*) and enjoyment (sport) showed a very low
6 relationship, while ethics, fair play, honesty (*spirit of sport*) and being fair (sport) had medium
7 relationships.

8

9 ***Implications for anti-doping***

10 The current study found that WADA's *spirit of sport* values did not act as might have been
11 anticipated, insofar as half of them did not relate to clean sport likelihood. However, in line
12 with our own expectations, medium-sized relationships with clean sport likelihood were
13 found for values with moral content. The implication for policy makers in anti-doping
14 organizations is that their educational programs that seek to promote clean sport should
15 identify and focus more on their values with moral content.

16 A number of national anti-doping organisations explicitly refer to values in their
17 programs, however, it remains to be established whether the values they promote are
18 related to clean sport likelihood. For instance, USADA's (2012) *TrueSport* program mentions
19 respect, integrity, teamwork, courage and responsibility, UKAD's (2018) *100% Me* program
20 mentions respect, integrity, passion, determination and enjoyment, and WADA's (2019a)
21 *Sport Values in Every Classroom* program mentions respect, equity and inclusion.

22 Respect is mentioned in two of WADA's *spirit of sport* values: respect for rules and laws
23 was positively related to clean sport likelihood, however, respect for self and others was
24 not. Another couple of USADA's values are also *spirit of sport* values: teamwork was
25 positively related whereas courage was unrelated to clean sport likelihood. Moreover,

1 enjoyment (a sport value) and its synonym (fun and joy, a *spirit of sport* value) were unrelated
2 to clean sport likelihood. It also is possible that the abovementioned anti-doping agencies'
3 stated values may be synonyms for either *spirit of sport* or sport values. However, this only
4 applies to two values. USADA's and UKAD's integrity, is a synonym for honesty and
5 character (two *spirit of sport* values), with only the former positively associated with clean
6 sport likelihood. Finally, UKAD's determination, a synonym for dedication and commitment
7 (a *spirit of sport* value), was positively associated to clean sport likelihood. In sum, our data
8 provide evidence for some but not all values highlighted by these anti-doping agencies.
9 Although values can play a role in the development of new clean sport programs, the
10 selection of specific values to include could be improved by evidence concerning clean sport.

11

12 ***Limitations and future directions***

13 The current findings provide novel insights into the nature of values in sport and their links
14 with clean sport. Nonetheless, they should be interpreted in light of potential study
15 limitations. First, we measured the importance of the *spirit of sport* and sport values in
16 university athletes who are subject to anti-doping controls in their competitions. Although
17 some of these athletes competed at international and national levels, it would be informative
18 to replicate the current findings in top-level competitors, such as elite athletes in
19 professional and non-professional sport, in a variety of countries and cultures (cf., Mazanov
20 et al, 2019). It is possible that the hierarchies of both *spirit of sport* and sport values vary in
21 elite and professional athletes, which, in turn, may influence the relative strength of the
22 relationships between values and clean sport. Second, we only measured one aspect of clean
23 sport, namely, the decision to avoid using a drug to improve performance in a hypothetical
24 scenario and its relation with *spirit of sport* values. Research could assesses the importance of
25 the many other features of clean sport articulated by anti-doping organizations (e.g., Drug

1 Free Sport New Zealand, 2020; USADA, 2012). Finally, we examined a range of values in
2 sport, however, we did not examine many of the values that have been adopted by sport
3 organizations. It would be interesting to examine the values of other sporting organizations,
4 such as national anti-doping organizations (e.g., UKAD, USADA,) and international sporting
5 agencies (e.g., WADA, IOC), to determine the extent to which their values relate to the
6 *spirit of sport* and clean sport.

7

8 **Conclusion**

9 Values-based education and doping prevention are key elements of WADA's (2019b)
10 International Standard for Education. Unfortunately, the evidence to guide and inform policy
11 and practice in doping prevention is scarce (e.g., Hurst et al., 2020). Accordingly, we sought
12 to improve understanding of the *spirit of sport* construct in relation to clean sport. We found
13 mixed evidence for the validity of the *spirit of sport*. The convergent validity of the *spirit of*
14 *sport* construct was supported by its positive correlations with moral and competence sport
15 values domains. Although the predictive validity of the *spirit of sport* construct was supported
16 by its small positive correlation with clean sport likelihood, it accounted for very little
17 variance in clean sport likelihood.⁵ Closer inspection of the individual *spirit of sport* values
18 indicated that the importance of ethics, fair play, honesty, respect, dedication and
19 commitment to athletes was able to predict proactive moral action (i.e., higher clean sport
20 likelihood) in the context of doping. Our findings argue that value-based anti-doping
21 educational interventions (WADA, 2019b) could benefit by promoting the importance of
22 moral values in athletes, especially honesty, respect and commitment from the *spirit of sport*,
23 together with key sport values, such as contract maintenance, fairness, conscientiousness,
24 and sportspersonship.

25

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- 15

Notes

- 1
2 I. Rokeach distinguished between two common uses of the term value. He observed that
3 people may say that an object has a value or they may refer to personal values.
4 Sometimes the wider literature considers the merits of sport as if it were an object.
5 WADA appears to take that interpretation when it seeks to preserve what is
6 intrinsically valuable about sport. In this article we focus exclusively on personal values.
7
- 8 2. The questionnaires are available from the corresponding author. We created portrait
9 versions of the questionnaires and used a 6-point rating scale to match the PVQ-RR
10 (Schwartz et al., 2012). We reworded some of the moral value items to militate against
11 potential misunderstanding. The item “*it is important to them that they do what they are*
12 *told*” correlated poorly ($r_s = .12$ to $.17$) with the original four moral items and reduced
13 coefficient alpha ($\alpha = .65$). This item measures obedience (Lee et al., 2000, p. 318),
14 rather than morality, and, therefore, we replaced it with a contract maintenance item
15 from the original YSVQ namely, “*it is important to them that they don’t spoil the event or*
16 *competition*” (Lee et al., 2000, p. 315).
17
- 18 3. After examining our first study purpose, the pattern of correlations suggested that there
19 might be a moral factor in the *spirit of sport* values that would predict clean sport
20 likelihood better than the composite *spirit of sport* construct. Accordingly, we conducted
21 an exploratory factor analysis of the individual *spirit of sport* values (see Table S1,
22 Supplementary Material). Importantly, we found that clean sport likelihood correlated
23 somewhat better with a moral *spirit of sport* factor ($r = .22$) than the composite *spirit of*
24 *sport* construct ($r = .18$).
25

- 1 4. The sport status values correspond conceptually to the basic self-enhancement values of
2 Schwartz (2012). These self-enhancement values have been found by Ring, Kavussanu
3 and Gürpınar (2020) to predict doping likelihood.
4
- 5 5. The *spirit of sport* construct accounted for 3% of the variance in clean sport likelihood. In
6 terms of individual values, the ethics/fair play honesty *spirit of sport* value explained 8%,
7 which is similar to the fairness sport value (8%) but less than the contract maintenance
8 sport value (14%).

Table 1. Descriptive statistics and Pearson correlations between clean sport likelihood, *spirit of sport* values (overall construct), and sport values (core domains).

	<i>M</i>	<i>SD</i>	1	2	3	4
1. Clean Sport Likelihood	5.00	1.89	-			
2. <i>Spirit of Sport</i> Values	5.16	0.91	.18**	-		
3. Competence Sport Values	5.01	0.68	.20**	.40***	-	
4. Moral Sport Values	5.03	0.67	.39***	.45***	.44***	-
5. Status Sport Values	3.96	0.79	.02	.25***	.36***	.15*

Note: ANOVA (3 sport values) indicated that the sport values differed in their perceived likeness to the person, $F(2, 231) = 193.93$, $p < .001$, $\eta_p^2 = .627$, with moral and competence values judged to be more like the person than status values. * $p < .05$, ** $p < .01$, *** $p < .001$.

Table 2. Descriptive statistics for individual *spirit of sport* values, similarities with and differences from other *spirit of sport* values, and their Pearson correlations with clean sport likelihood and the overall *spirit of sport* construct.

Individual <i>Spirit of Sport</i> Value	<i>M</i>	<i>SD</i>	Not Different From	Clean Sport Likelihood	<i>Spirit of sport</i>
1. Health	5.82	1.31	-	.04	.52***
2. Respect for self & others	5.59	1.28	3, 4, 5	.11	.60***
3. Dedication & commitment	5.58	1.46	2, 4, 5	.16**	.69***
4. Fun & joy	5.45	1.50	2, 3, 5, 6	-.02	.47***
5. Teamwork	5.40	1.53	2, 3, 4, 6	.13*	.60***
6. Ethics, fair play, honesty	5.27	1.33	4, 5	.29***	.58***
7. Respect for rules & laws	5.00	1.67	8	.18**	.58***
8. Courage	4.92	1.58	7	.05	.71***
9. Character & education	4.61	1.58	10, 11	.09	.64***
10. Performance excellence	4.59	1.76	9, 11	.00	.50***
11. Community & solidarity	4.48	1.57	9, 10	.13*	.71***

Note: *Spirit of sport* value range = -1 to 7. The individual *spirit of sport* values have been ranked from most important to least important. ANOVA (11 *spirit of sport* values) indicated that the values differed in importance, $F(10, 223) = 34.12, p < .001, \eta_p^2 = .605$. * $p < .05$, ** $p < .01$, *** $p < .001$. Participants judged that the *spirit of sport* was close to being “very important” to them as a guiding principle in their life as an athlete. Every individual *spirit of sport* values was positively correlated (large effect sizes) with the composite *spirit of sport* construct: the three highest correlations were community/solidarity, courage, and dedication/commitment whereas the three lowest correlations were fun/joy, performance excellence, and health.

Table 3. Descriptive statistics for individual sport values (Lee et al., 2000), similarities with and differences from other sport values, and their Pearson correlations with clean sport likelihood.

Individual Sport Value	<i>M</i>	<i>SD</i>	<i>Not Different From</i>	Clean Sport Likelihood
1. Enjoyment	5.32	0.86	2	.05
2. Achievement	5.21	0.81	1, 3, 4	.18**
3. Sportsmanship	5.19	0.89	2, 4	.25***
4. Caring/compassion	5.17	0.80	2, 3	.20**
5. Self-actualization	5.02	0.95	6, 7, 8, 9, 10	.01
6. Show skills	5.01	0.97	5, 7, 8, 9, 10	.25***
7. Conscientiousness	4.97	1.00	5, 6, 8, 9, 10	.25***
8. Contract maintenance	4.97	0.87	5, 6, 7, 9, 10	.38***
9. Companionship	4.92	1.00	5, 6, 7, 8, 10, 11	.06
10. Being fair	4.88	0.99	5, 6, 7, 8, 9, 11, 12	.29***
11. Health & fitness	4.81	1.02	9, 10, 12, 13, 14	.21***
12. Team cohesion	4.77	1.00	10, 11, 13, 14	.19**
13. Excitement	4.69	0.98	11, 12, 14, 15	.09
14. Tolerance	4.67	0.88	12, 13, 15	.14*
15. Public image	4.57	1.11	13, 14	.06
16. Obedience	3.92	1.13	-	.13*
17. Conformity	2.99	1.24	18	-.08
18. Winning	2.92	1.37	17	-.09

Note: Sport value range = 1 to 6. The individual sport values have been ranked from most important to least important. ANOVA (18 sport values) indicated that the values differed in importance, $F(17, 216) = 47.73, p < .001, \eta_p^2 = .790$. * $p < .05$, ** $p < .01$, *** $p < .001$.

Supplementary Material

Table S1. Exploratory factor analysis of *spirit of sport* values and factor correlations with clean sport likelihood

<i>Spirit of sport</i> Value	Factor 1	Factor 2	Factor 3
Ethics, fair play, honesty	.008	-.533	.188
Health	.251	-.149	.168
Character & education	.575	-.033	.153
Teamwork	.143	-.152	.389
Dedication & commitment	.521	-.459	-.085
Respect for rules & laws	-0.31	-.941	-.101
Respect for self & others	-.111	-.400	.474
Courage	.472	-.072	.348
Community & solidarity	.334	.027	.584
Performance excellence	.741	.104	-.077
Fun & joy	-.036	.041	.564
Factor correlation matrix			
Factor 1	-		
Factor 2	-.299	-	
Factor 3	.390	-.439	-
Correlation with clean sport likelihood	.095	.221**	.143*

Note: * $p < .05$, ** $p < .01$

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Values and clean sport

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