Routledge
Taylor & Francis Group

Journal of Sports Sciences

ISSN: (Print) (Online) Journal homepage: www.tandfonline.com/journals/rjsp20

# The perspective of current and retired world class, elite and national athletes on the inclusion and eligibility of transgender athletes in elite sport

A.L. Shaw, A.G. Williams, G.K. Stebbings, M Chollier, A. Harvey & S.M. Heffernan

**To cite this article:** A.L. Shaw, A.G. Williams, G.K. Stebbings, M Chollier, A. Harvey & S.M. Heffernan (2024) The perspective of current and retired world class, elite and national athletes on the inclusion and eligibility of transgender athletes in elite sport, Journal of Sports Sciences, 42:5, 381-391, DOI: 10.1080/02640414.2024.2326354

**To link to this article:** https://doi.org/10.1080/02640414.2024.2326354



Published online: 16 Apr 2024.

JOURNAL OF SPORTS SCIENCES
2024, VOL. 42, NO. 5, 381–391
https://doi.org/10.1080/02640414.2024.2326354

Routledge
Taylor & Francis Group

SPORTS PERFORMANCE

OPEN ACCESS Check for updates

# The perspective of current and retired world class, elite and national athletes on the inclusion and eligibility of transgender athletes in elite sport

A.L. Shaw[a], A.G. Williams[a,b,c], G.K. Stebbings[b], M Chollier[d], A. Harvey[a] and S.M. Heffernan[a]

[a]Applied Sports Science Technology and Medicine Research Centre (A-STEM), Faculty of Science and Engineering, Swansea University, Swansea, UK; [b]Department of Sport and Exercise Sciences, Manchester Metropolitan University Institute of Sport, Manchester Metropolitan University, Manchester, UK; [c]Institute of Sport, Exercise and Health, University College London, London, UK; [d]Social and Political Science, University of Chester, Chester, UK

**ABSTRACT**

There has been limited empirical study allowing athletes to voice their opinions on transgender participation in elite sport. This study surveyed 175 national, elite and world class athletes eligible to compete in the female category regarding transgender inclusion and eligibility. The study compared current Olympic versus current Olympic Recognised sports, elite versus world class, and current versus retired Olympic sport athletes. Most athletes favoured biological sex categorisation (58%) and considered it unfair for trans women to compete in the female category, except for precision sports. This view was held most strongly by world class athletes regarding their own sport (77% unfair, 15% fair). For trans men inclusion in the male category, most athletes considered it fair, except for Olympic sport athletes regarding contact sports (49% unfair, 27% fair) and sports heavily reliant on physical capacity (53% unfair, 29% fair). Notwithstanding those views, athletes (81%) believed sporting bodies should improve inclusivity for transgender athletes. Opinion varied somewhat according to career stage, competitive level and sport type. Nevertheless, athletes in the present study favoured categorisation by biological sex and did not support trans women eligibility for the female category in sports reliant on performance-related biological factors that differ between sexes.

**ARTICLE HISTORY**
Received 4 November 2023
Accepted 25 February 2024

**KEYWORDS**
Trans women; trans men; fairness; sport policy and sport ethics

## Introduction

The International Olympic Committee (IOC), along with other sporting bodies/federations, have a long but conntroversial history regarding sex-based categorisation in elite sport (Elsas et al., 2000; C. F. Sullivan, 2011). A separate female category was introduced in the 1900s to provide a structured competitive space for female athletes to compete fairly without having to compete against males (Elsas et al., 2000; C. F. Sullivan, 2011). In 1966, the IOC began using a form of "femininity" or sex testing to determine athletes' eligibility for the female category. This involved examination of external genitalia (1966), analysis of sex chromosomes (1968), and polymerase chain reaction test for the *SRY* gene (1992). Given that some of the tests were described as humiliating for athletes and lacking scientific accuracy, in the 2000 Olympics, sex testing was finally removed, and the International Olympic Committee (IOC) adopted suspicion-based medical examinations (Elsas et al., 2000; C. F. Sullivan, 2011).

Policies did not specifically consider transgender athletes until 2004, when the IOC recommended that these athletes undergo surgical anatomical changes (2 years prior to competition), hormonal therapy and legal recognition (International Olympic Committee IOC, 2004). In 2015 the IOC guidance changed, so that trans men were no longer restricted from competing in the male category and surgical intervention was removed as a prerequisite for trans women to compete in the female category. However, serum testosterone was required to be below 10 nmol/L for 12 months prior to competition for trans women (International Olympic Committee IOC, 2015). In 2021, the IOC policy was replaced by a 10-principle framework aimed, in part, to support international federations in developing eligibility criteria for transgender athlete inclusion, that should be based on, for example, athlete consultation (Principle 8) and robust peer reviewed evidence (Principle 6) (International Olympic Committee IOC, 2021b; Martowicz et al., 2023).

In response to the IOC 2021 framework, a number of federations developed and/or amended their inclusion and eligibility policies (FINA, 2022; World Athletics, 2023a) in some instances reacting to high-profile individual cases (Bridges, 2022; Futterman, 2022; Parker, 2022). These policies range from complete exclusion of trans women from the female category (World Rugby, 2021) to inclusion via self-identification only (Canadian Powerlifting Union, 2022). Some of these policies were informed, partly, by internally conducted surveys of athletes and support staff (FINA, 2022; Rugby Football Union, 2022; World Athletics, 2023b). Whilst certain literature has explored strategies that sport organisations have engaged with or can potentially implement on transgender inclusion (Burke, 2022; Buzuvis et al., 2021; Cunningham et al., 2022; Stewart et al., 2021) there exists little empirical peer-reviewed evidence on

**CONTACT** S.M. Heffernan s.m.heffernan@swansea.ac.uk Applied Sports Science Technology and Medicine Research Centre (A-STEM), Faculty of Science and Engineering, Bay Campus, Swansea University, Fabian Way, Swansea, Wales SA1 8EN, UK

the opinions held by elite and world class athletes, arguably the key stakeholders in elite sport.

Research from the social sciences has been reflecting for some time on individuals' experiences with discrimination in lower level sporting participation/club level sport (Barras, 2021; Braumüller et al., 2020; Caudwell, 2020; Goldbach et al., 2022; Storr et al., 2017, 2022; Symonns et al., 2010; Tanimoto & Miwa, 2021; Travers & Deri, 2011). However, to the authors' knowledge, only one peer-reviewed article exists considering the "voices" of athletes competing or who had competed in the female category at the elite level (Devine, 2022). Of the Olympic athletes that were surveyed ($n = 19$, mean age = 41 years), 83% disagreed that the IOC guidance for the inclusion of transgender athletes in the female category at the time (International Olympic Committee IOC, 2021b) were fair and 74% disagreed that their sport governing body had consulted female athletes regarding transgender inclusion (Devine, 2022). These data, while informative, are limited and only represent the opinions from a small sample of Olympic athletes who competed in the female category. More work is needed to investigate whether these views are consistent across Olympic and non-Olympic sports. In addition, to the authors' knowledge, no empirical study has investigated elite athletes' views on the eligibility of trans men.

The attitude of different athlete groups may vary, and policy makers have a moral obligation to develop policies that strive to find a balance between all stakeholders affected by a sport federation's actions (Mazanov, 2016; Phillips et al., 2003; Walters & Tacon, 2010). As such, athlete opinions on sensitive subjects (e.g., antidoping) differ when competing compared to retirement (López, 2014) and this may also be the case for transgender inclusion. It is important to be aware of this difference (if present) as many federation committees that determine policy change include retired athletes and have only recently begun to consider the "Athlete Voice" as a whole (International Olympic Committee, 2023). In addition, athletes that compete in Olympic sports gain more spectatorship, media coverage and financial benefit than athletes from non-Olympic sports (International Olympic Committee, 2005; Litchfield, 2018; Kropyvnytska et al., 2021). As competitors at the very highest athletic level (>0.00006% of all athletes, World Class (McKay et al., 2022) have the greatest potential to gain or lose financial rewards and sponsorships (Smart, 2018; World Athletics, 2022) their opinions may not be congruent with those that have not achieved this status. Therefore, it is important to investigate if differences exist between groups where these benefits are plentiful and those that have less access to rewards (e.g., Olympic recognised sports (International Olympic Committee IOC, 2021a, 2021c). Consequently, the primary aim was to survey the opinions of national, elite and world class athletes eligible to compete in the female category, regarding transgender athlete inclusion and eligibility. Secondly, the study investigated potential differences in these opinions between retired and current athletes, Olympic and Olympic Recognised sports, and athletes of differing competitive standard.

## Methods and materials

### Procedure and questionnaire

As part of the Differences in Sex Development And Transgender Elite Sports (DATES) study, an invitation email, including a link to the study's online anonymous survey (LimeSurvey Version 2.64.3 + 170327), was distributed to Olympic Recognised International Sports Federations (International Olympic Committee IOC, 2021a, 2021c). The survey was also distributed via personal networks and social media platforms. Elite athletes are a "hard to engage" population, hence purposive snowballing sampling was also used. Survey responses were received from August 2021 to August 2022. Ethical approval was granted by the Faculty of Science and Engineering Research Ethics and Governance Committee, Swansea University (SU-Ethics -Staff -210,622/486).

Having provided informed consent, participants were presented with a series of characterisation questions followed by questions related to fairness and inclusion of transgender athletes in different contexts in elite sport (i.e., sports heavily reliant on "physical capacity" such as sprinting; predominantly "precision sports" such as archery; "contact sports" such as rugby union). In the absence of standardised or validated questionnaires on elite athletes' opinions of transgender eligibility and fairness at the competitive level, this mixed methods survey was designed based on items and areas identified through literature review (Becker et al., 2012; Kanamori, 2006; Kanamori et al., 2017; Krumpal, 2013; Patton, 2002; Storr et al., 2017, 2022; Symonns et al., 2010; Testa et al., 2005) and went through a critical evaluation by individuals not involved in the survey design, as has been performed in previous, similarly novel areas (Braumüller et al., 2020; Goldbach et al., 2022; Puchades & Molina, 2020). This was firstly by three experienced academics, then by eleven individuals known to the authors including those competing in the female category and a gender diverse group of the general public. This was done to ensure the survey language and content was respectful, justifiable and gave the best opportunity to gather understanding of participants' opinions. At each stage, the questions and survey were adjusted based on feedback. All relevant fairness and inclusion questions are presented in the Results (Tables 1–3 or Figures 1–3). The final survey consisted of 12 characterisation questions to all athletes (one additional question on date of retirement if applicable) and 24 questions exploring views on inclusion of transgender athletes in elite sport (two additional questions for retired athletes). The latter were presented as Likert-type scale (1 = "Very Unfair" – 5 = "Very Fair") (Boone & Boone, 2012; Clason & Dormody, 1994; G. M. Sullivan & Artino, 2013) or multiple-choice (Becker et al., 2012) and each question was accompanied with an optional open text box to add further context (Patton, 2002).

### Inclusion criteria

To be included, participants were over 18 years, gave full informed consent, were eligible to compete in the elite female category before 13 June 2022 and were world class

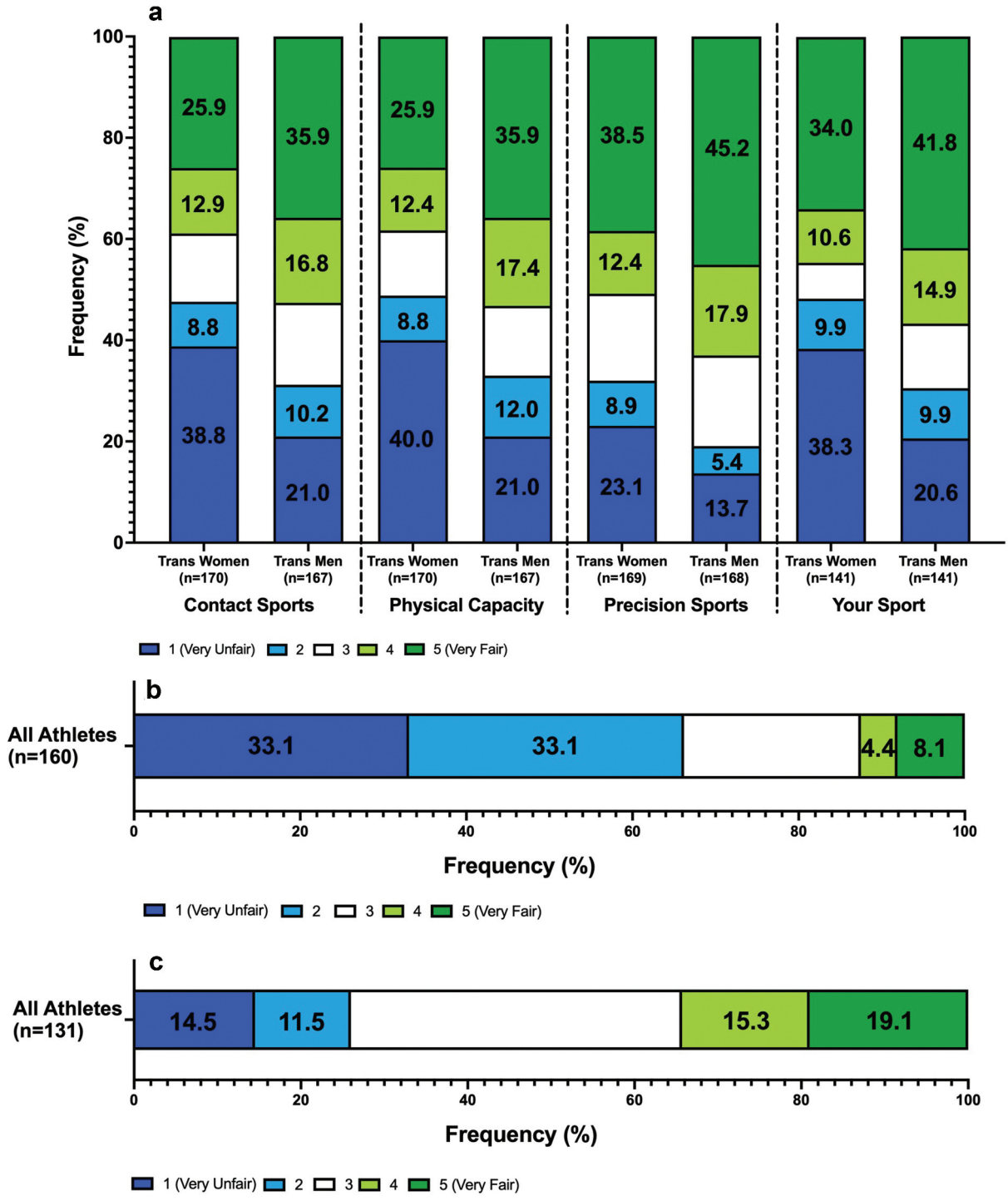


Figure 1. Responses of all athletes. a, how fair is it for a trans woman/man to compete in the elite female/male category? b, how fairly do you think transgender athletes get treated across all sports? c, how fairly do you think transgender athletes get treated in your sport regarding the regulations they have to meet in order to compete? Note: some bars are ±0.1% due to rounding of mean.

(Tier 5), elite (Tier 4) or National level (Tier 3) athletes (McKay et al., 2022). To be recognised as a world class, elite or National athlete, participants first self-selected as either "retired elite athlete" or "elite athlete". Then responses to athlete status (highest competitive accolade) were used to determine Tier 3, Tier 4 or Tier 5 competitive level, adapted from the McKay et al. framework (McKay et al., 2022). Briefly, Tier 3 athletes must have either competed at a national level or have a score/time within 20% of the world record. Tier 4 athletes must have either competed at an International level or have a score/time within 7% of the world record, Tier 5 athletes must be/have been an Olympic, World Championship finalist or be within 2% of the world record (McKay et al., 2022). In this study, athletes that were finalists in World Games were also classified as Tier 5 athletes. World Games were defined as sports that have competition at an International level but are not currently included in the Olympic

Table 1. Responses of all athletes.

| Questions | | n | All Athletes (%) Yes | No |
|---|---|---|---|---|
| Do you think sporting authorities and governing bodies could be doing more to make sports more inclusive for transgender athletes? | | 169 | 81.1 | 18.9 |
| Do you agree that someone should be able to transition from one gender to another, in society in general? | | 172 | 94.2 | 5.8 |
| Should there be a separate category of sports for those who are trans women or trans men? | | | | |
| | Contact sports | 146 | 49.3 | 50.7 |
| | Sports heavily reliant on physical capacity | 147 | 53.1 | 46.9 |
| | Precision sports | 143 | 35.7 | 64.3 |
| Do you think an athlete who has previously competed at an elite level in a sport in one gender category should be allowed to compete in the same sport under a different gender category? | | | | |
| | Contact sports | 157 | 53.5 | 46.5 |
| | Sports heavily reliant on physical capacity | 156 | 50.0 | 50.0 |
| | Precision sports | 156 | 62.8 | 37.2 |
| Do you think the IOC criteria[a] for female transgender[b] athletes to compete in certain athletic events are fair? | | 147 | 37.4 | 62.6 |
| Do you believe sport should be categorised by biological sex? | | 125 | 58.4 | 41.6 |
| Do you believe sport should be categorised by gender identity? | | 133 | 44.4 | 55.6 |
| Do you believe sport should be categorised by body size (height/weight) of the athletes irrespective of gender identity? | | 125 | 24.8 | 75.2 |
| Should your sport's governing body make it be possible for people to switch sex categories (i.e., from competing in the male category to competing in the female category)? | | 132 | 54.5 | 45.5 |
| Have you witnessed any negative attitudes or discrimination towards transgender athletes? | | 129 | 46.5 | 53.5 |

$n$ = Number of participants; [a] = Refers to the 2015 IOC criteria, serum testosterone below 10 nmol/L for 12 months prior to competition and declare female gender; [b] = Female transgender (trans woman) refers to an individual's gender identity (female) that does not correspond to their sex recorded at birth (male).

Games (The World Games, 2022). Current Olympic sport (CO) and Retired Olympic sport (RET) athletes are athletes competing/competed in sports currently scheduled to appear in the Paris 2024 Olympic games (International Olympic Committee IOC, 2021a, 2021c). Olympic Recognised sport (OR) athletes are international federations that have been recognised by the IOC, but are not currently part of the Olympic Games (International Olympic Committee IOC, 2021c).

### Statistical analysis

Available case analysis was used and summarised descriptively using percentage values. Where relevant, data are presented as mean (standard deviation). Pearson's Chi-square test of independence was used to compare CO verses current OR athletes; CO versus RET athletes; and Tier 4 versus Tier 5 Olympic sport athletes (Boone & Boone, 2012; Clason & Dormody, 1994; McHugh, 2013; G. M. Sullivan & Artino, 2013). When Pearson's Chi-square assumptions were not met, the maximum likelihood ratio was used (Boone & Boone, 2012). All tests were performed using SPSS Statistics (Version 28.0.1.1, SPSS Inc., Chicago, IL) with alpha set at $p = 0.05$. The data were considered exploratory and therefore, to protect against type two statistical error, each item was considered independent and alpha adjustment was not adopted (Matsunaga, 2007; O'Keefe, 2003; Rubin, 2017).

## Results

### Sample description

A total sample of 175 athlete participants completed the survey. This consisted of 68 retired (age = 38.5 (12.3) years) and 107 current (age = 26.0 (8.4) years) athletes with a range of nationalities (USA 32.6%, UK 17.1%, Canada 14.9%, Finland 9.7%, Germany 2.9%, Italy 1.7%, Australia 1.7%, Netherlands 1.7%, Russia 1.1%, Czech Republic 1.1%, South Africa 1.1%, Switzerland 1.1%, Brazil 1.1%, Portugal 1.1%, Spain 1.1% and others 10.0%) and sports (Olympic $n = 100$; ice/speed skating 41%, curling 16%, athletics 10%, canoeing/kayaking 9%, swimming 10%, hockey 3%, rugby union 2%, skiing 2%, other 7%, and Olympic Recognised $n = 75$; flying disc sports 86.7%, tug of war 5.3%, netball 4%, other 4%). The sample included 26 World champions, 22 Olympians (including two gold, two silver and three bronze medal winners) and six Paralympians. All participants reported their sex recorded at birth as female and their gender identity as cis women ($n = 162$), non-binary/gender neutral ($n = 5$), seven participants selected "other identity" then wrote that they objected to the term "cis women" or "gender identity", and one participant did not answer the question. No participants identified as transgender or as individuals living with a Difference in Sex Development (DSD).

Most athletes agreed that individuals should be able to transition from one gender to another in society (94.2%; Table 1). However, only a minority of athletes were in favour of sport categorisation by gender identity (44.4%) or body size (24.8%), with a majority in favour of sport categorisation by biological sex (58.4%; Table 1). Notably, in the Olympic sport groups, a large majority of both RET and CO believed sport should be categorised according to biological sex, more than OR (83.3%, 64.0% and 32.4%, respectively; Table 2). Most athletes believed the 2015 IOC guidance regarding eligibility for the female category was unfair (62.6%; Table 1), particularly those athletes of the highest competitive standard (78.6%; Table 3).

There was general consensus that governing bodies could be doing more to make sport more inclusive for transgender athletes (81.1% of all participants; Tables 1–3). The majority of participants believed that transgender athletes are treated unfairly across all sports (66.2%; Figure 1b), while only 12.5% believed that transgender athletes are treated fairly (Figure 1b). Regarding the regulations for transgender eligibility within the athlete participants' own sports, the most common response was neither fair nor unfair (39.7%;

Table 2. Responses of Retired Olympic (RET), Current Olympic (CO) and Olympic Recognised (OR) sport athletes.

| | | RET (%) | | | CO (%) | | | OR (%) | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Questions | n | Yes | No | n | Yes | No | n | Yes | No | |
| Do you think sporting authorities and governing bodies could be doing more to make sports more inclusive for transgender athletes? | 37 | 73.0 | 27.0 | 60 | 71.7 | 28.3 | 45 | 88.9 | 11.1 | |
| Do you agree that someone should be able to transition from one gender to another, in society in general? | 37 | 94.6 | 5.4 | 61 | 90.2 | 9.8 | 46 | 95.7 | 4.3 | |
| Should there be a separate category of sports for those who are trans women or trans men? | | | | | | | | | | |
| Contact sports | 37 | 43.2 | 56.8 | 56 | 66.1 | 33.9 | 43 | 41.9 | 58.1 | *$ |
| Sports heavily reliant on physical capacity | 37 | 54.1 | 45.9 | 57 | 68.4 | 31.6 | 43 | 41.9 | 58.1 | ** |
| Precision sports | 36 | 36.1 | 63.9 | 56 | 44.6 | 55.4 | 43 | 27.9 | 72.1 | |
| Do you think an athlete who has previously competed at an elite level in a sport in one gender category should be allowed to compete in the same sport under a different gender category? | | | | | | | | | | |
| Contact sports | 34 | 35.3 | 64.7 | 59 | 33.9 | 66.1 | 43 | 65.1 | 34.9 | ** |
| Heavily reliant on physical capacity | 32 | 31.3 | 68.7 | 59 | 28.8 | 71.2 | 43 | 62.8 | 37.2 | *** |
| Precision sports | 32 | 40.6 | 59.4 | 57 | 50.9 | 49.1 | 43 | 74.4 | 25.6 | * |
| Do you think the IOC criteria[a] for female transgender[b] athletes to compete in certain athletic events are fair? | 35 | 20.0 | 80.0 | 56 | 35.7 | 64.3 | 42 | 40.5 | 59.5 | |
| Do you believe sport should be categorised by biological sex? | 30 | 83.3 | 16.7 | 50 | 64.0 | 36.0 | 37 | 32.4 | 67.6 | ** |
| Do you believe sport should be categorised by gender identity? | 30 | 26.7 | 73.3 | 48 | 35.4 | 64.6 | 37 | 40.5 | 59.5 | |
| Do you believe sport should be categorised by body size (height/weight) of the athletes irrespective of gender identity? | 31 | 25.8 | 74.2 | 50 | 20.0 | 80.0 | 36 | 27.8 | 72.2 | |
| Should your sport's governing body make it be possible for people to switch sex categories (i.e., from competing in the male category to competing in the female category)? | 29 | 27.6 | 72.4 | 47 | 38.3 | 61.7 | 35 | 71.4 | 28.6 | ** |
| Have you witnessed any negative attitudes or discrimination towards transgender athletes? | 32 | 46.9 | 53.1 | 46 | 28.3 | 71.7 | 25 | 60.0 | 40.0 | |

n = Number of participants; Differences between OR and CO are indicated by ***$p<.001$, **$p<.01$ and *$p<.05$; Differences between RET and CO are indicated by $^{\$}p = 0.030$; [a] = Refers to the 2015 IOC criteria, trans women serum testosterone below 10 nmol/L for 12 months prior to competition and declared female; [b] = Female transgender (trans woman) refers to an individual's gender identity (female) that does not correspond to their sex recorded at birth (male).

Table 3. Responses of Current Olympic (CO) sport athletes according to competitive level (Tier 5 vs. Tier 4).

| | | Tier 5%) | | | Tier 4%) | | |
|---|---|---|---|---|---|---|---|
| Questions | n | Yes | No | n | Yes | No | |
| Do you think sporting authorities and governing bodies could be doing more to make sports more inclusive for transgender athletes? | 14 | 64.3 | 35.7 | 42 | 71.4 | 28.6 | |
| Do you agree that someone should be able to transition from one gender to another, in society in general? | 15 | 86.7 | 13.3 | 42 | 90.5 | 9.5 | |
| Should there be a separate category of sports for those who are trans women or trans men? | | | | | | | |
| Contact sports | 12 | 83.3 | 16.7 | 41 | 58.5 | 41.5 | |
| Sports heavily reliant on physical capacity | 13 | 92.3 | 7.7 | 41 | 58.5 | 41.5 | * |
| Precision sports | 13 | 53.8 | 46.2 | 40 | 42.5 | 57.5 | |
| Do you think an athlete who has previously competed at an elite level in a sport in one gender category should be allowed to compete in the same sport under a different gender category? | | | | | | | |
| Contact sports | 14 | 14.3 | 85.7 | 42 | 40.5 | 59.5 | |
| Sports heavily reliant on physical capacity | 14 | 7.1 | 92.9 | 42 | 38.1 | 61.9 | * |
| Precision sports | 12 | 33.3 | 66.7 | 42 | 52.4 | 47.6 | |
| Do you think the IOC criteria[a] for female transgender[b] athletes to compete in certain athletic events are fair? | 14 | 21.4 | 78.6 | 40 | 40.0 | 60.0 | |
| Do you believe sport should be categorised by biological sex? | 13 | 76.9 | 23.1 | 35 | 60.0 | 40.0 | |
| Do you believe sport should be categorised by gender identity? | 13 | 38.5 | 61.5 | 33 | 36.4 | 63.6 | |
| Do you believe sport should be categorised by body size (height/weight) of the athletes irrespective of gender identity? | 13 | 15.4 | 84.6 | 35 | 22.9 | 77.1 | |
| Should your sport's governing body make it be possible for people to switch sex categories (i.e., from competing in the male category to competing in the female category)? | 13 | 23.1 | 76.9 | 32 | 43.8 | 56.2 | |
| Have you witnessed any negative attitudes or discrimination towards transgender athletes? | 12 | 16.7 | 83.3 | 31 | 35.5 | 64.5 | |

*n* = Number of participants; *differences are Tier 5 compared to Tier 4 ($p < .05$); Tier 4 = Elite athletes and Tier 5 = World Class athletes adapted from Mckay et al. (2022); [a] = Refers to the 2015 IOC criteria, trans women serum testosterone below 10 nmol/L for 12 months prior to competition and declared female; [b] = Female transgender (trans woman) refers to an individual's gender identity (female) that does not correspond to their sex recorded at birth (male).

Figures 1c, 2d and 3d). Nevertheless, most participants (~47%) believed it was unfair for trans women to compete in the female category of contact sports and sports heavily reliant on physical capacity, compared to ~ 38% considering it fair (Figure 1a). Opinion was different for precision sports, where more respondents considered trans women participation in the female category to be fair than unfair (50.9% versus 32.0%; Figure 1a). Regarding trans men competing in the male category, for all athlete participants combined, the most common response was consistently that it was very fair across sporting contexts, particularly for precision sports (45.2%; Figure 1a). However, CO participants were notably less likely to consider it unfair for trans men to compete in the male category (precision sports 16.9% very fair versus 25.4% very unfair; Figure 2b).

### *Current Olympic sport (CO) versus Olympic Recognised sport (OR) athletes*

A greater proportion of OR believed that transgender athletes are treated very unfairly across all sports (46.5%), compared to CO (16.4%; p = 0.013; Figure 2c). Regarding trans women inclusion in the female category, more CO considered it very unfair in contact sports, precision sports, sports heavily reliant on physical capacity, and their own sport, compared to OR ($p < 0.001$, p = 0.002, $p<0.001$, p = 0.011, respectively; Figure 2a).

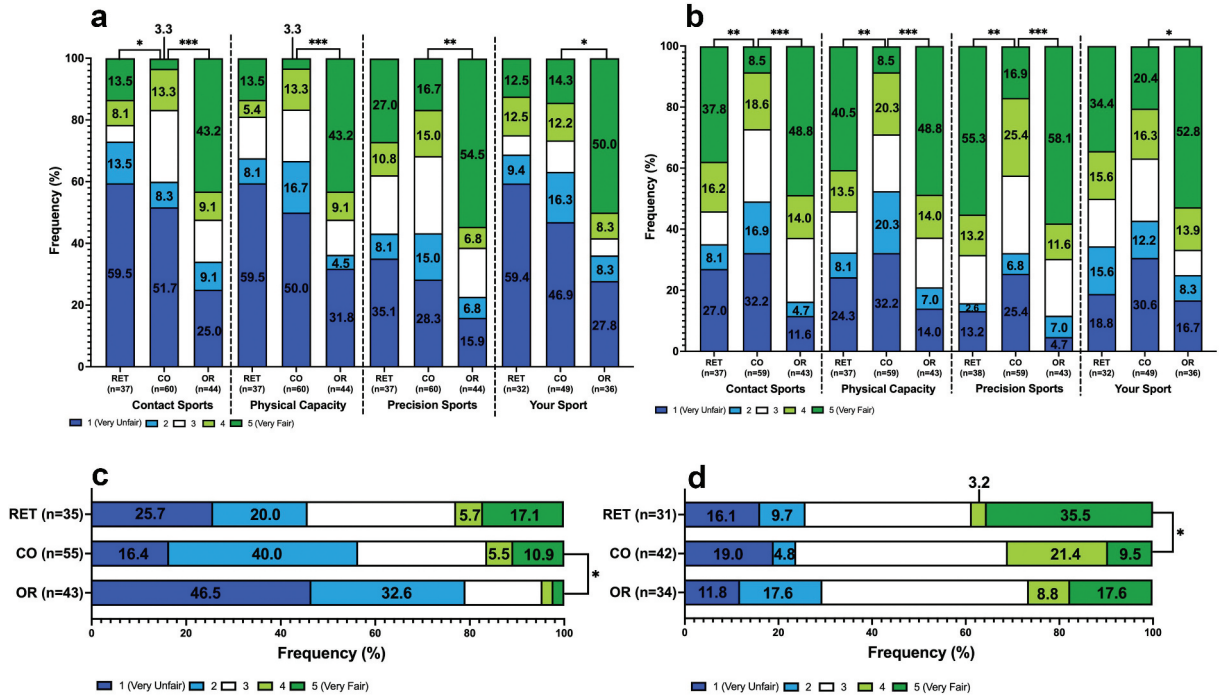


Figure 2. Responses of retired Olympic sport (RET), Current Olympic sport (CO) and Current Olympic Recognised sport (OR) athletes. a, how fair is it for a trans woman to compete in the elite female category? b, how fair is it for a trans man to compete in the elite male category? c, how fairly do you think transgender athletes get treated across all sports? d, how fairly do you think transgender athletes get treated in your sport regarding the regulations they have to meet in order to compete? Statistical differences are indicated by ***$p$<.001, **$p$<.01 and *$p$<.05. Note: some bars are ±0.1% due to rounding of mean. Figure 2C for OR athletes = 5 (very fair) = 2.3%; s4 = 2.3%.

The largest difference was contact sports (CO 51.7% very unfair versus OR 25.0% very unfair). Regarding trans men inclusion in the male category, more OR than CO considered it very fair for contact sports, precision sports, sports reliant on physical capacity (~40% difference for each), and their own sport (32.4% difference) (p <0.001, $p$<0.001, $p$<0.001, p = 0.035, respectively; Figure 2b).

The majority of OR opined that their own sport's body should make it possible for athletes to switch between categories (71.4%), which differed from CO where only a minority agree (38.3%; $p$ = 0.003; Table 2). OR athletes were generally in favour of athletes who have previously competed in one category being allowed to compete in the same sport under a different category for contact sports (65.1%), but there was less support from CO (33.9%; $p$ = 0.002; Table 2). A similar difference was observed for sports heavily reliant on physical capacity and precision sports ($p$ <0.001, $p$ = 0.017, respectively; Table 2). A majority of OR disagreed with categorisation by biological sex (67.6%), compared to a minority of CO (36.0%; $p$ = 0.004; Table 2). Similarly, the majority of OR disagree with a separate transgender category in all sports (~60%), whereas for contact sports and sports heavily reliant on physical capacity the majority of CO agree on a separate category (~67%; $p$ = 0.016, $p$ = 0.008, respectively; Table 2).

## Current (CO) versus retired (RET) Olympic sport athletes

More RET consider transgender athletes get treated very fairly regarding their sports regulations than CO (35.5%, 9.5%, respectively; $p$ = 0.016; Figure 2d). Regarding trans women inclusion in the female category, more RET than CO consider it unfair or very unfair for contact sports (73.0% versus 60.0%, respectively, $p$ = 0.043), but not for precision sports, sports heavily reliant on physical capacity and their own sport ($p$ = 0.544, $p$ = 0.159, $p$ = 0.790 respectively; Figure 2a). Regarding trans men inclusion in the male category, a greater proportion of RET consider it very fair for contact, precision, sports reliant on physical capacity but not their own sport, compared to CO ($p$ = 0.009, $p$ = 0.003, $p$ = 0.005, $p$ = 0.572, respectively; Figure 2b). Similarly, CO favour a separate transgender category in contact sports more than RET (66.1%, 43.2%, respectively; $p$ = 0.030; Table 2).

## Tier 4 and Tier 5 Olympic sport athletes

A greater proportion of Tier 4 than Tier 5 believed that transgender athletes are treated unfairly or very unfairly across all sport (Tier 4 = 61.5% versus Tier 5 = 38.5; $p$ = 0.016; Figure 3c), and no Tier 5 athletes selected very unfair. More Tier 4 than Tier 5 believed that transgender athletes are treated very unfairly for their own sports' regulations (Tier 4 = 23.3% versus Tier 5 = 10.0%; $p$ = 0.043; Figure 3d), and no Tier 5 athletes selected very fair. There was no statistical difference ($p$ ≥ 0.622) between tiers regarding opinion for the fairness of trans women competing in the female category – the most common view expressed by athletes of both tiers was that it would be unfair in contact, precision, sports heavily reliant on physical capacity and their own sport (Figure 3a). A higher proportion of Tier 4 than Tier 5 participants believed it very unfair for trans men to compete in the male category for contact, precision, sports reliant on

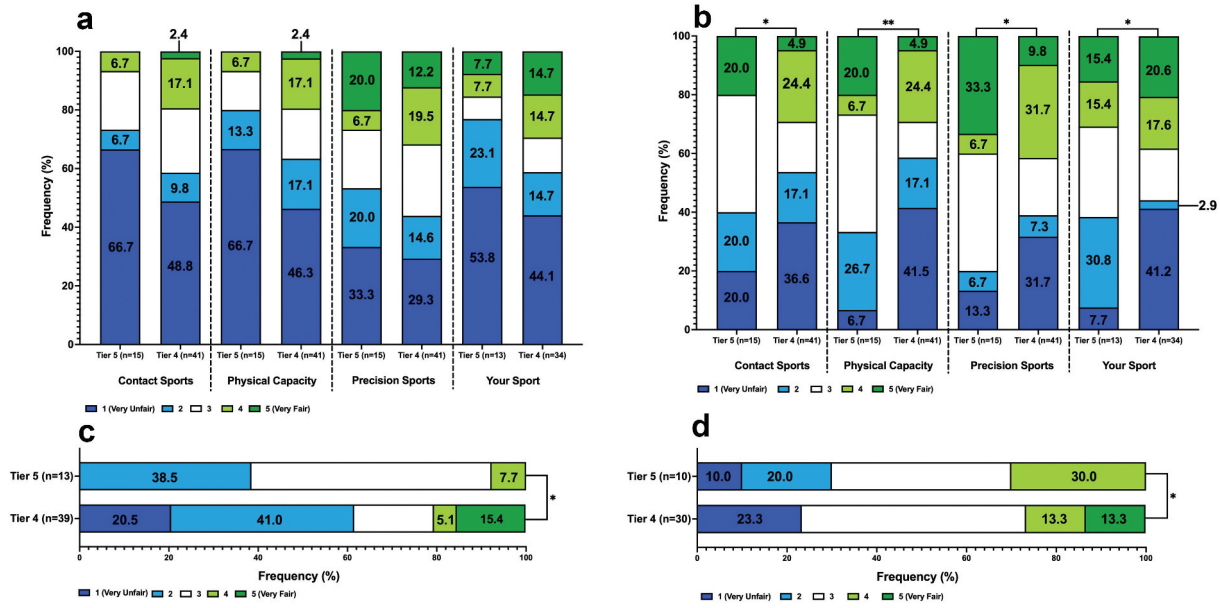


Figure 3. Responses of Current Olympic Sport (CO) athletes competing at world class (Tier 5) and elite (Tier 4) competitive standards. a, how fair is it for a trans woman to compete in the elite female category? b, how fair is it for a trans man to compete in the elite male category? c, how fairly do you think transgender athletes get treated across all sports? d, how fairly do you think transgender athletes get treated in your sport regarding the regulations they have to meet in order to compete? Statistical differences are indicated by $^{**}p<.01$ and $^{*}p<.05$. Note: some bars are ±0.1% due to rounding of mean.

physical capacity and their own sport ($p = 0.018$, $p = 0.039$, $p = 0.006$, $p = 0.026$, respectively; Figure 3b). More Tier 5 than Tier 4 athletes favoured the use of a separate transgender category, particularly in sports heavily reliant on physical capacity (Tier 5 = 92.3% versus Tier 4 = 58.5%; $p = 0.014$; Table 3). For sports heavily reliant on physical capacity, Tier 5 (92.9%) disagreed more than Tier 4 (61.9%) that those who have previously competed in one category should be allowed to compete in the same sport in a different category ($p = 0.017$; Table 3).

## Discussion

This study presents the opinions of 175 national, elite and world class athletes that were eligible to compete in the female category, on transgender inclusion in elite sport. The majority of athletes did not believe that categories based on gender identity, body size (mass and height) or the 2015 IOC guidance (focusing on serum testosterone) were agreeable. Most athletes (58.4%) supported categories based on biological sex, particularly current Olympic sport athletes (64.0%), athletes at the highest competitive level (76.9%), and retired athletes (83.3%). These data broadly agree with some non-peer reviewed internally conducted sport governing body surveys (FINA, 2022; World Aquatics, 2022; World Rugby, 2021) and the 19 female Olympians (mean age 41 years; made up of British, Canadian and Australian athletes), who generally did not favour categorisation eligibility without restriction (gender identity) nor with the 2015 IOC guidance (Devine, 2022). This is of particular contemporary relevance, because updated inclusion policies of some sport organisations have implemented serum testosterone concentration and/or gender identity as criteria for inclusion in the female category (Canadian Powerlifting Union, 2022; World Triathlon, 2022). The present data show that elite and world class athletes, in general, do not support such criteria.

Further, most Olympic sport athletes disagreed that an athlete should be able to change category (most strongly expressed by 92.9% world class athletes for sports heavily reliant on physical capacity), but it is important to highlight that Olympic Recognised sport athletes believe this should be allowed (e.g., 74.4% for precision sports; Table 2). Specifically, most athletes believed that it was unfair or very unfair for trans women to compete in the female category (e.g., 73% of retired athletes for contact sports), but not for precision sports (32%, all athletes). This may reflect the athletes' presumption/awareness that precision sports have lower performance-related sex differences than contact sports and sports heavily reliant on physical capacity (Hilton & Lundberg, 2021). These differences of opinion among key stakeholders to the female category partially support point 8 (Stakeholder-centred Approach) of the 2021 IOC framework (International Olympic Committee IOC, 2021b; Martowicz et al., 2023) and previous commentary (Hamilton et al., 2021). It is crucial when developing policies to appreciate that opinions differ depending on sporting context, an athlete's proximity to the top competitive level of their sport and whether they are currently competing. Some athletes support trans women inclusion in the female category and their voices should also be considered.

Previous peer reviewed studies have considered the opinion of college/student athletes on trans men's inclusion in sports (Goldbach et al., 2022; Tanimoto & Miwa, 2021) but this is the first study to collate the opinions of elite and world class athletes on the inclusion of trans men in the male category of elite sport. In precision sports, there was support for their inclusion in the male category on the grounds of fairness, similar to college athletes (Tanimoto & Miwa, 2021). A notable

exception was for current Olympic sport athletes, where the greatest proportion believed it was unfair for trans men to compete in the male category of contact and sports reliant of physical capacity (49.1%, 52.5%, respectively). While more in-depth qualitative work is needed to elucidate the reasons for this belief, risk of injury to the trans men themselves in contact sports, rather than their opponents, has been the main focus of policy decisions and opinions (British Association of Sport and Exercise Sciences BASES, 2021; World Rugby, 2021) and it is possible that this was also a consideration for the respondents in the present study.

Importantly, the present data demonstrate that, to the best of our current understanding, high level competitive athletes do not show evidence of negative opinions towards gender transition in general (94.2% were supportive) and, similarly, previous work has shown that most (71%) female Olympians believed "nobody should be treated unfairly because of their transgender status" (Devine, 2022) and is generally agreed by collegiate athletes (Goldbach et al., 2022). Empirical research, that has identified similar variations in opinion, proposes that athlete opinions may be related to the importance "of a level playing field", increasing as the competitive level advances (Tanimoto & Miwa, 2021). As such, there may be a possible shifting focus in elite competitive sport towards financial gains and extensiveness of training load leading to winning becoming a greater motivational priority (Mallett & Hanrahan, 2004; McKay et al., 2022; Tanimoto & Miwa, 2021) but more work is needed. Nonetheless, the current majority belief is that transgender athletes are treated unfairly across sport (66.2%) and that governing bodies should be doing more to make sport more inclusive (81.1%). However, despite this, athletes are reportedly reluctant to speak out regarding their opinions on transgender inclusion in elite sport, for fear of transphobic accusations (95%) and loss of sponsorships (44%) (Devine, 2022). This is exacerbated by the hostile discussions around transgender athletes by social media users and "media framing" leading to polarised debate in the general public (Avalos et al., 2022; Scovel et al., 2022; Taha-Thomure et al., 2022). Together with the present data, this evidence suggests that the motivations for elite and world class athletes competing in the female category are not likely grounded in negativity towards transgender people, but more likely based on seeking fair competition and capacity to win. These opinions further reflect that transgender inclusion is valued, but fairness must take priority for athletes in elite sport.

### *Limitations*

Due to the sensitivity of the topic and openness of the survey, the potential of sample bias cannot be ruled out (Becker et al., 2012). The majority of the sample consists of American, British and Canadian athletes however this similarly represents participation in the Olympic Games (International Olympic Committee IOC, 2023a, 2023b). Despite the difficulties accessing elite athletes and the reluctance of athletes to voice their opinions on this topic (Devine, 2022; McKay et al., 2022; Teetzel, 2020) the present sample represents the largest group of elite and world class athletes currently investigated and the data shows some diversity of opinion across the sample. Furthermore, as with all self-administration online surveys, response bias, social desirability and motivation, as well as respondents' understanding of questions/instructions and participants' technology capacity should be considered (Evans & Mathur, 2005; Goldbach et al., 2022; Krumpal, 2013). The present study attempted to overcome this with concise and clear critically evaluated "notes" accompanying each question where it was required. The accepted language used to discuss this and related topics has been continually changing and regularly contested (Nordmarken, 2023; Rodovalho, 2017; Zimman, 2017) even throughout the lifetime of this study (Gustafsson Sendén et al., 2021; Hekanaho, 2022). Consequently, the present taxonomy e.g., the use of the word "cis" or "gender" reflects our interpretation of convention when the survey was created. The authors acknowledge that individual preference of selected words used herein are polarizing and sometimes emotive. However, the data are presented and discussed as objectively and unbiased as the authors believe possible. Similarly, given the limited number of participants not identifying as cis woman, this study may not reflect the perception of gender diverse/non-conforming athletes. As gender identity or gender self-definition has been associated with differing views on inclusion in non-athletes (Cleland et al., 2021), this should be explored further in elite athletes. Lastly, whilst the athlete voice is very valuable, it should be recognised that athletes' understanding of the available scientific research regarding retained advantage may affect their perception towards transgender inclusion (Flores et al., 2020; Hilton & Lundberg, 2021; Jones et al., 2017) and their opinion regarding eligibility criteria. Further, the IOC framework and other literature on policy recommendations acknowledge that other aspects, outside of the scope of the present study, need to be considered including human rights, legal aspects and athlete well-being (Burke, 2022; Buzuvis et al., 2021; Martowicz et al., 2023).

## Conclusion

The current study is the first to show that opinions on transgender inclusion differ amongst elite and world class athletes eligible to compete in the female category, depending on sporting context, level of competition, and stage of career. The present study reports the opinions of the largest sample to date of elite and world class athletes on transgender inclusion in elite sport. Overall, categorisation was favoured according to biological sex, although opinion did differ according to sporting context. There was least support for trans women eligibility in the female category of contact sports and those heavily reliant on performance-related biological factors that differ between sexes. However, a range of views were expressed regarding some aspects, differing between groups when higher stakes were involved, or when individuals were no longer at the pinnacle of competition. It is crucial that governing bodies ensure policies and committee membership reflect the key stakeholders and understand that views differ amongst athlete groups and sports. Specific considerations are needed for the differences between those with the greatest potential for rewards such as world class athletes (Smart, 2018; World Athletics, 2022) and those that will not be directly affected by policy decisions such as retired athletes (Teetzel, 2020). Future research should seek to extend the current findings to different

groups of athletes and seek to understand the nuances behind athletes' opinions on such a sensitive and important topic with global reach.

## Acknowledgments

The authors would like to thank the athletes for their time, honesty and willingness to participate, the members of the general public that participated in the critical evaluation prior to release, and particularly to Swansea University for not restricting our academic freedom to investigate this topic. The authors would like to acknowledge DATES study intern Niall Fife for his contribution to this study.

## Disclosure statement

AS, MC and SH have no competing interests to declare. AW and GS are the recipients of project funding from the IOC Medical and Scientific Research Fund (RBU/cftr/2021-31). AH identifies as LGBTQI+ and volunteers at a LGBTQI+ library in London. AW received travel/accommodation/honorarium for speaking at three relevant events during 2022-23 (Sport Resolutions Annual Conference; Global Observatory for Gender Equality & Sport First International Conference on Inclusive Gender Equality: Open Fields, Open Questions; IOC Framework on Fairness, Inclusion and Non-Discrimination Workshop).

## Funding

The author(s) reported there is no funding associated with the work featured in this article.

## ORCID

S.M. Heffernan http://orcid.org/0000-0002-3297-9335

## Author contribution

All authors contributed to interpretation of the results and manuscript writing. In addition, SH, AW and GS conceptually study design. SH initial designed the survey. AH advised on survey inclusive language. MC advise on survey methodology. AS and SH performed data analysis and manuscript drafting.

## Confirmation of Ethical Compliance

Ethical approval was granted by the Faculty of Science and Engineering Research Ethics and Governance Committee, Swansea University (SU-Ethics -Staff -210,622/486).

## Data availability statement

All data are available on reasonable request.

## References

Avalos, S., Kibler, M., & Monk-Turner, E. (2022). Out of the closet and onto the Olympic floor: A qualitative look at social media user's perceptions of transgender Olympic athletes. *Gender Issues*, *39*(4), 437–454. https://doi.org/10.1007/s12147-022-09299-6

Barras, A. (2021). *The lived experiences of transgender and non-binary people in everyday sport and physical exercise in the UK*. University of Brighton.

Becker, S., Bryman, A., & Ferguson, H. (2012). *Understanding research for social policy and social work : Themes, methods and approaches*. Policy Press.

Boone, H., & Boone, D. (2012). Analyzing likert data. *Journal of Extension*, *50* (2), 1–5. https://doi.org/10.34068/joe.50.02.48

Braumüller, B., Menzel, T., & Hartmann-Tews, I. (2020). Gender identities in organized sports—athletes' experiences and organizational strategies of inclusion. *Frontiers in Sociology*, *5*. https://doi.org/10.3389/fsoc.2020.578213

Bridges, E. (2022). emilybridges45_ Instagram statement. Preprint at https://www.instagram.com/p/Cb0GjLKMdRb/?hl=en

British Association of Sport and Exercise Sciences (BASES). (2021). The BASES expert statement on eligibility for sex categories in sport: Trans athletes. *The Sport & Exercise Scientist* 68, 14–15. https://www.bases.org.uk/imgs/8931_bas_bases_tses_summer_2021_online_pg_14_15742.pdf.

Burke, M. (2022). Trans women participation in sport: A feminist alternative to Pike's position. *Journal of the Philosophy of Sport*, *49*(2), 212–229. https://doi.org/10.1080/00948705.2022.2043754

Buzuvis, E., Litwin, S., & Zola, W. (2021). Sport is for everyone: A legal roadmap for transgender participation in sport. *Journal of Legal Aspects of Sport*, *31*(2), 212–252. https://doi.org/10.18060/25601

Canadian Powerlifting Union. (2022). *Canadian Powerlifting Union Trans Inclusion Policy*. https://www.canadianpowerliftingunion.com/_files/ugd/fa7009_12a406a2fa1447568f9a688464464562.pdf

Caudwell, J. (2020). Transgender and non-binary swimming in the UK: Indoor public pool spaces and Un/Safety. *Frontiers in Sociology*, *5*. https://doi.org/10.3389/fsoc.2020.00064

Clason, D., & Dormody, T. (1994). Analyzing data measured by individual likert-type items. *Journal of Agricultural Education*, *35*(4), 31–35. https://doi.org/10.5032/jae.1994.04031

Cleland, J., Cashmore, E., & Dixon, K. (2021). Why do sports fans support or oppose the inclusion of trans women in women's sports? An empirical study of fairness and gender identity. *Culture, Sport, Society*, *25*(12), 2381–2396. https://doi.org/10.1080/17430437.2021.1942456

Cunningham, G. B., Isard, R., & Melton, E. N. (2022). Transgender Inclusion in Sport. *Kinesiology Review*, *11*(1), 64–70. https://doi.org/10.1123/kr.2021-0040

Devine, C. (2022). Female Olympians' voices: Female sports categories and International Olympic committee transgender guidelines. *International Review for the Sociology of Sport*, *57*(3), 335–361. https://doi.org/10.1177/10126902211021559

Elsas, L. J., Ljungqvist, A., Ferguson-Smith, M. A., Simpson, J. L., Genel, M., Carlson, A. S., Ferris, E., de la Chapelle, A., & Ehrhardt, A. A. (2000). Gender verification of female athletes. *Genetics in Medicine*, *2*(4), 249–254. https://doi.org/10.1097/00125817-200007000-00008

Evans, J. R., & Mathur, A. (2005). The value of online surveys. *Internet Research*, *15*(2), 195–219. https://doi.org/10.1108/10662240510590360

FINA. (2022). *Policy on Eligibility for the Men's and Women's Competition Categories*. https://resources.fina.org/fina/document/2022/06/19/525de003-51f4-47d3-8d5a-716dac5f77c7/FINA-INCLUSION-POLICY-AND-APPENDICES-FINAL-.pdf

Flores, A. R., Haider-Markel, D. P., Lewis, D. C., Miller, P. R., Tadlock, B. L., & Taylor, J. K. (2020). Public attitudes about transgender participation in sports: The roles of gender, gender identity conformity, and sports fandom. *Sex Roles*, *83*(5–6), 382–398. https://doi.org/10.1007/s11199-019-01114-z

Futterman, M. (2022). FINA restricts transgender women from competing at elite level. *The New York Times* https://www.nytimes.com/2022/06/19/sports/fina-transgender-women-elite-swimming.html

Goldbach, C., Chambers-Baltz, S., Feeser, K., Milton, D. C., McDurmon, P., & Knutson, D. (2022). Transgender inclusion in competitive sport: athletes' attitudes toward transgender athlete participation in intercollegiate sport. *International Journal of Sport & Exercise Psychology*, 1–23. https://doi.org/10.1080/1612197X.2022.2161109

Gustafsson Sendén, M., Renström, E., & Lindqvist, A. (2021). Pronouns beyond the binary: The change of attitudes and use over time. *Gender & Society*, *35*(4), 588–615. https://doi.org/10.1177/08912432211029226

Hamilton, B. R., Guppy, F. M., Barrett, J., Seal, L., & Pitsiladis, Y. (2021). Integrating transwomen athletes into elite competition: The case of elite archery and shooting. *European Journal of Sport Science*, *21*(11), 1500–1509. https://doi.org/10.1080/17461391.2021.1938692

Hekanaho, L. (2022). A thematic analysis of attitudes towards English non-binary pronouns. *Journal of Language and Sexuality*, *11*(2), 190–216. https://doi.org/10.1075/jls.21025.hek

Hilton, E. N., & Lundberg, T. R. (2021). Transgender women in the female category of sport: Perspectives on testosterone suppression and performance advantage. *Sports Medicine*, *51*(2), 199–214. https://doi.org/10.1007/s40279-020-01389-3

International Olympic Committee. (2005). *Olympic programme commission*. https://stillmed.olympic.org/media/Document%20Library/OlympicOrg/IOC/Who-We-Are/Commissions/Olympic-Programme/EN-Olympic-Programme-Commission-Report-to-the-117th-IOC-Session.pdf

International Olympic Committee. (2023). IOC Athletes' Commission. https://olympics.com/athlete365/who-we-are/ioc-athletes-commission/

International Olympic Committee (IOC). (2004). *Statement of the Stockholm Consensus on Sex Reassignment in Sports*. https://olympics.com/ioc/news/ioc-approves-consensus-with-regard-to-athletes-who-have-changed-sex

International Olympic Committee (IOC). (2015). *IOC Consensus Meeting on Sex Reassignment and Hyperandrogenism November 2015*. https://stillmed.olympic.org/Documents/Commissions_PDFfiles/Medical_commission/2015-11_ioc_consensus_meeting_on_sex_reassignment_and_hyperandrogenism-en.pdf

International Olympic Committee (IOC). (2021a). International Sports Federations. https://olympics.com/ioc/international-federations

International Olympic Committee (IOC). (2021b). *IOC Framework on Fairness, Inclusion and Non-Discrimination on the Basis of Gender Identity and Sex Variations*. https://stillmed.olympics.com/media/Documents/News/2021/11/IOC-Framework-Fairness-Inclusion-Non-discrimination-2021.pdf?_ga=2.60987877.835769201.1658753864-69431477.1658323600

International Olympic Committee (IOC). (2021c). Recognised Federations. https://olympics.com/ioc/recognised-international-federations

International Olympic Committee (IOC). (2023a). Olympic Games Tokyo 2020. https://olympics.com/en/olympic-games/tokyo-2020

International Olympic Committee (IOC). (2023a). Olympic Winter Games Beijing 2022. https://olympics.com/en/olympic-games/beijing-2022/results

Jones, B. A., Arcelus, J., Bouman, W. P., & Haycraft, E. (2017). Sport and transgender people: A systematic review of the literature relating to sport participation and competitive sport policies. *Sports Medicine*, *47*(4), 701–716. https://doi.org/10.1007/s40279-016-0621-y

Kanamori, Y. (2006). Transgender attitudes and beliefs scale (TABS). Preprint at https://ykanamori.weebly.com/uploads/8/7/0/7/87075998/transgender_attitudes_and_beliefs_scale__tabs_.pdf

Kanamori, Y., Cornelius-White, J. H. D., Pegors, T. K., Daniel, T., & Hulgus, J. (2017). Development and Validation of the Transgender Attitudes and Beliefs Scale. *Archives of Sexual Behavior*, *46*(5), 1503–1515. https://doi.org/10.1007/s10508-016-0840-1

Krumpal, I. (2013). Determinants of social desirability bias in sensitive surveys: A literature review. *Quality & Quantity*, *47*(4), 2025–2047. https://doi.org/10.1007/s11135-011-9640-9

Litchfield, C. (2018). Female athletes, Olympic, and non-Olympic online sports coverage in Australia: Raising the bar or performing below par? *International Journal of Sport & Society*, *9*(3), 35–51. https://doi.org/10.18848/2152-7857/CGP/v09i03/35-51

López, B. (2014). 'The good, pure old days': Cyclist's switching appraisals of doping before and after retirement as claims making in the construction of doping as a social problem. *The International Journal of the History of Sport*, *31*(17), 2141–2157. https://doi.org/10.1080/09523367.2014.911731

Mallett, C. J., & Hanrahan, S. J. (2004). Elite athletes: Why does the 'fire' burn so brightly? *Psychology of Sport & Exercise*, *5*(2), 183–200. https://doi.org/10.1016/S1469-0292(02)00043-2

Martowicz, M., Budgett, R., Pape, M., Mascagni, K., Engebretsen, L., Dienstbach-Wech, L., Pitsiladis, Y. P., Pigozzi, F., & Erdener, U. (2023). Position statement: IOC framework on fairness, inclusion and non-discrimination on the basis of gender identity and sex variations. *British Journal of Sports Medicine*, *57*(1), 26–32. https://doi.org/10.1136/bjsports-2022-106386

Matsunaga, M. (2007). Familywise error in multiple comparisons: Disentangling a knot through a critique of O'Keefe's arguments against alpha adjustment. *Communication Methods and Measures*, *1*(4), 243–265. https://doi.org/10.1080/19312450701641409

Mazanov, J. (2016). Beyond antidoping and harm minimisation: A stakeholder-corporate social responsibility approach to drug control for sport. *Journal of Medical Ethics*, *42*(4), 220–223. https://doi.org/10.1136/medethics-2015-102661

McHugh, M. L. (2013). The Chi-square test of independence. *Biochemia medica : casopis Hrvatskoga drustva medicinskih biokemicara / HDMB*, *23*, 143–149. https://doi.org/10.11613/BM.2013.018

McKay, A. K. A., Stellingwerff, T., Smith, E. S., Martin, D. T., Mujika, I., Goosey-Tolfrey, V. L., Sheppard, J., & Burke, L. M. (2022). Defining training and performance caliber: A participant classification framework. *International Journal of Sports Physiology and Performance*, *17*(2), 317–331. https://doi.org/10.1123/ijspp.2021-0451

Nordmarken, S. (2023). Coming into identity: How gender minorities experience identity formation. *Gender & Society*, *37*(4), 584–613. https://doi.org/10.1177/08912432231172992

O'Keefe, D. J. (2003). Colloquy: Should familywise alpha Be adjusted? *Human Communication Research*, *29*(3), 431–447. https://doi.org/10.1111/j.1468-2958.2003.tb00846.x

Parker, I. (2022). Statement from two-time Olympic champion Katie Archibald on transgender athletes in cycling. Preprint at https://twitter.com/iparkysport/status/1516804297241120775

Patton, M. Q. (2002). *Qualitative research & evaluation methods*. Sage.

Phillips, R., Freeman, R. E., & Wicks, A. C. (2003). What stakeholder theory is not. *Business Ethics Quarterly*, *13*(4), 479–502. https://doi.org/10.5840/beq200313434

Puchades, M., & Molina, P. (2020). Attitudes towards doping among sport sciences students. *Apunts Educación Física y Deportes*, (140), 1–7. https://doi.org/10.5672/apunts.2014-0983.es.(2020/2).140.01

Rodovalho, A. M. (2017). Cis by Trans. *Revista Estudos Feministas*, *25*(1), 365–373. https://doi.org/10.1590/1806-9584.2017v25n1p365

Rubin, M. (2017). Do p values lose their meaning in exploratory analyses? It depends how you define the familywise error rate. *Review of General Psychology*, *21*(3), 269–275. https://doi.org/10.1037/gpr0000123

Rugby Football Union. (2022). RFU Council Votes in favour of change to gender participation policy. *Rugby Football Union* https://www.englandrugby.com/news/article/rfu-council-votes-in-favour-of-change-to-gender-participation-policy

Scovel, S., Nelson, M., & Thorpe, H. (2022). Media framings of the transgender Athlete as "legitimate controversy": The case of Laurel Hubbard at the Tokyo Olympics. *Communication & Sport*, *11*(5), 838–853. https://doi.org/10.1177/21674795221116884

Smart, B. (2018). Consuming Olympism: Consumer culture, sport star sponsorship and the commercialisation of the Olympics. *Journal of Consumer Culture*, *18*(2), 241–260. https://doi.org/10.1177/1469540517747146

Stewart, L., O'Halloran, P., Oates, J., Sherry, E., & Storr, R. (2021). Developing trans-athlete policy in Australian national sport organizations. *International Journal of Sport Policy & Politics*, *13*(4), 565–585. https://doi.org/10.1080/19406940.2021.1955727

Storr, R., O'Sullivan, G., Spaaij, R., & Symons, C. (2022). Support for LGBT diversity and inclusion in sport: A mixed methods study of Australian cricket. *Sport Management Review*, *25*(5), 723–747. https://doi.org/10.1080/14413523.2021.1991675

Storr, R., O'Sullivan, G., Symons, C., Spaaij, R. & Sbaraglia, M. (2017). *Exploring Lesbian, Gay, Bisexual and Transgender (LGBT) Inclusion in Australian Cricket*.

Sullivan, C. F. (2011). Gender Verification and Gender Policies in Elite Sport. *Journal of Sport & Social Issues*, *35*(4), 400–419. https://doi.org/10.1177/0193723511426293

Sullivan, G. M., & Artino, A. R. (2013). Analyzing and interpreting data from likert-type scales. *Journal of Graduate Medical Education*, *5*(4), 541–542. https://doi.org/10.4300/JGME-5-4-18

Symonns, C., Sbaraglia, M., Hilier, L. & Mitchell, A. (2010). *COME OUT to PLAY the Sports Experiences of Lesbian, Gay, Bisexual and Transgender (LGBT) People in Victoria*. https://www.vu.edu.au/sites/default/files/Come%20Out%20To%20Play%20May%202010.pdf

Taha-Thomure, R., Milne, A. S., Kavanagh, E. J., & Stirling, A. E. (2022). Gender-based violence against Trans* individuals: A netnography of Mary Gregory's experience in powerlifting. *Frontiers in Psychology*, *13*. https://doi.org/10.3389/fpsyg.2022.854452

Tanimoto, C., & Miwa, K. (2021). Factors influencing acceptance of transgender athletes. *Sport Management Review*, *24*(3), 452–474. https://doi.org/10.1080/14413523.2021.1880771

Teetzel, S. (2020). Allyship in elite Women's sport. *Sport, Ethics and Philosophy*, *14*(4), 432–448. https://doi.org/10.1080/17511321.2020.1775691

Testa, M., Livingston, J. A., & VanZile-Tamsen, C. (2005). The impact of questionnaire administration mode on response rate and reporting of consensual and nonconsensual sexual behavior. *Psychology of Women Quarterly*, *29*(4), 345–352. https://doi.org/10.1111/j.1471-6402.2005.00234.x

Travers, A., & Deri, J. (2011). Transgender inclusion and the changing face of lesbian softball leagues. *International Review for the Sociology of Sport*, *46*(4), 488–507. https://doi.org/10.1177/1012690210384661

Walters, G., & Tacon, R. (2010). Corporate social responsibility in sport: Stakeholder management in the UK football industry. *Journal of Management and Organization*, *16*(4), 566–586. https://doi.org/10.5172/jmo.2010.16.4.566

World Aquatics. (2022). FINA extraordinary General Congress, 19th FINA World Championships, Budapest. Preprint at https://www.youtube.com/watch?v=tiujU5nUq6A

World Athletics. (2022). TDK and World Athletics to support world record programme in Oregon. https://worldathletics.org/competitions/world-athletics-championships/world-athletics-championships-oregon-2022-7137279/news/press-releases/tdk-world-athletics-world-record-programme-oregon

World Athletics. (2023a). *Eligibility Regulations for Transgender Athletes*. https://www.worldathletics.org/download/download?filename=f911778e-5bfa-4d49-b044-9920fc743216.pdf&urlslug=C3.5A%20–%20Eligibility%20Regulations%20Transgender%20Athletes%20–%20effective%2031%20March%202023

World Athletics. (2023b). World Athletics Council decides on Russia, Belarus and female eligibility. https://worldathletics.org/news/press-releases/council-meeting-march-2023-russia-belarus-female-eligibility

The World Games. (2022). About the World Games. *International World Games Association*. https://www.theworldgames.org/contents/The-IWGA-15/About-TWG-2099

World Rugby. (2021). *Transgender Considerations for Elite Female Players*. https://resources.world.rugby/worldrugby/document/2021/02/22/fec411ad-b1f2-4095-9779-17d07787331b/17.-Transgender-Group-2020-Player-Survey-Results.pdf

World Triathlon. (2022). *World Triathlon Executive Board Approves Transgender Policy*. https://www.triathlon.org/news/article/world_triathlon_executive_board_approves_transgender_policy

Zimman, L. (2017). Transgender language reform. *Journal of Language & Discrimination*, *1*(1), 84–105. https://doi.org/10.1558/jld.33139

Kropyvnytska, T., Imas, Y., Borysova, O., Krasnianskiy, K., Matveev, S., Goncharenko, I., Kohut, I., Marynych, V., & Ulan, A. (2021). Specifics of organization of international complex competitions in Non-Olympic Sports. *Sport Mont*, *19*(S2), 113–118. https://doi.org/10.26773/smj.210919