Transgender, intersex and non-binary people in sport and physical activity

A review of research and policy

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SPORT+ RECREATION ALLIANCE

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1.0 Definitions

The following definitions have been sourced from Stonewall (2020):

ALLY: A (typically) straight and/or cis person who supports members of the LGBTQ+ community

CISGENDER OR CIS: Someone whose gender identity is the same as the sex they were assigned at birth. Non-trans is also used by some people.

DEADNAMING: The use of the birth or other former name of a transgender or non-binary person without their consent.

GENDER: Often expressed in terms of masculinity and femininity, gender is largely culturally determined and is assumed from the sex assigned at birth.

GENDER DYSPHORIA: Used to describe when a person experiences discomfort or distress because there is a mismatch between their sex assigned at birth and their gender identity. This is also the clinical diagnosis for someone who doesn't feel comfortable with the sex they were assigned at birth.

GENDER EXPRESSION: How a person chooses to outwardly express their gender, within the context of societal expectations of gender. A person who does not conform to societal expectations of gender may not, however, identify as transgender.

GENDER IDENTITY: A person's innate sense of their own gender, whether male, female or something else (see non-binary below), which may or may not correspond to the sex assigned at birth.

GENDER REASSIGNMENT: A way of describing a person's transition from their sex assigned at birth to the gender they identify with. To undergo gender reassignment usually means to undergo some sort of medical intervention, but it can also mean changing names, pronouns, dressing differently and living in their self-identified gender.

GILLICK COMPETENCE: A term used in medical law to decide whether a child (under 16 years of age) is able to consent to their own medical treatment in relation to gender reassignment, without the need for parental permission or knowledge.

INTERSEX: A term used to describe a person who may have the biological attributes of both sexes or whose biological attributes do not fit with societal assumptions about what constitutes male or female. Intersex people may identify as male, female or non-binary.

NON-BINARY: An umbrella term for people whose gender identity doesn't sit comfortably with 'man' or 'woman'. Non-binary identities are varied and can include people who identify with some aspects of binary identities, while others reject them entirely.

OUTED: When a transgender person's gender identity is disclosed to someone else without their consent.

PRONOUN: Words we use to refer to people's gender in conversation - for example, 'he' or 'she'. Some people may prefer others to refer to them in gender neutral language and use pronouns such as they/their and ze/zir.

SEX: Assigned to a person on the basis of primary sex characteristics (genitalia) and reproductive functions. Sometimes the terms 'sex' and 'gender' are interchanged to mean 'male' or 'female'

TRANS: An umbrella term to describe people whose gender is not the same as, or does not sit comfortably with, the sex they were assigned at birth. Trans people may describe themselves using one or more of a wide variety of terms, including (but not limited to) transgender, transsexual, gender-queer (GQ), gender-fluid, non-binary, gender-variant, crossdresser, genderless, agender, nongender, third gender, bi-gender, trans man, trans woman, trans-masculine, trans-feminine and neutrois.

TRANSGENDER MAN: A term used to describe someone who is assigned female at birth but identifies and lives as a man. This may be shortened to trans man, or FTM, an abbreviation for female-to-male.

TRANSGENDER WOMAN: A term used to describe someone who is assigned male at birth but identifies and lives as a woman. This may be shortened to trans woman, or MTF, an abbreviation for male-to-female.

TRANSITIONING: The steps a transgender person may take to live in the gender with which they identify. Each person's transition will involve different things. For some, this involves medical intervention, such as hormone therapy and surgeries, but not all transgender people want or are able to have this. Transitioning also might involve things such as telling friends and family, dressing differently and changing official documents.

TRANSPHOBIA: The fear or dislike of someone based on the fact they are trans, including denying their gender identity or refusing to accept it. Transphobia may be targeted at people who are, or who are perceived to be, trans.

TRANSSEXUAL: This was used in the past as a medical term to refer to someone whose gender is not the same as, or does not sit comfortably with, the sex they were assigned at birth. This term is still used by some although many people prefer the term trans or transgender.

2.0 Executive Summary

2.1. Background Information

Historically, society has conceptualised sex and gender as binary categories (male/female and man/woman or boy/girl). Competitive sport, with a few exceptions[1], is organised into the binary categories of male and female. This is to create fairness due to the natural physical advantages of male athletes in most sports. Some argue that binary sex classification has significant pragmatic value within competitive sport, providing a standardised and consistent framework within which sport can operate (Krech, 2017). However, others argue it is a simplistic framework, given the complex array of factors that contribute to athletic performance, and can result in perpetuating the patriarchal status quo and excluding individuals whose gender identity or biological make-up does not neatly fit into binary gender categories (Krane, Barak, & Mann, 2012; Krech, 2017). Developments in human rights law have seen 'explicit prohibitions against discrimination on the basis of sex or gender enshrined in a range of legal instruments, including national constitutions and human rights legislation' (Krech, 2017, p. 270). Despite this, research suggests that individuals who are transgender, intersex or non-binary continue to face exclusion and/or barriers within both competitive sport and sport-related physical activity.

Sport policy relating to the eligibility of transgender, intersex and non-binary athletes to compete in sport has developed significantly over the past 60 years. A formalised policy of sex-testing in elite sport was introduced in the 1960s, initially requiring athletes participating in women's events to submit to visual and gynaecological examinations at competitions that are governed by the International Association of Athletics Federations (IAAF) (Love, 2014). The International Olympic Committee (IOC) first introduced chromosomal testing for competitors in women's events in 1968 which, over the following three decades, included tests designed to identify the presence of a second X chromosome or the presence of a Y chromosome. These tests were abandoned prior to the 2000 Sydney Olympics, however, due to the ineffectiveness and ambiguity involved in determining sex through such procedures (Love, 2014). Since 2000, sporting governing bodies such as the IOC and IAAF no longer practise compulsory sex-testing for athletes competing in women's events but have developed eligibility guidelines for the inclusion of athletes in women's events. From an online search, it was found that several women and sport and LGBTQ+ organisations provide position statements on transgender inclusion in sport, but this is severely lacking in relation to intersex and non-binary inclusion in sport.

Research on transgender, intersex and non-binary inclusion in sport is still in its infancy. Some sub-topics of investigation are developing a growing body of research, such as transgender and intersex inclusion in elite sport. Other sub-topics have had limited research attention, such as the inclusion and experiences of non-binary people in any form of sport and physical activity and the experiences of transgender and intersex people in grassroots sport and sport-related physical activity (SPA).

[1] Equestrian and luge include mixed-sex events at the Olympics where women and men compete against each other. Some other Olympic sports include mixed team events where each team has an equal number of men and women, such as tennis, badminton and sailing.

2.2. Transgender people in sport and physical activity

Sport and physical activity can play an important part in maintaining good physical, mental and social wellbeing for the increasing number of people identifying as transgender (Lopez-Canada et al., 2019). However, research suggests that transgender people face barriers in participation across the sporting landscape. At the elite sporting level, eligibility criteria have been introduced by national and international governing bodies to avoid transgender women having an 'unfair advantage'. This is the result of some scientific studies finding that transgender women have a significant performance advantage over cisgender women due to increased testosterone levels and retaining advantaged accrued from their former male physiology (e.g. Knox, Anderson, & Heather, 2019). Other experts have suggested that the scientific evidence is not strong enough to warrant the exclusion of transgender athletes via eligibility criteria (e.g. Jones, Arcelus, et al., 2017b). Eligibility criteria can lead to the exclusion of some transgender women from competing in elite sport unless they use medication to reduce their testosterone levels (to below 10 nmol/L for the IOC regulations and below 5 nmol/L for the World Athletics regulations).

In grassroots sport and SPA, it has been found that discrimination, lack of education/awareness, binary gender classifications and sex-segregated changing areas can lead to transgender people experiencing harassment, stigmatisation, isolation and body dissatisfaction (Jones, Arcelus, et al., 2017a; Muchicko et al., 2014. This can result in transgender people choosing not to participate in these activities or choosing to participate in individual sports that avoid body exposure and are less demanding in terms of social recognition (Hargie, Mitchell, & Somerville, 2015).

Several women and sport and LGBTQ+ organisations have released statements on transgender inclusion in sport. Only one of these organisations, Canadian Women and Sport (CWS), provides a strong and clear statement outlining their position on transgender inclusion at all levels of sport (Canadian Women and Sport, 2017). CWS call for full participation for transgender people in sport and physical activity and oppose medical intervention of any kind as a condition of competition. Other women and sport and LGBTQ+ organisations promote inclusivity and fairness in sport but do not clearly state their position on eligibility criteria in elite sport.

To maintain both fairness and inclusivity in sport, some scholars have called for replacement of the gender binary in elite sport with a system that recognises the difference between people while creating space for all athletes (Anderson, Knox, & Heather, 2019; Knox et al., 2019). One suggestion of how to achieve this is a 'multifaceted algorithm' similar to that used in the Paralympics that would be tailored to individual sports and account for a range of physiological and social factors that affect athletic performance (Anderson et al., 2019). More exploration and research of such ideas is required to gain a better understanding of the pros and cons of different approaches and their feasibility.

Whilst there is a growing base of sociological, psychological and philosophical research on the topic of the experiences and inclusion of transgender people in sport, there are some clear areas where more research is needed. In competitive sport, this includes research that:

- Specifically and directly assesses performance advantage in transgender women athletes;
- Further explores and assesses options for new ways of classifying sport;

- Provides a better understanding on the experiences of transgender people engaging in non-participation roles e.g. coaching, spectatorship and administration.

In relation to SPA, this includes research that:

- Examines pedagogical approaches for transgender children in PE;
- Better understands the motivations of transgender people to engage in SPA;
- Better understands the benefits that transgender people can enjoy from SPA.

2.3. Intersex people in sport and physical activity

Due to having male biological attributes as well as female biological attributes, some female intersex people experience hyperandrogenism: a medical concept that is generally defined as women having excess androgen, specifically testosterone (Karkazis & Jordan-Young, 2018). Despite hyperandrogenism being a 'natural state' that is not the outcome of any medical intervention or manipulation, it is still considered to be a source of unfair competition by many sporting governing bodies. This is due to some scientific research concluding that increased testosterone levels (as a result of hyperandrogenism) can enhance the performance of athletes in sports and events that are dominated by basic biomotor capabilities such as strength, speed and endurance (Bermon & Garnier, 2017; Handelsman, Hirschberg, & Bermon, 2018). Other research has found no convincing evidence to support the view that hyperandrogenism is associated with performance advantage in female athletes (Ferguson-Smith & Bavington, 2014; Sonksen et al., 2018).

Eligibility criteria have been introduced across many national and international governing bodies to try to ensure equality and protect the integrity of women's classes and events in elite sport. The most controversial and high-profile of recent cases was the introduction of the Eligibility Regulations for the Female Classification (Athlete with Differences of Sexual Development), more commonly known as the 'DSD Regulations', by the International Amateur Athletic Federation (IAAF) in 2018 (IAAF, 2019a). The DSD Regulations require female athletes to have a circulating testosterone level below 5 nmol/L to compete in certain women's events. The Regulations were challenged by affected South African 800m Olympic Champion, Caster Semenya, who argued that they unfairly discriminate against athletes on the basis of sex and gender. However, the Regulations were considered lawful by the Court of Arbitration for Sport (CAS) on the basis that they are a necessary, reasonable and proportionate means of achieving a legitimate objective: fair and meaningful competition in the female category of elite athletics (Court of Arbitration for Sport, 2019).

Scholars and activists have criticised and challenged the DSD Regulations on ethical grounds. The overriding ethical concern regarding the regulations is that they imply a violation against human rights. More specifically, ethical concerns have been raised about: the policing of women's bodies; the denial of human biological complexity; the numerous breaches of confidentiality surrounding those who have been tested for hyperandrogenism; the reinforcement of negative stereotypes and stigma; the potential for harm to athletes as a result of suppressive testosterone therapy; and an apparent targeting of women of colour from the Global South among athletes singled out for investigation (Henne & Pape, 2018; Karkazis & Jordan-Young, 2018; Loland, 2020; Mahomed & Dhai, 2019).. Ethical debates against the DSD Regulations have also questioned the sport classification system altogether, due to a privileging of some forms of genetic or physical-based classification categories (e.g. age, biological sex and

bodyweight) over others (e.g. height, limb length and natural talent) and a complete lack of classification system for social and economic factors (Loland, 2020; Mahomed & Dhai, 2019). Whilst individual scholars and activists have been vocal in their criticism of the DSD Regulations, there has been a lack of collective voice amongst women and sport and LGBTQ+ organisations on the matter.

Like transgender inclusion in sport, some scholars have suggested scenarios to ensure both fair competition and the inclusion of intersex athletes in elite sport. These include an intersex category, the development of algorithms that would account for a range of physiological and social factors that affect athletic performance, and the reduced significance of sports emphasise individual testosterone-driven inequalities in biomotor capability (Loland, 2020).

There is a growing body of research focusing on scientific and ethical considerations in relation to the inclusion of hyperandrogenous intersex athletes in elite women's sport. However, there is still a lack of consensus among experts as to the extent to which hyperandrogenous female athletes enjoy a performance advantage over cisgender female athletes. There is also a lack of conclusive evidence on potential negative health impacts of androgenous athletes engaging in suppressive testosterone therapy and a lack of research focusing on the wellbeing of athletes diagnosed as intersex athletes and how they can be best supported. Furthermore, there is a dearth of research focusing on the experiences and inclusion of intersex athletes in non-elite sport and physical activity. This is, in part, due to many intersex people being unaware that they are intersex unless they undergo a medical procedure (Cunningham, 2019; Mahomed & Dhai, 2019). Despite this, more research is needed on topics such as the benefits of sport and physical activity for individuals diagnosed as intersex and the specific challenges faced by individuals who are knowingly intersex in engaging in non-elite sport and physical activity.

2.4. Non-binary people in sport and physical activity

In contrast to transgender and intersex inclusion in sport, there has been very little awareness or discussion of the experiences and inclusion of non-binary people in sport and physical activity in the public, sporting nor academic domains. This is despite the potential benefits that inclusive sport and physical activity could bring to those who identify as gender nonconforming and encounter health disparities (including suicide attempts) compared to cisgender individuals (Clark et al., 2018).

Whilst many national and international sport organisations now have policies for transgender and intersex athletes, the vast majority of these policies do not incorporate non-binary athletes. From an online search in July 2020, no position statements were found from women and sport nor LGBTQ+ organisations on non-binary inclusion in sport. Furthermore, any research on the experiences of non-binary individuals in sport tends to come under a broader LGBTQ+ umbrella and only relates to athletes.

The small amount of research that has been conducted has found that, in some cases, non-binary individuals face similar barriers in participating in sport and physical activity than those of transgender individuals. This includes the misuse of preferred pronouns and names by coaches and teammates, feeling uncomfortable wearing gendered uniforms and a lack of gender-neutral spaces (Shortridge, 2020; Storr et al., 2020). However, non-binary individuals do also experience different challenges because, whereas binary transgender

people identify with one gender, non-binary people do not identify as either male or female. This makes it particularly challenging to participate in sport and physical activity when most sports are split by gender and there is a lack of mixed-gender sports available (Storr et al., 2020).

It is clear that more research is required on the experiences and inclusion of non-binary people in sport and physical activity to better understand the benefits non-binary people can experience from being physically active, the unique challenges they face in doing so, and how they can be best supported to become and remain physically active.

3.0 Transgender people in sport and physical activity

3.1 Introduction/background

Transgender people experience incongruence between their gender identity and the gender they were assigned at birth. It has been found that the number of people who self-identify as transgender has significantly increased since the start of the 21st century, with a range of sociological and sociocultural explanations being offered to account for this increase. This includes an increase in the visibility of transgender people within Western society, the wide availability of information on the Internet about transgenderism and the increased awareness and availability of biomedical treatment for adolescents (Aitken et al., 2015).

The importance of transgender people participating in sport and physical activity (SPA) has been highlighted by academics and advocacy groups due to the potential for positive physiological, psychological and social benefits. However, the inclusion of transgender people (and particularly transgender women) in sport in accordance to their gender identity has become a widely contested issue across the sport sector. Stakeholders involved in the debate include academics, sport organisations, fellow competitors, former athletes, sport pundits and spectators.

Most of the most high-profile debates on the participation of transgender people in sport have been in relation to the inclusion of transgender women athletes in elite female sport. This included calls for cycling's international governing body to change its rules on transgender athletes when transgender woman cyclist Rachel McKinnon won the UCI Masters Track World Championship title in the women's 35-44-year-old category in October 2018. One of her opponents, Jen Wagner-Assali, claimed that it was unfair for McKinnon to compete. Following this, McKinnon estimates that she received more than 100,000 hate messages on Twitter (BBC, 2018). Another high-profile case was the banning of transgender woman athlete Hannah Mouncey being nominated for the women's Australian Rules draft because of a disparity in size between her and her opponents. She now plays for the Australian handball team (BBC, 2018).

There have been several high-profile former athletes who have publicly spoken out on the topic. This includes former British swimmer Sharron Davies who argued that the inclusion of transgender athletes to enter female competitions 'has the potential to ruin women's sport' (Kelly, 2019, para. 12). Additionally, both former British long-distance runner Paula Radcliffe and former world number one tennis champion Martina Navratilova raised concerns about transgender women athletes manipulating rules to 'cheat' and gain an unfair advantage (BBC, 2019b, 2019c). Navratilova was dropped as an ambassador for American LGBTQ+ organisation Athlete Ally but did later apologise for her comments and has since made a documentary entitled *The Trans Women Athlete Dispute with Martina Navratilova* to explore the topic further. Davies, Radcliffe and former middle-distance runner Dame Kelly Holmes teamed up to write a letter to the International Olympic Committee (IOC) asking for more research on the 'residual benefits' of being a transgender athlete (BBC, 2019a).

This section will provide an overview of policy and research relating to the inclusion and experiences of transgender people in sport and physical activity. This is heavily weighted towards the inclusion and experiences of athletes and participants (with little or no focus

on coaches, spectators, administrators etc) due to policy and research being primarily focused on athletes/participants.

3.2. Policy Overview

3.2.1. Major international sport organisations

The International Olympic Committee (IOC)

In 2003, the IOC released guidance on transgender athletes, endorsing a policy that meant transgender athletes could compete in all future Olympic Games if they had fully medically transitioned (International Olympic Committee, 2003). 'Fully medically transitioned' was defined as an athlete having been prescribed cross-sex hormone treatment for two years and having undergone gender-conforming surgery (Jones, Arcelus, et al., 2017b). This policy was criticised for not being informed by an evidence-based rationale, however (Cavanagh & Sykes, 2006).

The IOC updated its policy on transgender athletes in 2015. Current IOC guidelines are that:

(1) Those who transition from female to male are eligible to compete in the male category without restriction.
(2) Those who transition from male to female are eligible to compete in the female category under the following conditions:
    a) The athlete has declared that her gender identity is female. The declaration cannot be changed, for sporting purposes, for a minimum of four years.
    b) The athlete must demonstrate that her total testosterone level in serum has been below 10 nmol/L for at least 12 months prior to her first competition (with the requirement for any longer period to be based on a confidential case-by-case evaluation, considering whether or not 12 months is a sufficient length of time to minimize any advantage in women's competition).
    c) The athlete's total testosterone level in serum must remain below 10 nmol/L throughout the period of desired eligibility to compete in the female category.
    d) Compliance with these conditions may be monitored by testing. In the event of non-compliance, the athlete's eligibility for female competition will be suspended for 12 months (International Olympic Committee, 2015, pp. 2-3).

The updated policy eliminated a requirement for athletes to undergo full lower surgery (i.e. internal and external genital modification).

The majority of International Federations (IFs) have adopted the IOC policy on transgender athletes (Jones, Arcelus, et al., 2017b). There are some exceptions to this, however, including World Athletics, the International Tennis Federation and World Rugby.

World Athletics

In October 2019, the World Athletics (formerly known as the IAAF) Council approved the *Eligibility Regulations for Transgender* Athletes (World Athletics, 2019) which replaced the *Sex Reassignment Regulations* that were introduced in 2012. Whereas the previous regulations followed IOC guidelines, the updated regulations align with the Eligibility Regulations for the Female Classification (Athletes with Differences of Sex Development; see section 4.2.1).

Key changes in the new regulations were that a transgender female athlete:

(1) Is no longer required to be recognised by law in her new gender but should provide a signed declaration that her gender identity is female;
(2) Must demonstrate to the satisfaction of the Expert Panel that the concentration of testosterone in her serum has been less than 5nmol/L continuously for a period of at least 12 months prior to being declared eligible; and
(3) Must keep her serum testosterone concentration below that level to maintain her eligibility to compete in the female category (World Athletics, 2019).

International Tennis Federation

In similarity to World Athletics, the International Tennis Federation requires transgender women athletes to demonstrate that their serum has been less than 5 nmol/L1 (instead of the <10nmol IOC requirements) continuously for a period of at least 12 months (International Tennis Federation, 2018). The regulations also state that a requirement for any longer period is to be based on a confidential case-by-case evaluation, considering whether 12 months is a sufficient length of time to minimise any advantage in female competition. All other elements of the regulations follow IOC guidelines.

World Rugby

The World Rugby Transgender Working Group have produced a 38-page draft document reviewing its current rules on the inclusion of transgender people in rugby (The Guardian, 2020b). The document, that has been shared with the individual national rugby unions for feedback, reportedly states that there is likely to be at least a 20-30% greater risk of injury when a female player is tackled by someone who has gone through male puberty and concludes that its current rules in line with the IOC's guidelines are not fit for purpose due to safety concerns regarding the inclusion of transgender women in women's rugby (The Guardian, 2020b). Allegedly, World Rugby are considering banning trans women from playing women's rugby because of these safety concerns (The Guardian, 2020b). If this was the case, World Rugby would become the first international federation to ban female athletes from competing in the women's category of a sport.

3.3.2. UK Sport Organisations

Guidance for national governing bodies of sport (NGBs) in the UK on transgender inclusion in competitive sport are currently in the process of being revised. The last set of guidelines were published in 2013 by the Sport Council Equality Group. These guidelines included a ten-point action plan for NGBs (Sports Council Equality Group, 2013):

(1) Understand the terms used;
(2) Ensure compliance with the law and the international, sporting regulatory framework;
(3) Ensure that the board sets responsibility for inclusion and anti-discrimination at the highest level in the organisation;
(4) Consult and build relationships with transsexual people and associated organisations;
(5) Develop a clear policy and procedures for transsexual people competing in domestic competition;
(6) Develop and introduce codes of conduct;

(7) Develop a clear policy and procedures on managing incidents of transphobia;
(8) Raise awareness and develop understanding through training;
(9) Share guidance with members, and make guidance readily available so that transsexual people know their rights, and offer support; and
(10) Publicise your commitment to inclusion and tackling transphobia.

In terms of transgender policies of NGBs, the *Gender Construction Kit* website has helpfully collated the policies of a range of NGBs: https://genderkit.org.uk/resources/sports-and-fitness/.

3.3.3. Women and sport organisations

No official position statements have been found from international or UK-based women and sport organisations on transgender inclusion in sport. There are some examples of non-UK-based women and sport organisations that are outlined below:

Canadian Women and Sport

In June 2017, Canadian Women and Sport (CWS) released a position statement on trans inclusion in sport (Canadian Women and Sport, 2017, p. 1):

> Consistent with existing human rights legislation and Canadian Women & Sport's ongoing commitment to achieving equity for girls and women, Canadian Women & Sport supports the full participation of all individuals in sport and physical activity in the gender in which they identify.

The rationale provided for this position statement is that sport inclusion is a fundamental value for CWS and sport should not exclude participants based on differences. CWS rejects the arguments that transgender girls and women should be excluded from sport because of an unfair competitive advantage over cisgender girls and women because 'inclusion of and equity for women and girls should not and cannot imply the exclusion of other marginalized groups' (p. 2). Instead, CWS advocates for sport organisations at all levels to take proactive measures to create inclusive environments that enable all to participate and compete, regardless of their gender identity and expression. Furthermore, CWS opposes medical intervention of any kind as a condition of participation or competition.

Women's Sports Foundation (USA)

The US-based Women's Sports Foundation's position paper on the participation of transgender athletes in women's sports focuses on schools and transgender student-athletes (WSF; 2016). It states that WSF 'supports the right of all athletes, including transgender athletes, to participate in athletic competition that is fair, equitable and respectful to all' (p. 1). The paper outlines five areas of consideration for schools and student-athletes:

(1) the obligation of schools to accommodate transgender athletes;
(2) how sports governing bodies should accommodate transgender athletes (e.g. appropriate changing facilities);
(3) whether male to female transgender athletes have a physical advantage in competition against cisgender females;

(4) the obligations of sport governing bodies to educate their members about the rights of transgender athletes; and
(5) sound school policy on transgender athletes.

Women in Sport Aotearoa

Women in Sport Aotearoa (WISPA) state on their website in July 2020 that:

> WISPA believes that sport and recreation should be fully inclusive of diverse communities. It supports this facilitation but also maintains a watching brief on developments in this area to ensure we can continue to understand and influence important issues such as this in sport' (Women in Sport Aotearoa, 2019, para. 6).

3.3.4. Equality in sport/LGBT sport organisations

Pride Sports, LEAP Sports Scotland and LGBT Cymru (combined statement)

In 2019, Pride Sports, LEAP Sports Scotland and LGBT Cymru released a combined statement in response to the following tweet from Sharron Davies MBE (former British Olympic swimmer):

"I have nothing against anyone who wishes 2be transgender. However I believe there is a fundamental difference between the binary sex you are born with & the gender u may identify as. To protect women's sport those with a male sex advantage should not be able to compete in women's sport"

The statement raises several key points/concerns (Pride Sports, LEAP Sports Scotland, & LGBT Sport Cymru, 2019):

(1) The use of the term 'male sex advantage' is problematic because it implies that all men are stronger and faster than all women when the difference between an average man and average woman is far less than between the fastest woman and the slowest woman, or the strongest man and the weakest man;
(2) Male advantages in sport are mainly conferred from inequitable investment in women's sport rather than physiological superiority;
(3) To 'protect' women's sport, we should be demanding greater investment both in the performance pathway for women alongside improvements in the way women's sport is represented;
(4) Sharron's comment does not take into account other inequalities across the field of sport, such as social class and funding disparities;
(5) Factors other than strength and speed have a determining impact in many sports, such as economy of movement, the ability to read a game, interaction with other players in a team sport, game/race plan and mental toughness can all affect success or defeat; and
(6) The current rise in the questioning of transgender athletes in sport is being used as part of a political debate, which is seeing transgender people targeted by certain groups and in certain sections of the media in the UK.

The statement ends by inviting Sharron Davies to meet with the organisations to discuss her concerns.

Athlete Ally (US-based)

In 2018, US-based LGBTQ+ sport organisation Athlete Ally developed a resource entitled *10 Policies for LGBTQ Inclusion.* The policy covers several areas, including codes of conduct, media communications, dress codes, reporting and facilities. Policy number six is 'inclusive transgender and nonbinary athlete policies' and states:

> Athletic departments should have a clear and well-written policy regarding the participation of transgender and non-binary athletes. If you are an NCAA-governed school, this policy should be consistent with the NCAA guideline for transgender athletes. However, athletic programs not governed by the NCAA or any other governing body with a pre-set trans-inclusion policy should set policies that reflect inclusion, respect, and fairness. Many trans sports advocates support allowing transgender athletes to self-identity and participate on the sports team consistent with their gender identity (Athlete Ally, 2018, p. 2).

3.3. Research Overview

The importance of transgender people participating in sport and physical activity (SPA) has been highlighted by academics and practitioners. Despite this, transgender people continue to face numerous barriers when participating in both competitive sport and sport-related physical activities. This section will provide an overview of research relating to the inclusion and experiences of transgender people in both competitive sport and sport-related physical activity.

3.3.1. Competitive sport (elite and recreational)

Scientific research on transgender athletes and athletic advantage in competitive sport

The contestation of transgender women's participation in competitive sport tends to be linked to the commonly held medical belief that androgenic hormones (especially testosterone) give an athletic advantage (Jones, Arcelus, et al., 2017b). Testosterone contributes to physiological factors that underpin strength, speed and recovery, including body composition, skeletal structure and the cardiovascular and respiratory systems across the life span (Knox et al., 2019). Therefore, transgender women are perceived to hold an advantage in sport because of possessing higher endogenous testosterone levels than cisgender women. The extent to which transgender women are believed to have a sporting advantage does depend on the sport in question, however, as some sports require less strength, speed and recovery than others. Transgender men are generally not perceived as having an advantage in competitive sport because their endogenous testosterone levels are seen, on average, to be similar or less than the levels of cisgender male athletes.

There is a lack of peer-reviewed studies that specifically and directly assess performance advantage in transgender women athletes. In one of the few studies that has assessed performance in athletes who have transitioned male to female, Harper (2015) compared race times in eight non-elite transgender women runners who had competed in distance races both as cisgender men and transgender women. They found that the age-graded and gender-graded performances of these athletes had not changed once their bodies had adjusted to the transition. However, this study is limited by the fact that only eight runners

were assessed and none of them were competing at international level and so raises the question of whether these findings are transferable to elite transgender women.
Gooren and Bunck (2005) measured the muscle mass and hormone levels of both transgender men and women before and one year after cross-sex hormonal treatment. They concluded that transgender men are likely to be able to compete without a competitive advantage one-year post-cross-sex hormone treatment as both their testosterone levels and muscle mass were within a cisgender male range. There was less certainty in their conclusion on transgender women, however, as, although testosterone levels had decreased significantly to castration levels, after one year of hormone treatment muscle mass range (although reduced) remained significantly greater than that of cisgender women. This study did not, however, explore the role of testosterone blockers in reducing testosterone levels nor directly measure the effect of cross-sex hormones on athletic performance (e.g. running time).

Knox, Anderson and Heather (2019) conducted an analysis of both scientific and ethical considerations in relation to transwomen in elite sport. In reviewing scientific data on the physiological impacts of hormone replacement therapy on transgender women, they concluded that transwomen have a performance advantage in sport because 'testosterone (as well as other elements stemming from Y-chromosome-dependent male physiology) provides an all-purpose benefit in sport' (p. 398). Furthermore, they suggested that transwomen with testosterone levels under 10nmol/L for one year (as per the International Olympic Committee guidelines) do not mitigate the performance advantage of their former male physiology because they will retain some of the advantages accrued prior to receiving hormone therapy (Knox et al., 2019). From these analyses, the authors state that 'while inclusion is an important principle of sport, including elite sport, inclusion does not outweigh the importance of fairness for cis-women athletes—the performance advantage likely held by transwomen is not a 'tolerable unfairness'' (p. 402). In complete contrast, Jones et al. (2017b) concluded from their systematic review that there is no direct or consistent research suggesting transgender women have an athletic advantage at any stage of their transition.

In order to combine inclusion with fairness in sport, some scholars are calling for a replacement of the gender binary in elite sport with 'something that recognises the difference between people (and so is fair), while creating space for all athletes (thus satisfying inclusion)' (Anderson et al., 2019, p. 761; Knox et al., 2019). Anderson et al. (2019) suggest that this could be in the form of a 'multifaceted algorithm' similar to that used in the Paralympics that would be tailored to individual sports and account for 'a range of physiological and social factors that affect on athletic function' (p. 761). Physiological factors could include present testosterone levels and differences retained from prior male or female physiology, and social parameters could include gender identity and the socioeconomic background of the athlete's country of residence (Anderson et al., 2019). The authors argue that this would be a fair **and** inclusive policy because it is applied to all athletes. The authors admit that realising such an algorithm would be complex and require robust scientific research, but argue that 'the suggested algorithm provides the possibility of creating a new and better space for all instead of attempting to shoehorn athletes into our current flawed binary structure' (Anderson et al., 2019, p. 761).

Given the impact of research on decisions and policy relating to the inclusion of transgender women athletes in elite sport, there is an urgent need for more extensive research to be undertaken that determines the physical advantages transgender women

carry after hormone replacement therapy and the effect these advantages may have on transgender women competing against cisgender women in a variety of different sports. Until then, there will be continued contention and debate over the fairness of the inclusion of transgender women in competitive sport in its current binary form.

The experiences of transgender people in competitive sport

Transgender people have been found to report a high prevalence of depression and anxiety compared to cisgender people (Dhejne, Lichtenstein, & Boman, 2011; Hepp et al., 2005). Competitive sport is an example of an environment that can have negative impacts on the experiences and mental health of transgender people. This is because competitive sport forces athletes to fit into binary gender structures and gender-normative environments (Elling-Machartzki, 2017). An example of this is changing rooms that involve a literal transgression of binary gender structures. This makes them challenging places for transgender people, and particularly for transgender athletes that are not 'out', because their identity as transgender people can be revealed (Semerjian & Cohen, 2006). Furthermore, athletes may be restricted from using the changing room that matches their identity due to concerns that inclusive changing room policies could be taken advantage of and threaten the safety of cisgender girls and women (Cunningham, Buzuvis, & Mosier, 2018). This can leave athletes feeling stigmatised and isolated, and ultimately deter transgender athletes from participating in sport because their gender identity is invalidated and they are separated from the rest of the team within a space where bonding occurs (Cunningham et al., 2018). Factors such as this result in many transgender people opting for individual and non-organised sport and sport-related physical activity because they are less demanding in terms of social recognition and avoid body exposure in SPA spaces (Lopez-Canada et al., 2019). Caudwell (2012) found that the stage of transition had a significant effect on a transgender individual's disengagement in competitive sport. This was because participants who were mid-transition found it difficult to engage in competitive sport because they did not feel accepted or comfortable on either a male or female team. It has been found that the support of family, close friends and health professionals is essential for transgender peoples' confidence to participate in sport.

The experiences of transgender people engaging in other roles in competitive sport

The vast majority of studies relating to transgender inclusion in sport are focused on participation. No studies were found that related to the experiences of transgender coaches or leaders in sport. In their scoping review of literature on the sporting experiences of gender and sexual minority athletes and coaches, Kavoura and Kokkonen (2020) highlighted that knowledge on the experiences of gay and transgender coaches remains lacking. Only one study was found that explored the experiences of transgender spectators in sport. In this study, Caudwell (2017) found that a transgender woman football fan in the UK experienced the known discriminations of sexism, misogyny, racism and homophobia that are ever-present in and around football stadia. She also experienced abuse on online fan forums after she was outed by another fan. However, simultaneously, she experienced inclusion within the football-fan community of her club and found that her interest in football and knowledge of the game allowed her to develop close friendships with others who had similar interests. More research is required with larger sample sizes to better understand the experiences of transgender people in sport in non-playing roles.

3.3.2. Sport-related Physical Activities

In addition to biological, psychological and social benefits that the general population can enjoy from SPA, there can be particular benefits for transgender people (Lopez-Canada et al., 2019). For example, SPA can complement and accelerate the effects of transgender peoples' hormone treatments, such as building a muscular, masculine body and identity for trans men (Elling-Machartzki, 2017). Elling-Machartzki (2017, p. 265) also found that SPA can 'be experienced as enjoyable, empowering activities within supportive social environments, (re)creating body awareness and gender identification in different transition phases'. SPA can also contribute to maintaining a healthy weight prior to undergoing gender-reassignment surgery (for those who choose to have gender-reassignment surgery; Coleman et al., 2012). Additionally, in context of the high prevalence of depression, anxiety and addiction found amongst transgender people compared to the general population (Dhejne et al., 2011; Hepp et al., 2005), SPA can be particularly important in fostering wellbeing and controlling mental health problems and addictions (Lopez-Canada et al., 2019). Furthermore, Lopez-Canada et al. (2019) found that LGBTQ+ groups can provide an alternative to rigid, sex-segregated physical activity and a safe, friendly and social space for transgender people to exercise.

Despite the potential benefits that can be gained, research has found that transgender people engage in less physical activity than cisgender people (Jones, Haycraft, et al., 2017; Muchicko, Lepp, & Barkley, 2014). Reported reasons for low physical activity rates amongst transgender people include a lack of social support and low self-perception/body dissatisfaction (Jones, Arcelus, et al., 2017a; Muchicko et al., 2014). Jones, Haycraft et al. (2017) found that in transgender people on cross-sex hormones, high body satisfaction was the best statistical predictor of being physically active, whereas high self-esteem was the best statistical predictor of being physically active amongst transgender people who were not on cross-sex hormones.

Ellis, McNeil and Bailey (2014) found that gyms are places that transgender people actively avoid because of fear of being harassed, identified as transgender or outed. Muchicko et al. (2014) concluded that leisure centres need to be more inclusive and more social support needs to be offered to transgender people to participate in physical activity. Physical Education (PE) experiences also strongly influence transgender people's attitudes towards physical activity both during and after their time at school (Lopez-Canada et al., 2019). There is a distinct lack of theoretical scholarship and empirical research about pedagogical approaches for transgender children in PE (Perez-Samaniego et al., 2016). Similar to competitive sport, transgender people have been found to prefer engaging in individual physical activities rather than group activities because of a fear of being 'outed' (Hargie et al., 2015). Again, changing scenarios can be a significant barrier to transgender people engaging in physical activity (Jones, Arcelus, et al., 2017a).

Recognising the importance of physical activity to young transgender adults' body satisfaction and gender congruence, Jones, Arcelus, et al. (2017a) called for more initiatives to facilitate transgender adults to be able to put their motivations to engage in physical activity into practice. Instead, as outlined in Section 3.2, many sport organisations focus policy around restrictions on the inclusion of transgender athletes in sport.

3.4 Summary

Sport and physical activity can play an important part in maintaining good physical, mental and social wellbeing for the increasing number of people identifying as transgender. However, transgender people face barriers in participation across the sporting landscape. At the elite sporting level, eligibility criteria have been introduced by national and international governing bodies to avoid transgender women having an 'unfair advantage'. Eligibility criteria can lead to the exclusion of some transgender women from competing in some sports unless they use medication to reduce their testosterone levels.

In grassroots sport and SPA, discrimination, lack of education/awareness, binary classifications and sex-segregated changing areas can lead to transgender people experiencing harassment, stigmatisation and isolation and body dissatisfaction. This often results in transgender people choosing not to participate in these activities or choosing to participate in forms of sport that avoid body exposure and are less demanding in terms of social recognition.

Several women and sport and LGBTQ+ organisations have released statements on transgender inclusion in sport. Only one of these organisations, Canadian Women and Sport (CWS), provides a strong and clear statement outlining their position on transgender inclusion at all levels of sport. CWS call for full participation for transgender people in sport and physical activity and oppose medical intervention of any kind as a condition of competition. Other women and sport and LGBTQ+ organisations promote inclusivity and fairness in sport but do not clearly provide a position on eligibility criteria in elite sport. To maintain both fairness and inclusivity in sport, some scholars have called for a replacement of the gender binary in elite sport with a system that recognises the difference between people while creating space for all athletes.

Whilst there is a growing base of sociological, psychological and philosophical research on the topic of the experiences and inclusion of transgender people in sport, there are some clear areas where more research is required. In competitive sport, this includes research that:

- Specifically and directly assesses performance advantage in transgender women athletes;
- Further explores and assesses options for new ways of classifying sport;
- Provides a better understanding on the experiences of transgender people engaging in non-participation roles in sport e.g. coaching, spectatorship and administration.

In relation to SPA, this includes research that:

- Examines pedagogical approaches for transgender children in PE;
- Better understands the motivations of transgender people to engage in SPA;
- Better understands the benefits that transgender people can enjoy from SPA.

4.0 Intersex inclusion

4.1 Introduction/background

Intersex is a term used to describe a person who may have the biological attributes of both sexes or whose biological attributes do not fit with societal assumptions about what constitutes male or female (Stonewall, 2020). Due to having male biological attributes as well as female biological attributes, some female intersex people experience hyperandrogenism: a medical concept that is generally defined as women having excess androgen, specifically testosterone (Karkazis & Jordan-Young, 2018). Hyperandrogenism is a 'natural state' that is not the outcome of any medical intervention or manipulation (Loland, 2020). This creates an important distinction between issues of transgender inclusion in sport and intersex/hyperandrogenous inclusion in sport because, whereas intersex and hyperandrogenism are 'natural states', transgenderism involves medical intervention to allow transgender individuals to biologically transition their physical body to align with their gender identity.

Regulations on the eligibility of intersex athletes to compete in elite sport (particularly in track-and-field events) are based on whether they are hyperandrogenous. This is because, despite hyperandrogenism being a 'natural state', it is still considered to be a source of unfair competition. This is due to some scientific research concluding that increased testosterone levels can enhance the performance of athletes in sports and events that are dominated by basic biomotor capabilities such as strength, speed and endurance (Loland, 2020). Therefore, the main premise for eligibility criteria that excludes hyperandrogenous intersex athletes is that of a level playing field and of protecting the integrity of women's classes and events in elite sport.

In similarity to the inclusion of transgender women in sport, the inclusion of intersex athletes in women's sport has received much attention across the sport sector, media and academia. In particular, there have been two high-profile cases where athletes have faced exclusion from women's athletics events due to hyperandrogenism as a result of being intersex. These were the cases of Dutee Chand and Caster Semenya.

In July 2014, Dutee Chand was informed that she would not be considered for selection for the Glasgow Commonwealth Games just a month after having won two gold medals at the Asian Junior Athletics Championships. The reason for this was that her 'male hormone' levels were showing as too high in the results of tests conducted by the Sports Authority of India (SAI). In August of the same year, she was officially banned from all national and international sporting competitions in line with IAAF and IOC regulations (Segrave, 2016). Instead of submitting to hormone treatment or surgery, Chand appealed the decision to the Court of Arbitration for Sport (CAS) on the basis that 'the IAAF's Hyperandrogenism Regulations unlawfully discriminated against certain female athletes on the basis of sex and a natural physical characteristic (testosterone)' (Krech, 2017, p. 273). The CAS ruling was made in July 2015 following a three-day hearing, and the panel concluded that excluding hyperandrogenic females from competing in women's events is not a 'necessary and proportionate means of preserving fairness in athletics competition and/or policing the binary male/female classification' (Court of Arbitration for Sport, 2015, p. 154). The panel immediately suspended the Hyperandrogenism Regulations and gave the IAAF two years to provide additional evidence to justify its Regulations and establish the degree to which hyperandrogenic females enjoy a competitive advantage over other females.

In response to the panel's decision, in 2017 an IAAF and World Anti-Doping Agency (WADA)-funded study was published in the *British Journal of Sports Medicine* which concluded that female athletes with high free testosterone (fT) levels have a significant competitive advantage over those with low fT in 400m, 400m hurdles, 800m, hammer throw and pole vault (Bermon & Garnier, 2017). This led to the IAAF introducing the currently-standing Eligibility Regulations for the Female Classification (Athlete with Differences of Sexual Development), more commonly known as the 'DSD Regulations'. The DSD Regulations require female athletes to have a circulating testosterone level below 5 nmol/L to compete in the women's events outlined in Bermon and Garnier's study (the DSD Regulations are outlined in full in Section 4.2.1). One athlete affected by the DSD regulations was South African two-time Olympic 800m champion Caster Semenya because her circulating testosterone levels were above the permitted 5 nmol/L under the DSD Regulations.

The IAAF's DSD Regulations were challenged by Semenya and Athletics South Africa (ASA) on the basis that they 'unfairly discriminate against athletes on the basis of sex and/or gender because they only apply (i) to female athletes; and (ii) to female athletes having certain physiological traits' (Court of Arbitration for Sport, 2019, p. 2). Furthermore, the Claimants argued that 'the DSD Regulations lack a sound scientific basis; are unnecessary to ensure fair competition within the female classification; and are likely to cause grave, unjustified and irreparable harm to affected female athletes' (Court of Arbitration for Sport, 2019, p. 2). Accordingly, Semenya and ASA sought an award from the Court of Arbitration for Sport (CAS).

A hearing of the Claimants' challenges was held before CAS in Lausanne, Switzerland, between 18-22 February 2019. The panel concluded that the DSD Regulations are discriminatory, but that such discrimination is lawful because the DSD Regulations are a necessary, reasonable and proportionate means of achieving s legitimate objective: fair and meaningful competition in the female category of elite athletics (Court of Arbitration for Sport, 2019). The panel did highlight its serious concerns about aspects of the practical application of the DSD Regulations when they are implemented. In particular, this referred to the potential difficulty for an athlete to comply with the requirements under the Regulations (e.g. the possibility that affected athletes may inadvertently, and through no fault of their own, be unable consistently to maintain a natural testosterone level below 5 nmol/L) (Court of Arbitration for Sport, 2019). The panel also noted the paucity of evidence to justify the inclusion of the 1500m and one-mile events within the category of Restricted Events. The panel strongly encouraged the IAAF to address its concerns in the implementation of the DSD Regulations (Court of Arbitration for Sport, 2019).

This section will provide an overview of policy and research relating to the inclusion of intersex/hyperandrogenous female athletes in sport and physical activity. Unlike section 3, this section of the report will only focus on the inclusion of intersex athletes in elite sport as there is a lack of research or policy specific to intersex inclusion in grassroots sport and sport-related physical activity. A key factor in this is that most intersex people are not aware of the condition unless they undergo a medical procedure during which it is discovered, such as testing as part of the DSD Regulations (Cunningham, 2019; Mahomed & Dhai, 2019). This means that many intersex women competing in non-elite sport do so without knowing they are intersex, and so their experiences in engaging in sport and physical activity cannot be knowingly aligned with their experiences as an intersex person.

4.2 Policy Overview

4.2.1. Major international sport organisations

IOC

At the same time that the IOC updated its policy on transgender athletes in 2015, it also provided the following recommendations regarding hyperandrogenism in female athletes (International Olympic Committee, 2015, p. 3):

- Rules should be in place for the protection of women in sport and the promotion of the principles of fair competition.
- The IAAF, with support from other International Federations, National Olympic Committees and other sports organisations, is encouraged to revert to CAS with arguments and evidence to support the reinstatement of its hyperandrogenism rules.
- To avoid discrimination, if not eligible for female competition the athlete should be eligible to compete in male competition.

IAAF (World Athletics)

In April 2018, the IAAF (now known as World Athletics) issued new Eligibility Regulations for the Female Classification (Athlete with Differences of Sexual Development) (IAAF, 2019a) to 'facilitate the participation in the sport of athletes with DSDs on terms that preserve fair and meaningful competition in the female classification' (IAAF, 2018, p. 1). The regulations are applicable for female athletes who (1) compete at distances between 400m and one mile at international competitions, (2) have differences of sexual development that result in levels of circulating testosterone being greater than 5 nmol/L, and (3) have properly functioning androgen receptors. These athletes must reduce circulating testosterone levels to below 5 nmol/L for six months before competing (e.g. by use of hormonal contraceptives) and must maintain them at that level until they no longer wish to participate in restricted events at international competitions.

The IAAF have enforced these restrictions only for track events run over distances between 400m to one mile because:

> the most performance-enhancing benefits can be obtained from elevated levels of circulating testosterone, i.e. both from the extra strength and power derived from the increases in muscle mass and strength, and from the extra oxygen transfer and uptake derived from the increased haemoglobin in the blood (IAAF, 2018).

The IAAF have stated that the IAAD Health and Science Department will keep which events should be restricted under review.

Under the IAAF DSD Regulations, if a female athlete with a DSD does not wish to comply with the regulations, the following options are available to them (IAAF, 2018):

(1) Compete in the female classification:
   a. At any competition that is not an international competition in any event and without restriction;

b. At international competitions in any discipline other than track events between 400m and a mile;

(2) Compete in the male classification at any competition at any level in any discipline without restriction; or

(3) Compete in any 'intersex' (or similar) classification that the event organiser may offer at any competition at any level in any discipline without restriction.

4.2.2. Other organisations

Whereas some women and sport organisations and LGBTQ+ organisations have specific transgender inclusion statements/policies/resources (as outlined in Sections 3.3.3 & 3.3.4), most of these organisations do not have specific statements or policies relating to intersex/hyperandrogenous inclusion in sport. Instead, this tends to come under broader LGBT+ policies. One exception to this is a combined statement by IWG, WSI and IASPESGW in response to the IAAF's DSD Regulations.

IWG, WSI and IASPESGW Combined Statement

In May 2019, the International Working Group on Women and Sport (IWG), WomenSport International (WSI) and the International Association of Physical Education for Girls and Women (IAPESGW) wrote to the International Association of Athletics Federations (IAAF) in response to the decision taken by the IAAF to restrict testosterone levels in female runners with a DSD (IWG, WSI, & IAPESGW, 2019b). In particular, the combined statement spoke of disappointment in the IAAF's decision to require affected athletes to take testosterone suppressants and submit to regular testing to continue competing:

> It is the collective view of the IWG, WSI and IAPESGW that this is discriminatory and in no way do we support a ruling that forces an athlete to take medication that alters their natural state. We believe that affected athletes are being penalised for their biological traits, over which they have no control, and that such penalty enforces gender inequality, because it does not apply to male athletes. We believe that this infringes their human rights. The affected athletes have not cheated or been found to be taking performance-enhancing drugs, yet this decision implies wrong-doing and comes with a penalty (IWG et al., 2019b, para. 2).

In June 2019, the IAAF responded to this combined statement via an open letter (IAAF, 2019b). The letter stated that the IAAF agrees that it is a 'complex issue' but suggested that there were a number of misconceptions within the combined letter from the IWG, WSI and IASPESGW. In particular, the IAAF dispute that the Eligibility Regulations for the Female Classification (Athletes with Differences of Sex Development; DSD Regulations) enforce gender inequality. Instead, they emphasise that the DSD regulations were introduced 'precisely because the IAAF is committed to protecting the right and opportunities of female athletes' (IAAF, 2019b, para. 4). The IAAF also dispute the claim that the DSD Regulations imply wrongdoing, come with a penalty and force an athlete to take medication that alters their natural state. The IAAF emphasise how athlete consent is built into the DSD regulations at every stage and any diagnosis and/or treatment is undertaken by world-leading medical experts.

IWG, WSI and IAPESGW responded to the IAAF's letter in a combined statement in June 2019 (IWG, WSI, & IAPESGW, 2019a). The combined statement reemphasises that the DSD Regulations do create gender inequality in sport because it 'creates a situation where

high testosterone in a female is considered an unfair advantage, whereas high testosterone in a male is a competitive edge' (IWG et al., 2019a, para. 7). The combined statement also disputes that the DSD regulations will not force hyperandrogenic athletes to take medication as the choice for athletes is either to take testosterone suppressants or be barred from competition. Furthermore, the collective women and sport group feel that there is not enough evidence about the long-term mental and physical effects of testosterone suppressant medication on the human body, and therefore mandating medication intervention directly infringes the human rights of the athletes. The collective statement ends by strongly encouraging the IAAF to work toward a fair solution to support born hyperandrogenic athletes, without medical intervention and without infringing human rights, to create an equal future for men and women in sport and physical activity.

4.3 Research Overview

Research on intersex/hyperandrogenous inclusion in sport is generally split into two areas: scientific considerations and ethical considerations. This section provides an overview of research across these two sub-topics.

4.3.1. Scientific considerations

Scientific considerations on the eligibility of hyperandrogenous women to compete in elite sport are rooted in the acceptance of sex segregation due to performance differences between men and women. This is due to research findings that increased testosterone levels can enhance the performance of athletes in sports and events that are dominated by basic biomotor capabilities such as strength, speed and endurance. In sex-segregated running events in athletics, there is a 10-12% performance difference between men and women (Ospina-Betancurt et al., 2018). As outlined in Section 4.1, the IAAF and WADA funded a study in 2017 that described and characterised serum androgen levels and studied their possible influence on athletic performance in male and female elite athletes (Bermon & Garnier, 2017). The results of this study found that athletes with high free testosterone (fT) levels have a significant competitive advantage over those with low fT in 400m (2.73%), 400m hurdles (2.78%), 800m (1.78%), hammer throw (4.53%) and pole vault (2.94%). This led to the IAAF successfully defending the 5 nmol/L testosterone threshold in the DSD Regulations. Other experts have supported this threshold, including Handelsman, Hirschberg and Bermon (2018) who concluded that 'based on the nonoverlapping bimodal distribution of circulating testosterone concentration … the eligibility criterion for female athletic events should be a circulating testosterone concentration of <5.0 nmol/L' (p. 803).

Other researchers disagree with claims that hyperandrogenism exerts a significant and systematic impact on running performance. Betancurt et al. (2018) found that testosterone levels and hyperandrogenism accounted for between 1.24% and 1.49% when comparing the finishing times of Caster Semenya with the characteristic performance of 800m elite-standard finals. This percentage difference is significantly lower than the 10-12% accepted range of difference in performance between men and women and does not reach the 3% difference between women with and without hyperandrogenism that was requested by the CAS following the Dutee Chand vs AFI & IAAF case (Ospina-Betancurt & Zakynthinak, 2020). Additionally, Sonksen et al. (2018) argue that the studies referred to by the IAAF in 2017 cannot demonstrate causal relationships between testosterone levels and performance advantage because of their cross-sectional

design. Furthermore, research highlights the complex neuroendocrine feedback system involved in human performance and the different responses of individuals to identical amounts of testosterone (Loland, 2020). In their review paper, Ferguson-Smith and Bavington (2014, pp. 1629-1634) concluded that there is 'no convincing evidence to support the view that hyperandrogenism is associated with performance advantage in female athletes'.

In similarity to research on performance advantage for transgender athletes in sport, there is a clear lack of consensus within the scientific community as to the extent to which hyperandrogenous athletes enjoy a performance advantage in elite sport and whether the DSD Regulations are justifiable. Furthermore, there is a lack of further analysis on the nature and effectiveness of athlete classification and the normalised structure of sport.

4.3.2. Ethical considerations

The DSD Regulations for hyperandrogenous athletes have received criticism from scholars on ethical grounds. The overriding ethical concern regarding the regulations is that they imply a violation against human rights. More specifically, ethical concerns have been raised about the policing of women's bodies, the denial of human biological complexity, the numerous breaches of confidentiality surrounding those who have been tested for hyperandrogenism, the reinforcement of negative stereotypes and stigma and the potential for harm to athletes as a result of suppressive testosterone therapy (Henne & Pape, 2018; Karkazis & Jordan-Young, 2018; Loland, 2020; Mahomed & Dhai, 2019). On this latter point, it has been found that testosterone-reducing therapies can be harmful both physically and psychologically over time (Jordan-Young, Sonksen, & Karkazis, 2014), and the World Medical Association urges doctors not to administer treatment in reducing endogenous testosterone levels if the condition is not pathological (World Medical Association, 2019). The act of publicly 'outing' intersex athletes can have extremely serious consequences, including the ending of professional careers, suicide attempts and suicide (Posbergh, 2019). Additionally, a number of scholars have highlighted an apparent targeting of women of colour from the Global South among athletes singled out for investigation (Henne & Pape, 2018; Karkazis & Jordan-Young, 2018; Pape, 2019). This aligns with 'a history of medical experts marking the bodies of Black women as sexually ambiguous in service of the co-production of femininity and whiteness' (Pape, 2019, p. 19).

In 2018, the United Nations (UN) Human Rights Special Procedures issued an open letter to the IAAF that highlighted several ways in which the DSD Regulations contravened human rights norms and standards. These included: the right to equality and non-discrimination; the right to the highest attainable standard of physical and mental health; the right to physical and bodily integrity; and the right to freedom from torture, and other cruel, inhuman or degrading treatment and harmful practices (United Nations Human Rights Special Procedures, 2018).

Ethical debates against the DSD Regulations have also questioned the sport classification system altogether (Loland, 2020; Mahomed & Dhai, 2019). The Regulations have been criticised because of their essentialist and reductionist definitions of gender that do not reflect the complexity of biological sex characteristics. Some classification categories linked to genetic or physical dispositions are tightly regulated, such as age, biological sex, body weight (in some sports e.g. weightlifting and combat sports) and disability/ability.

However, other aspects of genetically given talent, such as body size (e.g. height in basketball players or shoulder width and hand/foot size in swimming), a natural talent for developing strength, speed or endurance, and naturally high injury resistance are not classified at all. Furthermore, there are no classification systems that account for social and economic factors such as nutrition, access to specialist training facilities and high-level coaching (Mahomed & Dhai, 2019). This leads to the question of why sex classification is so tightly regulated when other inequalities that lead to significant performance differences are overlooked (Loland, 2020).

Similar to transgender inclusion in sport, Loland (2020) outlines a number of scenarios that scholars have identified as potential options moving forward to ensure both fair competition and the inclusion of intersex athletes in elite sport. The first of these is to establish an intersex female category within elite sport, although it has been acknowledged that this could lead to stigmatisation and discrimination. Second, similar to Anderson et al.'s suggestion for transgender inclusion in sport, algorithms could be developed that more precisely estimate performance effects of heightened testosterone levels and allow for classification systems that better appreciate the complexity of biological sex and athletic performance. And third, the significance of sports that emphasise individual testosterone-driven inequalities in biomotor capability may reduce, paving the way for sports with more creative interaction with nature (e.g. surfing or climbing) or precision sports (e.g. shooting and archery) to become more popular.

4.4 Summary

Despite hyperandrogenism amongst some intersex women being a 'natural state' that is not the outcome of any medical intervention or manipulation, it is still considered to be a source of unfair competition by most sporting governing bodies. This is due to some scientific research concluding that increased testosterone levels (as a result of hyperandrogenism) can enhance the performance of athletes in sports and events that are dominated by basic biomotor capabilities such as strength, speed and endurance. Other research has found no convincing evidence to support the view that hyperandrogenism is associated with performance advantage in female athletes.

Eligibility criteria have been introduced across many national and international governing to create a level playing field and protect the integrity of women's classes and events in elite sport. The most controversial and high-profile of these was the introduction of the 'DSD Regulations' by the IAAF in 2018.

Scholars and activists have criticised and challenged the DSD Regulations on ethical grounds. The overriding ethical concern regarding the regulations is that they imply a violation against human rights. Ethical debates against the DSD Regulations have also questioned the sport classification system altogether, due to a privileging of some forms of genetic or physical-based classification categories over others and a complete lack of classification system for social and economic factors. Whilst individual scholars and activists have been vocal in their criticism of the DSD Regulations, there has been a lack of collective voice amongst women and sport and LGBTQ+ organisations on the matter. Like transgender inclusion in sport, some scholars have suggested scenarios to ensure both fair competition and the inclusion of intersex athletes in elite sport.

There is a growing body of research focusing on scientific and ethical considerations in relation to the inclusion of hyperandrogenous intersex athletes in elite women's sport. However, there is still a lack of consensus among experts as to the extent to which hyperandrogenous female athletes enjoy a performance advantage over cisgender female athletes. There is also a lack of conclusive evidence on the potential health impacts of hyperandrogenous athletes engaging in suppressive testosterone therapy and a lack of research focusing on the wellbeing of athletes diagnose as intersex athletes and how they can be best supported.

There is a lack of research focusing on the experiences and inclusion of intersex athletes in non-elite sport and physical activity. This is, in part, due to many intersex people being unaware that they are intersex unless they undergo a medical procedure. Despite this, more research is needed on topics such as the benefits of sport and physical activity for individuals diagnosed as intersex and the specific challenges faced by individuals who are knowingly intersex in engaging in non-elite sport and physical activity.

5.0 Non-binary inclusion

5.1 Introduction

Non-binary is used as an umbrella term for genders that do not fit within the binary system of girl/woman or boy/man. This can include gender-fluid individuals who may shift between genders, or genderqueer individuals who may experience gender in a way that is not part of the gender binary (Clark et al., 2018). The following countries legally recognise non-binary or third gender classifications: Argentina, Australia, Canada, Denmark, the Netherlands, Germany, Malta, New Zealand, Pakistan, India and Nepal (ENEI, 2020). Most countries worldwide do not legally recognise non-binary individuals, however, including the UK. In March 2020, a judge ruled that the lack of gender-neutral passports is lawful in the UK for now, but a second reading of a bill backed by LGBT charity Stonewall calling for the option of an X gender marker on UK-issues passports for non-binary people will take place in November 2020 (The Guardian, 2020a).

Similar to transgender individuals, research has found that those who identify as gender nonconforming encounter health disparities (e.g. suicide attempts) compared to cisgender individuals (Clark et al., 2018). However, little attention has been paid to the bespoke healthcare needs of this population, including the role that sport and physical activity can play in this (Clark et al., 2018). In contrast to transgender and intersex inclusion in sport, there has been very little awareness or discussion of non-binary inclusion in sport and physical activity in the public, sporting or academic domains. This section will outline the limited research and policy that exists.

5.2 Policy Overview

Whilst a number of national and international sport organisations now have policies for transgender and intersex athletes (as outlined in Sections 3.2 and 4.2), the vast majority of these policies do not incorporate non-binary athletes. From an online search, the only national or international sport policy found to incorporate non-binary athletes is that of the Rugby Football Union (RFU)'s *Transgender and non-binary gender policy* (Rugby Football Union, 2019, p. 6):

> Players who identify as Non-binary Gender may participate in the gender category of rugby that they feel most comfortable with.
>
> If this gender category of rugby is different to that associated to their sex assigned at birth the process and criteria applicable to their participation in that category shall be the same as for a Transgender player.
>
> The criteria shall also apply to those players who have previously transitioned the gender category of rugby in which they play, and now wish to play in the other gender category of rugby.

Under this policy, the criteria for non-binary people to participate in men's rugby if assigned female at birth is:

> [They] (parent or legal guardian in the case of a minor*) must provide a written and signed declaration that … [they] wish to participate in the male category of rugby (Rugby Football Union, 2019, p. 6).

The criteria for non-binary people to participate in women's rugby if assigned male at birth is:

> - [They] (parent or legal guardian in the case of a minor*) must provide a written and signed declaration that … [they] wish to participate in the female category of rugby;
> - [They] must demonstrate that the concentration of testosterone in [their] serum has been less than 5 nmol/L continuously for a period of at least 12 months immediately prior to application; and
>
> [They] must keep [their] serum testosterone concentration below 5 nmol/L for so long as [they] continue to compete in the female category of rugby (Rugby Football Union, 2019, p. 6).

5.3 Research Overview

There is a significant lack of research on non-binary experience and inclusion in sport. Where there is any discussion of the experiences of non-binary individuals in sport, this tends to come under a broader LGBTQ+ umbrella and only relates to athletes. This section will outline the very limited research available.

Research that has included discussions on the experiences of non-binary individuals in sport and physical activity has found that, in some cases, similar barriers existed for this population than for transgender individuals. This includes the misuse of preferred pronouns and names by coaches and teammates, feeling uncomfortable wearing gendered uniforms and a lack of gender-neutral spaces (e.g. changing rooms) (Shortridge, 2020; Storr et al., 2020). However, non-binary individuals do also experience different challenges because, whereas binary transgender people identify with one gender, non-binary people do not identify as either male or female. This makes it particularly challenging to participate in sport and physical activity when most sports are split by gender. In Storr et al.'s (2020) study on how same-sex attracted and gender diverse (SSAGD) youth can be supported to increase their involvement in sport and physical activity, it was reported than there was a lack of mixed-gender sports available to provide opportunities for non-binary young people to play and engage in sport. Furthermore, young non-binary people found it challenging to find sports shoes and clothing that was not gendered to wear when working out.

Storr et al. (2020) provided a number of key recommendations to improve SSAGD youth involvement in sport, PE and other physical activities. Some of these recommendations were specific to non-binary people, including: to provide gender neutral facilities in sports clubs and leisure facilities; to provide non-binary options on registration forms; to provide opportunities to participate in mixed teams that are grouped on different categories (e.g. ability) rather than just gender; and to provide athletes with diverse uniform options.

5.4 Summary

In contrast to transgender and intersex inclusion in sport, there has been very little awareness or discussion of the experiences and inclusion of non-binary people in sport and physical activity in the public, sporting or academic domains. This is despite the potential benefits that inclusive sport and physical activity could bring to those who identify as gender nonconforming and encounter health disparities compared to cisgender individuals.

Whilst a number of national and international sport organisations now have policies for transgender and intersex athletes, the vast majority of these policies do not incorporate non-binary athletes. From an online search, no position statements were found from women and sport nor LGBTQ+ organisations on non-binary inclusion in sport. Furthermore, any research on the experiences of non-binary individuals in sport tends to come under a broader LGBTQ+ umbrella and only relates to athletes.

The small amount of research that has been conducted has found that, in some cases, non-binary individuals face similar barriers in participating in sport and physical activity than those of transgender individuals. However, non-binary individuals do also experience different challenges due to the nature of their gender identity sitting outside of gender binaries that most sports are organised by. This makes it particularly challenging to participate in sport and physical activity when there is a lack of mixed-gender sport options available.

It is clear that more research is required on the experiences and inclusion of non-binary people in sport and physical activity to better understand the benefits non-binary people can experience from being physically active, the unique challenges they face in doing so, and how they can be best supported to become and remain active.

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SPORT+ RECREATION ALLIANCE

Transgender, intersex and non-binary people in sport and physical activity

A review of research and policy

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