

Jon Pike
Emma Hilton
Leslie A. Howe

Faster, higher, stronger

*The biological and
ethical challenges to including
transgender athletes in women's sports*

December 2021



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Endorsements

This policy document provides a valuable counter to arguments advocating the organization of sporting categories by self-identification of athletes. In particular, problematic aspects of the Canadian Centre for Ethics in Sport's 2016 paper, *Creating Inclusive Environments for Trans Participants in Canadian Sport*, are highlighted. *Faster, Higher, Stronger* provides useful policy recommendations that should be given equal attention and carefully consideration by sports decision-making bodies, especially in Canada, but also internationally.

Pam R. Sailors, PhD
Professor, Philosophy Department
Missouri State University

I celebrate the MLI policy document on *Faster, Higher, Stronger* as 'first of its kind' in Canada. It contains an excellent summary of research data illustrating the overwhelming physical advantages that male athletes have compared to females in sport performance; differences that persist irrespective of hormonal and/or medical intervention. Both genetic and developmental factors result in distinct morphology between the sexes, such that even when both male and female weightlifters have the same height and weight, for example, the male can lift 29 percent more weight. Authors Dr. Jon Pike, Dr. Emma Hilton, and Dr. Leslie Howe critique the assertion made by the Canada Centre for Ethics in Sport (CCES) that the principle of "inclusion" should override any consideration of competitive advantage as it seeks to justify male self-identification into women's sports. The combined academic expertise of these authors in the – areas of physiology and philosophy – leads them to the conclusion that the 'self-identity' approach promoted by the CCES fails to meet standards of fairness that ought to apply to sex categorized sport. They conclude that there is neither a medical intervention nor a clever philosophical argument that can make it fair for transwomen to compete in women's sports. Instead, they offer a wise solution that both maximizes "inclusion" and ensures "fairness" in sports: convert the male category to "open" and restrict the female category to female born athletes. Let's hope that this document is circulated

widely across Canada and its recommendations embraced by sport leaders. Current and future generations of Canadian athletes will benefit from the science-based approach to participation and competition.

Linda Blade, ChPC, PhD Kinesiology
Sport Performance Professional
President, Athletics Alberta

The issue of trans women in sport has gained significant media and public attention in recent years, largely the result of the 2015 International Olympic Committee (IOC) policy amendment on “Sex Reassigned Athletes in Sport” (which removed the requirement for surgical intervention as well as a reduced ineligibility period). The policy had the effect of paving a way for “sex determination” by way of a persons “self identification” which was reflected in subsequent sports policies in some countries around the world.

With the recent release by the IOC of the “IOC Framework on Fairness, Inclusion and Non-Discrimination on the Basis of Gender Identity and Sex Variations” document, the paper by Pike, Hilton and Howe is very timely. Given that the IOC is calling for individual sports organisations to form their own policies with regard to diversity and women’s sport, it is science and research that should form the basis for such policies to ensure fairness at all levels, but more so in Elite, Olympic and Professional sport.

As a transitioned woman myself, who competed in women’s professional sport for 11 years, this has become an increasingly sensitive and difficult issue to address. It is quite self evident to us all in this world that clear physical differences exist between men and women, which is also reflected in most sporting events around the globe. Clearly, access to women’s sport by way of “self determination of sex” will rarely be a viable solution when considered from the perspective of women and girls.

Faster, Higher, Stronger: The biological and ethical challenges to including transgender athletes in women’s sports will serve as a solid base for any sports administrators faced with the task of policy development. While every person should have access to sport, that does not confer to having unrestricted access to all sports at all levels. A quote from the *Faster, strong, higher* paper states it quite well:

“Sport is clearly a human good, as is art and music, but it is not something the denial of which necessarily violates one’s humanity.”

Mianne Bagger
Professional golfer from Denmark

Executive Summary

This paper looks at whether or not it is appropriate for athletes who are born male but who identify as women, often called transwomen, to compete in the women's category in sports. The authors hold the view that it is not appropriate because it is sometimes not safe and always unfair given the present and conceivable future state of medical transition.

The basic case for women's sport is this: Male physiological advantage, gained through the process of androgenization, covers the entire range of athletic capacities. If male advantage were to be ignored by removing the women's category, women would win next to no sporting competitions, and would be systematically excluded from participation in and the rewards of fair competition. If it is unfair to require that women compete against men because of the significant physiological advantages that male-bodied people possess, can it be it fair for male-bodied people to compete in the women's category? Does medical transition mean that it is fair for transwomen to compete in the women's category?

Males and females are physically different. Broadly, when compared with females, males are taller and have longer bones with narrower hips and wider shoulders; have lower body fat and higher muscle mass; have larger hearts and lungs and higher levels of haemoglobin. On average, males can move faster, jump further, throw longer, and lift heavier objects than females, and this creates large performance gaps between males and females in almost all sports.

For transwomen who have successfully suppressed testosterone for 12 months, the extent of muscle/strength loss is only an approximately (and modest) -5 percent after 12 months. Testosterone suppression does not remove the athletic advantage acquired under high-testosterone conditions at puberty, while the male musculoskeletal advantage is retained.

In 2016, the Canadian Centre for Ethics in Sport (CCES) released a report that strongly asserts "the principle that the inclusion of all athletes...*overrides* any consideration of potential competitive advantage" (emphasis added). How-

ever, in attempting to support its position for inclusion above all else, the CCES places a great deal of weight on the “requirement to modify their body through hormone therapy.”

Yet there should be no requirement for athletes to modify their bodies in this way. Circulating testosterone levels are not a reliable marker of male advantage and are ineffective at levelling the playing field physiologically. A classification system is needed to ensure everyone can compete fairly and fully. Such a system would consist of age categories, sex categories, impairment categories, and sometimes weight categories, all of which would refer to properties of *bodies*, not properties of *identification*. Gender identity, on its own, is irrelevant to sport categorization.

There is no basis for the claim that transwomen as a group should be prevented from playing sport. The question is whether there is a justification for excluding transwomen from the protected category of women’s sport. This is about rights *within* sport, as opposed to access to sport. It is reasonable for women in sport to expect that their rights will be upheld by the institutions and procedures of their sports.

There is neither a medical intervention nor a clever philosophical argument that can make it fair for transwomen to compete in women’s sport. It is, however, possible to reduce the significance of gender identifiers in sport. To do so, we need to change the *conceptualization* of the categories so they are based on physiological advantage.

Fairness in sport can be achieved with the reconceptualization of the male category as “Open” and the women’s category as “Female,” where female refers to the sex recorded at birth. The objective for us is to make sport as open and inclusive as possible, given how important sport is and how bodies are constructed. The task is to adjust how we think about and organize sport in ways that are maximally inclusive, while remaining fair and safe for all participants.

Sommaire

Introduction

The 2020 Tokyo Olympics focused attention on issues of sport, sex, and gender. A series of cases at those Olympic games raised questions over fairness, safety, and inclusion. Despite a promise issued at Tokyo, the International Olympic Committee's (IOC) Medical and Scientific Commission failed to announce new regulations, instead issuing a highly ambiguous 'framing' document and passing the task over to International Federations.

In this policy paper we look at arguments as to whether it is appropriate for transwomen to compete in the women's category. Several policy alternatives for addressing the issue of transwomen in sport have been floated. Yet, as we explore in greater detail in this paper, most of them have substantial flaws. A summary of these policy ideas can be found on pages 28-29.

Where sex categories are justified, we hold the view that it is not appropriate to include transwomen in the women's category. This is because it is (sometimes) not safe and (always) unfair, given the present and conceivable future state of medical transition. We look, too, at the upshot of this conclusion, particularly for Canadian athletes. But we also draw on policy guidelines that grapple with these matters relatively successfully, especially documents from World Rugby and from the UK Sports Councils' Equality Group.

In this paper we use the following terms with the following meanings. We take the term "woman" to mean adult human female. Therefore, since we are discussing humans, and generally adult humans, we use the term "woman" and "female" interchangeably. We use the word "transwoman" to refer to someone who identifies as a woman but whose sex recorded at birth is male. We use the term "male-bodied" to refer to someone who is male in the biological sense, which we expand upon below. We refer to people as having "differences of sexual development" (DSDs) rather than the misleading term "intersex."

We acknowledge that using these terms this way may be controversial, but we believe that these common and clear terms are the most useful way into the debate. But we do not wish to determine these issues by fiat. If readers prefer

terms like “trans woman” or “transgender woman” or “trans-identified man” or would rather talk of “cis” women or “ciswomen” rather than females, they are welcome to make these substitutions as they read through the study. We prefer not using those terms, but we do not want to hold up the argument.

The basic case for women’s sport is worth stating: Male physiological advantage, gained through the process of androgenization (“andros”: man; “genesis”: to become) covers the entire range of athletic capacities. If male advantage were to be ignored by removing the women’s category, women would win next to no sporting competition, and would be systematically excluded from participation in and the rewards of fair competition. The values of inclusion and fairness both underpin and mandate the existence of the female category. Though there have been arguments for the abolition of the “gender binary” (actually a sex binary) division in sports (Foddy and Savulescu 2011; Tännsjö 2000), the overwhelming weight of opinion supports the existence of female sport, and largely for these reasons.

If it is unfair to require that women compete against men because of the significant physiological advantages that male-bodied people possess, can it be it fair for male-bodied people to compete in the women’s category? Fairness would seem to depend on the removal of male advantage by means of a physiological change. This raises the question: Does medical transition mean that it is fair for transwomen to compete in the women’s category? We expand on this below, but we first outline the physiological basis of the women’s category.

Male and female physical development

In line with the biology of sexual reproduction and evolutionary pressure on reproductive fitness, males and females are physically different. Physical divergence begins with primary sex development at around seven weeks in utero when, triggered by genetic information inherited at fertilization, bipotential gonads differentiate as either testes in males or ovaries in females (Caré and Greenfield 2016). The differentiation and development of gonad type generates a sex-specific hormonal profile that drives ongoing development associated with sex class (Sobel et al. 2004). Testes contain cells that produce the hormone testosterone, and it is testosterone and its derivatives that mediate the development of male internal and external genitalia (Murashima et al. 2015), the establishment of growth parameters during high testosterone “minipuberty” in the neonatal period (Becker and Hesse 2020), and the development of secondary sex characteristics at puberty (Mooradian et al. 1987).

In females, the absence of testosterone production from the developing ovaries permits female internal and external genital development (Mullen and Behringer 2014), and the activation of estrogen pathways promotes the development of secondary sex characteristics at puberty (Wood et al. 2019).

The secondary sex characteristics acquired during puberty in preparation for reproduction lead to measurably different body morphs between males and females (“sexual dimorphism”) across many physical parameters (Wheeler 1991). Broadly, when compared with females, males are taller and have longer bones with narrower hips and wider shoulders; have lower body fat and higher muscle mass differentially distributed across sites and more resistant connective tissue; have larger hearts and lungs and higher levels of haemoglobin, the protein that carries oxygen within the blood (Figure 1, top panel).

Male and female athletic performance

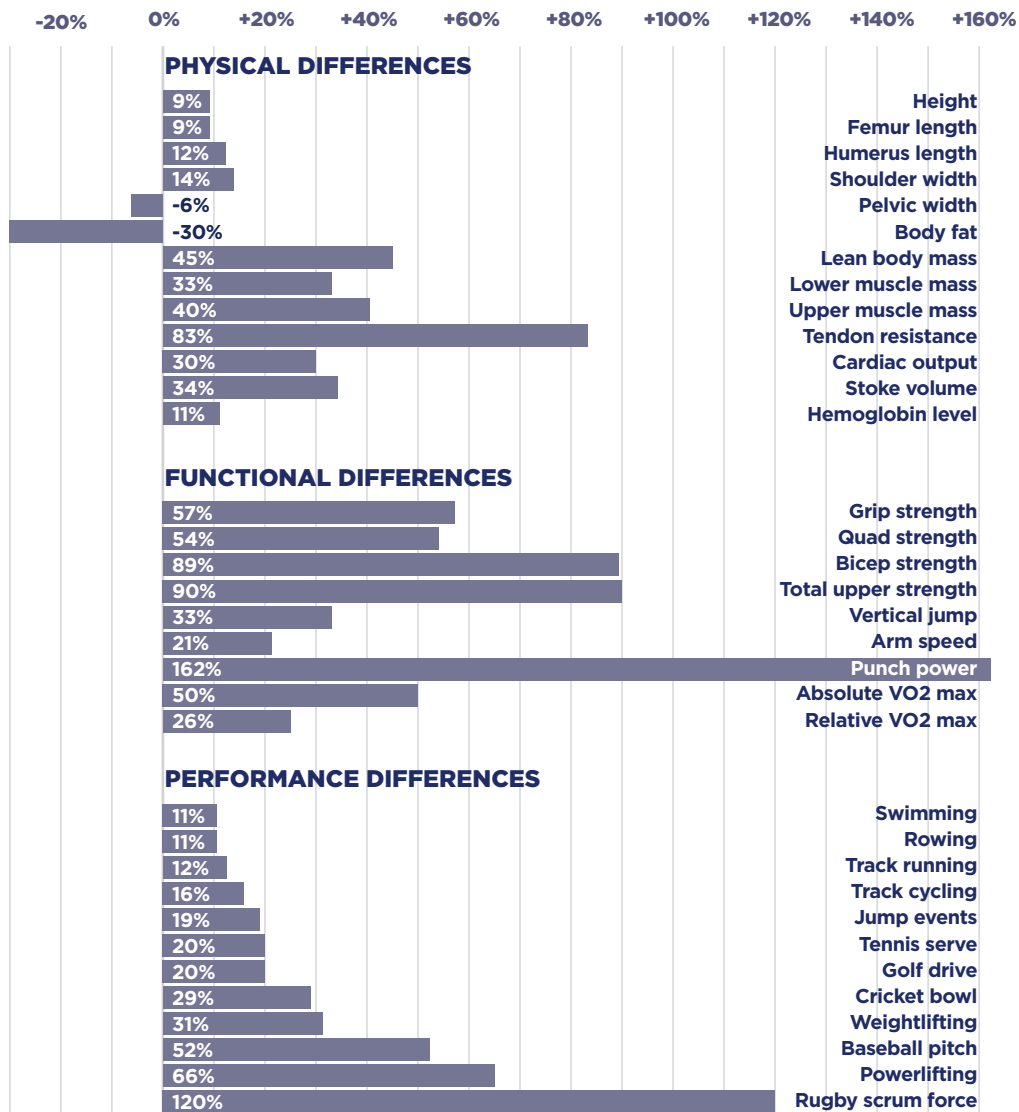
The different physical attributes of males and females have functional consequences for sports-relevant outputs. For example, superior muscle mass, particularly in the upper body, leads to greater male strength when compared with female capacity. Greater muscular strength coupled with longer skeletal levers enable males to apply superior force in activities like jumping, throwing, and punching. Males have greater cardiovascular capacity, with higher capacity oxygenation and transport systems (Figure 1, middle panel).

The different sports-relevant outputs of males and females create different athletic performance capacity. On average, males can move faster, jump further, throw longer, and lift heavier objects than females, and this creates large performance gaps between males and females in almost all sports. Consequently, when comparing like-for-like athletes (such as male and female elite athletes or male and female school-level athletes), male records and performances are better than those of females (Figure 1, bottom panel). The smallest performance gaps are evident in sports that require simple manoeuvres with weighted lower body input, such as running, where females have higher relative (but not absolute) muscle mass. Involvement of upper body muscle mass and/or complex sports that combine many different functional outputs sees performance gaps extend to 30 to 65 percent in weightlifting disciplines and 120 percent in the force applied in a rugby scrum.

An analysis of performance in weightlifting enables comparison between weight-matched (and thus, in many instances, approximately height-matched) males and females. Comparing 2010-2021 world record lifts by body weight across males and females in weight-restricted categories demonstrates that males are around 30 percent stronger than females of the same size. In a specific example, the current 55 kg male record holder, who is 1.52m tall, lifts 29.5 percent more than the current 55kg female record holder, also 1.52m

tall. This gap at equivalent body weight and height is, in part, explained by differential body composition where, compared with female total mass, a larger proportion of male total mass is muscle (Sonksen 2018).

Figure 1: Sports-relevant physical, functional, and performance differences between male and female bodies



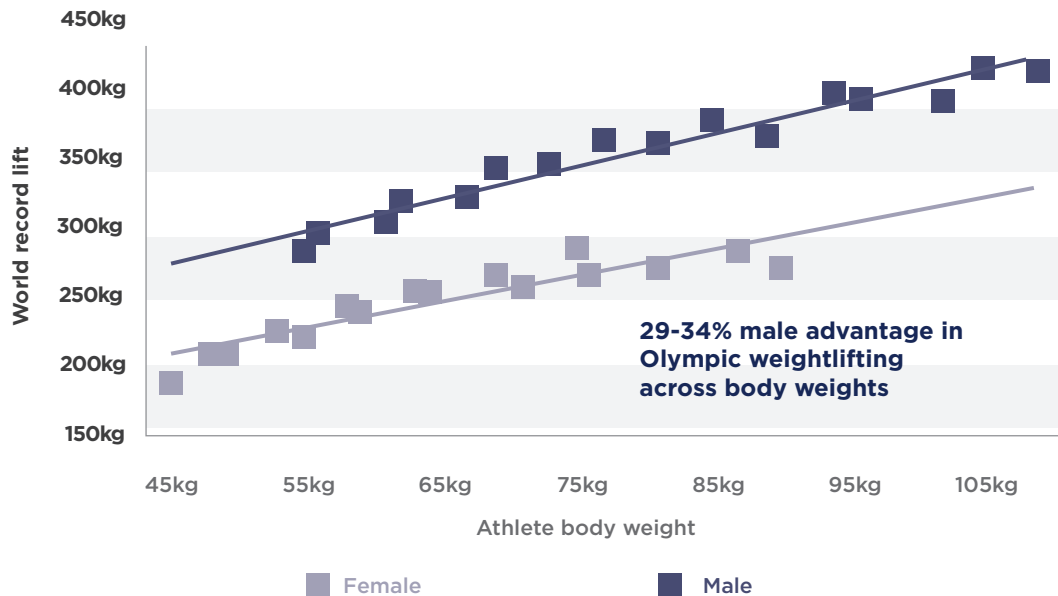
* Bars indicate male % advantage over females

Sources: Antti et al. 1994; Jantz and Jantz 1999; Brinckmann et al. 1981; Lee et al. 2017; Lepley et al. 2018; Tong et al. 2010; Bohannon et al. 2019; Neder et al. 1999; Hubal et al. 2005; Murray et al. 1985; Haugen et al. 2020; Morris et al. 2020; Pate and Kriska 1984; Hilton and Lundberg 2021.

When performance gaps are mapped to competitor numbers within a given discipline as a percentage, the impact is obvious and large. For example, the male-to-female gap in track sprinting is 12 percent. This translates into approximately 10,000 males having a personal best 100m sprint time faster than the current female Olympic champion, Elaine Thompson (World Athletics, personal communication). Thompson's 2016 gold medal performance

was, within the year, slower than not just elite senior male sprinters, but also slower than schoolboys, Master's category males, Paralympic males and males whose primary sport is not track sprinting (World Athletics 2021).

Figure 2. An analysis of world records in Olympic weightlifting shows that males are stronger than females of the same body weight and approximately the same height



Sources: IWF (International Weightlifting Federation 2021).

Testosterone, puberty and athletic advantage

There are athletic differences, probably underpinned by genetic differences (Gershoni and Pietrokovski 2017) and exposure to testosterone during “mini-puberty” (Becker and Hesse 2020) that are evident between male and female children at school age (Catley and Tomkinson 2013; Tambalis et al. 2016). However, school sports tend to promote team play, skill acquisition, and social development, and are therefore usually mixed sex (although promising children may be streamed to dedicated extracurricular sports that are divided by sex).

Notwithstanding these childhood differences, the majority of male athletic advantage appears to be acquired at puberty, when males experience a surge of testes-derived testosterone that results, in adulthood, in circulating testosterone ranging from 8.8-30.9 nanomoles per litre (nmol/l), while female testosterone remains low, ranging from 0.4-2.0 nmol/l (Clark et al. 2019). Thus, from puberty into adulthood, testosterone levels between males and females form a non-overlapping, bimodal distribution (Handelsman et al. 2018).

Over several years of male puberty, prolonged exposure to high testosterone

is responsible for the development of male secondary sex characteristics like height and strength, and thus is responsible for driving the divergence of athletic capacity between males and females. This is evident in comparisons of records and performances between elite female athletes and junior male athletes, where schoolboy records in track and field overtake elite female records when those elite schoolboys are around 14 or 15 years old.

Hilton concludes:

[T]estosterone-driven puberty, as the driving force of development of male secondary sex characteristics, underpins sporting advantages that are so large no female could reasonably hope to succeed without sex segregation in most sporting competitions. To ensure, in light of these analyses, that female athletes can be included in sporting competitions in a fair and safe manner, most sports have a female category the purpose of which is the protection of both fairness and, in some sports, safety/welfare of athletes who do not benefit from the physiological changes induced by male levels of testosterone from puberty onwards. (Hilton and Lundberg 2020)

Given the overwhelming data, we reject arguments that explain male advantage in sport as a by-product of social conditioning, or regard it as a social construction more generally. That adult human males have a physiological advantage over adult human females in athletic performance is a matter of settled science. But what follows for trans-inclusion in women's sport?

The effect of testosterone suppression in transwomen

The IOC regulations for transwomen in female sport, from 2015 to 2021, required transwomen to demonstrate total serum testosterone levels below 10 nmol/l for at least 12 months prior to competition in the female category and during the period of competition in the female category (International Olympic Committee 2015).

As the IOC stated that its “overriding sporting objective is and remains the guarantee of fair competition,” it might be inferred that the IOC and the sports federations who subsequently adopted these criteria understand these regulations to nullify the physical advantages of transwomen, who were all born male and have experienced male puberty. But this view, as the IOC now accepts, is mistaken.

There have been two high-quality, high-impact academic reviews, both in leading sports journals, of muscle and skeletal physiology in transwomen who have, post-puberty, suppressed testosterone (pharmaceutically and/or surgically) as part of their transition (Hilton and Lundberg 2020; Harper et al. 2021). The reviews cover longitudinal studies; that is, they contain pre-transi-

tion metrics like thigh muscle area and grip strength and matched data from at least 12 months, occasionally longer, into transition. All transwomen studied had been successfully suppressing testosterone to less than 10 nmol/l for at least one year, and would therefore qualify for inclusion in female sports categories under the regulations specified by the IOC and most sports federations. Collectively, the studies captured by these reviews cover over 800 transwomen in 10 original studies, with data acquired as a routine aspect of ongoing general health assessments within clinical care teams.

To summarize, in transwomen successfully suppressing testosterone for 12 months, skeletal metrics – height, limb/digit length and shoulder/pelvic width – do not change, and the extent of muscle/strength loss is approximately -5 percent after 12 months, a modest change that is insufficient to bridge the baseline muscular differences between males and females.

Regarding musculoskeletal parameters, Hilton and Lundberg concluded:

The biological advantage, most notably in terms of muscle mass and strength, conferred by male puberty and thus enjoyed by most transgender women is only minimally reduced when testosterone is suppressed as per current sporting guidelines for transgender athletes. (2020)

This conclusion was subsequently confirmed by Harper et al. (2021), who added:

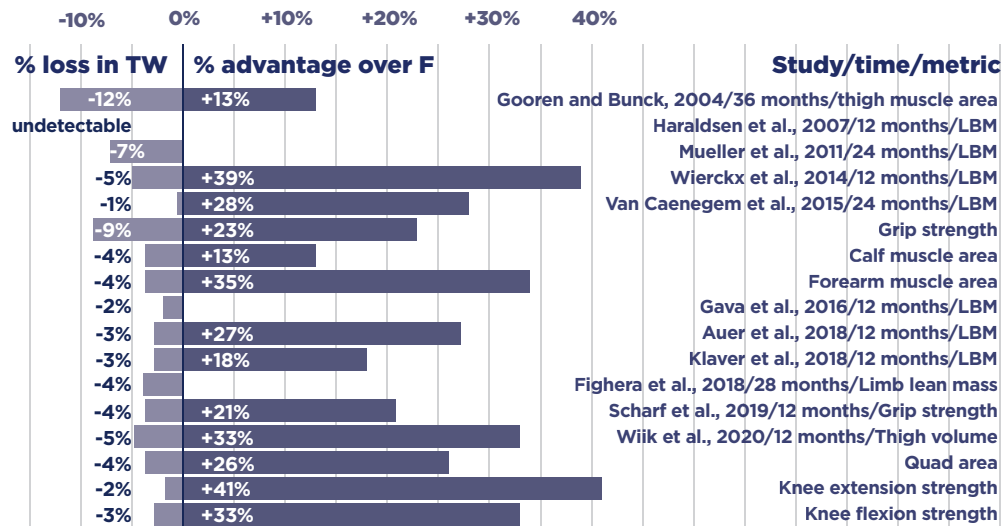
Hormone therapy decreases strength, lean body mass and muscle area, yet values remain above that observed in cisgender women, even after 36 months.

Hilton and Lundberg compared baseline measurements in females and transwomen who were matched for the purposes of their study (where the data were available), and calculated the extent of the advantage of retained muscle/strength in the transwomen they studied (Figure 3).

Thus, the most recent analyses generate a consensus that testosterone suppression in transwomen who meet the central IOC criteria adopted by most sporting federations induces only small amounts of muscle/strength loss, and does not remove the male athletic advantage acquired under high-testosterone conditions at puberty. Male musculoskeletal advantage is retained, and this raises obvious concerns about fairness and safety within female categories when transwomen are included.

In the face of this evidence, the IOC has publicly made it clear that the guidance they offered in 2015 is “not fit for purpose” (Ingle 2021a). Rather than tightening the policy, though, the IOC has passed the task on to International Federations and Governing Bodies.

Figure 3: A summary of the loss of lean body mass, muscle and/or strength in transgender women suppressing testosterone for at least 12 months, and their retained advantage over females in the same cohort (where available).



Source: Hilton and Lundberg 2020.

Regulation of athletes with DSDs

While fewer than 0.02 percent of individuals may appear sexually ambiguous, these rare exceptions to the general rule do not undermine or call into question the reality of the discrete nature of sex for the vast majority.

Athletes with differences of sexual development (DSD) do not usually present with any ambiguity of sex. However, in rare cases, some athletes may have specific presentations of a DSD that compromises fairness. For example, a DSD called 5-alpha reductase deficiency causes failure of virilization of external genitalia in genetic and gonadal males, such that they may appear ambiguous or even female-typical at birth. These athletes experience male-typical testosterone levels and androgenize in a male-typical pattern at puberty. To regulate athletes with 46XY DSDs, like 5-alpha reductase deficiency, sports federations like World Athletics have clear guidelines centred on the role of testosterone and its androgenizing effects on the body, particularly at puberty.

While many analyses create parallels between the regulation of transwomen and athletes with DSDs, the two groups have distinct biological features, and there is extensive variation among the latter group. Fair inclusion of athletes with DSDs must be dealt with sensitively and with nuance, and not be conflated with the regulation of the inclusion of transwomen, who are typical males at birth.

Canadian Centre for Ethics in Sport: Getting fairness wrong

To address the Canadian context, we now turn from biology to the approach that has driven the thinking on this issue in Canada, namely, that of the Canadian Centre for Ethics in Sport (CCES), which is the National Anti-Doping Authority for Canada. In particular, we look at and critique the 2016 paper *Creating Inclusive Environments for Trans Participants in Canadian Sport* (CCES 2016). Since we will quote a lot from this paper, we shorten it to *CI Environments*. It is notable that the membership of the expert working group contained neither a biologist nor a professional ethicist or philosopher, but largely consisted of sports administrators. The authors of this paper are not administrators or regulators of sport and have no such conflicts of interest. We have only professional academic expertise in these areas.

From page 7, *CI Environments* explains its methodology. First it states seven general principles drawn from the NCAA Office of Inclusion. These include the claim that trans athletes should have equal opportunity to participate in sport, and that participation policies should nurture fair play. But they do not say what “fair play” or “equal opportunity” amount to (CCES 2016, 7).

In addition to these seven general principles, *CI Environments* also seeks a balance of “seven True Sport Principles.” These are different principles, so that there are fourteen in total. It asserts that “sport, at its best, balances a series of principles to create a fair, safe, inclusive and open environment” (CCES 2016, 7). It looks as if either *CI Environments* is balancing fourteen principles, or it is balancing the seven True Sport Principles through the prism of the seven general principles. The idea that we should ‘balance’ principles has been criticized elsewhere (Pike 2020), and it does not work as a method for resolving questions even between well-articulated (but incommensurable) principles. That aside, the True Sport Principles are not well-articulated. “Go for it” is a slogan. It is unpacked as “Rise to the challenge – always strive for excellence. Be persistent and discover how good you can be” (True Sport Foundation 2003). But this is a guide for personal development, rather than a principle. Consequently, the announced methodology of *CI Environments* cannot be the actual methodology. It is unclear what the actual methodology is.

Sex and gender are not continua

The section in *CI Environments* titled “A Short Introduction to Sex and Gender” (page 11 onwards) is false, or misleading, or both. It makes two separate claims: that sex is a continuum, and that gender is a continuum (p. 11). However, the first claim is false and the second claim is neither true nor false.

The most common argument that sex is a continuum points to the existence

of people with DSDs. If some individuals have sexed anatomy that appears to fall somewhere between male and female, the argument is that the categories “male” and “female” must therefore exist along a spectrum as continuous, not discrete, properties. *CI Environments* appeals to this view by citing a report that suggests that “one in 100 individuals has anatomy or physiology differing from the stereotype” (p. 11). But stereotypes are irrelevant here.

The sex of an individual is based on their reproductive anatomy and is determined by the type of gamete this anatomy is organized around during development. For the vast majority of individuals (>99.98 percent according to Sax (2002)), their reproductive anatomy is completely unambiguous and organized around the production of either sperm (male) or eggs (female). This includes most people with DSDs, who are unambiguously male or female. In rare instances, some individuals may undergo disrupted male or female development and are born with ambiguous sex characteristics; this does not mean that all individuals only differ from each other by degree, as the word “continuum” entails. DSDs form discrete conditions that affect only males or only females, and do not represent novel sexes.

CI Environments also asserts that “gender is a continuum” (CCES 2016, 12) but this view is out of date, unfalsifiable, and misleading. Leading gender theorists such as Yale philosopher Robin Dembroff, who follow through the logic of their position, assert that the number of genders is therefore in principle infinite. But *CI Environments* is incoherent on this point: it says both that “there is a continuum for gender identity. Many people identify as either a man or a woman” but goes on to say that “others may identify as both a man and a woman or may not identify with either gender category” (CCES 2016, 12). But people who identify as both a man and a woman, at the same time, cannot be placed on a continuum with man at one end and woman at the other; they identify with opposite ends of the spectrum, not somewhere in the middle.

Dembroff argues:

We want to know what gender is. But metaphysical approaches to this question solely have focused on the binary gender kinds *men* and *women*. By overlooking those who identify outside of the binary – the group I call ‘genderqueer’ – we are left without tools for understanding these new and quickly growing gender identifications. (2020)

They add that “the scope of gender identities outside of male and female is vast and effectively unlimited.” The claim that gender is a continuum is not meaningful in the light of this understanding of infinite fluid gender identities.

We concede that when the authors of *CI Environments* claim that gender is a continuum, they perhaps meant to say that “gender identity is complex, fluid,

personal, variable, multifarious, and contested.” We more or less agree with this claim. We also recognize that some people deny that they have a gender identity at all: that is, an “internal and individual experience of gender,” a person’s sense of being a woman, man, both, or neither. We think that gender identity in this sense is unstable at best, and meaningless at worst. Nonetheless, *CI Environments* makes a distinctive claim when it suggests that each person has to live according to their “true gender” (CCES 2016, 12). This points to a structural problem in the approach to sport taken in *CI Environments*, which asserts that the “changes [that] are needed in sport... are certainly within the realm of possibility for each and every sports organization in Canada,” when, in fact, this could potentially require an infinite capacity for specific accommodations based on the unique physiological and identity characteristics of each individual.

Later the report argues that “it is a fundamental human right for everyone to be *recognized in the gender with which they identify*” CCES 2016, 17, emphasis added). But *CI Environments* makes no provision for the recognition of people as genderqueer (or non-binary) in sport categorization. Our point is not that there should be a separate category for genderqueer people, but rather that this is the logical outcome of the CCES position were it to be in line with current gender identity theory (i.e., the idea that gender is the personal conception one has of oneself). CCES should be advocating for an a-gender class, genderqueer classes, bi-gender classes, neutrois classes, and so on. To be clear, this is a *reductio ad absurdum* of the argument in *CI Environments*.

Our view is that to make gender identity, which is identified by introspection and is irredeemably subjective, the ground for categorization in sport is not practicable given the admitted infinite number of gender identities and the fluidity and continued variability of any one individual’s identifications. Gender identity cannot provide a stable basis for sport classification: some gender fluid people change their gender identity from day to day. It cannot secure fair sport.

Policy guidance from CCES

CCES’s Policy Guidance #1 says that individuals participating up to the age of 21 (female) and 23 (male) should be able to choose which category to compete in, depending on their gender identity. There should be no disclosure, and no biological restriction (such as hormone treatment or surgery).

At this point *CI Environments* abandons its “balancing” methodology and strongly asserts:

the principle that the inclusion of all athletes, based on the fundamental human right of gender self-determination *overrides* any consider-

ation of potential competitive advantage. (CCES 2016, 16, emphasis added)

One factor “overriding” any consideration of another factor is not “balancing.” To see this, compare the logically analogous, but substantially different, statement from the IOC cited above, that the overriding sporting objective is and remains the guarantee of fair competition (International Olympic Committee 2015). A comparison of these two statements shows very clearly that the approach in *CI Environments* contradicts, and is incompatible with, the IOC’s approach.

In attempting to support its position for inclusion above all else, *CI Environments* places a great deal of weight on a supposed requirement to “modify their body through hormone therapy” (CCES 2016, 16). But this is beside the point. We oppose that any requirement be placed on athletes to modify their bodies in this way. In doing so, we also note that circulating testosterone levels are not a reliable marker of male advantage and are ineffective at levelling the playing field physiologically, as outlined above. Above all, however, we respect bodily autonomy. We argue for a classification system in which everyone can compete fairly and fully. Such a system would consist of age categories, sex categories, impairment categories, and sometimes weight categories. It is important to note that these categories would all refer to properties of bodies, not properties of identification. Gender identity, on its own, is irrelevant to sport categorization, which is based on broad physiological categories.

The views presented in *CI Environments* are conceptually confused and logically incoherent. For example, *CI Environments* says:

it is recognized that transfemales are not males who become females. Rather these are people who have always been psychologically female but whose anatomy and physiology, for reasons as yet unexplained, have manifested as male. (CCES 2016, p. 20)

This statement is not based on any scientific understanding and is neither verifiable nor falsifiable, which means it is neither scientific nor empirical as those terms are normally understood. It amounts to a metaphysical belief. That belief prioritizes the psychological over the physiological in asserting that the psychology has “always been... female,” while the anatomy “for reasons as yet unexplained... manifested as male” as though this manifestation came after the psychological development – a most unscientific and purely ideological position perspective that *CI Environments* has taken.

Moreover, it is not appropriate for a policy paper designed to regulate sport to misuse scientific concepts such as the psychological versus physiological and claim to know which develops first. We argue that gender identity is only marginally relevant for sport: it is relevant off the field of play, in contexts

which lie beyond the scope of this paper (use of preferred pronouns, changing areas, and so on). We focus instead on in-game fairness, which is our primary concern, and should be that of sports regulators. A focus on in-game fairness is also less tractable and less open for reasonable compromise (for example by the provision of third space or gender-neutral changing areas).

Summing up *CI Environments*

In *CI Environments*, the Canadian Centre for Ethics in Sports with whatever laudable intentions has produced an incoherent and conceptually confused document, more like a catechism than a policy. The document fails on its own terms: it adduces a “fundamental right” that no sporting organization can meet, it fails to apply its stated balancing methodology, and it fails to understand basic categories of science. It cannot serve as a guide to Canadian sport.

Individual assessment and the range argument

It is often argued that transwomen fall in the range of women athletes, and hence their inclusion in women’s sport is safe, fair, or “meaningful.” So, in this section we look at the “Range Argument,” (RA) with a concrete example: draft proposals offered by England’s Rugby Football Union (RFU). In this context, the Range Argument says that all those who (i) self-identify as women and ii) fall into the range of physical attributes of women (adult human females) should be allowed to play in the women’s game.

The RA is supposed to show that sometimes transwomen competing in women’s sport is fair. But this argument is category-denying for women’s sport. The existence of women’s sport is based on the consistent existence of male advantage, not on the idea that women form a non-overlapping set with men. Taken to its logical conclusion the RA is also an argument against the existence of women’s sport.

In adopting a form of the RA, the RFU undermines the basis of fair competition in women’s sport, and women’s sport itself. That is, the criteria for eligibility into female sport ought to be related to it being female sport. In contrast, the RFU looks to make eligibility into sex segregated sport a matter of attributes that are not related to sex at all:

The player’s height and weight must be 170cm and 90kg or below*, and details of the player’s rugby experience and sporting background must be provided**. (England Rugby 2021)

The criteria introduced by the RFU are arbitrary. There is no evidence or research base indicating that a transwoman over 170 cm or over 90 kg, for that reason, poses a greater threat. There *is* evidence that male-bodied people pose a greater threat to females than other females, and that there is a sex advantage in strength and power at every percentile of height and weight, as we show above.

The RFU shifts the basis of eligibility from one that is non-arbitrary and justifiable (sex) under the single-sex exemptions under the UK *Equality Act* to one that is arbitrary and unjustifiable. We now adduce six further reasons for why such a case-by-case approach is ethically flawed.

What is wrong with individual assessment?

Before we do, notice how far we have come from the identity argument that “transwomen are women” (TAW). A case-by-case approach does not conform with this TAW slogan either. This distance is progress, since TAW is a slogan without a theory: things are much more complex than it suggests. However, this is also the reason for the qualified rejection of the RFU regulations by those who strongly assert gender identity theory (Ward 2021).

First, it is clear that either the metrics would be completely ineffective, or that some transwomen would still be excluded after this test on the grounds that they were not “womanly” enough for women’s rugby, despite their self-identification as women. Other more “womanly” transwomen would be admitted. Because this proposal is directed at individuals, it will be more stigmatizing and, arguably, more harmful than a more comprehensive approach. We realize that some losses may result from proposals to assert the importance of biological sex (loss of friendship groups, loss of opportunities for collective action, blows to self-esteem and identity). It might be difficult to quantify the extent of these negative consequences, but they should at least register. But an alternative case-by-case approach of the sort proposed by the RFU does not eliminate these consequences either. Indeed, it intensifies them. They would still be visited on individual transwomen, but the exclusion of those transwomen would be personal rather than as a result of the blanket enforcement of category boundaries based on particular metrics.

Second, the flaws inherent in the case-by-case approach are magnified by the particular nature of stigmatization in the case of trans inclusion in women’s sport. If a para-athlete fails (namely, scores too highly) in a functional test and gets moved from CP5 to CP6 status (two classes for athletes with cerebral palsy, distinguished functionally), this can be devastating for their chances of winning a medal. But it does not call into question their identity – including their identity as a para-athlete. The same is the case for a proposed test to see if a self-identified transwoman is “really” or “sufficiently” a woman for the purposes of playing women’s rugby.

Third, in the case-by-case approach limits would shift over time and across the game – it seems likely that different weight and height limits might be needed at different levels of the game, so that some might qualify at one level, but not at another. If such regulations were to be imposed, then eligibility for the women's game domestically might differ from eligibility for the women's game internationally. The indeterminacy that this introduces would mean that particular trans individuals would move across the boundaries that determine the eligibility to play the women's game: this would create a festering sore of exclusion, which would make those individuals permanently at risk of exclusion, permanently at risk of the harms that we outline above. For those transwomen, their possibilities of playing women's rugby would be under threat and could be removed at any time.

Fourth, such tests would create a further perverse incentive amongst transwomen (and all women) who might pass the tests: don't gain weight, or you will be excluded.

Fifth, the RFU appears to be legally liable for foreseeable serious or catastrophic consequences that arise from unsafe rules. It is at least open to question whether a case-by-case approach would be sufficiently robust as to be defensible against a claim brought as a result of a serious or catastrophic injury to another participant.

Sixth, male advantage means that male bodied athletes will be more likely than female bodied athletes to fall into the percentile groups just under the 170cm/90kg cut off. (This is just another way of saying that male bodied athletes tend to be taller and heavier than female bodied athletes.) But male bodied athletes in these percentiles will tend to have better power to weight ratios (etc) than female bodied athletes in the corresponding percentile. So, the proposal unfairly weights selection decisions towards male-bodied persons because of the effects of androgenization. The effects of androgenization are the basis of the physiological advantages of males, and those physiological advantages are the basic justification for women's rugby as a separate category.

Against a case-by-case approach

Even viewed in the most charitable light, a case-by-case approach would only be able to resolve some of the safety issues, though we adduce several reasons above for thinking that it might not do even that. The case-by-case approach will only be effective in mitigating safety if it excludes some transwomen from playing women's rugby. There is, however, a different, fairer, and more straightforward approach for policy-making in this area: to consider first safety, then fairness, then inclusion/exclusion, in that order (the priority approach). The World Rugby and by the Sports Councils' Equality Group take the priority approach in their policy guidelines. According to the priority approach (Pike 2020), which we endorse, we ought to test rules for safety, then

fairness, and then inclusivity. Safety and fairness are prior to inclusion, and a case-by-case approach does not resolve the fairness concerns. The fairness of women's rugby rests on the removal of male advantage. That male advantage applies to all those who have gone through the process of androgenization.

The last test is whether an approach is inclusive. Recall that the only way for the case-by-case approach to pass the safety threshold is to exclude some transwomen. A test cannot be both safe and inclusive. The RFU's approach, then, by seeking to assess each case individually, makes a series of errors. World Rugby avoided these errors because that body adopted the priority approach.

Is sport a human right?

The nature of rights

No one is alone in the exercise of their rights; we have rights because we live in society with others who also have rights and what rights we have need to be balanced against those held by others. We have rights in relation to other human beings when those rights seem to be about nonhuman objects – my right, *against you*, over *this* book, because I own it. When we talk about human rights we are talking about rights that are due to all humans by virtue of basic characteristics we all share as human beings. Since we are social beings rather than isolated atoms, social institutions need to find ways to make those rights work together. John Rawls, for example, offers a formula expressing this basic liberal principle:

Each person has an equal right to a fully adequate scheme of equal basic liberties which is compatible with a similar scheme of liberties for all. (Rawls 1985, 227)

This principle underlines the interconnection of rights: our basic rights must be mutually compatible through society – as a rule, one person doesn't get a freedom that prevents anyone else having the same freedom. This is a basic principle in sport as well as in society. Any individual's right to participate in sport exists because others have the same liberty and the same or comparable restrictions, which are necessary for the sport to exist as that sport, e.g., no secret motors in bicycles or extra pharmaceutical assistance. But if participation in a particular category or manner spoils the field, then that liberty must be restricted. So, just as, for example, the freedom to acquire wealth does not include the freedom to do so by force because that renders everyone's wealth insecure, a right to compete in a race and prove one's excellence does not include the right to do so in a way that denies others the same chance to do so, as one would by either cheating or competing in too unchallenging a category (Rawls 1985, 232-233).

It is often declared that sport is a *human* right. The *IOC Charter*, for example, proclaims as the fourth of its “Fundamental Principles of Olympism” that:

The practice of sport is a human right. Every individual must have the possibility of practising sport, without discrimination of any kind and in the Olympic spirit, which requires mutual understanding with a spirit of friendship, solidarity and fair play. (International Olympic Committee 2020)

At best, such a declaration might serve as an aspirational affirmation of everyone’s right to play some kind of sport, but it gives no guidance as to what sport or at what level or in what category. Any such right would have to be realized in a coherent way inside a concrete practice that also respects every other participant’s right, and that means that it would need to deal with conflicts on a basis of mutual understanding and fair play, as per the rest of Principle 4 and in conformity with the IOC’s position already cited. As we explain above, and contrary to the statements in *CI Environments*, this distinction makes it clear that fairness in competition is more important than the right of inclusion in a given competition.

For something to be a specifically *human* right, as opposed to a civil right (which is the kind of thing that specific governments legislate for their citizens), it must be something that is (a) essential for human life; (b) essential for a distinctively human (humane) life; (c) sufficiently general to apply to any human being by virtue of their being human, rather than something that *only* pertains to them by virtue of their particular situation. Thus, for example, one cannot claim a human right only on the basis of a particular characteristic; being human is a wider category than having a specific attribute of humans such as nationality or sex, which latter may fall under specific legislation which will only apply to those humans possessing the relevant characteristics thus identified. If we want to make human rights claims this is exactly how we want them to apply, because they are not arbitrary or in some way tied to who you are other than a member of the human species. This is why these kinds of rights are distinct from civic rights, such as a right to drive or to receive a pension, which are much more specific and guaranteed by local legal systems and institutions (of which a sporting association is an analogue) and why human rights apply to people more widely than localized constituencies such as nations or voluntary associations.

We do assume that legislation should not be discriminatory in the sense of arbitrary or in denying just consideration of individuals’ access to public goods for reasons not relevant to the fair distribution of those goods and the status of all members of a society as fundamentally equal under the law. But the law does discriminate between who can or cannot enjoy a civic right, e.g., one cannot be denied entrance to university education on the basis of irrelevant considerations such as race or sex, but one can for failure to qualify academi-

cally, which is an appropriate basis of discrimination. The former would be a violation of an applicant's human and civic rights; the latter is not. Similarly, only those humans who are citizens over the age of 18 can vote in Canadian elections (permanent residents cannot). Legislation must also discriminate in cases of conflicts of rights, which concerns us in the case of sports (see below).



One person doesn't get a freedom that prevents anyone else having the same freedom.

Humans need food, water, shelter, health care, and protection from arbitrary violence or detention, because otherwise they either die or live subhuman, degrading lives. Freedom to move physically could well qualify as a human right, as a lack of movement is strongly detrimental to the human body. For us to be forcibly confined without the ability to use our limbs as we are otherwise able to do would be physically harmful and would deny an individual a reasonable expression of their freedom. But there are many humanly satisfying ways to move and only a few of them count as sport. Sport is clearly a human good, as is art and music, but it is not something the denial of which necessarily violates one's humanity. Many things are goods, but that something is a good does not necessarily entail anyone's right to it. One person's wealth might be a good to another but that does not give anyone a right to theft (Thomson 1971). Sport, in particular, is something that many of us, but by no means all, value as a good. To desire sport as an activity rather than something else is to have a preference for a specific good, not a right.

Rights are at issue in sport in two distinct respects: access to sport and action within sport. There seems no reason to deny someone access to sport, barring an outstanding cause (e.g., criminal conviction), but since "sport" is normally a specific sport practice, the rights that we have within sport are specific to that sport, such as the right to compete in a particular race, in a particular category, to have one's appeal of a result heard, etc. These rights only apply to those eligible for that competition or sport. This makes them conditional or private rights, ones set out by constitutive rules defining a sport and the more specific administrative rules of their organizations. The rules that define and govern sport activity, especially those that set out competition categories and procedures, are necessary for participants to gain the goods that the (organized, competitive) sport provides. Not just rights and freedoms but restrictions on rights enable the goods that participants enjoy.

Conflicts

Justice is violated if, without adequate cause, one person or group is denied something to which others have access; such a case would constitute a rights violation. There is no defence for the claim that transwomen as a group should be prevented from playing sport. This is not the question before us; rather, the question is whether there is a justification for excluding transwomen from the protected category of women's sport. This is about rights *within* sport.

We have good reason to deny a good or a right to one person or group where there is an irreconcilable conflict with that of another. Thus, for example, transwomen's right to enjoy the good of sport *in a particular category* is correctly curtailed given that the empirical evidence available indicates that their participation *in that category* prevents natal women from receiving a reasonable share of the goods of participation in sport. The "goods of participation" here may include fair assessment of one's abilities, placings in results throughout the competition, i.e., not just who is first, but who comes tenth and fiftieth, and further sporting opportunities, such as advancement and funding, as well as the ability to participate with a reasonable expectation of safety. The justification of exclusion is based both in justice (rights) and in the logic of sport (fairness).

Competition in sport always involves others against whom one competes and, given that fairness is critical to the competition having any valid meaning as a determination of excellence, the rights of others are always implicated. In the case of sport, the conflict is about both the right to enjoy the goods of sport as an enjoyable activity and the right to have one's performances accurately and meaningfully adjudicated and recognized. If inclusion means that sport becomes incoherent due to a failure of fairness in procedure or an increased expectation of harm beyond that normally attributable to the sport activity itself, there is less incentive for women to participate. It is reasonable for women in sport to expect that their rights will be upheld by the institutions and procedures of their sports. Even if we were to suppose that there is some fundamental right to participate in sport, it does not follow that such a right can justify overriding the rights of others for the sake of personal preferences as to how we wish to participate; fairness rules this out.

Our exercise of our rights should not make society a more unfair place. Arguments about inclusion of transwomen in sport cannot overlook the circumstance that the protected category into which they seek to be included already includes women with their own such claims, nor that the existence of that category is to ensure the opportunity to exercise those rights, which would otherwise be unfairly diminished.

Policy alternatives

Several policy alternatives for dealing with trans women in sport have been floated, most of which have substantial flaws in their methodology, underpinning science, ethics, and practicability.

- Early on in this paper, we rejected calls for the abandonment of the sex binary in athletic sports. We hereby affirm the importance of a sex binary in athletic sports.
- We have given several reasons why a “self-identity” approach, as extensively advocated for by the Canadian Centre for Ethics in Sport, fails to meet standards of fairness that ought to apply to sex categorized sport. The advocacy of the abolition of the sex binary altogether, though the wrong approach, is at least coherent when compared to the self-identity approach.
- Because it fails to match up to the science, we reject an approach that focuses on testosterone levels as the indicator of sex classes: that is, we reject the historic approach of the IOC, which manifestly failed to ensure fair competition in the women’s weightlifting competition at the Tokyo Olympics, regardless of the outcome of that competition.
- Because they miss the point of the female classification (that is, to eliminate male physiological advantage) we reject the “Range Argument” and case-by-case approaches.
- We reject the analogy between a person’s legal status as a national of a particular country, and the legal status of a person’s sex (Camporesi and McNamee 2018). Fairness in sport can only be secured by the administration of consistent international standards, based on relevant physiological criteria.
- We also reject policy proposals to allow transwomen to compete with female-bodied athletes through a sort of algorithm-informed handicap arrangement (Bianchi 2017). Apart from its conceptual difficulties, this option has practical ones as well: the epistemic difficulty of working out the level of advantage to be compensated for, and primarily the fact that such competitions would be understood (correctly) as competitions decided by the algorithm and not on the track or field of play.

We point out that there is a difference between sports that are and are not amenable to unisex competition (that is, the abolition of the sex divide). This is a divide between sports where athletic capacities and sex differences are negligible (perhaps such as some target and equestrian sport) and those where athletic capacities and sex differences are important. We agree that the former are potential candidates for unisex competition, and, of course, if that

were achieved, for “trans inclusion.” But this is not the sort of trans inclusion that is at the heart of the contemporary debate.

The framework issued in November 2021 (International Olympic Committee 2021) makes some missteps, but also leaves policy space open for International Federations and Governing Bodies. We spell out in some detail above, that the case for women’s sport is based on biology, and that fair sport for women must exclude male advantage. The fundamental problem with this advantage is not that it is too big, or ‘disproportionate’ in some vague way, but that it is male. It is, then, a mistake to think that International Federations should devise some test to distinguish between ‘proportionate’ and ‘disproportionate’ advantages that arise from androgenization, since the advantages that arise from androgenization are what make the female category necessary. Extensive empirical evidence for these advantages is available in the history of every sex-effected sport, in their histories, which show large differences between male and female performances.

Likewise, the focus of the IOC on preventing discrimination based on gender identity is misplaced. Of course, no-one should be excluded from competitive sport on the basis of their gender identity. Since, as we have shown, gender identity is not generally relevant for on-field fairness, there is no basis for discrimination, for or against athletes on this basis.

Conclusion

Sport is about bodies. We are a dimorphic species. Even with modern treatments, therapies, and surgeries, humans cannot change all the immutable physical characteristics attributable to biological sex. Our sexed bodies matter for the categorization of sport into male and female competition. This categorization is justified by the very wide ranging and profound physiological advantages that males hold – advantages that are not eliminated by cross sex hormone treatment or foreseeable medical technologies. There is neither a medical intervention nor a clever philosophical argument that can make it fair for transwomen to compete in women’s sport.

It is, however, possible to reduce the significance of gender identifiers in sport. We advocate, therefore, a change in the *conceptualization* of the categories. This reinforces and clarifies their point – that they are categories based on physiological advantage. Because the issues are asymmetrical, there is not a fairness issue in the inclusion of transmen in male competition, though there is often a safety issue (World Rugby Working Group undated).

For this reason, it seems to us that fairness in sport can be achieved with the removal, as far as is possible, of gender identifiers in sport, and the recon-

ceptualization of the male category as “Open” and the women’s category as “Female” where female refers to the sex recorded at birth. In this, we broadly support the policy proposals included in the Sports Councils’ Equality Group report (SCEG 2021). We urge national and international sports organizations, in Canada and beyond, to develop a similar policy.

The objective for us is to make sport as open and inclusive as possible, given how important sport is and how bodies are constructed. This involves more radical and progressive change than that advocated by CCES. The task is to adjust how we think about and organize sport in ways that are maximally inclusive, while remaining fair and safe for all participants.

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About the authors



Jon Pike is a philosopher specialising in the ethics and metaphysics of sport at the Open University UK. He writes and publishes on doping and anti-doping, what counts as cheating, and what he calls ‘writing the rules of sport around the body.’ His background is in political philosophy, which he studied at Oxford and Glasgow Universities. He has advised, amongst others, the World Anti-Doping Agency, World Rugby, and the International Olympic Committee

Pike is the former Chair of the British Philosophy of Sport Association.

His latest open access publication in this area is “Safety, Fairness and inclusion: trans athletes and the essence of Rugby,” in the *Journal of the Philosophy of Sport*, 2020.



Emma Hilton is a developmental biologist at the University of Manchester, studying aspects of human genetic disease. Emma has a special interest in fairness in female sports. She has written and presented on the evidence in relation to transwomen athletes and the rules on women’s sports, including giving input to World Rugby’s review of the evidence. She has written an op ed in the *Wall Street Journal* on sex denialism, and developed Project Nettie, a declaration on the basic science of sex by scientists. Emma joined the Sex Matters board in January 2021.



Leslie A. Howe is a professor in the Department of Philosophy at the University of Saskatchewan, where she has taught since 1997. She studied at McGill, Dalhousie, and University of Toronto, and completed graduate work in both political philosophy and on Kierkegaard. Since then, she has taught a variety of topics in the history of philosophy, social philosophy, including feminism, sexuality, the body, and environment, and in moral psychology. Her research is mostly in the areas of the philosophy of sport and problems of selfhood, including identity and embodied experience.

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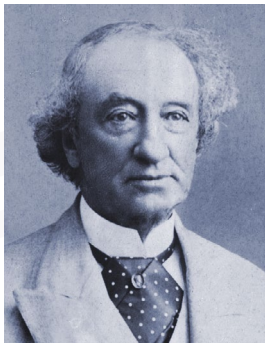
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WHAT DO WE DO?

At **MLI**, we believe ideas matter. The Macdonald-Laurier Institute is the only non-partisan, independent public policy think tank in Ottawa focusing on the full range of issues that fall under the jurisdiction of the federal government. We are the leading platform for the best new policy thinking in the country. And our goal is to be an indispensable source of reasoned and timely thought leadership for policy-makers and opinion leaders, and thereby contribute to making Canada the best governed country in the world.



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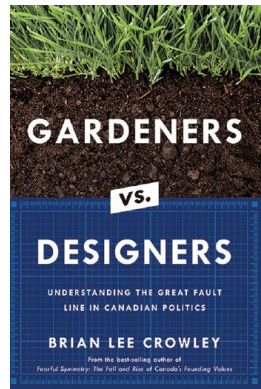
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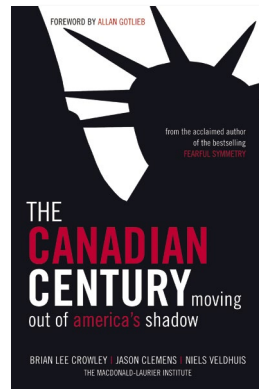
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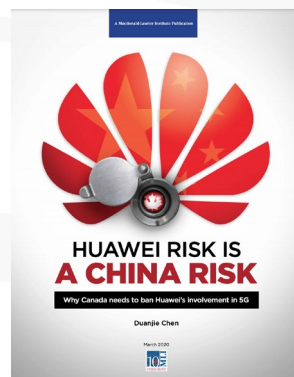
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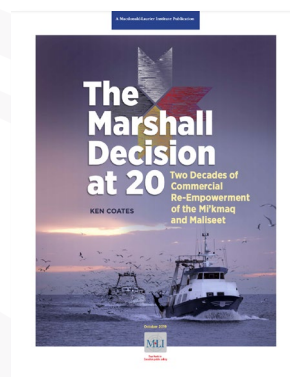
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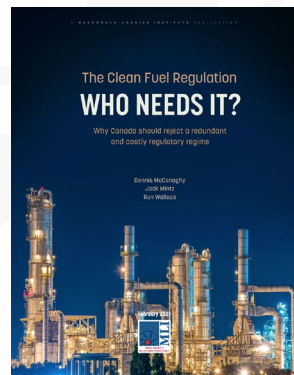
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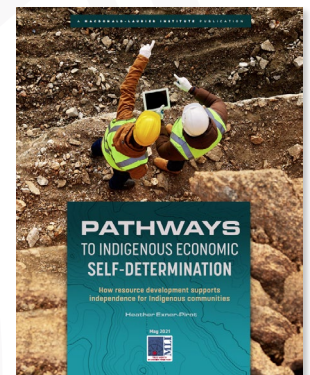
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The Honourable Jody Wilson-Raybould

The **Macdonald-Laurier Institute** has been active in the field of Indigenous public policy, building a fine tradition of working with Indigenous organizations, promoting Indigenous thinkers and encouraging innovative, Indigenous-led solutions to the challenges of 21st century Canada. I congratulate **MLI** on its 10 productive and constructive years and look forward to continuing to learn more about the Institute's fine work in the field.

The Honourable Irwin Cotler

May I congratulate **MLI** for a decade of exemplary leadership on national and international issues. Through high-quality research and analysis, **MLI** has made a significant contribution to Canadian public discourse and policy development. With the global resurgence of authoritarianism and illiberal populism, such work is as timely as it is important. I wish you continued success in the years to come.

The Honourable Pierre Poilievre

The **Macdonald-Laurier Institute** has produced countless works of scholarship that solve today's problems with the wisdom of our political ancestors. If we listen to the **Institute's** advice, we can fulfill Laurier's dream of a country where freedom is its nationality.

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