



RUGBY FOOTBALL UNION

POLICY FOR THE PARTICIPATION OF TRANSGENDER AND NON-BINARY GENDER PLAYERS IN CONTACT RUGBY UNION IN ENGLAND

EXTERNAL CONSULTATION

RESPONSE FROM SEX MATTERS

www.sex-matters.org
info@sex-matters.org

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A preliminary note: For some time, Sex Matters, along with women's advocacy groups, have been networking with female athletes from various sporting disciplines reviewing their transgender policies. The consequences of female athletes speaking up can be severe. For that reason, many female athletes, coaches and interested parties engage with us on strictly private terms; thus, selected quotes and experiences shared below may be necessarily anonymized.

1. INTRODUCTION

- 1.1. Sex Matters is a not-for-profit organisation that advocates for clarity about sex in language, policy and law, in order to safeguard the human rights, health, safety and dignity of everybody. Sex matters in life and in law.¹
- 1.2. Sex matters in sport. Qualitative differences between the male and female body necessitate protected female sports categories, to permit women access to the physical, mental and social benefits of sports routinely available to men. The inclusion of transgender athletes within a structure rationally organised around sex has presented regulatory challenges for sports federations.
- 1.3. The Rugby Football Union (RFU) is the national governing body for grassroots and elite rugby in England.² In March 2021, the RFU announced a new policy to address inclusion of transgender athletes in the domestic game. The proposed policy can be found here:

www.englandrugby.com/dxdam/6c/6c76f7f5-cbc3-44eb-a5da-4a8f3be694db/RFU%20Transgender%20Proposed%20Policy%202021%20-%20EXTERNAL%20CONSULTATION.pdf

As part of the review process for the proposed transgender participation policy, the RFU have opened the policy for external consultation.³

- 1.4. We welcome the call by the RFU for external viewpoints on their proposed transgender participation policy. This Sex Matters response draws on expertise from scientists, sports philosophers, and from female athletes.

¹ Information about Sex Matters: www.sex-matters.org Email us: info@sex-matters.org

² For more information on the RFU: www.englandrugby.com/about-rfu/the-rfu

³ RFU External Consultation: www.englandrugby.com/about-rfu/rfu-policies/transgender-policy

SUMMARY OF RESPONSE BY SEX MATTERS

Rugby is a sex-affected, full contact sport, presenting an inherent and high risk of injury to its players. Given the size, strength, speed and other advantages acquired by males at puberty, a protected category for female rugby players is necessary to secure fairness of competition and their safety on the pitch.

Scientific and medical data show that the testosterone-based criteria proposed by the RFU to regulate inclusion of transwomen in the female category do not remove key male advantages acquired by transwomen at puberty. Thus, the proposed policy cannot deliver fairness and safety for female rugby players.

The criteria by which the RFU proposes to screen individual transwomen who appear to undermine fairness for and the safety of female rugby players is not based on scientific evidence. The assessment process lacks detail or qualifying guidelines, is inconsistent with existing RFU policies and is unworkable for those tasked with such screening and assessment. Furthermore, the screening and assessment process will stigmatise individual transwomen while cementing sexist ideas of femininity.

Finally, the RFU have demonstrably not listened to the female rugby players who will bear the safety risk of an ill-evidenced policy for inclusion of those with male advantages in their playing category.

RECOMMENDATIONS BY SEX MATTERS

We urge the RFU to apply the exemptions to non-discrimination laws outlined in the UK Equality Act 2010, which permit exclusion of transwomen from female sports categories where it is necessary, as for rugby, for either fairness or safety within this category.

We further urge the RFU to apply the precautionary approach adopted by World Rugby - **exclusion of transwomen from the female category** - until such a time there is a scientific and medical consensus that fairness for and the safety of female rugby players can be guaranteed. Only if and when such data emerges can inclusion of transwomen transwomen in the female category be re-evaluated.

2. BACKGROUND

- 2.1. As defined in the UK Equality Act 2010,⁴ rugby is a “gender-affected”⁵ activity, one where:

“The physical strength, stamina or physique of average persons of one sex would put them at a disadvantage compared to average persons of the other sex as competitors in events involving the activity.”

- 2.2. “Gender-affected” sports are substantially exempt from standard non-discrimination laws in the UK Equality Act 2010: sex discrimination is permitted across the board in relation to participation in gender-affected sport, and gender reassignment discrimination is permitted where it is necessary in the interests of safety or fairness:

*“A person does not contravene section 29, 33, 34 or 35,⁶ so far as relating to gender reassignment, only by doing anything in relation to the participation of a transsexual person as a competitor in a gender-affected activity **if it is necessary to do so to secure in relation to the activity (a) fair competition, or (b) the safety of competitors.**”*

[bold: our emphasis]

That is, in the pursuit of fairness and safety, UK sports governing bodies may create and maintain a protected female category of sport from which male athletes may be legally excluded, regardless of their gender reassignment characteristic.

- 2.3. In 2020, World Rugby (WR) assembled a transgender working group to conduct a thorough consultation on the safety and performance implications of including transwomen (athletes born male but who express a feminine gender identity and who may pursue pharmaceutical and/or surgical interventions to be perceived as female) in elite female competition.⁷ The working group heard from a panel of expert scientists, medics, philosophers, lawyers, players and public stakeholder groups on the issue.⁸

⁴ The UK Equality Act 2010 exemptions for sex discrimination in sport can be found in Part 14, Section 195: www.legislation.gov.uk/ukpga/2010/15/section/195

⁵ The UK Equality Act 2010 uses the term “gender-affected” and we reproduce this phrase here, although the term “sex-affected” is more appropriate when considering the explanations contained in the section.

⁶ Section 29 covers public provision of services like health care and education:

www.legislation.gov.uk/ukpga/2010/15/section/29 Sections 33-35 cover disposal of, permission to dispose of or management of premises, respectively: www.legislation.gov.uk/ukpga/2010/15/section/33

⁷ An overview of the WR meeting and participants: www.world.rugby/news/563437

⁸ Expert presentations from the WR workshop: www.playerwelfare.worldrugby.org/?subsection=84

- 2.4. Noting the magnitude of size, strength and speed advantages conferred by testosterone during male puberty (see **Section 3.2-3.7**) and the small effects on musculoskeletal measurements in adult transwomen suppressing testosterone (see **Section 4.5-4.9**), WR concluded:

“Given the best available evidence for the effects of testosterone reduction on these physical attributes for transgender women [...] safety and fairness cannot presently be assured for women competing against transwomen in contact rugby.”⁹

The resulting policy document recommends exclusion of transwomen from the female category in WR-regulated international competition, while devolving power over domestic policy to national governing bodies like the RFU.¹⁰

- 2.5. The RFU policy currently under consultation addresses transgender inclusion in the English domestic game. The RFU has developed an alternative policy to that of its international governing body, one that broadly follows non-specific guidance from the International Olympic Committee (IOC) in 2015.¹¹ Briefly, the RFU proposes that transwomen be permitted to play competitive, full contact rugby with and against female athletes, providing they: 1. make a solemn declaration regarding their gender identity, and; 2. maintain serum testosterone levels below 5 nM for 12 months prior to and during competition in the female category. Formalising IOC guidance, the RFU explicitly proposes to conduct individual player assessments where there is evidence that retained male advantage may compromise safety and/or fairness, with thresholds of height and mass specified as triggers for such assessment. Transmen are permitted to play competitive, full contact rugby in the male category by: 1. making a solemn declaration of their gender identity; 2. acknowledging the risks associated with participation in the male game, and; 3. acquiring a Therapeutic Use Exemption (TUE) for testosterone supplementation (if applicable).

⁹ The WR press release, announcing their updated transgender policy:

www.world.rugby/news/591776/world-rugby-approves-updated-transgender-participation-guidelines

¹⁰ The WR transgender guidelines can be found here:

www.playerwelfare.worldrugby.org/content/getfile.php?h=9546539e4dad1f66dfabd274a80e1ffe&p=pdfs/TGWG_TRANSGENER_GUIDELINE_EN.pdf

¹¹ The IOC report can be found here:

https://stillmed.olympic.org/Documents/Commissions_PDFfiles/Medical_commission/2015-11_ioc_consensus_meeting_on_sex_reassignment_and_hyperandrogenism-en.pdf

3. RESPONSE: FAIRNESS, SAFETY AND INCLUSION

- 3.1. By common understanding, sports should be fair. Regarding transgender inclusion, the IOC policy states:

*“The **overriding sporting objective** is and remains the **guarantee of fair competition.**”*

[bold: our emphasis]

In the proposed policy, the RFU:

*“Seeks to ensure that participation in rugby union is **safe and fair** for all those who wish to take part.”*

[bold: our emphasis]

- 3.2. Sex itself provides a reliable proxy of capacity for a package of physical advantages, including, but not limited to, height, weight, strength and speed. Male athletes outperform female athletes in almost all athletic activities and sporting endeavours. In a broad review of sports performance gaps, Hilton and Lundberg (2021) calculated that the male advantage ranges from around 10-12% in disciplines like running and swimming, 30% in weightlifting, to over 50% in sporting activities dominated by upper body strength.¹²
- 3.3. Hilton and Lundberg also reviewed male advantage in isolated, sport-relevant metrics, citing studies that show, for example, males have 33% greater lower body muscle mass and 40% greater upper body muscle mass, 57% greater grip strength, 54% greater knee extension peak torque, 89% greater 1 one-repetition maximum (1RM) for bicep curl, 9.4-14.6% longer limb bones and -6.1% pelvic width, and 50% higher VO2max (25% higher relative VO2max).
- 3.4. Hilton and Lundberg summarise:

“Males have: larger and denser muscle mass, and stiffer connective tissue, with associated capacity to exert greater muscular force more rapidly and efficiently; reduced fat mass, and different distribution of body fat and lean muscle mass, which increases power to weight ratios and upper to lower limb; longer and larger skeletal structure; superior cardiovascular and respiratory function, with larger blood and heart

¹² In *Transgender Women in the Female Category of Sport: Perspectives on Testosterone Suppression and Performance Advantage* (2021), Hilton and Lundberg calculate, in Figure 1, sex performance gaps across a range of disciplines. Specific, sports-relevant metrics can be found in Table 1 and throughout the text. <https://link.springer.com/content/pdf/10.1007/s40279-020-01389-3.pdf>

volumes, higher hemoglobin concentration, greater cross-sectional area of the trachea and lower oxygen cost of respiration.”

- 3.5.** A study of power differences between moderately-trained males and females in a forward punch motion and a backwards yank motion found that males generated +162% and +105% greater power than females, respectively. That is, a male can punch forward over 2.6X harder and yank backwards nearly 2.1X harder than an equivalently-trained female. Furthermore, in the same study, males were over 2.2X more forceful in an overhead “javelin throw” motion. These movements, particularly relevant in rugby gameplay, were the largest of all performance gaps identified by Hilton and Lundberg.
- 3.6.** Elite rugby players are subject to regular fitness tests. Analysis of test data¹³ obtained from WR show that, across matched percentiles and regardless of position, elite male rugby players are 11%-13% faster than equivalent female rugby players over a 10m sprint. There is a small statistical overlap between the slowest males and fastest females, with performance parity reached between 90/95th percentile females and 10th percentile males. Bench press 1RM data show that, again across matched percentiles and regardless of position, elite rugby males are 67%-92% stronger than female peers, and there is no statistical overlap between the weakest males and the strongest females, regardless of position. The weakest male rugby players are 13% stronger than the strongest female rugby players.
- 3.7.** Male athletic advantage is largely acquired under high testosterone conditions at puberty, the result of which is that many 14/15 year old schoolboys outperform elite adult female athletes.¹⁴ The gap between male and female performance is so large that many thousands of males outperform all females in athletic events like running, throwing and jumping.¹⁵ Following this pattern, elite female rugby players are matched in 10m sprint tests by U16 males, and in 1RM bench press tests by U18 males, illustrating that junior male rugby players are able to reach adult female performance metrics.
- 3.8.** Rugby is a full contact sport, where deliberate, maximum-force contact against an opponent to defend or retrieve possession of the ball is an integral part of play. Rugby, by its very nature, presents physical safety issues for its players, and injuries are an ever-present risk. The rate of

¹³ See Dr Emma Hilton: www.playerwelfare.worldrugby.org/?subsection=84

¹⁴ Comparisons of event results between females and under-18 boys for the 2017 athletic season can be found here: www.law.duke.edu/sports/sex-sport/comparative-athletic-performance

¹⁵ Comparison of seasonal performance data between males and females in athletics shows that thousands of individual males, over multiple events each, are faster/higher/further than females. www.worldathletics.org/stats-zone

injury in the sport has been documented at up to 100 injuries per 1000 player match hours, among the higher incidences documented in sport. Tackling accounts for around 50% of sustained injuries, with concussion the most frequent injury type.^{16,17}

- 3.9.** Philosopher Dr Jon Pike¹⁸ argues that sports federations regulating full contact sports, where contact cannot be eliminated without changing the face of the sport, have a special duty to minimise the potential for physical harm during play.¹⁹ In the case of rugby, because governing bodies allow, for example, tackling as an essential part of play:

“They have a special and intense obligation to limit the risks of tackling.”

and:

“Safety risk, especially with respect to tackling and concussion, must be central to the concerns of World Rugby [and other “tackle-permitting institutions”, including the RFU], trumping other values.”

The RFU recognises the above principles:

*“As a contact sport, **player welfare is paramount** and the RFU seeks to ensure that participation in rugby union is safe and fair for all those who wish to take part.”²⁰*

[bold: our emphasis]

- 3.10.** Accordingly, the RFU (and other rugby governing bodies) have a strong record in minimising and managing risk inherent to play, including recommendations for personal protective equipment like mouth guards,²¹

¹⁶ In *Rugby World Cup 2015: World Rugby injury surveillance study* (2017), Fuller et al. identified the incidence of injuries sustained during the Rugby World Cup 2015 was 90.1 match injuries per 1000 player-match-hours, with a higher incidence in backs (100.4) compared with forwards (81.1). 22% of injuries occurred at the head/face. www.bjism.bmj.com/content/51/1/51

¹⁷ The RFU publishes annual injury surveillance reports as part of the Professional Rugby Injury Surveillance and Prevention Project (PRISP). In the 2018-2019 season, injury incidence was 103 per 1000 player-match-hours. 28% of injuries were accrued while tackling, and 24% while being tackled. Concussion accounted for 20% of all injuries. www.englandrugby.com/participation/playing/player-welfare-rugby-safe/rugbysafe-research

¹⁸ www.open.ac.uk/people/jep34

¹⁹ In *Safety, fairness, and inclusion: transgender athletes and the essence of Rugby* (2020), Pike asserts: “it is particularly incumbent on World Rugby [and other “tackle-permitting institutions”, including the RFU] to be alert to increased risk, to oppose any increased risk that is not an ineliminable part of the essence of the game.” www.tandfonline.com/doi/pdf/10.1080/00948705.2020.1863814

²⁰ This statement forms part of the Background section in the proposed transgender policy.

²¹ RFU recommends mouth guards: www.englandrugby.com//dxdam/5d/5dc38850-7e05-4ba9-bfe3-911c820f2cfd/new%20protective%20equipment.pdf

responsive research addressing tackle height to minimise concussion injuries^{22,23} and player engagement in a scrum to minimise serious head/neck injuries,²⁴ and pitch side screening of concussive head injuries,²⁵ including state-of-the-art molecular diagnosis.²⁶ These, and other, measures demonstrate the serious commitment made by the RFU to maximise player safety.

- 3.11.** In terms of athlete categorisation to minimise injury risk, the RFU mandates segregation of male and female athletes from U12 (under 12 years old) level, and the junior game includes strict age-grading to minimise mismatches between young players of different development stages. Finally, non-contact (“tag” or “touch”) rugby can be played in mixed-sex teams, providing safe, recreational opportunities for casual players. However, of note:

“players of all ages and both sexes may train and play together in noncompetitive, non-contact rugby provided the following conditions are met: [...] (b) the organiser and/or coach has assessed the session and/or match to be safe for all players; and (c) under no circumstances is any element of contact rugby permitted and the training session and/or match should be conducted in accordance with the best practice principles set out in the Code.”²⁷

[bold: our emphasis]

- 3.12.** Emerging research shows that compared with males, female players appear more susceptible to concussive injuries, with more severe

²² www.laws.worldrugby.org/?domain=9&guideline=13

²³ In 2019, demonstrating their serious commitment to safety in the game, the RFU abruptly ended the trial of a new tackle height law after concussion rate increased when tackling was restricted to armpit level. www.bbc.co.uk/sport/rugby-union/47000468

²⁴ The RFU has driven scrum laws changes, such as prevention of “pre-loading”, to minimise head/neck injury risks. www.world.rugby/news/435760

²⁵ Pitch side screening of concussion severity, via the Head Injury Assessment (HIA) protocol, includes symptom assessment and functional tests of memory, cognition, and similar. www.sportsmedicine-open.springeropen.com/articles/10.1186/s40798-019-0231-y

²⁶ In *Unique diagnostic signatures of concussion in the saliva of male athletes: the Study of Concussion in Rugby Union through MicroRNAs (SCRUM)* (2021), Di Pietro et al. identified a molecular signature of saliva biomarkers predictive of concussion. www.bjism.bmj.com/content/early/2021/02/09/bjsports-2020-103274

²⁷ For age-grade rugby, player age is determined at midnight on 31st August at the beginning of each season, and all players must be registered centrally. The RFU operates strict rules regarding the limited circumstances in which age-grade players may participate in different age categories. The RFU also mandates strict non-contact rules when play is mixed sex. For more details, see: www.englandrugby.com/dxdam/08/0882fbc2-5069-4b69-b1f6-4dec9bf94385/Regulation%2015.pdf and www.englandrugby.com/dxdam/83/8375ce67-40ff-4b70-a28f-fbbae518009a/AGR-CoP-Aug2019-final.pdf

outcomes.²⁸ This susceptibility is attributed to lower muscular strength in the neck area that provides less resistance to unsafe rotational force at this axis on an impact like a tackle, and to more delicate brain structure. That is, playing rugby is particularly risky for female players. Although female players are more likely than males to accrue head injuries from contact with a knee or the ground, these emerging data underline the necessity for extreme caution when considering the safety of female players.

- 3.13.** Furthermore, the lower skill levels present in the community game place female community players at a greater risk of injury compared with their elite counterparts. In male rugby players, the rate of concussion was found to be over 5 X greater in the community game compared with elite games.²⁹ A study of an amateur female New Zealand rugby team over two consecutive seasons³⁰ found an injury rate of 247 per 1000 match hours, far higher than that reported in elite players (see **Section 3.8**). This increased risk for community female rugby players is compounded by the RFU assertion that, when considering inclusion of a transwoman in a female team, testing and comparison of data is “especially challenging in the community game.” Thus, the competitive level at which female rugby players are more at risk is the same competitive level at which the RFU acknowledges lower capacity to assess risk.
- 3.14.** The physical parameters that underpin the athletic performance gap between male and female athletes overlap with those that may introduce safety issues. For example, in rugby, increased shoulder width, hand size and upper-body strength in male players permits longer, harder passing for enhanced ball movement (fairness deficit for female players) *and* permits more forceful tackling through both active force application and greater kinetic energy as a result of increased size and speed (safety risk for female players). Similarly, the ability to exert force through pushing, pulling and lifting during activities including rucks, scrums, and mauls is greatly increased as a result of male physiological advantage, with safety risks resulting from the physical imbalances created by these advantages. Thus, safety and fairness may be considered somewhat linked considerations resulting from similar or overlapping sets of physical characteristics.

²⁸ Elisabeth Williams is researching head injuries in female rugby players. In this article, she describes why female players are more susceptible to head injury than male players, specifically that female players have lower impact resistance in their neck muscles and more delicate brain structures.

www.rugbypass.com/news/long-term-brain-damage-could-be-a-significantly-bigger-issue-in-womens-rugby-than-mens-says-lead-concussion-doctor/

²⁹ <https://link.springer.com/article/10.1007%2Fs40279-014-0233-3>

³⁰ www.kosmospublishers.com/incidence-of-match-injuries-in-an-amateur-womens-rugby-union-team-in-new-zealand-over-two-consecutive-seasons-2

- 3.15. Inclusion is not measured as a physical function of the sport, but as a social good that sports governing bodies may choose to pursue as part of their wider societal aims. Most obviously, the female category is itself an inclusion category, without which, owing to the stark differences in athletic capacity between male and female bodies and the associated safety risks, female athletes would not be able to access the benefits of rugby - personal achievement, sports-linked educational opportunities, earnings and prize money, and so on - on a footing equivalent to male rugby players. These fundamental realities underpin the necessity for protected female categories not just in rugby but in almost all sports.
- 3.16. The RFU policy repeatedly refers to “*reasonable*” actions regarding safety and risk. For example:

*“Where it is **reasonably** safe to do so”*

and:

*“Mitigate **as far as reasonably possible** against any risks.”*

[bold: our emphasis]

However, the RFU does not attempt to define “*reasonable*”, either in terms of magnitude or for whom the actions are “reasonable”.

- 3.17. The RFU states that:

“Player welfare is paramount”

(where the accompanying video³¹ makes it clear that “*welfare*” refers to physical safety rather than general well-being).

However, the RFU also claims that:

“The heart of the game is inclusion”

and:

“The proposed policy seeks to strike a balance between inclusion, fairness and safe participation.”

Thus, the RFU has contradictory priorities in its proposed policy. For example, one cannot make the physical safety of players “paramount” if one believes physical safety can be “balanced” against other factors.

³¹ www.englandrugby.com/about-rfu/rfu-policies/transgender-policy

- 3.18.** Compounding the concept of “*balancing*” is the issue of “*amount*”: safety, fairness and inclusion cannot be measured in comparable units, and the proposal to trade an amount of safety for an amount of inclusion cannot be conceptualised as a balancing act. That the RFU frames it as a balancing act acknowledges that prioritising inclusion necessarily involves a compromise between safety, fairness, and inclusion.
- 3.19.** Discussed above, sports that involve risk of physical harm to players as an inherent aspect of play acquire a special duty to minimise physical harm. We agree with the RFU that player welfare is paramount, and assert there can be no acceptable balance where the actual safety of players can be decreased to permit conceivable (or hypothetical) increases in player inclusion. We recommend the adoption of Pike’s “lexical priority” approach that treats safety, fairness and inclusion as a series of filters. When proposing this approach, Pike argues:
- “Of the possible sets of rules, we want only those that are safe. Of the set of safe rules, we want those that are also fair. Of the set of safe and fair rules, we want those that are also inclusive.”*
- 3.20.** Finally, we assert that the well-rationalised predictions of safety decreases argued by WR should trigger the most cautious of approaches to regulatory change, particularly when the decreases in safety are being imposed on female players who may not consent to such conditions (see **Section 7.3-7.4**) and for whom these regulatory changes may be decidedly “unreasonable”. WR recommendations are subject to revision should strong evidence indicate less stringent regulation is safe for female players. The proposal by the RFU to ignore this cautious approach compromises their duty of care to female players in England, placing those female players as subjects in a live experiment where the outcome may be catastrophic for a female player.

4. RESPONSE: PROPOSED 5 nM TESTOSTERONE LIMIT

- 4.1. In **Section 3**, we make the case, on both fairness and safety grounds, for a protected female category in rugby. In the proposed policy, the RFU defines “female” as:

“A person who does not produce male levels of testosterone at puberty.”

Biologically, this is, of course, an entirely inadequate description of female human beings. We therefore understand the RFU to be proposing a “sports definition” of “female” reduced to what they perceive as the key developmental difference between males and females as it pertains to sport.

- 4.2. Given the RFU understanding that testosterone during puberty is responsible for all (or almost all) of the physical differences between males and females, the RFU, like the IOC and many other sports federations, proposes regulating inclusion of adult transwomen via testosterone rules. Specifically, the RFU proposes that adult transwomen be permitted to play competitive, full contact rugby in the female category providing their serum testosterone levels are lower than 5 nM for 12 months prior to and during competition. We infer that the RFU considers this intervention one that removes the male athletic advantage acquired under high-testosterone conditions at puberty.
- 4.3. In 2015, the IOC announced the findings of a consensus meeting to formulate criteria for transgender athletes and those with testosterone outside of typical female values as a result of a 46, XY disorder of sex development. The criteria were: 1. The athlete has declared that her gender identity is female; 2. The athlete must demonstrate that her total testosterone level in serum has been below 10 nM for at least 12 months prior to her first competition (with the requirement for any longer period to be based on a confidential case-by-case evaluation, considering whether or not 12 months is a sufficient length of time to minimize any advantage in women’s competition), and; 3. The athlete’s total testosterone level in serum must remain below 10 nM throughout the period of desired eligibility to compete in the female category. These 2015 criteria superseded those from 2003 that mandated surgical sex reassignment as a condition of eligibility. In 2015, this was deemed to contravene “developing legislation and notions of human rights.”
- 4.4. A common argument for inclusion of transwomen in female categories is the lack of elite level (“Olympic”) competitors, used to evidence lack of performance advantage. The 2003-2015 requirement for surgical reassignment heavily limited potential participant numbers, and this

observation (if granted as true) does not constitute evidence that any transwomen does not or would not have a performance advantage over female competitors; rather, it reflects the extremely small starting pool and the unlikelihood that a transwoman would be sufficiently competitive to win Olympic medals. Indeed, IOC scientists Arne Ljungqvist and Myron Genel, upon introduction of the 2003 criteria, argued:³²

“Ultimately, the number of transsexual athletes who can successfully compete in open international events is likely to be small, in accord with the estimated incidence of gender dysphoria of one in about every 12 000 men.”

and:

“Individuals who fulfil these criteria will likely be at a relatively advanced age athletically [and thus, be non-competitive at elite levels].”

It is not true that transwomen have not succeeded in elite level sports. Of numerous examples, most obviously, 42 year old transwoman Laurel Hubbard (New Zealand, weightlifting) won a gold medal at the 2019 Pacific Games³³ and is a medal possibility in Tokyo 2021. Furthermore, the new criteria introduced in 2015 have not permitted sufficient time for athletes meeting lower-stringency criteria to qualify for many elite level competitions. Several transwomen are predicted to qualify and compete in Tokyo in 2021.

- 4.5.** 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.^{34,35} These reviews cover

³² [www.thelancet.com/pdfs/journals/lancet/PIIS0140-6736\(05\)67844-0.pdf](http://www.thelancet.com/pdfs/journals/lancet/PIIS0140-6736(05)67844-0.pdf)

³³ www.wikipedia.org/wiki/Laurel_Hubbard

³⁴ In *Transgender Women in the Female Category of Sport: Perspectives on Testosterone Suppression and Performance Advantage* (2021), Hilton and Lundberg collated multiple studies of around 800 transwomen measuring pre-transition musculoskeletal metrics compared with their metrics after at least one year, in some studies longer, of transition. These data were collected on transwomen as a routine aspect of their ongoing general health assessments within their clinical care teams. All transwomen had been successfully suppressing testosterone to around 1 nM for at least one year, and would therefore qualify for inclusion in female sports categories under the regulations specified by most sports federations. Where available within study cohorts, these metrics in matched female controls were used as a reference value to calculate retained advantage in transwomen.

<https://link.springer.com/content/pdf/10.1007/s40279-020-01389-3.pdf>

³⁵ In *How does hormone transition in transgender women change body composition, muscle strength and haemoglobin? Systematic review with a focus on the implications for sport participation* (2021), Harper et al. interrogated the same dataset as above, and included a systematic analysis of hemoglobin response to testosterone suppression: <https://bjsm.bmj.com/content/bjsports/early/2021/02/28/bjsports-2020-103106.full.pdf>

studies of height, lean body mass (LBM), muscle size and strength measurements in around 800 transwomen.

In transwomen successfully suppressing testosterone for 12 months, skeletal metrics do not change and the extent of muscle/strength loss is approximately 5% after 12 months, a modest change that is insufficient to bridge the baseline muscular differences between males and females.

- 4.6. By comparison with baseline measurements in matched females (where available in study cohorts), Hilton and Lundberg calculated retained advantage of muscle/strength (expressed as +%) in the studied transwomen:

Gooren and Bunck, 2004: +13% thigh muscle area after 3 years.³⁶

Wierckx et al., 2014: +39% lean body mass (LBM) after 1 year.³⁷

Van Caenegem et al., 2015: +28% LBM, +23% grip strength, +13% calf muscle area and +34% forearm muscle area after 2 years.³⁸

Auer et al., 2018: +27% LBM after 12 months.³⁹

Klaver et al., 2018: +28% arm LBM and +19% leg LBM after 12 months.⁴⁰

Scharff et al., 2019: +21% grip strength after 12 months.⁴¹

Wiik et al., 2020: +33% thigh muscle volume, +26% quad muscle area, +41% knee extension strength and +33% knee flexion strength after 12 months.⁴²

- 4.7. 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.”*

This conclusion was subsequently extended by Harper et al., who found:

³⁶ <https://eje.bioscientifica.com/view/journals/eje/151/4/425.xml>

³⁷ <https://www.sciencedirect.com/science/article/abs/pii/S1743609515300837?via%3Dihub>

³⁸ <https://link.springer.com/article/10.1007%2Fs00198-014-2805-3>

³⁹ <https://academic.oup.com/jcem/article/103/2/790/4688910>

⁴⁰ <https://eje.bioscientifica.com/view/journals/eje/178/2/EJE-17-0496.xml>

⁴¹ <https://ec.bioscientifica.com/view/journals/ec/8/7/EC-19-0196.xml>

⁴² <https://academic.oup.com/jcem/article/105/3/e805/5651219>

“Hormone therapy decreases strength, LBM and muscle area, yet values remain above that observed in cisgender women, even after 36 months.”

[bold: our emphasis]

- 4.8.** Thus, the most recent analyses generate a consensus that testosterone suppression in transwomen who meet the central IOC criteria adopted by most sporting federations, including that proposed here by the RFU, does not remove the male athletic advantage acquired under high-testosterone conditions at puberty. Male musculoskeletal advantage is retained, and this has serious implications for fairness and safety in rugby gameplay.
- 4.9.** The transwomen cohorts studied had average testosterone levels around 1 nM, and this (female-typical) level was insufficient to induce the magnitude of musculoskeletal changes required to create parity with female controls. There are no studies of scales of difference at 10 nM (the IOC threshold), 5 nM (the selected RFU threshold) and 1 nM (the typical level achieved by compliant transwomen). The 5 nM threshold selected by the RFU is thus arbitrary, and lacks evidential support that it, rather than a higher or lower threshold, is an effective threshold will deliver the inferred aim to remove male performance advantage.
- 4.10.** Hilton and Lundberg note that requiring as a condition of inclusion a pharmaceutical intervention that does not deliver the intended aims of the treatment (in this case, removal of male performance advantage) raises medical-ethical questions and:

“May drive medical practice that an individual may not want or require.”

5. RESPONSE: SCREENING AT 170 cm/90 kg THRESHOLD AND BY PLAYER RECORD

5.1. The RFU intends to conduct individual assessments of transwomen who are compliant with the proposed testosterone criteria but who may retain male advantage. In the first instance, a blunt screen will flag transwomen who are over 170 cm in height or 90 kg in mass for individual assessment. These figures were selected as the 90th percentiles for the average UK female population, and are therefore, the RFU argues, within the “norms” for this female population. Superficially, this seems to be a positive action that will protect female athletes from playing with or against transwomen with size-based male advantage who may pose an increased safety risk for female players.

5.2. It is not clear whether both or just one of the thresholds must be exceeded to trigger assessment protocols, with wording between the policy document and accompanying video variously using “and”, “or” and “and/or”.

5.3. The RFU states that:

“Research does not suggest that size has an effect on injury risk.”

In rugby, concussive head injuries accrued during tackles or groundings are a high-frequency occurrence compared with other injury types (see **Section 3.8**). The source of concussion is usually a “whiplash” event (rotational force at the head/neck axis) that results from sudden, forceful impact. In its policy, the risks for head injuries projected by WR were calculated by modelling tackles between players of various sizes, underpinned by basic Newtonian mechanics and biomechanical models, where transfer of momentum from higher to lower mass players manifests as increased rotational force at the head/neck axis, thus increasing a known risk factor for concussive head injuries.

5.4. The RFU acknowledge:

“The unique variance of physical and psychological developmental changes that take place during puberty.”

The current RFU age policy is that, unlike age groups either side, boys aged 13-17 years old, where size differences by age are at their largest, are not permitted to play rugby in mixed year groups (“combining”), and individuals who may apply to “play up” or “play down” a year group require assessment and consent from someone with parental responsibility. Furthermore, playing restrictions are in place for both male and female 17 year olds who may wish to “play up” in the adult game. Thus, the RFU

statement that size is irrelevant for injury risk is undermined by the RFU's own policies on permitting young players to compete in different age grades.

- 5.5. We note here that when mapped to existing age policies, the proposed RFU policy creates a scenario where young boys are (rightly) protected from playing with other boys deemed unsafe in terms of physical development, while young girls may be forced to play with transgirls who have large physical advantages over them.
- 5.6. The premise that size has no effect on injury risk is further undermined by the rationale underpinning regulations that mandate weight classes in semi- and full contact sports like boxing, wrestling and martial arts disciplines, which exist to preserve both safety and fairness for athletes of different mass.
- 5.7. If, despite basic principles of physics and biomechanics, and in spite of the rationale behind their existing age policies, the RFU denies that size has an effect on injury risk, the question then becomes: why threshold assessments of advantage on size criteria?
- 5.8. The WR projections were limited to simple calculations that did not account for other factors causing greater rotational force at the head/neck axis during a tackle, such as the speed of the impact and the force the tackler can exert on the ground (a function of strength), where both speed and strength are male-typical advantages increasing injury risk over and above the mass parameter alone. Thus, WR estimates of increased injury are not only limited to size, but a conservative estimate when other factors are accounted for.
- 5.9. Strength is derived from muscle mass, the majority component of LBM. In terms of body composition, compared with females, males have lower fat % and higher LBM %.⁴³ Using LBM calculators,⁴⁴ a 170 cm/90 kg male is predicted to have an LBM of up to 63.1 kg, while a height- and weight-matched female has an LBM calculated at up to 54.8 kg. This difference of around 10 kg is carried through to athlete populations.⁴⁵
- 5.10. Using LBM calculators, to achieve LBM parity with a 170 cm/90 kg male, one must hypothesise female metrics of at least **188 cm/90 kg** or **170 cm/120 kg** (and scaled positions in between). These extremes of height and weight are well beyond the 90th percentile for females and do not constitute “norms” for this population. The relationship between weight,

⁴³ <https://bsd.biomedcentral.com/track/pdf/10.1186/s13293-018-0189-3.pdf>

⁴⁴ There are various algorithms to predict LBM mass for a given body weight. This website incorporates three such tools to offer a range of results: www.calculator.net/lean-body-mass-calculator.html

⁴⁵ www.bjism.bmj.com/content/52/4/219.long

LBM and strength is evident in weightlifting performance, where males can lift around 30% greater weight than females of the same height and weight⁴⁶, a fact attributable to a larger proportion of that matched weight being composed of muscle. Further comparison of this lifting data shows that males are, in fact, stronger than far larger females.

- 5.11. Thus, the threshold of 170 cm/90 kg appears superficially to meet female “norms” at the 90th percentile. However, males and females of the same height and weight do not present the same amount of force-producing muscle mass, and the functional abilities of a 90 kg male far exceed anything that can be described as female “norms”. Given the minimal loss of LBM/muscle/strength achieved with testosterone suppression outlined in **Section 4.5**, we assert these thresholds are too generous to deliver parity of functional output in terms of strength, if such parity can be achieved at all.
- 5.12. A second screen proposed in the RFU policy to detect retained male advantage is the examination of the previous playing record of a transwoman athlete. No criteria are outlined for what type of historical data will be examined, or for how any data will be used to inform decision-making. A common suggestion to protect against male advantage be carried through to the female category (not enacted in any sports governing policy) is to automatically exclude transwomen who have achieved elite competitive levels playing as a male, regardless of current physical mass, strength, or other metrics. Such a proposal is a tacit admission that the male game is too significantly different from the female game to permit crossover, regardless of performance data. If safety records while playing as a male or transwoman reveal recklessness or similar, how will that be reported?

⁴⁶ www.iwf.net/results/world-records

6. RESPONSE: INDIVIDUAL ASSESSMENTS

- 6.1. In cases where the height, weight or playing record (or, as proposed, at the discretion of the RFU for any reason) of a transwoman flags potential risks, the RFU proposes to conduct coach-led individual assessments to assess “material performance advantage” or to determine “safety risk to other participants which is above the level presented by [competitively comparable] cis women players.”
- 6.2. To ensure good decision-making, the RFU age-grade player assessments require a second coach to have input. An immediate problem with proposed player assessments in this proposal is the lack of independent assessment. Coaches may have competing incentives, overwhelmingly in favour of inclusion, in conducting such assessments, when considering the potential for improved overall competitiveness of their *own* team, the fact that the safety risk that will be largely borne by *other* teams, and the social climate in which exclusion decisions are made.
- 6.3. Kelly Morgan is a transwoman rugby player for Porth Harlequins Ladies.⁴⁷ Club founder Brian Minty says:

"She's going to be a good, good player for the next few years, as long as we can stop her injuring players in training."

Coach Wayne Mansell notes:

"Some days are good, some days are bad, but at the end of the day can you really exclude people?"

The tone of these statements indicates a desire to include (or perhaps, an unwillingness to exclude) Morgan, even when her safety record is accounted for.

- 6.4. Lauren Jeska is a transwoman fell runner who, in 2016 after being asked to provide medical evidence of her testosterone levels, stabbed a UK Athletics official in the head and neck, causing permanent, life-altering injuries. In 2017, Jeska was sentenced to 18 years for attempted murder.⁴⁸ While this is an unusual and unpredictably-extreme response to regulatory requirements, it nonetheless contributes to a fearful and hostile environment for those involved in decision-making and enforcement.
- 6.5. This hostile environment is evident in the abuse ever-present on social and in mainstream media, again directed at those who object to or even

⁴⁷ www.bbc.co.uk/sport/rugby-union/49298550

⁴⁸ www.athleticsweekly.com/athletics-news/fell-runner-lauren-jeska-jailed-for-attempted-murder-of-uk-athletics-official-58771

discuss regulations.^{49,50,51} for examples When it is impossible for many famous athletes to make public their opinions in this debate, it is foolish to expect coaches and officials to be immune to this social pressure.

- 6.6. There is no detail of which tests proposed assessments will include, and there are no criteria for how these tests will be used to judge “potential performance advantage.” We have spoken about these assessments with coaches in grassroots community clubs, who have told us:

“It’s ridiculous. How on earth can I judge that? I’m in no way qualified.”

“Asking grassroots coaches to do that risks them being publicly shamed in the community if they come up with the “wrong” answer.”

“I would refuse to perform the assessment and say why.”

- 6.7. The RFU position is that “research does not suggest that size has an effect on injury risk” and that “difference in strength and speed may indicate a potential performance advantage.” It is not at all clear which physical parameters the RFU **would** consider to offer performance advantage. Thus, the proposed efforts to screen height, weight, strength and speed are rendered entirely subjective at the discretion of the assessor. Even if a coach feels qualified to assess a transwoman according to some given criteria, if that transwoman is tall, heavy, strong and/or fast, the proposed RFU policy has provided no usable guidance for the exclusion of a transwoman based on those characteristics.

- 6.8. Finally, individual assessments are fraught with difficulties and unintended outcomes. The division of transwomen into those who are sufficiently ‘feminine’ to play versus those assessed as ‘too masculine’ to play defies inclusion slogans like “acceptance without exception”⁵² (or the more circular “transwomen are women”⁵³) and creates stigma for a subset of transwomen. In effect, the RFU will be targeting individual transwomen rather than assessing a group according to objective, neutral criteria. Furthermore, for female players, these understandings reinforce the sexist and completely unacceptable idea that strong female athletes are in some way “masculine”.

⁴⁹ www.twitter.com/SportsARight/status/1380339202668236804

⁵⁰ www.twitter.com/KirstiMiller30/status/1288432803072286720?s=20

⁵¹ www.outsports.com/2020/12/28/22202016/outsports-asshole-2020-world-rugby-transgender-trans-women-athletes-ban-adf-idaho-connecticut-track

⁵² www.stonewall.org.uk

⁵³ www.stonewall.org.uk/node/45364

6.9. While speed tests are simple to perform, clubs, particularly at the community level, are unlikely to have the equipment necessary to perform individual assessments of strength, and will have to rely on self-reporting of lifting capacity. Even when directly observed, there is no mechanism to ensure that transwomen fully engage with strength and speed tests in individual assessments. All studies involving human subjects are prone to behavioural bias, especially when there is a clear personal incentive for the subject to behave in a particular way (this is standard knowledge of human psychology, rather than an accusation of ‘cheating’). Most of the clubs covered by this policy will have no way of detecting conscious or subconscious ‘sandbagging’ during assessments.

6.10. A corollary of inclusion being dependent on remaining below an as-yet unspecified functional output is the incentive for transwomen to undertrain. As a cohort, transwomen have low exercise uptake in general and active avoidance of strength activities that might build a muscular physique.⁵⁴ Low exercise uptake is evident in higher fat %, compromised bone mineral density and low Vitamin D levels.⁵⁵ Activity, including weight-bearing exercise, should be encouraged rather than disincentivised. Incidence of disordered eating in transwomen is a concern,⁵⁶ and imposing weight restrictions may exacerbate such comorbidities.

⁵⁴ www.sciencedirect.com/science/article/abs/pii/S8756328208007722?via%3Dihub

⁵⁵ <https://link.springer.com/article/10.1007/s00198-014-2805-3>

⁵⁶ www.ncbi.nlm.nih.gov/pmc/articles/PMC6402566

7. RESPONSE: LISTENING TO FEMALE PLAYERS

- 7.1. The RFU proposes a route for athletes to raise concerns about the proposed policy. The accompanying text suggests that such measures are aimed at those transgender athletes covered by the policy. It is not clear that female athletes who are concerned about the implications of this policy have been offered a route to raise their concerns. We have personally heard testimony from current and former **RFU players** and **RFU staff** who feel unable to raise concerns about safety and fairness with the RFU for fear of sanction, a situation that is completely unacceptable for a governing body with a duty of care to these athletes and their staff.
- 7.2. During its 2020 consultation, WR surveyed female players for their experiences and opinions on the inclusion of transwomen in competitive, full contact rugby, and the results of this survey are publicly available.⁵⁷ Responses were garnered from female players in the Sevens Series, Six Nations, and other elite competitions (only four responses were received from community players, which cannot be considered representative).
- 7.3. Around 66% of female players correctly understand the strength difference between males and females to exceed +15%, and over 90% estimate it as over +10%. In fact, these are gross underestimates of actual strength differences between male and female rugby players, which are calculated, via bench press 1RM, at +67%-92% between matched percentile players and +13% between the weakest males and strongest females (see **Section 3.6**), presumably because the category answers were constructed by question designers who themselves may not have grasped the magnitude of difference. In the Sevens Series, over 70% of females confident in answering did not support inclusion of transwomen, rising to over 80% for Six Nations females. Overall, around a third of female rugby players did not feel confident in answering.
- 7.4. On the inclusion of transwomen in female rugby categories, female rugby players, under conditions of anonymity, said:

“There is such a physiological difference between men and women. I am one of the biggest on the circuit and even I would never play with men.”

“If the individual went through puberty as a male and only began transitioning after puberty, they have an unfair advantage due to their development as a man. Their body mass could be much bigger giving unfair advantage and could cause harm to other female rugby players.”

⁵⁷ <https://playerwelfare.worldrugby.org/?subsection=84>

“There is a clear difference in strength, speed and agility. Not only is that a wickedly unfair advantage, but these are also the characteristics of Rugby 7s that make our game so enjoyable and entertaining. Following Olympic protocol and tapering transgender women off of testosterone does not discount the X amount of years their body competed with and against males, as well as the time their body spent building muscle with testosterone.”

“I am fully for the LGBTQA+ community, however, we can’t deny that if someone was to transition at the age of let’s say 25 and lived their whole life as a male, we can’t completely take away the physical composition of the trans individual that could potentially impact those playing with and against them in a contact sport like rugby.”

“The potential risk to other players, given their natural physicality levels, outweighs the potential benefits of inclusion even with the reduction in testosterone levels.”

“12 months of reduced hormones will not compensate for their strength. Rugby cannot do what the Olympics does for health and safety reasons, males are too strong.”

“I think there is still an advantage for the women because they have male levers so they can produce more power and torque. They still have the muscle density from when they were male.”

“I have personally competed/played against a team that had a transgender [woman] in their team. She was my opposite number. Despite taking hormones, the body composition, and the impact of tackling that player was no comparison to a female cisgender player. I am not against transgender [women] competing in sports but when it comes to a CONTACT sport, I think we are putting a clear disadvantage as well as the security of our players in contact area.”

- 7.5.** Sex Matters has collected statements on inclusion of transwomen in female sports categories, many published in our formal response to the UK Gender Recognition Act Reform process:⁵⁸

“I want sports to be fair; I want young female athletes to benefit from them the same way I did, and I want elite female athletes I look up to to have the wins they deserve.”

“Both my daughters play sport to a high level and I see the strength, resilience and confidence this gives them. I don’t want female sport ruined by having to compete against men.”

⁵⁸ www.sex-matters.org/wp-content/uploads/2021/01/WESC-GRA-Reform-201127-Sex-Matters.pdf

“Women’s sports exist to provide a level playing field and allowing trans women with women to compete distorts this level playing field. It will have a negative impact on the careers and livelihoods of women athletes which is already underfunded and under resourced compared to men’s sports.”

“[On playing rugby against a transwoman] The player was similar in stature (height) but was lightning fast, super strong and basically playing our girls all over the place. We didn’t have a chance. Not even our fastest players could get near them.”

- 7.6.** As a preliminary note to this response, we alluded to the consequences of female athletes speaking up on transgender inclusion policies. Examples of these consequences include the removal of advocacy positions (Martina Navratilova/Athlete Ally),⁵⁹ threats to sponsorship (Kelly Holmes/Specialized and Garmin),⁶⁰ threats to paid activities (Ronda Rousey/Mortal Kombat 11),⁶¹ sanctions within competition and forced apologies (Jennifer Assali/USA Cycling),⁶² and abuse on social media (Sharron Davies, Nicola Adams).^{63,64} When even high-profile female athletes and advocates, including those who belong to the wider LGBT community, are harshly denounced and sanctioned for questioning and/or defending female categories of sport, it is no surprise that many other female athletes are too fearful to make their voice heard.

⁵⁹ www.athleteally.org/navratilovas-statements-transphobic-counter-to-our-work-vision

⁶⁰ www.twitter.com/sportisaright/status/1103427361268219904

⁶¹ www.vice.com/en/article/qv7b5w/ronda-rousey-mortal-kombat-11-transphobia

⁶² www.facebook.com/watch/?v=2233496600096732

⁶³ www.independent.co.uk/life-style/sharron-davies-transgender-women-banned-sport-a8805186.html

⁶⁴ www.twitter.com/Bex_Stinson/status/1317735827800268800

8. RESPONSE: OTHER POINTS AND UNANSWERED QUESTIONS

- 8.1.** The RFU asserts that it has considered and rejected alternative policies to regulate inclusion of transwomen in female rugby. There are no outlines of alternative policies considered, or reasons for rejection given. Thus, those responding to this consultation are unable to critically evaluate all options. Furthermore, this omission prevents female players and transwomen from fully-engaging with processes regulating their game, and may contribute to breakdown of trust between players and their governing body.
- 8.2.** The RFU have not outlined any liability incurred by rejecting the safety risks projected by their international governing body. Who holds ultimate liability in case of a serious incident? Who holds liability at the pitch side? Will referees feel empowered to exclude a player who presents an undeniable safety risk?
- 8.3.** In respect of a transman/boy who has commenced testosterone, the RFU proposes to assess, on application, continued eligibility in the female category. We infer from this that the RFU may, in some circumstances, permit testosterone use in the female category. Testosterone supplementation beyond typical physiological levels is an activity universally sanctioned by doping legislation to protect fairness for athletes. We strongly urge the RFU to clarify its position on use of testosterone in the female category.