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**A CRITICAL ANALYSIS OF THE LEGAL AND ETHICAL
IMPLICATIONS OF TRANSGENDERISM IN WOMEN'S SPORTS**

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Abstract

The participation of transgender athletes in women's sports has provoked heated disputes over the legal and ethical ramifications. As society becomes more accepting of varied gender identities, questions concerning how transgender athletes should be included in competitive sports leagues that binary gender classifications have traditionally split arise. When it comes to transgender people in women's sports, the lack of variation in sporting legislation and policies across different sports is not simplified. This also highlights the fear that, while inclusivity may be viewed as a vital benefit, the negative consequences include those of justice and competition, individual variety, and, ultimately, protecting chances for cisgender² women. Certain critics and experts base their analysis on hormone levels, specifically testosterone and how various levels of the same have significant impacts on muscle mass and bone density; however, this is another area where research is lacking, as transgender athletes who have recently transitioned have a much higher physical advantage than someone who has been transitioning for a couple of years. Some cis-gendered women have naturally higher levels of testosterone, which rules out hormone testing as a reliable technique for determining the same. Given that there is no universal law, only different sports federations, this paper looks into not just the prima facie differences between trans athletes and cis-gendered women but also those underlying differences that play an integral part as to why separate forums are required to ensure fairness and the spirit of competition.

Keywords: Transgender athletes, Women's sports, testosterone, fairness, spirit of competition

Introduction: History and struggles of women in sports

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²*Cisgender*, Oxford English Dictionary, 2023

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Women's challenges and historical experiences in athletics serve as a tribute to their unwavering drive, perseverance, and ongoing pursuit of gender equality. Across several historical periods, women have encountered substantial obstacles in their engagement with sports, encompassing both societal and institutional dimensions.

Taking the example of the historical context in ancient Greece, the origin of the Olympic Games, it was customary for women to be excluded from active participation. The games were limited to male participants only. This pattern was consistent for several centuries, wherein women were predominantly marginalised and excluded from participating in organised sports. The active involvement of women in sports, specifically in disciplines such as tennis, golf, and croquet, commenced throughout the latter half of the 19th century and the early 20th century. Nevertheless, these games were frequently regarded as activities suitable for women, conforming to societal expectations of femininity, which necessitated that women participate while dressed modestly. Women were initially prohibited from the modern Olympic Games, which commenced in 1896. The participation of women in competitive activities was not permitted until the year 1900, and even then, their involvement was restricted to a select few events. Acting Title IX³ in 1972 was a significant milestone for women's participation in sports in the United States. Title IX is a federal law that outlawed discrimination based on sex in educational programs and activities, encompassing sports, and has been essential in facilitating the growth of opportunities for female athletes.

In contemporary times, female athletes frequently encounter notable discrepancies in remuneration when compared to their male counterparts. This phenomenon is observable across professional sports leagues, as male athletes tend to receive higher compensation than their female counterparts despite exhibiting comparable ability levels. Throughout history, there has been a notable disparity in media coverage between women's and men's sports. This phenomenon has diminished the visibility of female athletes and decreased acknowledgement of their accomplishments. Compared to their male counterparts, female athletes often experience a disparity in the number of endorsement deals and sponsorships they obtain. This discrepancy can have a restrictive impact on their prospective earnings and overall visibility. They also have faced challenges overcoming preconceived notions regarding their physical

³*Gender and Sports* (3rd, August 2023, 5:00p.m.) <https://sociology.iresearchnet.com/sociology-of-sport/gender-and-sports/>

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capabilities and societal norms surrounding femininity. The idea that physical solid rivalry possesses an underlying lack of femininity has endured over time.

Notwithstanding these obstacles, female athletes have attained noteworthy accomplishments and shattered societal constraints. Prominent figures such as Billie Jean King, Serena Williams, Martina Navratilova, and Mia Hamm have demonstrated exceptional prowess in their particular athletic disciplines and played a pivotal role in championing the cause of gender equality in athletics. Although significant advancements have been made in recent decades, it is evident that further efforts are required to achieve the desired outcomes. Women persist in their ongoing struggle to attain equitable compensation, adequate representation, and comparable chances in sports across all tiers, ranging from grassroots initiatives to the professional sphere. Women's challenges and historical experiences in sports constitute a significant component within the broader endeavour for gender parity. Female athletes and campaigners have exerted considerable effort to dismantle obstacles and establish a path for forthcoming cohorts of women to follow their sports aspirations. A question may arise, 'why talk about the history of women in sports?'. This is a matter of grave importance as now, when we bring the subject of transgenderism in women's sports, some question the ethical implications it may have as the very reason for the segregation and separation made from male and female sporting activities was to ensure fairness of competition and an equal footing of physical capability for women in the field. It is due to this that we now have a problem at our hands of whether transgender people should be permitted in women's sporting events.

To answer this, we need to delve into the fundamentals and ask the question: do transgender people pose a more significant physical advantage than women? How substantial is it? And what regulations or testing procedures have various sporting federations and authorities implemented to protect female athletes? When addressing physical advantages, it's crucial to understand that people's physical skills vary greatly, and men's and women's physical abilities overlap significantly. However, some general physiological distinctions between men and women can affect athletic ability.

Research Problem

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The inclusion of transgender individuals in women's sports has sparked extensive debates surrounding its legal and ethical implications. As society evolves to become more inclusive and accepting of diverse gender identities, questions arise about how transgender athletes should be integrated into competitive sports leagues that are traditionally divided by binary gender categories. The lack or rather variation in sporting regulations as well as policies across different sports are not streamlined when it comes to their approach to transgender people in women's sports. This also raises the concern that although inclusivity may be seen as a necessary advantage, the negative implications are that of fairness and competition, individual variation, and, ultimately, protecting opportunities for cisgender women. Specific critiques and experts lay their analysis on hormone levels, particularly testosterone and how different percentages of the same have extensive impacts on muscle mass and bone density. However, this, too, is a realm that lacks sufficient research as those transgender athletes who have recently transitioned pose a much higher physical advantage than someone who may have been a couple of years into their transition. Some cisgender women, too, tend to have naturally higher levels of testosterone, which negates the testing of hormone levels as a valid method of determining the same.

Research Objectives:

1. To find alternative and feasible solutions/forums for transgender athletes to compete.
2. To examine and assess federations' different drug testing methods to determine the legality of participation in sports.
3. To help strike an ethical balance between safeguarding the rights of transgender athletes and maintaining the integrity and fairness of women's sports competitions.

Research Questions:

1. Should transgender athletes be allowed to compete in women's sports?
2. What could be feasible alternative solutions or forums for transgender athletes to compete in?
3. How can sports organisations, regulatory bodies, and policymakers strike a balance between safeguarding the rights of transgender athletes and maintaining the integrity and fairness of women's sports competitions?

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Research Methodology:

The research methodology adopted for this paper is a doctrinal method of research. The doctrinal research method is based on primary sources such as policies, regulations, and cases. The secondary sources include journals, articles, newspaper articles, etc.

Mode of citation:

The mode of citation followed by the researcher for this research paper is BLUEBOOK 20th edition.

The Apparent and Concealed Differences:

Men, on average, have more muscle mass and physical strength than women. This can give you an advantage in sports that need a lot of upper body strength or explosive force. Men also have larger hearts and lungs, contributing to higher aerobic capability levels. This can be beneficial in endurance activities such as long-distance running or cycling. Men have more significant testosterone levels, a hormone that helps with muscle development, bone density, and red blood cell synthesis. This hormonal difference can result in greater muscle mass and power, giving you an advantage in sports that need raw strength. Men also have slightly different bone structures, which affects things such as the centre of gravity and leverage. This can be useful in sports such as weightlifting or throwing competitions. While not always true, men usually have an edge in sprinting and explosive movements due to muscle fibre composition and stride length. Furthermore, men are taller on average and may have longer limbs, which may provide benefits in games requiring reach, such as basketball or volleyball. It is critical to emphasise that while physiological differences exist on average, they do not determine individual talents. Many women excel in sports usually associated with male strengths, compensating frequently with skill, technique, and tactical awareness. Many physiological factors cause men to be stronger and faster than women.

The three essential factors most relevant to athletic sports will be discussed here.

- ***Maximum aerobic capacity, or maximum oxygen uptake:***

Maximum aerobic capacity is the amount of oxygen your body can transport from your lungs to your muscles. It is measured in millilitres per kilogram per minute, as VO_2 max. Here is

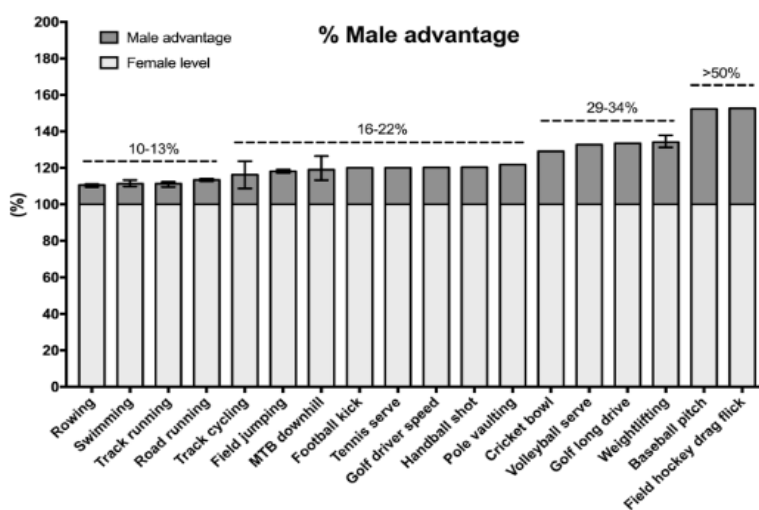
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the typical comparison chart between men and women of different training levels, from passive to endurance-exercise training for different periods.

⁴You can see at least a 20% VO₂max difference between men and women for just one year of training. 20% more oxygen means 20% more energy in your muscles, meaning more speed (provided you have the muscles to convert that energy to speed). The difference in VO₂ max between men and women is caused by men having larger lungs, a larger and stronger heart and more red bloodcells.

Fig. 1 The male performance advantage over females across various selected sporting disciplines. The female level is set to 100%. In sport events with multiple disciplines, the male value has been averaged across disciplines, and the error bars represent the range of the advantages. The metrics were compiled from publicly available sports federation databases and/or tournament/competition records. *MTB* mountain bike



- **Percentage of fast twitch muscle fibres:**

Fast twitch muscle fibres are those that are capable of quickly generating and releasing force in a short period. Aka, they are more suitable for explosive or plyometric movements. However, They cannot produce force at a sustained pace over extended periods. Slow twitch muscle fibres serve in this capacity. Regrettably, most athletic sports, such as cricket, football, basketball, boxing, swimming, jogging, and so on, all demand explosive or plyometric motions. In other words, they are fast twitch muscle fibre dominant, and males naturally have more of these fast twitch muscle fibres.⁵

⁴ Hilton, E.N., Lundberg, T.R. Transgender Women in the Female Category of Sport: Perspectives on Testosterone Suppression and Performance Advantage. *Sports Med* 51, 199–214 (2021)

⁵ Haizlip KM, Harrison BC, Leinwand LA. Sex-based differences in skeletal muscle kinetics and fiber-type composition. *Physiology* (Bethesda). 2015 Jan;30(1):30-9

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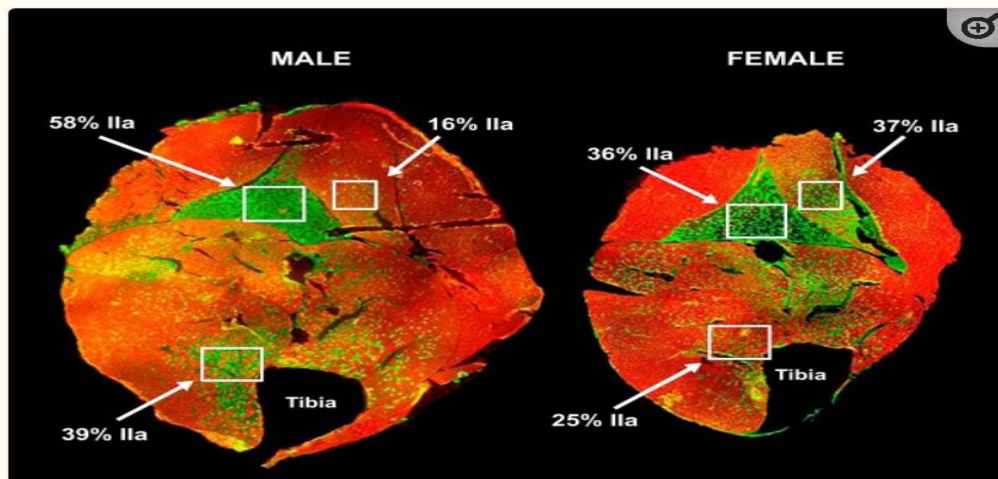


FIGURE 1.

Type-IIa fibers are differentially expressed in male vs. female hindlimb muscle sections and in different muscle bodies

In the soleus, Ila expression is 58% in the male 36% in the female. In the plantaris, Ila expression is 16% in the male and 37% in the female. In the tibialis anterior muscle, Ila expression is 39% in the male and 25% in the female. Green staining identifies Ila fibers, whereas red staining identifies Iib fibers. Figure was generously provided by Brooke Harrison, PhD.

- **Muscle systems:**

Research shows⁶ that 6–7-year-old boys can run faster and jump further than girls of the same age. This entails that males run faster and jump further even before the testosterone boost in puberty. During puberty, boys develop a more extensive body and broader shoulders, with more muscles and less fat than women, as seen in the previous diagram.

Now, when coming to the question of whether or not the natural male performance advantage can be done away with when testosterone is suppressed through HRT (hormone replacement therapy), we see that still is not the case. The International Olympic Committee (IOC) has placed regulations stating that transgender women with testosterone levels that are below ten nmol/L for at least 12 months will be allowed to participate in sports. However, there is a catch as males naturally walk around with 10-35 nmol/L of testosterone, while the level in women is between 0.5-2.4 nmol/L. This is an apparent loophole as it already places women at a disadvantage, and we have already discussed prior that even in situations where we exclude testosterone, lung capacity, muscle twitch fibres, and bone density are factors that continue to play a dominant role despite testosterone suppression.

⁶Supra 1

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That being said, let us look into the effects of hormone replacement therapy on transgender women. Transgender women frequently exhibit diminished bone mineral density at the onset, which can be attributed to many factors, such as reduced engagement in physical activities and inadequate amounts of vitamin D. Nevertheless, those who undergo a minimum of 24 months of testosterone suppression typically exhibit the ability to sustain or perhaps experience a little augmentation in bone mass, particularly in the lumbar spine. Research findings indicate that bone density has the potential to be maintained despite prolonged periods of testosterone deprivation. Based on current recommendations, it is suggested that the monitoring of bone density in transsexual women may not be necessary, particularly in the absence of additional risk factors. This assertion is substantiated by the favourable influence of oestrogen, as opposed to testosterone, on the skeletal well-being of males. The height and skeletal characteristics of transsexual women exhibit no significant changes, and the benefits associated with skeletal size and bone density continue to exist after testosterone decreases by prevailing guidelines. This is especially pertinent in sports such as basketball, volleyball, and handball, wherein factors such as height, limb length, and handspan play a critical role. Moreover, it is worth noting that male individuals possess bone geometry and density that may potentially safeguard against specific sports-related injuries, such as knee problems commonly associated with a narrower pelvic girdle.

Regarding strength and muscle metrics, Research findings suggest that with a minimum duration of 12 months of testosterone suppression, a slight reduction of around 5% in lean body mass or muscle size is observed. Nevertheless, the decrease in muscle mass experienced by females is deemed insignificant compared to the initial physiological advantage males possess. Hence, the existing durations of testosterone suppression do not substantially diminish the male advantage in muscle growth and strength. In athletic disciplines, where muscle mass and strength development play a pivotal role, ensuring equitable competition can present specific difficulties. Numerous longitudinal studies consistently demonstrate marginal alterations in both muscle mass and strength in transgender women following a minimum of 12 months of testosterone suppression. These metrics play a crucial role in the male performance advantages, particularly in sports that heavily rely on upper body strength and overall muscular mass. The analysis of cross-sectional data reveals a decline in both muscular mass and strength among transsexual women following prolonged suppression of testosterone levels. Nevertheless, the initial disparity in muscle mass and strength between

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males and females surpasses these mitigations, implying a persistent advantage even during eight years of suppression. When analysing cross-sectional data without a baseline assessment, it is crucial to exercise caution. On the other hand, longitudinal studies offer more dependable insights into the changes that occur among subjects over time.

Drug Testing Protocols:

They are coming to the drug testing protocols by various sports governing bodies, such as the International Olympic Committee (IOC). They have implemented a criterion to oversee and regulate the involvement of transgender athletes. One crucial aspect of these guidelines⁷ entails monitoring hormone levels, with a primary focus on testosterone.

Transgender women are commonly mandated to uphold their testosterone levels below a designated threshold, generally established at approximately ten nanomoles per litre (nmol/L), for a minimum duration of 12 months (as discussed prior) preceding their participation in competitive events. The determination of eligibility is heavily influenced by this criterion, which holds significant importance. In contrast, transgender men are not subject to specific hormone-level requirements. The cornerstone of drug testing methods for transgender athletes is the assurance of adherence to hormone-level standards. To establish their eligibility, transgender athletes may be required to furnish medical evidence and records. The documents above function as substantiation of the individuals' hormone therapy protocol, encompassing pertinent information such as medical documentation, hormone therapy strategies, and a chronological record of hormone levels.

The documentation is crucial in verifying athletes' compliance with the predetermined requirements. When implementing drug testing procedures for transgender athletes, it is essential to ensure that the guidelines uphold their privacy and dignity. This implies that the administration of tests should be conducted by specialists who have received proper training and have a heightened awareness of the distinct requirements and situations of transgender individuals. In addition, random drug testing is frequently employed to verify continuous adherence to the set protocols. In specific circumstances, transgender athletes who are

⁷IOC Framework on Fairness, Inclusion and Non-Discrimination on the Basis of Gender Identity and Sex Variations, International Olympic Committee.

undergoing hormone therapy may be required to apply for a Therapeutic Use Exemption (TUE). This exemption permits individuals to utilise hormones that would otherwise be restricted if they satisfy the predetermined requirements and norms. Therapeutic Use Exemptions (TUEs) are a supplementary mechanism to uphold the principles of equity and honesty within competitive sports. However, these drug testing methodologies are not universal, which gives rise to significant issues about their widespread application coupled with the fact that these particular tests lack in-depth analysis of the athlete's physical ability, which is of paramount importance when coming to the question of their inclusion in women's sports.

Inclusion: The time of the hour:

Transgender inclusion in sports is primarily about fostering equality and inclusivity. Everyone, regardless of gender identity, should be able to engage in athletics and get the rewards that come with it. Denying transgender people access to sports because of their gender identity is a kind of discrimination that goes against the ideals of fairness and human rights. Sports participation provides numerous physical and mental health benefits. Regular physical activity through sports can contribute to better cardiovascular health, improved mental well-being, higher self-esteem, and lower stress levels. These advantages are not limited to any one gender identification and should be available to everyone, including transgender people who may find consolation and empowerment via sports endeavours. Furthermore, excluding transgender people from athletics can worsen feelings of isolation and marginalisation that they may already be experiencing. Inclusive sports venues promote social contact, teamwork, and camaraderie, vital for connecting people and developing a sense of belonging.

These experiences can be transformative for transgender people, providing a supportive community in which they can thrive. Inclusive sports environments are critical in challenging and dismantling negative gender stereotypes. Society acquires a more sophisticated knowledge of gender variety by allowing transgender athletes to compete publicly. This dispels common misconceptions about what it means to be transgender and emphasises the significance of respecting individual identities. Creating a distinct platform for transgender athletes to compete is a nuanced and contentious notion. However, such a forum might create a friendly environment free of concerns about perceived benefits or disadvantages for

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transgender athletes. It would represent inclusivity, recognising individuals' unique problems and confirming their right to compete in a respectful environment. A separate forum might also discuss safety concerns, especially in contact sports where physical inequalities may be problematic. Many argue that this could further segregate transgender athletes, potentially reinforcing feelings of otherness. Creating a separate forum may mistakenly stigmatise them, implying an innate inability to compete on a level playing field with cisgender athletes. This argument, however, immediately falls apart when we realise that the fact that we already have standards for trans-athletes puts them at a disadvantage. Not only do trans-athletes face the hazards of transitioning, but imposing their inclusion on binary lines, as well as driving them to undergo harsh HRT to compete, throws more constraints on them than simply liberating them. They deserve a distinct forum that is unrestricted and tailored to their unique demands.

Conclusion: A New World

In conclusion, we see that the advantages posed by transgender individuals far surpass a mere hormonal aspect. Hormonal replacement therapy, although slightly effective in bringing down the steep advantage faced by transgender women, fails to nullify or equalise it to the point where it could be said to be fair to cis-gendered women. Drug testing methods for transgender athletes are also highly minimal, strictly relying on testosterone levels over a measly 12-month period; this method of testing fails to strategically differentiate between individuals who have transitioned and were on HRT (hormone replacement therapy) from years and wish to take part versus those that have done so in just under a year.

Thus, there is an imperative need to introduce universal guidelines across all federations, at least regarding the skeletal, muscle mass, lung capacity, etc, as well as hormonal testing that considers the length and extent to which an athlete has been on HRT. Transgender athletes deserve their rightful spot in competitive sports, with the ability to express their talents and skills globally. However, a separate forum and category of the same must be created to maintain not just their inclusivity in sports but also to hold up the fairness and spirit of good competition that cis-gendered women have fought for ever since the prehistoric Greek era.