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ARTICLE

Creating equality through differentiation in doping control

Marjolaine Viret[1] · **Martial Saugy**[2] · **Francesco Botrè**[3,4]

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Abstract
Awareness of human rights and related principles, such as equality and non-discrimination, is growing in sports. While debates on doping regulation typically target the contours of the prohibition and the sanctioning regime, much less attention has been given to how anti-doping detection impacts the level playing field, *i.e.* whether equality is realised in the manner in which the substances and methods are detected in athletes' samples, or whether athletes are all equal when it comes to the analytical cut-offs that the regulations set. This article seeks to fill this gap and explores the implications of differentiation—or non-differentiation—in anti-doping detection for principles of equality and non-discrimination. After discussing notions related to equality in anti-doping detection, the article presents case studies from current anti-doping analytics, to make differentiation in that context tangible. Based on case law of the European Court of Human Rights, the Swiss Supreme Court and the Court of Arbitration for Sport, we submit that anti-doping authorities should resort to an operational 'discrimination test' when drafting technical regulation for anti-doping, in order to incorporate these principles 'by design' into the detection system. The article also demonstrates that—apparently—technical rules are not value-neutral, but that scientific data and policy choices are entwined in a way that warrants debate on the political scene, and creates duties of transparency and justification on part of the decision-makers.

Keywords Human rights · Equality · Non-discrimination · Anti-doping · Science-informed policy

1 Introduction

Awareness of human rights and related principles such as non-discrimination has grown in the past decade in sports. The trend is palpable even in the jurisprudence of the Court of Arbitration for Sport (CAS), in connection, in particular, with cases dealing with disability in non-paralympic sport, and with the regulation of participation of athletes with variations in sex characteristics ('intersex' athletes).

The question of 'equality' is central to sports competition. The distinctive feature of sport as a social activity is that it depends on an environment in which performances can be produced under conditions that makes them worth comparing. Equality has risen in importance, however, both through import of human rights thinking into sports regulation, and through the advent on the political scene of policy dilemmas that could not previously arise, or were not prominent in public attention. Science and technology have markedly contributed to this: *e.g.* by developing the technological means that allow a double-amputee runner with carbon prostheses to surpass their 'able-bodied' competitors, or by bulldozing the neat binary sex categories that sports thought they could rely on to create fair opportunities for male and females alike.

Equality is also at the core of the prohibition of doping in sport. A key goal of anti-doping is to support a level playing field. This goal is to be achieved, primarily, through the collection and analysis of doping control samples. With some exceptions, in particular the anti-doping analytical strategies

✉ Marjolaine Viret
marjolaine.viret@unil.ch

1 Institute of Sport Sciences, Faculty of Social and Political Sciences, University of Lausanne, Synathlon, 1015 Lausanne, Switzerland

2 Center of Research and Expertise in Anti-Doping Sciences, Institute of Sport Sciences, Faculty of Social and Political Sciences, University of Lausanne, Synathlon, 1015 Lausanne, Switzerland

3 Director Center of Research and Expertise in Anti-Doping Sciences, Institute of Sport Sciences, Faculty of Social and Political Sciences, University of Lausanne, Synathlon, 1015 Lausanne, Switzerland

4 Director Laboratorio Antidoping, Federazione Medico Sportiva Italiana, Rome, Italy

based on the longitudinal monitoring of individual athletes, the criteria set by the World Anti-Doping Agency (WADA) to report an adverse analytical finding apply to the entire population of athletes. It is instead increasingly recognized with the advent of personalized medicine that individuals, or populations of individuals, may react differently to identical pharmacological interventions. The doping control system equally needs to question its 'one-size-fits-all' philosophy, in which interindividual variability is disregarded.

Given that variability factors frequently depend on intrinsic characteristics protected by prohibitions of discrimination, such as sex or ethnicity, the approach taken in that regard has significant impact on the ability of the anti-doping system to account for human diversity in creating a level playing field. What may appear at first sight a purely technical choice thus has deep implications for policy-making.

While there are significant debates about what ought to be prohibited, or how violations ought to be sanctioned, little attention is given to the question of how fairness is achieved within the anti-doping system, *i.e.* in the quantification and reporting of prohibited substances or methods from athletes' samples. This article explores the limits of a 'one-size-fits-all' approach in anti-doping, and discusses the implications of differentiation—or non-differentiation—for principles of equality and non-discrimination.

After discussing the difficulties in implementing 'equality' in doping control Sect. 2, we present some case studies from current anti-doping analytics, to make differentiation for equality in anti-doping detection tangible Sect. 3. Analysis of case law of the European Court of Human Rights (ECtHR), Swiss Supreme Court and the Court of Arbitration for Sport on discrimination and equality issues shows that it is possible to resort to a uniform, operational, set of criteria to assess, *ex ante*, whether a differentiation in setting up technical rules for anti-doping analysis is required, or, on the contrary, should be avoided Sect. 4. These criteria, however, also show that political and legal evaluation on one hand, and availability of scientific data, on the other, are entwined in a way that creates a number of hurdles for policy-makers trying to achieve equality in anti-doping detection Sect. 5.

2 The conundrum of equal opportunity

2.1 Level playing field and the WADA Code

In the doping matter *I. v. FIA*, the CAS panel described 'level playing field' as a "cornerstone of sports law in general and of anti-doping law in particular",[1] a principle "without which it would not be true sport".[2]

Encouraging a level playing field in sports (World Anti-Doping Code (WADA Code or the 'Code'), Fundamental Rationale) is, indeed, a key goal of anti-doping. Under 'Fundamental Rationale for the World Anti-Doping Code', the WADA Code states:

> "*Anti-doping programs seek to maintain the integrity of sport in terms of respect for rules, other competitors,* ***fair competition, a level playing field****, and the value of clean sport to the world*" (emphasis added).

It has been argued, however, that there is a lack of genuine in-depth reflection on the foundations that lie behind and beneath the generic idea that anti-doping is there to support a level playing field: it is hard to justify anti-doping through this rationale alone.[3] Though impactful statements on fundamental rationales such as the above are designed to rally approval, consensus tends to crumble when it comes to actually defining the contours of the unacceptable.

To determine what is to be prohibited, Art. 4 WADA Code lists as one of the criteria of inclusion on the Prohibited List:

> "*4.3.1.1 Medical or other scientific evidence, pharmacological effect or experience that the substance or method, alone or in combination with other substances or methods, has* ***the potential to enhance or enhances sport performance"*** (emphasis added).

This criterion represents the regulatory crystallisation of level playing field. It cannot suffice in and by itself, however, since the very purpose of competitive sport is to gain an advantage over competitors.

The Code, therefore, had to design a mechanism to identify when a performance advantage becomes an illegitimate one. In order to justify prohibition, performance enhancement must come together with at least one of the two other criteria (risk for the athlete's health or violation of the spirit of sport). Much that is done in sport, including training,[4] is designed to enhance performance and has the potential to be damaging to health. Even the combination of performance enhancement and risk for health calls for a normative assessment, a rationale to delimit what is regarded as tolerable within sport. The WADA Code expresses this supreme rationale as "the intrinsic value of sport" (section

[1] CAS 2010/A/2268, *I. v. FIA*, para. 113.

[2] CAS 2010/A/2268, *I. v. FIA*, para. 70.

[3] Murray 2017, p. 189.

[4] Dimeo 2007, p. 17, mentions how "*the most committed gentleman amateurs would shun any form of training, much less take drugs, as they considered such enhancements contrary to the spirit of sport*".

Fundamental Rationale), and adds that it is synonymous to the spirit of sport.

Thomas Murray, the originator of the definition of spirit of sport in the WADA Code, claims that the spirit of sport ultimately forms the sole true criterion for the prohibition, that one must look at "meanings and values in sport".[5] Since the spirit of sport as exemplified in the Code refers back to concepts such as "fair play", "excellence in performance", "respect for rules and laws" (section Fundamental Rationales), which are hard to apply in practice,[6] the realisation of the ideal of level playing field through anti-doping must depend on other variables if it is to avoid purely circular reasoning.

2.2 What is 'level' anyway?

Whereas the WADA Code itself relies on the notion of level playing field, the ECtHR, in the case *FNASS et al. v. France*, involving national whereabouts requirements, introduces equality of opportunity to the equation:

> « *As to the second aim relied upon, namely the protection of morals, the Government referred to fairness in sporting competitions. The Court observes that the need to tackle doping has always been recognised in the sporting world, and refers in this regard to the international instruments cited above, which mention* ***fair play and equality of opportunity*** *as being fundamental to the fight against doping*» (emphasis added).[7]

The issue of 'equality' runs like a red thread through Western political philosophy and constitutional developments,[8] and is central to discussions of philosophy and ethics in sport. Matthieu Perruchoud recently devoted an in-depth legal analysis to the concept of equality of opportunities in sport, in all its legal facets, and also extensively presents both historical and philosophical origins of equality and related concepts.[9] Perruchoud's analysis shows both overlap and ambiguity between various concepts around equality in sports, and indeed for various authors 'equal opportunities' and 'level playing field' are often used interchangeably.[10] Our ambitions here have to remain more modest: we solely seek to explore the form that equality takes in anti-doping, its interrelationship with discrimination, and to identify the stakes specifically for the design of the detection system in doping control.

The idiosyncrasy of sport is that its very purpose is to value, and reward, differences: "The social logic distinguishing sport competitions from other social practices is **to measure, compare, and rank** participants according to athletic performance" (emphasis added).[11]

This thus excludes from the outset relying on an equality of 'outcomes'.[12] What is required, rather, is an equality of opportunities, a 'something' that can be meaningfully compared through competition. For Antonio Rigozzi, equal opportunity among competitors is ultimately the *raison d'être* behind every sports rule.[13] Like the ECtHR in *FNASS et al. v. France*, the Swiss Supreme Court, in its decision *Schafflützel & Zöllig v. FSC* regarding equine doping, recalled that: "the fight against doping is aimed at **safeguarding equality** among competitors and **fairness of competitions**" (emphasis added).[14]

Scholars in philosophy or ethics favour the expression "'fair equality of opportunity' principle", according to a model developed by Sigmund Loland.[15] The component of 'fairness' not only ties back to other foundational concepts of sport such as 'fair play', but also adds a layer of analysis, and perhaps of pragmatism, in that it acknowledges that there is no such thing as an absolute equality in opportunities. The CAS panel in *Rinaldi v. FINA* described equality as an ideal to strive for: "just as human beings are born with unequal opportunities, athletes cannot hope to always be on equal footing. Nevertheless, the regulators of sport can **try to tend in the direction** of equality" (emphasis added).[16] One must, therefore, find a way of determining which sort of allocation of opportunities is a reasonably 'fair' one.

2.3 How much equality is 'fair'?

The conundrum in sport is to draw the line between legitimate inequality, based on which medals are handed out, *versus* illegitimate inequality, based on which doping sanctions are imposed. As Loland puts it: "Why are some inequalities eliminated or compensated for, whereas other inequalities (in performance) are given core meaning and measured, compared, and ranked in meticulous ways?".[17]

Generally speaking, illegitimate inequality relies on traits that one determines should be irrelevant to a comparison of sports performance, to the point that they must be

[5] Murray 2017, p. 190.

[6] Loland and Hoppeler 2011, p. 349.

[7] ECtHR, *FNASS et al. v. France*, n° 48151/11 & 77769/13, para. 166.

[8] Biaggini 2017, ad Art. 8, para. 5.

[9] Perruchoud 2020.

[10] Perruchoud 2020, para. 137 and refs.

[11] Loland and Hoppeler, 2011, p. 349.

[12] Perruchoud 2020, para. 84.

[13] Rigozzi 2005, n° 1273.

[14] TF, 5C.248/2006, 23 August 2007, para. 4.6.3.2.2 (our translation): « *la lutte contre le dopage vise à sauvegarder l'égalité entre les concurrents et la loyauté des compétitions* ».

[15] See the summary in McNamee et al. 2021.

[16] CAS 2007/A/1377, *Rinaldi v. FINA*, para. 31.

[17] Loland 2018, p. 11.

compensated for in certain circumstances. When the need for compensation arises, unless one allows athletes to have an aid (e.g. contact lenses or prosthesis), one typically creates categories (weight, male-female, etc.) within which comparison is again deemed to appear meaningful.[18]

These inequalities that should be eliminated or compensated for are those over which individuals or groups "exert little or no control and for which they cannot be held responsible".[19] Loland distinguishes in this context 'stable' from 'dynamic' inequalities: stable inequalities are those that an athlete "cannot control or impact in any significant way".[20] For Perruchoud, only natural inequalities—meaning inequalities of talent—or inequalities of merit should be allowed to exist in sports competition.[21]

In anti-doping specifically, the very first article of WADA's Athletes' Anti-Doping Rights Act proclaims 'equality of opportunity', where it is equated in essence to doping-free sport: "Athletes have the **right to equal opportunity** in their pursuit of sport to perform at the highest level in both training and competition, **free of participation by other athletes who dope** […]" (emphasis added).[22] The 'natural' *versus* 'artificial' divide seems to play an important role in the perception of what is illegitimate by participants of sport and sports governing bodies.[23] No one should be penalised for something that is 'natural'. The WADA Code itself describes the spirit of sport as "the ethical pursuit of human excellence through the dedicated perfection of each Athlete's **natural talents**" (emphasis added).

The idea of natural performance is so engrained in sports policies that it was not even deemed necessary to state explicitly in the Code that a prohibited substance is not prohibited if it is endogenously produced.[24] The Code only does so indirectly, by reminding athletes of their responsibility to ensure that no prohibited substance "enters their body" (Art. 2.1.1; Art. 2.2.1). It took a claim of impermissible doping sanction in *Chand v. IAAF* (newly World Athletics)[25], in connection with hyperandrogenism regulations, for a CAS panel to truly make this point under the WADA Code:

> "*By contrast, anti-doping sanctions seek to punish and deter certain prohibited conduct, namely the deliberate or inadvertent ingestion of performance enhancing substances. In particular, anti-doping rules are concerned with limiting the distorting effect of external substances that give athletes advantages over other competitors who have* ***not received the same extrinsic performance aid***. The ***concept of "endogenous doping" is therefore a contradiction in terms***" (emphasis added).[26]

As Loland and Hoppeler insist, though, natural and artificial "are to a large extent social and cultural constructions that change over time".[27] This is because social consensus may change, but also because traits previously considered unalterable or distinctive may become modifiable or fluid with advances in technology and knowledge. In other words, the perception of what one is responsible for or not may evolve, and/or humans may learn to master what was previously considered out of control.

Though our subject will require us to focus primarily on the risk of discrimination *stricto sensu*, there are useful take-aways from the general 'fair equality of opportunity' principle for the context of detection in doping control: first, the idea that no one should be penalised for something that is 'natural' to them. As we shall see, the idea of protecting the 'natural'—if interpreted as meaning that over which a person has no control or which they are not responsible for—[28] is also reflected in the lists of traits that traditionally form the core of anti-discrimination laws. Second, the definition of the protected realm of the 'natural' may vary over time, and the weighing of interests in that area therefore depends on the *Zeitgeist*. Third, full, absolute, equality of opportunity is usually not achievable or not practicable, so that one must aim for a just sufficiently 'fair' equality.

Section 3 presents the specificities of the doping control system that one must have regard to. We will use 'differentiation' as a non-connotated, descriptive, umbrella term to avoid pre-empting the analysis as to whether differentiation—or absence thereof—can be tied to a situation of discrimination.

[18] Loland 2018, p. 10; Loland and Hoppeler 2011, p. 350.

[19] Loland 2018, p. 11.

[20] Loland 2020, p. 584.

[21] Perruchoud 2020, para. 85.

[22] Article 1 Athletes' Anti-Doping Rights Act (wada-ama.org) (accessed 15.09.2022).

[23] Loland and Hoppeler 2011, p. 348.

[24] Viret 2016, p. 363, and pre-WADA Code references cited (save, of course, if it is the result of the intake of another prohibited substance or of use of a prohibited method, but then the violation consists in said intake or use).

[25] In November 2019, the International Association of Athletics Federations (IAAF) was renamed 'World Athletics'. This article uses 'IAAF' when referring to jurisprudence in which the former name was still in use, and in related quotes.

[26] CAS 2014/A/3759, *Dutee Chand v. AFI & IAAF*, para. 543.

[27] Loland and Hoppeler 2011, p. 348.

[28] Loland 2018, p. 11.

3 Differentiation in anti-doping analytics

3.1 Differentiation based on protected characteristics

As Sect. 2 showed, there are significant debates around achieving a level playing field in anti-doping, in particular around the rationales for the doping prohibition, and its contours. Much less attention, however, has been given to the question of how doping control impacts the level playing field, *i.e*. whether equality is realised in the manner in which the substances and methods defined as prohibited are actually detected in different athletes' samples, or whether athletes are all equal when it comes to the various analytical cut-offs that the regulations set.[29]

To our knowledge, there has been no attempt so far to give some substance to the 'fair equality of opportunity' principle in this context. This Section, as well as Sect. 5, proposes to do so, with a view specifically to identifying aspects that may lead to discrimination.

When discussing equality in connection with anti-doping detection, especially in the case of substances and markers that need to be quantified, reference should be made perhaps more precisely to 'equality with respect to pharmacology', which runs two ways: equality with respect to having an adverse analytical finding or atypical finding reported,[30] if one has taken a prohibited substance or used a prohibited method, as well as equality with respect to having no such finding reported, if one has not taken a prohibited substance or used a prohibited method. This question thus overlaps with the policy choices made about the acceptable balance in the rate of false positives *versus* false negatives, especially where cut-offs have to be set.

False positives and negatives *stricto sensu* result, for every substance, from the characteristics of sensitivity *versus* specificity of the analytical method employed. These parameters arise in part from technical necessities, but also in part from policy choices (which include choice of the analytical method in the first place). An additional type of false positive and negative exists for threshold substances, or substances that otherwise depend on a cut-off. These are governed in the WADA system mainly by the Technical Document for Decisions Limits (TD2022DL), or additional, special, technical documents.[31] This regulatory strategy obscures the fact that thresholds and decision limits are 'political animals'. Cut-offs set for substances that can be endogenously produced represent tacit policy choices about the ratio of false positives and false negatives that one is willing to tolerate.[32] This was implicitly acknowledged during the public deliberation by the judges of the Swiss Supreme Court in the previously cited *Schafflützel & Zöllig v. FSC* matter: the real stakes of a threshold are to know if catching the guilty justifies the sacrifice of a few innocents (and how many).[33]

Beyond the decision about the ratio itself, the question of equality with respect to the cut-off at stake arises. In an ideal world, each athlete should have the exact same probability of being reported positive or negative, in a scenario of doping or non-doping, respectively.[34] Athletes accept significant restrictions of their rights in submitting to anti-doping regulations, and may legitimately expect that they and their competitors will be treated in a fairly equitable manner within the detection system. If a uniform cut-off is set, however, while there is interindividual variability for the relevant substance, this necessarily entails that some athletes will be more likely than others to cross the threshold without doping, and that some athletes will be more likely to be able to dope while remaining below the threshold.

In practice, there is acceptance in the very set-up of doping control that equality of opportunity is not a full reality, as the following illustrations on related topics, show:

First, equality of opportunities is not guaranteed with respect to how individuals react to substances differently in a way that may, or may not, influence their performance, to what extent and for how long. This topic is not *stricto sensu* an issue of equality within doping detection, but concerns the fringes of the doping prohibition. The WADA system leaves very little legal room for distinguishing whether intake of a prohibited substance or method actually endangered the level playing field or not. In fact, under the current WADA Code, due to the 'automatic disqualification' (Art. 9) athletes may well lose an Olympic medal in situations where it is common ground that the substance could not possibly have improved their performance.[35] The disqualification as a tool for preserving equality of opportunities is deliberately

[29] In this article, we use 'cut-off' as a generic term to refer to any situation where the prohibition is based on any form of decision criterion (threshold, decision limit *lato sensu*, etc.).

[30] 'Adverse Analytical Finding' and 'Atypical Finding' are defined terms under the WADA Code (Appendix 1).

[31] TD2022DL targets exogenous threshold substances, while endogenous threshold substances are addressed by special technical documents. TD2022DL | World Anti Doping Agency (wada-ama.org) (Accessed 26.06.2023).

[32] Saugy et al. 2016, pp. 23/24. The same is true for cut-offs for substances that are naturally present in the environment, though this article addresses first and foremost substances that can be produced endogenously.

[33] Reported by Viret and Favre-Bulle 2008, n° 23 (matter TF, 5C.248/2006, 23 August 2007).

[34] Here, we understand 'doping' as defined in the WADA Code (Art. 1), thus as an anti-doping rule violation characterized by its 'objective' character, including the presence of a prohibited substance in the athlete's sample (Art. 2.1) or use of a prohibited method (Art. 2.2).

[35] Perruchoud 2020, para. 498 et seq.; for a criticism : Viret and Favre-Bulle 2008, n° 18 ; Viret 2016, p. 484.

applied as an irrebuttable presumption, without the possibility for the athlete to challenge impact on performance in the individual case. The preservation of the level playing field is considered in a purely abstract manner. While conceding that analytical methods enable detection of ever-decreasing quantities of substance that may be irrelevant for performance, the Swiss Supreme Court, again in *Schafflützel & Zöllig v. FSC*, supported this standardization essentially with arguments of pragmatism and efficiency:

> « *Assessing in each individual case potential effects of the substance detected on performance would not fail to* ***open the door to appraisal and endless discussions*** *, and create disparities in treatment depending on the situation (specificities of resorption phases, individual tolerance).* (emphasis added)»[36]

Second, equality within detection is not guaranteed due to the system permitting inter-laboratory variability in the limits of detection below minimal reporting levels. WADA-accredited laboratories must meet minimum criteria of capability,[37] but are also assigned the mission of continuously improving these capacities and of reporting every (non-threshold) substance that they are able to detect. The conjunction of these may result in laboratories differing in the sensitivity of their analytical procedures and thus their ability to report substances. Hence, athletes may, hypothetically, receive an adverse analytical finding or not, depending on which laboratory is entrusted with their sample. CAS panels have on several occasion endorsed this situation and made clear that there is no 'right to the most favourable lab'.[38] In *IAAF v. Onyia*, the CAS panel found that possible discrepancies between laboratories is not "contrary to the principles of fairness and equality in sport".[39]

The variabilities that we are contemplating in this article distinguish themselves both from the issue of performance enhancement, and from inter-laboratory variabilities.

The jurisprudence of the CAS on laboratories concerns non-threshold substances and is merely an issue of capacity to uncover an anti-doping rule violation, thus of 'proof' of presence of a substance in the sample (Art. 2.1 WADA Code). As long as evidence is obtained lawfully, no offender may argue that proof of the offence may not have been available to the prosecution in different circumstances.[40] The situation that we address presents differently: the materialisation of the offence itself is at stake, where different athletes have different probabilities of reaching the cut-off that defines the prohibition, or where a prohibition is limited to certain groups of athletes (see example in Sects. 3.2–3.4). We are genuinely dealing with equal treatment with respect to whether a prohibited conduct can, legally, be deemed to have occurred.[41]

As for the irrelevance of impact on performance, the concern has been considered by the judiciary in disciplinary proceedings, and mainly with arguments of procedural economy, to avoid—real or imagined—evidentiary complications.[42] The consideration of the issues we advocate, however, would target the earlier stages of regulatory drafting, and not (primarily) of individual anti-doping proceedings. 'Fair equality of opportunity' acknowledges that absolute equal opportunity is an illusion. For example, some level of standardisation may be inevitable in order to run an operational detection system. However, 'fair' also implies that mere convenience considerations are not sufficient to accept inequalities.[43] For example, the Swiss Supreme Court in the matter *Schafflützel & Zöllig v. FSC* completely neglected the fact that absence of differentiation in materially different situations ('resorption periods', 'individual tolerance') can be just as much a vector of inequality as differentiation.

[36] TF, 5C.248/2006, 23 August 2007, para. 4.6.3.2.2 (our translation): « *L'examen dans chaque cas particulier des éventuels effets de la substance décelée sur la performance ne manquerait pas d'ouvrir la porte à des appréciations et à des discussions sans fin et de créer des disparités de traitement selon les situations (particularités des phases de résorption, tolérances individuelles)* ».

[37] Technical Document Minimum Required Performance Levels td2022mrpl_v1.0_final_eng.pdf (wada-ama.org) (accessed 15.09.2022).

[38] Viret 2016, pp. 346/347.

[39] CAS 2009/A/1805, *IAAF v. RFEA & Onyia*, para. 81.

[40] See the CAS panel whereby the defense "*is akin to arguing that a thief should be let off because if he had not been chased by the quickest policeman in the force he would have escaped*" (CAS 2009/A/1805, *IAAF v. RFEA & Onyia*, para. 82).

[41] One could even argue that this is regardless of any consideration as to whether a substance was actually used. Under the WADA Code, the violation is defined as the presence of the substance in a sample (Art. 2.1). It is not—at least not based on an adverse analytical finding alone—the underlying supposed use of the substance. Anti-doping organisations draw considerable advantages from this regime, in the sense that they only have to put forward an Adverse Analytical Finding to establish a violation of presence. Conversely, they also have to be bound to this definition of the violation when considering equal treatment of athletes.

[42] In the case CAS 2005/A/829, *Beerbaum v. FEI*, para. 30, the CAS panel reasoned that it could perfectly envisage a set of rules where a competitor could avoid disqualification "*by establishing that the prohibited substance had in his or her particular case, no performance enhancing effects, even though this would complicate the evidence admissible in doping cases*".

[43] In fact, efficiency considerations with respect to the practical impossibility of establishing impact on performance are little more than a strawman argument, since the WADA Code explicitly provides in Art. 10.1.1 WADA Code, for other results at the same event, that these should be disqualified unless the athlete's results "*were likely to have been affected by the Athlete's anti-doping rule violation*" (emphasis added). If assessment of impact on the results is deemed manageable under Art. 10.1.1, there is no reason why it should not be under Art. 9 WADA Code, and the only remaining reason for the automatic disqualification falls away.

Lastly, the variabilities that we are contemplating in this article stand out in that they often revolve around intrinsic traits that are protected by non-discrimination laws, such as sex, ethnic origin and race, or genetic characteristics, as the illustrations in Sects. 3.2–3.4 show. The parameters of equality within anti-doping detection, as described above, thus show more parallels with legal discussions around regulation of transgender and intersex athletes, than with those around the relevance of performance enhancement or hardships in collecting evidence through different labs. This ties the debate to the concept that Perruchoud identifies as 'formal equality of opportunities' (*égalité formelle des chances*), the idea that every individual deserves to 'compete' in life without regard to their personal characteristics, which is at the root of the fight against discrimination and its gradual implementation in sports regulations.[44]

In Sect. 5, it will be argued that equality within anti-doping detection—as, in fact, most anti-doping aspects enshrined in technical documents—has been given insufficient attention as a policy issue. Options taken in anti-doping detection involve genuine policy-making choices, which should be discussed and debated by stakeholders like any other feature of the WADA Code.

3.2 The case of human chorionic gonadotrophin

Human chorionic gonadotrophin (hCG), like luteinizing hormone (LH) which is regulated in the same technical document (TD2021CG/LH),[45] is a substance for which the Prohibited List provides that it is prohibited "in males" only, under Class 2.1, 'Peptide Hormones and their Releasing Factors'.

The Technical Document TD2021CG/LH explains that these substances stimulate the production of testosterone in males. Since elevated levels of hCG in males may also be an indication of a tumor, in particular testicular cancer, the Technical Document also enshrines a procedure in results management to exclude a medical condition prior to formally asserting an anti-doping rule violation.

The main relevance of this illustration for this article lies in the fact that the differentiation created is *a priori* a straightforward one: the prohibition depends exclusively on whether the athlete is female or male.

Beyond the impact on the scope of prohibition, suspicious findings of hCG in males leads to the anti-doping organisation having to communicate with the athlete about the presence of a medical condition, requesting the athlete to undergo a medical assessment and report to the anti-doping organisation about elements that establish—if relevant—the presence of a condition such as testicular cancer. This supposes back-and-forth of sensitive medical data regarding potentially life- and career-altering pathologies, but also presupposes the willingness of the athlete to undergo medical assessment. This entire procedure is also one that is only carried out on 'male athletes'. This is, *inter alia*, for the biological reasons explained above, but nevertheless represents a differentiation between male and females, in which males have to accept a more intrusive approach to their rights and privacy.

The most remarkable features, however, it that neither the Prohibited List nor TD2021CG/LH define what is meant by 'male' or 'female' athlete. Since there has been little discussion in the context of anti-doping regulation on the sex versus gender debate, discussing these aspects could require drawing parallels with the arguments put forward before CAS in athletics in the context of regulations for athletes with differences in sexual development (see Sect. 5.3).

3.3 The case of nandrolone

The assessment with respect to nandrolone is slightly more complex than with hCG and LH. As explained in the Technical Document TD2021NA,[46] detection of nandrolone is based primarily on its main metabolite, 19-norandrosterone. However, 19-norandrosterone is also excreted during pregnancy and as part of the regular use of certain oral contraceptives containing the (authorised) substance norethisterone.

Thus, TD2021NA provides that in case of elevated levels of 19-norandrosterone "in the urine Sample of a female athlete", the laboratory must undertake additional investigations, which may include the determination of whether an oral contraceptive is being used (based on an analysis for norethisterone), and a pregnancy test (based on hCG) in urine.

From a technical perspective, the reporting of an adverse analytical finding for nandrolone thus requires WADA-accredited laboratories to follow a number of pre-defined procedures based on initial levels detected and additional findings. These steps differentiate explicitly between 'female athletes' and 'male athletes'. Again, no definition is given of these categories.

In this case, data of significance is gathered from female athletes. Knowledge of a pregnancy is extremely sensitive medical data, perhaps even more so in the context of sport where pregnancy is a hindrance to competitive practice in many sports. Moreover, the pregnancy may not even be known to the athlete herself. Based on the silence of TD2021NA, the assumption is that the athlete will not be informed of her pregnancy. TD2021NA seeks to limit the communication of that medical data to organisation, by

[44] Perruchoud 2020, para. 144 et seq.

[45] TD2021CGLH (wada-ama.org) (accessed 06.08.2022).

[46] td2021na_final_eng_v2.0.pdf (wada-ama.org) (accessed 06.08.2022).

prohibiting laboratories from including in the test report information about the athlete's pregnancy status or norethisterone indicating use of a contraceptive. However, it hard to conceive that these elements, especially if an adverse analytical finding or atypical finding is reported, would not have to be disclosed at some point to the anti-doping organisation—and to the athlete—as part of results management, in particular if the Laboratory Documentation Package is requested.

3.4 The case of testosterone

Testosterone is a Prohibited Substance of the class S1, Anabolic Androgenic Steroids (AAS). Under the Technical Document for reporting of endogenous anabolic androgenic steroids (TD2021EAAS), the testosterone to epitestosterone (T/E) ratio has traditionally been used as an important screening tool to decide whether to carry out further investigations on a sample.

However, not everyone is equal with respect to metabolism and excretion of AAS.[47] A genetic polymorphism that is particularly studied in the context of anti-doping detection is the deletion of an enzyme UGT2B17, in which individuals devoid of the enzyme (so-called *Del/Del* types) produce a very blunted response in the T:E ratio.[48]

The prevalence of this variation is not uniformly distributed across populations. Authors report "a large variation in the gene deletion both within, and between ethnic populations with important consequences for the interpretation of the T:E test".[49] The *Del/Del* genotype has been shown to be particularly prevalent in "population of Asian origin".[50]

For the purposes of this article, the aspect of interest is that the standardisation attempted historically through the T:E ratio stood in opposition to the interindividual variability of that ratio, and that this variability differs depending on geographic origin of the athlete, which is potentially related to race and ethnicity: "The distribution of the gene combinations in a Caucasian and an Asian population sample are very different".[51] In this case, applying a uniform T:E screening value as per TD2021EAAS would result, in reality, in sensitivity/specificity characteristics of the test—and thus rates of false positives and false negatives—that differ depending on the population at stake.[52] The implementation of the steroidal module of the Athlete Biological Passport has gradually allowed for replacing the original fixed population-based ratio with an individual range based on each athlete's values. The same rationale is at the basis of the other modules—hematological and endocrinological—of the Athlete Biological Passport.

4 When does differentiation equal discrimination?

After a brief reminder of the open questions surrounding the application of constitutional and human rights to sports regulations (4.1), we give some insights into the jurisprudence of the CAS, the Swiss Supreme Court and the European Court of Human Rights with respect to discrimination cases (4.2–4.4), in order to propose a test that can assist in the assessment of policy decisions on anti-doping detection (4.5).

4.1 Struggle around the application of human rights to sports regulations

Though issues around sport and human rights have been on the table for some time,[53] it has frequently been claimed that the dispute resolution system in organised sports, and in particular CAS, is not apt to deal with human rights claims,[54] or is not the proper forum for doing so. It would be beyond the scope of this article to extensively address this debate, which Antoine Duval recently dissected with insight and nuance.[55] There are many unresolved issues around the application of human rights in disputes involving sports governing bodies, which even state courts and 'authentic' human rights tribunals struggle with.

First and foremost, human rights have not been designed to apply between individuals and private entities such as international federations. The ECtHR recognises the application of the substantive safeguards of the ECHR in such situations, in principle, only through the instrument of the 'positive obligations' of the State in which the private entity is based,[56] which can create a duty to intervene or provide

[47] Rane and Ekström 2012.

[48] Ekström et al. 2012.

[49] Rane and Ekström 2012, p. 7.

[50] Badoud et al. 2013.

[51] Rane and Ekström 2012, p. 12.

[52] Rane and Ekström 2012, p. 12, highlight in particular a low sensitivity of the screening in populations with high prevalence of the Del/Del type.

[53] For a history on the interplay between Olympic Games and human rights, see Chappelet 2022.

[54] A 2021 document published by the CAS office on human rights lists arbitrators with human rights experience and their bio: Human_Rights_in_sport__CAS_report_updated_31_03_2021_.pdf (tas-cas.org) (accessed 09.08.2022).

[55] Duval 2022.

[56] See e.g., ECtHR, *Platini v. Suisse*, no 526/18, 11 February 2020, para. 59.

a legislative framework in a way that prevents human rights violations from occurring.[57]

The latest illustration of this can be found in the questions send by the ECtHR to Switzerland in the case *Caster Semenya v. Switzerland*, which ask Switzerland in particular to address:

> "*41. Do the allegations of violation above (questions 1-3) constitute intrusions into the applicant's exercise of rights protected by Articles 3,8, and 14 of the Convention, or failures on the part of Switzerland to* ***meet its positive obligations*** *to protect the applicant against treatment from private entities that infringe these provisions (in particular, 'IAAF')?* (emphasis added)"[58]

Even if this initial hurdle is overcome, transposing the framework of the analysis of admissible restrictions on the rights protected by the Convention to the regulations of private associations proves equally challenging, since said restrictions are not contained in state acts. These issues might soon be analysed in-depth in *Semenya v. Switzerland*.[59] The ECtHR seems to envisage that the World Athletics Regulation might qualify as a legal basis for restrictions to the rights under Art. 8(2) ECHR, which would create issues for transposing the jurisprudence of the Court on legality and legal predictability, to private—contractual or para-contractual—instruments.[60]

The Swiss Supreme Court faces similar difficulties, since Swiss law does not recognise the 'horizontal application' of constitutional rights among private parties either.[61] In two recent decisions relevant to this article, *Semenya v. IAAF* and *Leeper v. IAAF*, the Swiss Supreme Court explicitly left a question-mark on whether

> "*the prohibition of discriminatory measures falls within the scope of application of the restrictive concept of public policy when* ***discrimination emanates from a private person*** *and occurs in relationships between individuals*» (emphasis added).[62]

The question was not resolved, since in both cases the Supreme Court reached the conclusion that the award did not, *in casu*, amount to a discrimination contrary to substantive public policy.[63]

CAS panels, while accepting that procedural safeguards under Art. 6 ECHR apply to arbitral tribunals, have traditionally refused to consider that the Convention's substantive rights bind private entities such as sports federations.[64] With respect to discrimination specifically, CAS panels in recent discrimination cases have been reluctant to recognise the application of human rights instruments, but have typically found a way to escape that dead-end by relying instead of anti-discrimination provisions enshrined directly in the sport governing body's statutes and/or in the IOC Charter.[65]

The WADA Code 2021 incorporates a reference to 'human rights' (in particular in Purpose, Scope and Organization; Introduction), whereby anti-doping rules are intended to be applied in a manner that respects human rights, and measures taken to implement anti-doping programs are to respect human rights. Even though the reach of these provisions depends to some extent on how the Code is implemented by individual anti-doping organisations, there is thus a regulatory, contractual or quasi-contractual, basis for drawing on human rights in the context of anti-doping against signatories of the WADA Code. One could also argue that the polemic around application in human rights in sports is misfiring and its importance overstated, since Swiss law on the protection of personality rights (Art. 27 & 28 of the Swiss Civil Code) allows, if thoroughly applied, for a protection equivalent to the protection warranted by human rights,[66] as evidenced by the *Matuzalem v. FIFA* matter.[67]

[57] This must be distinguished from the application of the application of the procedural safeguards of Article 6 ECHR, which is relevant for arbitral tribunals such as the CAS, as clearly affirmed in ECtHR, *Mutu & Pechstein v. Switzerland*, n° 40575/10 et 67474/10.

[58] ECtHR notification to Switzerland of 3 May 2021, *Semenya v. Switzerland*, n° 10934/21 https://hudoc.echr.coe.int/eng?i=001-210174 (accessed 10.10.2022. our translation).

[59] After closing of this article, the ECtHR rendered its ruling on 11 July 2023 in the matter, a ruling which answers some of the questions raised here. The insights of the ECtHR do not, however, alter the discussion and conclusions in this article and will be discussed in future publications.

[60] « *4.2. Le cas échéant, le Règlement DSD, constituait-il une base légale suffisante, et l'ingérence prétendument causée par sa mise en œuvre poursuivait-elle un but légitime au sens de l'article 8 § 2, et était-elle proportionnée et nécessaire dans une société démocratique ?* ». ECtHR notification to Switzerland of 3 May 2021, *Semenya v. Switzerland*, n° 10934/21 https://hudoc.echr.coe.int/eng?i=001-210174 (accessed 10.10.2022. our translation).

[61] ATF 147 III 49, TF, 4A_248/2019/4A_398/2019, 25 August 2020, para. 9.4.

[62] TF, 4A_618/2020, 2 June 2021, para. 5.3.1 (our translation): « *prohibition des mesures discriminatoires entre dans le champ d'application de la notion restrictive d'ordre public lorsque la discrimination est le fait d'une personne privée et survient dans des relations entre particuliers* ».

[63] TF, 4A_618/2020, 2 June 2021, para. 5.3.1 ; TF, 4A_248/2019/4A_398/2019, 25 August 2020, para. 9.4.

[64] TAS 2011/A/2433, *Amadou Diakite c. FIFA*, para. 57 and TAS 2012/A/2862, *FC Girondins de Bordeaux c. FIFA*, para. 105.

[65] CAS 2020/A/6807, *Leeper v. IAAF*, para. 316 : "*This conclusion was reached by reference to the antidiscrimination provisions in the IAAF's Constitution and the IOC Charter, and did not return on the application of any international human rights instrument or any provision of Monegasque law*"; also relying on the IOC Charter, CAS 2018/O/5794 & 5798, *Semenya v. IAAF*, para. 543.

[66] Viret 2016, pp 113-122.

[67] ATF 138 III 322, para. 4.3.2.

The above solutions may admittedly not offer the same guarantees of judicial review than a direct basis in human rights instruments.[68] However, combined with the public policy ground available to the Swiss Supreme Court for setting aside an arbitral award, there is ample opportunity for CAS and the Swiss Supreme Court to produce 'fair' outcomes without resorting to constructions based on direct application of human rights that necessitate shaky adjustments to human rights frameworks.[69] In fact, in both recent high-profile discrimination cases of Semenya and Leeper, the Swiss Supreme Court did actually go into the merits of the applicant's arguments on discrimination under the ground of public policy (see above). Though one may dispute whether the review was sufficiently thorough, this proves at least that there is no *a priori* insurmountable barrier preventing the judges from looking at these arguments.

As Sects 4.2–4.4 show, the principles of assessment applied by the CAS, the Swiss Supreme Court and the ECtHR are sufficiently aligned to merge them into a meaningful *ex ante* test for policy-making (Sect. 4.5). Weighing the elements of the test, however, when they melt down to 'legitimate interest' and 'proportionality', is in essence a question of legal appreciation that is inevitably discretionary—and political—to a certain extent.

4.2 Discrimination in the jurisprudence of the CAS

Though CAS panels have resisted applying human rights instruments to disputes involving regulations of private sports governing bodies, this is not to say that no progress has been made in the protection of athletes.[70] Three main categories of cases relevant to this article can be identified in CAS jurisprudence on discrimination: discrimination on the basis of disability (Oscar Pistorius,[71] Blake Leeper award 1)[72], discrimination on the basis of sex or gender (Dutee Chand,[73] Caster Semenya),[74] and discrimination on the basis of race (Blake Leeper award 2).[75]

Cases like *Leeper v. IAAF*, or *Semenya v. IAAF* show that there is willingness on the part of CAS panels to build jurisprudence around discrimination cases in recent matters, including developing a jurisprudence with respect to proof issues and implementing recognised concepts such as 'direct' *versus* 'indirect' discrimination.[76] This contrasts with the case of *Pistorius v. IAAF*,[77] a decade earlier. On the use of technical aids by amputee runners, the *Pistorius v. IAAF* award treated the discrimination based on disability argument as no more than a common sense one. There was no discussion around its legal basis and justification:

> "*29. In other words,* ***disability laws*** *only require that an athlete such as Mr Pistorius be permitted to compete on the same footing as others. This is precisely the issue to be decided by this Panel: that is, whether or not Mr Pistorius is* ***competing on an equal basis*** *with other athletes not using Cheetah Flex-Foot prostheses. As counsel for the IAAF rightly mentioned, if this Panel finds that Mr Pistorius' Cheetah Flex-Foot prostheses provide no advantage to Mr, award of 16 May 2008 10 Pistorius, he will be able to compete on an equal basis with other athletes. If the Panel concludes that Mr Pistorius does gain an advantage, the Convention would not assist his case.*[78]
>
> *30. Mr Pistorius' submission based on unlawful discrimination is accordingly rejected.*" (emphasis added).

The CAS panel in *Pistorius v. IAAF* interpreted disability laws as only requiring competition on "the same footing as others" [sic]. The concern of 'inclusion' was clearly not cardinal to the CAS panel's reasoning at the time. The concern is more palpable, however—and in spite of the outcomes in the particular matters—in the matters involving Blake Leeper and Caster Semenya a decade later. Both matters have led since then to sports governing bodies conducting reviews and reforms of their regulatory framework.[79]

The most tangible evolution towards inclusiveness is the insistence of panels in recent CAS awards that the burden of proof is on sports governing bodies to justify any *prima facie* discrimination, including bringing scientific evidence to underpin the justification for the regulations. The CAS panel in *Leeper v. IAAF* invalidated the shift of the burden of proof onto the athlete that World Athletics meant to impose,

[68] Heerdt and Rook 2022, p. 87, highlight that "*some of the human rights issues that come up in the sporting context and elsewhere require creative solutions to provide effective remedies*".

[69] Viret 2020.

[70] As acknowledged by Heerdt and Rook 2022, p. 89, who cite the updated document of the CAS "Sport and human rights- overview from a CAS perspective", 2022.06.20_Human_Rights_in_sport__20_June_2022_.pdf (tas-cas.org) (accessed 17.12.2022).

[71] CAS 2008/A/1480, *Pistorius v. IAAF*, award of 16 May 2008.

[72] CAS 2020/A/680, *Leeper v. IAAF*, 23 October 2020.

[73] CAS 2014/A/3759, *Chand v. AFI & IAAF*, 24 July 2015.

[74] CAS 2018/O/5794, *Semenya v. IAAF*, 30 April 2019.

[75] Media release of 11 June 2021, CAS Media Release (tas-cas.org) (accessed 21.09.2022).

[76] CAS 2020/A/680, *Leeper v. IAAF*, paras 318/319.

[77] CAS 2008/A/1480, *Pistorius v. IAAF*.

[78] CAS 2008/A/1480, Pistorius v. IAAF, para. 29.

[79] See for the Blake Leeper matter, the World Athletics revised Rule 6.3.4 of WA Technical Rules and the adoption of its Mechanical Aids Regulations (for an analysis, see Viret 2023); and for athletes with variations in sex characteristics, the IOC Framework on Fairness, inclusion and non-discrimination on the basis of gender identity and sex variations.

to show that use of prosthesis *in casu* did not confer an overall advantage over able-bodied competitors.[80]

The same is true for regulations on athletes affected by World Athletics regulations on differences of sexual development. In *Chand v. IAAF* and *Semenya v. IAAF*, it was common ground that the individual bears the burden of establishing that there is discrimination on the basis of a protected trait. It was equally not in issue that the burden then shifts to the sports governing body to demonstrate that the solution chosen is a "necessary, reasonable and proportionate means of attaining a legitimate objective".[81]

Here also, an evolution is noticeable between the cases in Dutee Chand and Caster Semenya. In *Chand v. IAAF*, the panel—somewhat enigmatically—treated as distinct the issue of justifying discrimination and the issue of 'scientific validity' of the regulations, adding that the athlete had accepted bearing the burden in that latter respect.[82] This distinction, fortunately, had entirely disappeared from the *Semenya v. IAAF* award: the scientific basis for the regulations was examined exclusively under the banner of 'necessity', which was part of the justification of discrimination and on which the IAAF bore the burden of proof in full.[83]

Finally, the question of whether a regulation takes an appropriate approach with regard to race or ethnic origin was addressed in a second, non-published, CAS award regarding the athlete Blake Leeper and the validity of the Maximum Allowable Standing Height (MASH) formula applied by World Athletics. This second matter is particularly relevant to our topic, since the case was not about unjustified differentiation, but about an alleged lack of adequate differentiation between athletes of different racial or ethnic origins. The athlete's arguments can be derived from the summary given in the Swiss Supreme Court's published decision on the application to set aside the first Leeper award:

> « *the MASH rule would create, in casu, a discrimination against him, based on race or ethnic origin, as it was established based on data related exclusively to Spanish, Australian, and Asian individuals. However, he argues, athletes of African or Afro-American descent have legs that are proportionally longer than individuals of caucasian or other type. The direct or indirect application of the MASH rule to persons of African or Afro-American origin like the appelant, would therefore be discriminatory* ».[84]

The press release reiterates that the burden was on World Athletics to prove that Leeper's aids conferred upon him an overall advantage, and that World Athletics had discharged its burden. The panel had also considered less intrusive alternatives that would allow Leeper to take part with the proposed prosthesis. Of note, the CAS panel nevertheless encouraged World Athletics to validate the rule also on "Black athletes of African descent" (on this, see Sect. 5.3).

Given its somewhat 'technical' flair, the CAS' stance on the burden of proof may not have been widely acknowledged by human rights advocates, but it represents a signal that the default standard in sports policies must be inclusion: deviations from inclusion, including for reasons of compensation towards fair equality of opportunity, must be justified and established in fact and 'in science'.[85]

As it is, the test applied by the CAS panels does not materially differ from standards under constitutional or human rights instruments, as described in sub-Sects. 3.3 and 3.4:

- The first step of presence of a *prima facie* discrimination is on the athlete challenging the regulations to establish.[86] In that regard, the wording of the IOC Charter mirrors Article 14 ECHR on the grounds of discrimination listed;
- The CAS further recognises the concept of 'indirect discrimination' as targeting sports rules that are, on their face, neutral, but in practice exclusively or disproportionately affect athletes with certain protected characteristics;[87]
- If this first step is met, the CAS considers whether the regulation is "necessary, reasonable and proportionate", which is for the sports governing body to prove. As the panel in *Semenya v. IAAF* noted, the outcome of discrimination matters generally depend on a delicate balance of interests and conflicting rights, which "requires

[80] CAS 2020/A/6807, *Leeper v. IAAF*.

[81] CAS 2018/O/5794 & 5798, *Semenya v. IAAF*, para. 541.

[82] See the critical analysis in Viret and Wisnosky 2016.

[83] CAS 2018/O/5794 & 5798, *Semenya v. IAAF*, para. 556 et seq.

[84] TF, 4A_618/2020, 2 June 2021, para. 5.3.2 (our translation) : « *la règle MASH créerait en l'espèce une discrimination à son égard, fondée sur la race ou l'origine ethnique, car elle aurait été établie sur la base de données concernant exclusivement des individus espagnols, australiens et asiatiques. Or, fait-il valoir, les athlètes d'origine africaine ou afro-américaine ont des jambes proportionnellement plus longues que les individus de type caucasien ou autre. L'application directe ou indirecte de la règle MASH à des personnes d'origine africaine ou afro-américaine, comme le recourant, serait dès lors discriminatoire* ».

[85] The IOC Framework on fairness, inclusion and non-discrimination on the basis of gender identity and sex variations explicitly enshrines the principle of non-discrimination, but also the related burden of proof (Principle 5. No Presumption of Advantage): "5.2 *Until evidence (per principle 6 [note: Evidence-based approach] determines otherwise, athletes should not be deemed to have an unfair or disproportionate competitive advantage due to their sex variations, physical appearance and/or transgender status*".

[86] CAS 2018/O/5794 & 5798, *Semenya v. IAAF*, para. 548.

[87] CAS 2020/A/680, *Leeper v. IAAF*, paras 318/319.

a careful analysis of questions necessity, reasonableness and proportionality".[88]

In sum, a foundation exists in CAS jurisprudence for handling discrimination cases. The progress on the burden of proof towards 'inclusiveness' may not be spectacular, and the outcome may not always appear fully satisfactory. In particular, the manner in which scientific evidence is produced and expert witnesses handled at CAS would certainly deserve an overhaul.[89] This is, not, however, a problem that relates specifically to—nor that could be sorted through—the application of human rights instruments, which would not alter the mechanics of the test described.

4.3 Discrimination under Swiss constitutional law

The general principle of equal treatment is enshrined in Art. 8(1) of the Swiss Constitution (Cst): it provides for a 'relative' concept of equal treatment, and a symmetric one: what is alike must be treated alike, but what is different must be treated differently, in the words of the Supreme Court:

"*A decision or decree is in breach of the principle of equal treatment under Art. 8(1) Constitution if it establishes legal distinctions that are not justified by any reasonable ground given the situation of fact to be regulated, or if it fails to make distinctions mandated by the circumstances, that is to say when what is alike is not treated in an identical manner and what is unalike is not treated in a different manner*".[90]

Art. 8(1) thus prohibits unjustified differentiation between similar situations, but also commands a differentiation where differences exist.[91]

The crux, in either case, is whether a 'reasonable ground' exists. This question, for the Supreme Court,

"*may be answered differently at different times, depending on the dominant views and time circumstances. Within the framework of these principles and the prohibition of arbitrary, the legislator retains a wide organizational latitude, which the Federal Tribunal does not narrow down through their own perception of organization*".[92]

The prohibition of discrimination is enshrined in Art. 8(2) Cst. It introduces a list of characteristics based on which, as a rule, no distinction is permissible. The basic principles of the discrimination test have been summarised by the Supreme Court in the decision involving Caster Semenya's application to set aside the CAS award:

"*According to the definition in case law, there is discrimination, within the meaning of Art. 8(2) Cst., when a person is treated differently due to her belonging to a specific group which, historically or in current social reality, suffers exclusion or disparagement […] The principle of non-discrimination does not prohibit any distinction based on one of the criteria listed in Art. 8(2) Cst., though, but creates rather a suspicion of an inadmissible differentiation […]. In other words, distinguishing does not necessarily mean discriminating. Inequalities that result from such distinction must, however, be the object of a particular justification […]. As far as equality between sexes is concerned, distinct treatment is possible if it rests in biological differences that categorically exclude identical treatment*".[93]

Under Swiss law, the prohibition of discrimination can thus be viewed as a sub-instance of equal treatment, rooted in a characterised inequality that requires a characterised justification.[94] Importantly, not every differentiation is a discrimination, and non-differentiation may be constitutive of discrimination. However, a differentiation based on a protected characteristics creates a suspicion of an unacceptable differentiation and must be specially justified. What is justifiable depends on predominant societal views at the time of the decision. Some listed characteristics are less amenable to justification than others (so-called 'suspect category'):[95] as far as differentiation based on sex is concerned, for example, only 'biological differences' could qualify for a differentiated treatment.

[88] CAS 2018/O/5794 & 5798, *Semenya v. IAAF*, para. 554.

[89] On the reluctance to resort to 'tribunal-appointed experts', see Viret 2016, pp 622 et seq.

[90] ATF 137 V 334, para. 6.2.1 (our translation): « *Une décision ou un arrêté viole le principe de l'égalité de traitement consacré à l'art. 8 al. 1 Cst. lorsqu'il établit des distinctions juridiques qui ne se justifient par aucun motif raisonnable au regard de la situation de fait à réglementer ou qu'il omet de faire des distinctions qui s'imposent au vu des circonstances, c'est-à-dire lorsque ce qui est semblable n'est pas traité de manière identique et ce qui est dissemblable ne l'est pas de manière différente* ».

[91] Biaggini 2017, ad Art. 8, n° 11; BGE 136 II 457, para. 7.

[92] ATF 138 I 321, para. 3.2 (our translation): «*kann zu verschiedenen Zeiten unterschiedlich beantwortet werden, je nach den herrschenden Anschauungen und Zeitverhältnissen. Dem Gesetzgeber bleibt im Rahmen dieser Grundsätze und des Willkürverbots ein weiter Spielraum der Gestaltung, den das Bundesgericht nicht durch eigene Gestaltungsvorstellungen schmälert*».

[93] TF, 4A_248/2019, 25 August 2020, para. 9.5 (our translation).

[94] Schweizer et al. 2014, ad Art. 8, n° 48.

[95] Schweizer et al. 2014, ad Art. 8, n° 48.

4.4 Discrimination in the jurisprudence of the ECtHR

The central provision when it comes to analysing discrimination in the human rights environment is Article 14 ECHR. The article provides that:

> "*The enjoyment of the rights and freedoms set forth in this Convention shall be secured without discrimination on any ground such as sex, race, colour, language, religion, political or other opinion, national or social origin, association with a national minority, property, birth or other status*".

The ECtHR defines discrimination as "treating differently, without an objective and reasonable justification, persons in similar situations".[96] Like Art. 8(2) Cst, however, Art. 14 does not cover any unequal treatment: " […] only differences in treatment based on an identifiable characteristic, or "status", are capable of amounting to discrimination within the meaning of Article 14 […]".[97]

One must keep in mind, in addition, that the application of Art. 14 is limited to differentiation that touches upon safeguards enshrined in the Convention.[98]

As under Swiss law, absence of differentiation can also lead to a breach of Art. 14:

> "*The right not to be discriminated against in the enjoyment of the rights guaranteed under the Convention is also violated when States without an objective and reasonable justification fail to treat differently persons whose situations are significantly different.*"[99]

The ECtHR has held, in connection with discrimination based on sex, that member States may have a positive obligation to intervene:

> "*Article 14 does not prohibit a member State from treating groups differently in order to correct "factual inequalities" between them; indeed in certain circumstances a failure to attempt to correct inequality through different treatment may in itself give rise to a breach of the Article […]*".[100]

As is the case for Art. 8 Cst, by far not every differentiated treatment—or lack of differentiation—amounts to a breach of Art. 14 ECHR.[101] The differentiation must be "without an objective and reasonable justification", which the ECtHR has elaborated on both for 'sex', and for 'ethnicity and race'. Though objective and reasonable justification implies a certain margin of appreciation for member states, the assessment is very strict in both instances:

> *The scope of this margin will vary according to the circumstances, the subject matter and the background (see Petrovic v. Austria, 27 March 1998, § 38, Reports 1998-II). As a general rule,* ***very weighty reasons*** *would have to be put forward before the Court could regard a difference in treatment based* ***exclusively on the ground of sex*** *as compatible with the Convention*. (emphasis added).[102]

The same applies for ethnicity and race:

> "*Whereas the notion of race is rooted in the idea of biological classification of human beings into subspecies on the basis of morphological features such as skin colour or facial characteristics, ethnicity has its origin in the idea of societal groups marked in particular by common nationality, religious faith, shared language, or cultural and traditional origins and backgrounds. Discrimination on account of a person's ethnic origin is a form of racial discrimination […]*".[103]
> "*In this context, where a difference in treatment is based on race or ethnicity, the notion of objective and reasonable justification* ***must be interpreted as strictly as possible*** *(see D.H. and Others, cited above, § 196). […]* (emphasis added)"[104]

The differential treatment and the similarity of situation have to be established by the claimant, save in case of indirect discrimination where in certain circumstances *prima facie* indication of indirect discrimination may suffice, if the government does not show that there is no indirect discrimination. Once this is established, showing justification for the discrimination is on the government.[105]

4.5 Proposal for an ex ante regulatory assessment

The overview of the assessments conducted by the ECHR, the Swiss Supreme Court, and the CAS panels when dealing

[96] ECtHR, *Sejdic & Finci v. Bosnia & Herzegovina*, n° 27996/06 and 34836/06, para. 42.

[97] ECtHR, *Molla Sali v. Greece*, no. 20452/14, para. 134.

[98] Note that Switzerland has not ratified Protocol 12 which contains a prohibition of discrimination autonomous from the Convention rights.

[99] ECtHR, *Thlimmenos v. Greece*, n° 34369/97, para. 44.

[100] ECtHR, *Stec & others v. The United Kingdom*, n° 65731/01 and 65900/01, para. 51; ECtHR, *Sejdic & Finci v. Bosnia & Herzegovina*, n° 27996/06 and 34836/06, para. 44.

[101] Gonin 2018, n° 4.

[102] ECtHR, *Stec & Others v. The United Kingdom*, n° 65731/01 and 65900/01, para. 52.

[103] ECtHR, *Sejdic & Finci v. Bosnia & Herzegovina*, n° 27996/06 and 34836/06, para. 43.

[104] ECtHR, *Sejdic & Finci v. Bosnia & Herzegovina*, n° 27996/06 and 34836/06, para. 44.

[105] Guide on Article 14 and on Article 1 of Protocol No. 12 - Prohibition of discrimination (coe.int), para. 51.

with discrimination cases in the previous Sects (4.2–4.4) shows that the basic mechanics of the 'discrimination test' do not differ materially depending on the judicial body in charge or the legal basis used. Human rights are not absolute, and even the ECtHR has shown sensitivity for sporting considerations, specifically when it come to the anti-doping system.[106]

As already shown in Sect. 2, determining what equality means and how much equality is sufficiently fair requires a delicate weighing of interests, and the fate of a particular regulation will frequently depend on a proportionality analysis. The ultimate determination as to whether a differentiation—or lack thereof—in the anti-doping detection system represents a discrimination or unlawful equal treatment lies in the hands of the courts of competent jurisdiction. In many instances, anti-doping organisations would become aware of the stakes only through an athlete denouncing the discriminatory character of a technical rule once individual disciplinary proceedings are initiated against them. However, we submit in this article that anti-doping organisations, and in particular WADA as the key regulator, are not doomed to stand idly by, waiting for these judicial challenges to occur: a preliminary test can be meaningfully applied for making decisions on regulation of anti-doping detection, with a view to creating an environment in which non-discrimination and equality of opportunities are considered 'by design', as part of a good governance strategy.[107] The assessment is, of course, bound to remain a preliminary one, as it is abstract and may still be tested before courts in its individual applications. Having in place an appropriate process for this type of *ex ante* assessment is nevertheless of considerable importance in practice, given the reluctance that judicial bodies have traditionally shown in departing from the regulatory balance of interest struck by sports governing bodies (see Sect. 5.1 below).

The IOC Strategic Framework on Human Rights, published in September 2022, notably includes the commitment to consider non-discrimination and inclusion in every sphere of organised sports activities related to the Olympic movement.[108] As Duval and Heerdt highlight, the guiding principles outlined in the IOC's Strategic Framework must be tangibly implemented by sports organisations, not remain statements in keeping with *l'air du temps*.[109] Jean-Loup Chappelet points at the role of the Guiding Principles on Business and Human Rights, and notes that "*the world of sport, especially the Olympic Games, can no longer avoid the issue of human rights*",[110] adding that the challenges now will lie in operationalizing recognition of human rights.[111]

A two-step test can be synthetised out of the above cited jurisprudence of the ECtHR and its summary in the Court's Guide to Art. 14:[112]

Step 1. Is there

- a difference in treatment of persons in analogous or relevantly similar situations,
- or a failure to treat differently persons in relevantly different situations?

The CAS refers to this step 1 as a *prima facie* discrimination, and the Swiss Supreme Court as creating a 'suspicion' of an inadmissible discrimination.

Step 2. If so, does such difference—or absence of difference—reply to an objective and reasonable justification?

In particular,

- Does it pursue a legitimate aim?
- Are the means employed reasonably proportionate to the aim pursued?[113]

Along with Heerdt and Rook (though in the context of judicial remedies), we agree that carrying out this test at the policy-making stage will generally require involving expertise in dealing with human rights, as well as expertise in sports regulation.[114]

The 'fair equality of opportunity' principle as discussed in Sect. 2.2 above can be a useful tool to clarify the criterion of "legitimate aim" within the context of competitive sport. The Swiss Supreme Court, like the ECtHR,[115] recognises

[106] Pérez Gonzalez 2022, p. 163, citing ECtHR, *FNASS et al. v. France.*

[107] Pérez Gonzalez 2022, p. 162, stresses that « *embedding international human rights standards in the sporting domain would contribute not only to improving the protection of the rights of individual athletes, but also to strengthening the legitimacy of the sporting system as a whole*".

[108] IOC-Strategic-Framework-on-Human-Rights.pdf (olympics.com); obviously, the implementation may be controversial: see the initiative taken by the IOC for "Fairness, Inclusion and Non-discrimination on the basis of Gender identity and Sex variations", IOC releases Framework on Fairness, Inclusion and Non-discrimination on the basis of gender identity and sex variations - Olympic News (olympics.com) (accessed 11.10.2022).

[109] Duval and Heerdt 2022: "While on paper it contains many commitments which could affect the governance processes of the organisation, much will depend in practice on how these commitments will be implemented".

[110] Chappelet 2022, p. 13.

[111] Chappelet 2022, p. 17.

[112] Guide on Article 14 and on Article 1 of Protocol No. 12 - Prohibition of discrimination (coe.int), n° 51.

[113] Guide on Article 14 and on Article 1 of Protocol No. 12 - Prohibition of discrimination (coe.int), n° 51.

[114] Heerdt and Rook 2022, p. 89.

[115] ECtHR, *FNASS et al. v. France*, n° 48151/11 & 77769/13.

that "the concern to ensure, to the extent possible, fair sport represents an interest that is fully legitimate".[116]

When criteria such as sex, ethnic origin or race are at stake ('suspect category'), special justification must be given and the assessment must be particularly strict (see Sects 4.3 and 4.4 above). The Swiss Supreme Court requires a "characterised justification". For sex, in particular, "very weighty reasons" would be necessary to make a distinction for the ECtHR, for the Swiss Supreme Court, the distinction must be rooted in "biological reasons". For ethnic origin and race also, the notion of objective and reasonable justification "must be interpreted as strictly as possible".

Importantly, the test incorporates the idea that differentiation may be warranted to ensure equal treatment or non-discrimination. Distinguishing between a differentiation that is mandated in order to create equal treatment, and a differentiation that creates unequal treatment and must be justified, is not as straightforward as it may appear.[117] The CAS panel had to address this point in *Semenya v. IAAF*: World Athletics's argument was that excluding "*'biologically' male athletes*" from competing with female athletes on the ground that their advantage was unfair does not amount to a discrimination, but is on the contrary just treating different cases differently.[118] The CAS panel considered, however, that the regulations are *prima facie* discriminating because they attached differentiation both to legal sex, and to innate biological characteristics. This difficulty relates in law to the distinction between direct and indirect discrimination, and is an important one to consider already at the stage of policy-making because it conditions the distribution of the burden of proof among the parties in subsequent judicial challenges. It is also tied, more generally, to the conundrum of 'classification' that is addressed in Sect. 5.

It should be apparent by now that applying the criteria comprised in the 'discrimination test' proposed will call for a complex mixture of scientific input, on one hand, and judgement reflecting the policy-makers' values and priorities, on the other hand. Since the preparation of technical rules for anti-doping detection is incumbent on WADA, carrying out the test would primarily be a task for WADA. However, the discrimination test is a deeply political one, and WADA thus has a duty to justify its assessment towards its stakeholders as part of a consultation process, before amendments are enacted, and in a way that allows for genuine debate. This also supposes that anti-doping organisations gather the expertise necessary to debate options proposed by WADA.[119] The last Section of this article will hence focus on the entwinement of science and policy, pleading for better conscientization of this entwinement and more transparency on the input flowing into the policy-makers' evaluations.

5 A complex interplay between science and policy

5.1 Bringing technical issues onto the policy scene

Decisions which are transcribed into technical rules in doping control present as purely technical matters, when they raise in reality delicate questions of equal treatment, or even run into the realm of non-discrimination laws, as evidenced by the illustrations in Sect. 3. As shown in Sect. 4, whether a differentiation is deemed warranted or not depends on many factors, which may evolve over time along with society. There are no straightforward decisions in this domain, no clearcut solution that could be delegated to anti-doping administrators or outsourced to analytical scientists. Instead, anti-doping organisations need to draw these issues openly onto the policy-making stage, rather than present them as taken-for-granted technicalities.

Since the issues we describe in this article cumulate a highly specialised assessment and delicate policy choices, courts have traditionally been reluctant to question solutions adopted by sports governing bodies. The landmark decision *Meca-Medina & Majcen v. Commission* of the European Court of Justice (ECJ) is renowned for its impact on competition law, but it is also instructive for its findings on autonomy on science matters. Advocate general Léger pleaded for judicial restraint: "in my view it is not for the Court, when ruling on an appeal against a Court of First Instance judgment, to decide whether or not a rule adopted by the IOC in the campaign against doping **is scientifically justified"** (emphasis added).[120]

In its decision, the ECJ did highlight the balance of interests that a threshold value presupposes and how it is dependent on data available at the material time:

"It is therefore only if, having regard to **scientific knowledge as it stood** when the anti-doping rules at issue were adopted or even when they were applied to punish the appellants, in 1999, the threshold is **set at such a low level that it should be regarded as not taking sufficient account**

[116] TF, 4A_248/2019, 25 August 2020, para. 9.8.3.3 (our translation) : *« A cet égard, il y a lieu d'insister sur le fait que le souci d'assurer, autant que faire se peut, un sport équitable constitue un intérêt tout à fait légitime »*.

[117] The distinction is of importance, though, because it might reverse the burden of proof on the parties in case of a judicial challenge.

[118] CAS 2018/O/5794, *Semenya v. IAAF*, para. 546.

[119] See e.g. Europe's request at the WADA Executive Committee Meeting (20.05.2021) https://www.wadaama.org/sites/default/files/resources/files/minutes_executivecommitteemay2021_final.pdf, p. 32, on the occasion of the decisions on handling contaminants.

[120] Opinion of Advocate General Léger delivered on 23 March 2006, para. 38. https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:62004CC0519&qid=1662463025418&from=EN

of this phenomenon [i.e., the possibility of endogenous production] that those rules should be regarded as not justified in light of the objective which they were intended to achieve" (emphasis added).[121]

The ECJ thus accepted that a threshold should be set at a sufficiently high level to account for the risk of endogenous production. However, the ECJ did not delve into the truly decisive questions, i.e.: when is a 'high' level sufficiently 'high'? And what criteria ought to be considered in the balance?

In the equestrian matter *Schafflützel & Zöllig v. FSC* involving the determination of threshold values (a case that had not been adjudicated by the CAS), the Swiss Supreme Court was equally supportive of the autonomy of sports organisations on specialised issues, but also made it clear that such autonomy is predicated on the implementation of a proper forum:

> «*This is an issue that supposes specific and in-depth knowledge and which is incumbent on equestrian federations to decide – within the scope of their autonomy (Art. 63(1) CC) – on the basis of consultation of parties concerned and serious scientific studies*».[122]

In this single sentence—which at first reading resembles a plea for non-intervention of the judiciary—the Swiss Supreme Court pinpoints two components required of policy-making in technical matters: (i) a basis in robust scientific data, and, (ii) involvement of participants having stakes in the matter. In other words, sports organisations need to earn their autonomy.

It is tempting to push delicate policy questions into the technical realm. For a recent illustration, during the 2021 Code review process, stakeholders raised the issue of contaminants being picked up through the extreme sensitivity of laboratory detection. WADA decided not to handle this issue as part of the Code review process, but to address it by increasing 'reporting levels'—these are cut-offs governed by the TD2022MRPL through which laboratories are instructed not to report certain substances below a certain concentration—and to create a WADA Working Group,[123] whose work is still underway and which is reporting to the WADA management, specifically to WADA head of legal, legal counsel, and head of science.[124] In this way, the issue has been transformed from one of policy (what do we want to do about the fact that some prohibited substances are present in the athlete's environment in a detectable manner?) into a technical one (let us create a scientific panel to introduce higher reporting levels to our technical document). However, the determination on the acceptable value of the reporting levels is a policy choice on the balance between catching as many 'cheats' as possible (avoiding false negatives) *versus* reducing the risk of condemnation of some 'innocent' athletes (false positives). This determination cannot be left to an expert working group, nor to WADA management staff to whom the group reports. The outcomes of work of this kind need to be published and circulated among stakeholders, prior to decision-making by the WADA Executive Committee. This also supposes, however, that consultation amounts to more than a superficial exercise at endorsement. At the May 2021 Executive Committee Meeting, where a first set of recommendations and technical letters for laboratories was approved for certain contaminants, no discussion regarding the justification behind the reporting level values proposed occurred. Europe invited WADA to provide impact assessments of its technical regulations and to provide the related documents sufficiently in advance to allow for genuine consultation, since "[s]takeholders and the public authorities needed to seek specialised advice on most of the documents".[125]

Of note, sport's legal autonomy ends in any event where rules infringe the law. This applies, in particular, when we are considering whether athletes are treated equally or possibly discriminated against through a cut-off value. In this area, the latitude of sports organisations is limited through the safeguards described in Sect. 4, which reinforces the necessity to conduct the proposed discrimination test already when drafting the rules.

Sections 5.2 and 5.3 show the impossibility of strictly segregating scientific input from policy choices. By making intersectional issues explicit as we advocate in this article, one avoids that scientific data be simply disregarded or discarded for political reasons, but equally that values and political choices be disguised as technical necessities and as such inappropriately excluded from an informed debate on the contours of anti-doping policies.

[121] ECJ, *Meca-Medina & Majcen v. Com*, C-519/04 P, para. 52.

[122] TF, 5C.248/2006, 23 August 2007, para. 4.6.3.2.2. (our translation): "Il s'agit là d'une problématique qui suppose des connaissances particulières et pointues et qu'il incombe aux fédérations équestres de trancher - dans le cadre de leur autonomie (art. 63 al. 1 CC) - sur la base de consultations des parties concernées et d'études scientifiques sérieuses".

[123] 2021 World Anti-Doping Code and International Standard Framework Development and Implementation Guide for Stakeholders | World Anti-Doping Agency (wada-ama.org), n° 29: "a better approach is to consider raising the reporting limits for those prohibited substances which are known contaminants".

[124] Contaminants Working Group Terms of Reference, Contaminants Working Group - Terms of Reference | World Anti Doping Agency (wada-ama.org) (accessed 28.06.2022).

[125] WADA Executive Committee Meeting (20.05.2021) https://www.wadaama.org/sites/default/files/resources/files/minutes_executivecommitteemay2021_final.pdf, p. 32.

5.2 No policy without data

At the end of Sect. 4, we proposed a two-step test for discrimination that could be applied to anti-doping detection on an *ex ante* basis, when deciding on the use of new detection methods or contemplating cut-offs and their incorporation into the regulations. Each limb of the proposed test, however, requires some form of scientific input:

- Whether a differentiation is actually made between certain individuals or not supposes understanding how the analytical test is designed and what parameters are taken into account;
- Determining whether two individuals should be deemed in a similar situation, or a different one, equally supposes knowledge of what characteristics they differ in, and how these characteristics are relevant (if at all) to the anti-doping test at stake;
- Whether the differentiation is objectively justifiable equally depends on what the need for differentiation is rooted in, and whether it is backed by research data, how the data was obtained and whether the presuppositions of the underlying research (sample structure and size, etc.) warrant recognition by the scientific community.

Clearly, informed policy-making calls for data. However, data gathering can be impeded by legal, as well as political, obstacles.

Thus, more data often comes at the cost of more intrusive restrictions on athletes' rights, especially their privacy. This is true both at the stage of research needed to collect data, and at the subsequent stage of implementation of the findings in individual doping control. For nandrolone, safeguarding female athletes from having an adverse analytical finding unduly reported against them supposes determination of their pregnancy status (see Sect. 3.3 above). Generally speaking, moving towards individualized approaches in anti-doping entails learning more about each individual, which may include analysis of genetic data. Rane and Ekström, with respect to anabolic androgenic steroids, make the point that "Genetic variations are an important source of confounders in doping tests".[126] Genetic data, however, is data that generally enjoys a particularly high level of protection in research regulation,[127] but also in privacy evaluations.

Approaches such as the Athlete Biological Passport based on longitudinal monitoring of individual values in blood or urine,[128] which allow for a comparison of individuals against their own baseline, are often presented as options to bypass both the shortcomings tied to standardisation that we have seen in this article, and the difficulties in creating categories of population (see Sect. 5.3 below).[129] They are, however, particularly intrusive on athletes in that they create a genuine personal 'data profile' in the hands of their sports federation or national agency. Moreover, even longitudinal monitoring cannot do away with resorting to reference populations within its algorithms. These tools are also no panacea because they were originally designed for mere targeting purposes,[130] and their generalised use to support disciplinary proceedings would require a sophistication in dealing with multiple evidence that likely exceeds the resources of most anti-doping organisations.

Beyond legal intricacies, much depends on political willingness to gather and exploit data. Readiness to account for complexity supposes first of all readiness to learn about that complexity, and to deal with it where needed. Thus, research may be suppressed or hindered, or otherwise simply not undertaken ('undone science'), or remain invisible ('unseen science') and never be turned into policy outcomes.[131] Ignorance related to research can have various causes, rooted in deliberate hindrance (ignorance as a strategic ploy or active construct), or simply structural processes (e.g. lack of power of groups affected to put research onto the research agenda; allocation of resources to other priorities).[132] Furthermore, adequate integration of data supposes an adequate 'science advisory system' that is up to the task of accounting for the complexity of the decisions that need to be made, including demonstrating implications to policy-makers. In anti-doping in particular, adequate integration of scientific data may also be impeded by precipitation in policy moves and announcements. For example, the substance Meldonium was added to the Prohibited List after a monitoring of one year, based on concern that it was being abused by athletes especially in certain regions of the world. It turned out that Meldonium had an atypical long-term excretion pattern that could result in positive findings for athletes that had discontinued use in time, which forced WADA to commission excretion studies and issue emergency notices for the handling of these cases.[133] Here, initial lack of data on critical features of the substance's metabolization led to considerable confusion in the results management for several months, undermining the credibility of the regulatory system.

[126] Rane and Ekström 2012, p. 6.

[127] See, e.g., Swiss Act on Research involving Human Beings, 30 September 2011, Art. 32.

[128] Athlete Biological Passport (ABP) Operating Guidelines | World Anti-Doping Agency (wada-ama.org) (15.09.2022).

[129] Schulze et al. 2021, p. 1577, concede that the "*introduction of the steroidal module of the ABP has significantly increased the sensitivity of the T/E ratio in UGT2B17 del/del individuals*".

[130] Sottas et al. 2008

[131] Boudia & Henry 2022, p. 20.

[132] See the categories proposed by Proctor 2008.

[133] WADA Notice on Meldonium, wada-2016-04-12-meldonium-notice-en.pdf (wada-ama.org).

5.3 No data without policy

Data are needed to inform policy, but it would be an oversimplification to present shortcomings in policy-making simply as a problem of deficient 'knowledge-translation' or lack of data.[134] What data is relevant to gather, and how it is gathered, are never value-neutral questions. We will focus on the prime illustration of 'classification'. This illustration is particularly relevant to our article, since the very notion of anti-discrimination is aimed at certain categories of individuals based on a selection of protected intrinsic characteristics, which presupposes the ability to create a classification grid for these characteristics.

A rather obvious example in anti-doping detection is in the testing of 'female' athlete samples for pregnancy in the detection of nandrolone, or the instruction that hCG is prohibited in 'males' only (see Sects. 3.2 and 3.3 above). The current WADA regulations, however, do not define these categories. The question, then, is who is to determine whether an athlete is male or female, and how.

In the absence of regulatory guidance, this determination necessarily falls on the analytical scientist applying the technical document. Since the rationale for prohibiting hCG and LH only in males lies on the impact of the substances on testosterone production and the possibility of a pregnancy in the individual, a straightforward conclusion would be that the differentiation intends a division rooted in biology. In practice, though, all the WADA-accredited laboratories can access to determine whether to report an adverse analytical finding is the indication of the athlete's status on the doping control form, thus—presumably at least—the athlete's legal status that was collected from the athlete based on their identity documents during sample collection. No genetic test is routinely conducted during the analysis. It would appear that the implicit regulatory assumption was that the relevant biological characteristics would typically be in line with the athlete's stated and legally recognised identity. In anti-doping detection, the classification 'male' *versus* 'female' is treated as a non-issue.

However, both the classification, and its binary character, have proved far from unproblematic in other areas of sports policies. If we refer to regulation in sex variations,[135] sports organisations insist that their division relies on legal status (thus increasingly a gender-based criterion in many countries), and thus that no one challenges that females with differences of sex development are 'women'.[136] The limits of this statement of principle transpired clearly in the *Semenya v. IAAF* award, in that the division was supposed to reflect a (supposed) biological divide:

> "*The Panel accepts the IAAF's submission that reference to a person's legal sex alone may not always constitute a fair and effective means of making that determination. This is because, as explained above, the reason for the separation between male and female categories in competitive athletics is ultimately funded on biology rather than legal status. The purpose of having separate categories is to protect a class of individuals who lack certain insuperable performance advantages from having to compete against individuals who possess those insuperable advantages. In this regard, the fact that a person is recognised in law as a woman and identifies as a woman does not necessarily mean that they lack those insuperable performance advantages associated with certain biological traits that predominate in individuals who are generally (but no always) recognised in law as males and self-identify as males. It is human biology, not legal status or gender identity, that ultimately determines which individuals possess the physical traits which give rise to that insuperable advantage and which do not.*"[137]

This example shows that the grid used for a classification that may seem as straightforward as male and female, is a genuine policy issue. The challenge that athletics faced is a consequence of them designing a classification based on a criterion (legal status) that was not what they were actually trying to police through that very classification (biological advantage). These issues will inevitably arise in sport when the grid of classification is a non-biological one, but biological traits prove relevant for the underlying purposes of the policy. Misfits are so to say programmed in this constellation.

Unfortunately, the problem of classification cannot be solved simply by trading legal criteria for scientific ones. A biologically inspired classification involves choices, too. Ideally, rather than relying on a fixed category (e.g., male vs female), one would use biological criteria that are adapted in each case to the rationale for the differentiation in the sports rules. However, politics may intrude here too. This brings us to our second example of 'ethnicity'. The propensity for showing a specific trait, and the binary character of the trait, is rarely as clear-cut as in the example of hCG or nandrolone between males and females. Most of the time, scientific literature does not strictly speaking identify traits specific to

[134] Parkhurst 2017.

[135] Sex variations is the terminology adopted by the IOC in its IOC Framework on fairness, inclusion and non-discrimination on the basis of gender identity and sex variations IOC releases Framework on Fairness, Inclusion and Non-discrimination on the basis of gender identity and sex variations - Olympic News (olympics.com)

[136] That was the position in CAS 2014/A/3759, *Dutee Chand v. AFI & IAAF*.

[137] CAS 2018/O/5794, *Semenya v. IAAF*, para. 558.

a group only, but variations in prevalence of a trait between various groups of individuals. This is the case, for example, with respect to the DEL/DEL type for testosterone, which is described as "a polymorphism representing two third of the population of Asian ethnic origin" (see Sect. 3.4 above).[138] Association between traits and an individual belonging to a certain group is therefore probabilistic.

Determining relative prevalence between groups presupposes the ability to create relevant groups in the first place. Manica et al. discuss how the ability to use "ethnic-specific variations" can act as a (more practicable) substitute for personalized medicine: "the success of such a strategy depends on whether human populations can be accurately classified into discrete genetic ethnic groups".[139] The authors conclude that geography is a better predictor of shared genetic characteristics than ethnicity. A similar debate was at the core of the CAS award in Leeper2, where the CAS panel found on the evidence that "geographic distance, rather than race-oriented validation is more methodologically apt" to determine bodily proportions.[140] In spite of this finding, the panel "strongly encourages" World Athletics to validate its formula for admissible height on prosthesis also on "Black athletes of African descent".[141] The panel noted a consensus among experts that it would "be sound and desirable" to do that validation, and concluded that it would be "in the interest of avoiding future disputes" to do so. In extreme scenarios, then, political concerns around discrimination may either preclude research into relevant categories considered socially inacceptable, or paradoxically lead to research segregating categories of individuals, even though these categories may lack any scientific relevance.

This Section shows that there is no easy way around problems such as classification, especially when one deals with discrimination, a safeguard that aims to create equality by highlighting certain differentiating traits. A classification is always a 'decision', even when it is based on highly technical criteria. The best policy-makers can strive for is to work with scientific experts to make their classification grid, and the rationales for the decision, explicit.

6 Conclusion

This article emphasises the need to give consideration to equality and non-discrimination within anti-doping detection and related regulations in the WADA Code system. Creating an environment of equal opportunities is foundational for the regulation of sports competition.

What equality means within anti-doping detection, in particular, must be debated and refined. Equality would suppose, in theory, that any athlete has an equal probability of being reported positive, in a scenario in which they doped versus did not dope. Perfect equality may not be achievable or practicable, but one must at least aim for a reasonably 'fair' equality, in particular for substances in which cut-offs condition the prohibition (e.g. threshold substances or substances where decision limits are otherwise involved). Importantly, differentiation may be required in certain cases to avoid rules causing discrimination by treating indistinctly, for example, athletes regardless of their genetic make-up, sex or origin. Differentiation must be balanced with other considerations, either conflicting interests of the athlete (privacy, etc.), or legitimate interests of anti-doping (enabling an operational anti-doping program). Each variability factor accounted for comes at the costs of collecting data to ascertain the athlete's status with respect to that factor. There is no panacea in that regard: athletes have to choose between giving out more data, or accepting a more standardised system in which they may be, often unknowingly, either privileged or put at a disadvantage.

Scientific input and policy choices are inextricably entwined, as the illustration of the problem of 'classification' shows. Reliance on categories is almost inevitable when adopting general and abstract rules. Alternatives avoiding classifications based on traits generally prevalent in certain groups of individuals carry their own drawbacks: (i) disregarding interindividual variabilities and treating everyone in a uniform manner (same cut-off) comes at the risk of discriminating through lack of differentiation, or (ii) testing each individual for their personal profile, regardless of their category—always assuming availability of a marker that can be tested for in the individual—implies gathering more sensitive data on the individual, therefore more intrusiveness into their privacy.

Equality and non-discrimination should be integrated 'by design' into policy-making in sports, as part of good governance practices, including for technical choices affecting anti-doping detection. Overall commitments in sports governing bodies' charters are insufficient if they are not followed by a discrimination test such as the one proposed in this article being carried out during regulatory drafting on each issue that has relevance. Considerable energy is spent today on debating whether and how human rights instruments should apply to sports regulations. The energy, we argue, is better spent in recognising that assessments in these matters always boil down to a proportionality analysis and weighing of conflicting interests, regardless of the legal basis invoked. In other words: they are both deeply political and increasingly granular. Emphasis should, therefore, be placed

[138] Badoud et al. 2013.

[139] Manica et al. 2005.

[140] CAS press release of 11 June 2021, CAS Media Release (tas-cas.org) (accessed 17.10.2022).

[141] CAS press release of 11 June 2021, CAS Media Release (tas-cas.org) (accessed 17.10.2022).

on appropriate procedures and transparency at the policy-making stage, including justification of the choices made. The only way forward here is to make each step explicit and subject to the scrutiny of all participants, scientific and political, who must be able to efficiently communicate with each other.

Finally, while this article took the initial stage of policy-making and regulatory drafting as a focus, the recognition of the entwinement between science and policy in many—apparently—rationale-scientific debates also means that the legitimacy and proficiency of the decision-making bodies, at the subsequent stage of judicial review, is of paramount importance. All disputes cannot be pre-empted through the *ex ante* assessment we advocate. In many instances, alleged situations of discrimination will only be scrutinised if an athlete brings them before the courts, as in the case of Blake Leeper. The ultimate responsibility then falls on the judge to draw the contours of a 'fair equality of opportunity', i.e. to decide how much equality is reasonably enough equality. In that regard, the capacity of the different bodies—whether CAS or ECtHR—to deal with complex scientific evidence, is an issue that deserves urgent attention.

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