

Chapter 2

Focus of the Analysis

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2.1 Focus on International Doping Cases

The main factor impeding harmonisation in anti-doping regulation is that doping represents a global phenomenon that calls for a global response, but that response is necessarily subject to a legal context that remains predominantly national (Sect. 2.1.1). The need to reconcile this dichotomy led to placing an emphasis in this book on international doping cases brought before the CAS (Sect. 2.1.2). This decision in turn accounts for the decisive role that Swiss law plays in our analysis (Sect. 2.1.3).

2.1.1 Reconciling the Universality of Science with the Locality of Law

One of the challenges of the fight against doping lies in giving a regulatory framework to a scientific reality that is fundamentally transnational (Sect. 2.1.1.1). The World Anti-Doping Program—with its cornerstone, the WADC—represents so far the most accomplished attempt to harmonise anti-doping efforts internationally (Sect. 2.1.1.2). Harmonisation is, however, complicated by the fact that anti-doping regulations implementing the WADC need to fit into national legal systems that vary considerably from one country to another (Sect. 2.1.1.3).

2.1.1.1 Transnational Realities of Anti-Doping Science

The doping phenomenon is global and transnational. The prevalence of doping, as well as the substances or methods of choice, may to a certain extent depend on the nature of the sport and the resources (financial, technological) available to Athletes in a given region of the world.¹ However, since the very purpose of international sport is to make Athletes from all over the world compete against each other, doping cheats, doping substances and doping methods are bound to defy borders.

Similarly, anti-doping science may legitimately claim global and transnational validity. Naturally, science has to take into account the physiological differences in Athlete populations which may be indirectly related to their geographical origins. For example, analytical science may have to integrate variables rooted in ethnic differences as so-called “confounding factors”, *i.e.* factors that influence the values of the same parameters naturally occurring within different Athlete populations.² In addition, the technology to detect and investigate doping, or the reliability of collection methods, may be less developed in countries in which resources are scarce.³

Notwithstanding these variations, scientific methods, including specifically anti-doping research, can reasonably be expected to produce equivalent results anywhere. In this sense, science can be called non-local: in other words, there is no such thing as a “French” toxicology or “Italian” biochemistry.

¹Dvorak et al. 2014a, p. 2 *et seq.*

²With respect to genetic polymorphism in steroid profiling, Kuuranne et al. 2014, p. 1; see also the determination of the decision limits for the recombinant human Growth Hormone test, described in CAS 2011/A/2566, *Veerpalu v. FIS*, para 83 *et seq.*; for anabolic steroids and the difference of T/E ratio in different populations, see Minutes WADA ExCo Meeting 11 September 2013, p. 34.

³WADA Report on the Lack of Effectiveness of Testing Programs, Appendix A, p. 4 *et seq.*, addresses founding of NADOs and varying readiness to effectively target doping.

2.1.1.2 Foundations of Modern International Anti-Doping Efforts

2.1.1.2.1 Stakeholders in the World Anti-Doping Program

The WADC is a model set of anti-doping regulations⁴; it was drafted under the leadership of the World Anti-Doping Agency (“WADA”) as the pillar of WADA’s World Anti-Doping Program.⁵ WADA is a private foundation of Swiss law established, with equal contributions, by the Olympic movement and governments of various countries at the first World Conference on Doping in Sport in Lausanne (1999) in the aftermath of the crisis exacerbated by the doping scandals in road cycling at the Tour de France 1998.⁶

The WADC aims at harmonising, coordinating and making anti-doping effective throughout the world.⁷ It was first approved at the second World Conference on Doping in Sport in Copenhagen (2003) by representatives from 80 governments and major International Federations.⁸ Since then, it has undergone two revisions, the first in 2006/2007 with worldwide implementation that took effect on 1st January 2009 and the second in 2012/2013, effective on 1st January 2015.⁹

The WADC refers to its Signatories as “Anti-Doping Organisations” (“ADO”s) responsible for adopting rules or enforcing aspects of the World Anti-Doping Program. ADOs undertake to implement those rules relevant to their activities, within their respective sphere of authority and by whatever legal tools available to them (policies, statutes, regulations). All provisions of the WADC are mandatory for the ADOs, but only some of these provisions are to be incorporated without substantive change into their rules. Other provisions establish guiding—and often minimal—standards that leave considerable discretion to the ADOs.¹⁰

WADA, International Federations and National Anti-Doping Organisations (“NADO”s) are the categories of ADOs that bear the greatest responsibilities in the context of Doping Control.¹¹ International Federations are in charge of enforcing anti-doping regulations throughout their sport worldwide, while NADOs are

⁴CAS 2005/C/976 & 986, *FIFA & WADA*, para 12; Adolphsen 2010, p. 62 (“*eine Art Modellgesetz für nationale Regelungen*”).

⁵The Olympic Movement Anti-Doping Code (“OMAC”, applicable to Olympic Games and Olympic sports in general) can be seen as the ancestor of the WADC, so that many CAS award rendered in the pre-WADC era can still provide guidance for general principles (see *e.g.* David 2013, p. 14/15).

⁶See, for a brief history of anti-doping, the WADA website: <https://www.wada-ama.org/en/who-we-are/a-brief-history-of-anti-doping> (accessed 22.04.15); on the legal status of WADA, see Oswald et al. 2010, p. 273.

⁷David 2013, pp. 2–5.

⁸Though not a defined term under the WADC regime, “International Federation” is a capitalised term in the WADC, and will thus be equally capitalised throughout this book.

⁹For a survey of the key changes and the WADC review process, see Rigozzi et al. 2013b.

¹⁰Introduction & Article 23.2.2 of the WADC.

¹¹ADOs further include the International Olympic Committee (“IOC”), the International Paralympic Committee (“IPC”) and other Major Event Organisations that conduct Testing at their Events (see “Anti-Doping Organisation”, Appendix 1 (Definitions) of the WADC).

entities entrusted with anti-doping activities within a particular country. National Olympic Committees (“NOC”s) have historically acted as default NADOs,¹² but many countries have now set up independent agencies and endowed them with financial resources to conduct Doping Control on their territories in accordance with the UNESCO Anti-Doping Convention.¹³

By contrast, national federations or, *a fortiori*, entities at lower levels (*e.g.* local clubs) cannot become Signatories of the WADC and are therefore never ADOs within the meaning of the WADC. They may, however, act as “armed forces” for their International Federation or the NADO in their country and receive delegated tasks.¹⁴ These could include, for example, the conduct of disciplinary proceedings against their Athletes on behalf of the relevant International Federation.¹⁵

National federations are often placed in a difficult position in that they must both abide by national laws governing their activities and comply with the duties that result from their membership in an International Federation.¹⁶ To account for the role these actors play in anti-doping despite lacking the ADO status, this book will use the expression “sports organisation” when meaning to encompass any (usually private) entity that has a part in governing organised sport and engages in anti-doping.

2.1.1.2.2 Legal Status of the WADC

2.1.1.2.2.1 Contractual Instrument without International Convention Status

Since WADA operates as a private entity but nevertheless pursues goals often deemed to respond to public interests also, and with a strong governmental involvement in the process, it has been suggested that WADA ought to be regarded as a new, hybrid form of institution, *i.e.* as a sort of “public-private partnership”. As a result, the WADC would constitute a mixed source of law *sui generis*, neither completely public nor completely private.¹⁷

¹²The Definition of National Anti-Doping Organisation, Appendix 1 (Definitions) of the WADC, provides that if no designation of a competent body has been done by “the competent public authority(ies), the entity shall be the country’s National Olympic Committee or its designee”.

¹³See Sect. 2.1.1.3 below.

¹⁴Furthermore, national federations may suffer financial consequences in countries in which governments have implemented Article 11 of the UNESCO Anti-Doping Convention (see Nagel 2009, p. 30 *et seq.*).

¹⁵For example, in the sports of cycling, the Union cycliste internationale (“UCI”) until the 2015 WADC review would delegate disciplinary proceedings to the national federations under the UCI Anti-Doping Rules (version revised Feb. 2012).

¹⁶Foster 2003, p. 14; Rigozzi 2005, n° 69; Siekmann and Soek 2010, p. 102, use the expression “sandwiched”; from a German perspective, see Berninger 2012, p. 34/35, whereby the NADA Code provides an explicit rule of conflict that the rules of the International Federation shall prevail insofar as these are consistent with the WADC and compliant with German law.

¹⁷For a description of the idea, see Siekmann 2011a, p. 91; Adolphsen 2010, p. 63.

With due respect to those authors, it is suggested that the characterisation of the WADC as being *sui generis* has little practical relevance, not least because there is no consensus regarding the legal implications of that characterisation.¹⁸ This supposedly hybrid nature of the WADC is reflected neither in its standing on the international scene nor in related case law. Indeed, CAS panels and national courts have repeatedly held that the WADC is not an instrument of international public law with a general binding power¹⁹—in the sense of an international Convention—but a contractual instrument binding on its Signatories only.²⁰ States cannot be Signatories of the WADC and the only international Convention that contains references to the WADC is the UNESCO Anti-Doping Convention, which does not incorporate the WADC itself.²¹

2.1.1.2.2 No Direct Effect of the WADC

Given its contractual nature (also referred to as “private law-making”²² or “agreement-based system”²³), the WADC has no “direct effect”.²⁴ The mere commitment

¹⁸Latty 2011, p. 36, while admitting that “formally at least, the standards which it [WADA] produces are acts of private law”, continues that “it is not out of the question to consider that the agency’s mixed composition in a way reflects upon the law which it produces—transnational law in the hybrid sense of the term”; Adolphsen 2010, p. 64, acknowledges that the WADC is not integral part of the UNESCO Anti-Doping Convention, but adds: “*Im Ergebnis werden weite Bereiche des WADA-Code in den völkerrechtlichen Vertrag des UNESCO-Uebereinkommen integriert, so dass sich der WADA-Code hierdurch von privat gesetzten Regeln zu völkerrechtlich verbindlichem Vertragsrecht wandelt*” [In effect, large parts of the WADA Code are integrated into the international public law agreement of the UNESCO Convention, so that the WADA Code hereby transforms from rules set through private means into binding contractual rules of international public law (author’s translation)].

¹⁹Berninger 2012, p. 18.

²⁰CAS 2011/O/2422, *USOC v. IOC*, para 45; for France, see *inter alia* Decision *Conseil d’Etat* (18 July 2011, n° 338390), para 4 & Decision *Conseil d’Etat* (28 October 2009, n° 327306), which clearly held that the WADC cannot be invoked by individuals in France, in the absence of an incorporation into the French *Code du sport*; Berninger 2012, p. 16, highlights that the relevant criterion is that WADA is a private entity of Swiss law. In fact, as a Swiss “foundation”, as opposed to an “association”, WADA does not have “members”, so that it does not even have the authority to adopt regulations which would be automatically binding even upon a restricted circle of addressees (for a similar reasoning for the German NADA, see Berninger 2012, p. 34).

²¹Marriot-Lloyd Paul, International Convention against Doping in Sport, <http://unesdoc.unesco.org/images/0018/001884/188405e.pdf> (accessed 23.04.15), p. 3; David 2013, p. 3; see also, in France, the *Projet de Loi présenté au Sénat session juillet 2014, Exposé des motifs*, p. 3/4, which even considers that the UNESCO Anti-Doping Convention only refers to the principles of the 2003 version of the WADC, but insists that France nevertheless strives to stay in compliance with current rules.

²²Adolphsen 2010, p. 63; Berninger 2012, p. 16.

²³David 2013, p. 59, mentions as an advantage of this system the fact that this makes it easier for ADOs to rely on their autonomy to counter arguments derived from the protection of the Athlete’s rights, and, as the other side of the coin, the fact that an authority over Athletes or other Persons can only be established insofar as the relevant individual has submitted to it.

²⁴See, *inter alia*, CAS 2011/A/2612, *Liao Hui v. IWF*, para 98 *et seq.*; CAS 2008/A/1572, *Gusmao v. FINA*, para 4.58; CAS 2008/A/1718 *IAAF v. All Russia Athletic Federation & Yegorova et al.*, para 61.

of an ADO to implement the WADC rules does not make such rules *ipso iure* applicable in a particular doping dispute. The WADC is not directly binding on Athletes, nor can these Athletes derive any rights from its provisions. Athletes benefit from—or are affected by—the WADC only to the extent that it has been incorporated into the relevant sport’s regulations.²⁵ The incomplete or incorrect implementation of the WADC only amounts to a breach of the ADOs contractual duties as a Signatory,²⁶ possibly leading to a declaration of non-compliance or other consequences imposed by WADA or the IOC.²⁷

Moreover, the mere fact that anti-doping rules are based on the WADC does not alter their legal nature. The legal nature of a particular set of rules depends on the national context, but in many cases these rules are contained in private regulations of an association or similar legal entity.²⁸ The WADC obliges its Signatories to ensure that Athletes or other persons under their jurisdiction are bound by the anti-doping regulations,²⁹ but leaves it to them to decide how such binding effect is achieved, *e.g.* through membership or contractual submission.³⁰

CAS panels have repeatedly refused to apply a provision contained in the WADC as a substitute for the specific anti-doping regulations applicable in a given case, even where these regulations were not in harmony with the WADC.³¹ Instead, the WADC may be used as an aid in interpreting the applicable anti-doping regulations.³² There is nevertheless only a thin line between an interpretation

²⁵Schmidt 2012, n° 6; CAS 2009/A/1817 & 1844, *WADA & FIFA v. CFA, Marques, Eranosian et al.*, para 130. This is self-speaking for the WADC sections that leave a large discretion to the Signatories to develop and adopt their own rules (*e.g.* the results management or disciplinary process), but it is equally true for those provisions of the WADC which must be mandatorily implemented without substantive changes.

²⁶Berninger 2012, p. 17, rightly distinguishes the circle of ADO as “Signatories” contractually bound by the WADC on the one hand, and the “addressees” (Athletes and other Persons), who must be subjected to the relevant rules through other means.

²⁷Article 23.5 of the WADC. For example, the WADA Foundation Board declared the British Olympic Association’s selection policy for the Olympic Team GB (providing for a lifetime Ineligibility of Athletes sanctioned for doping) non-compliant with the WADC, a decision which was upheld in CAS 2011/A/2658, *BOA v. WADA*. The Olympic Charter recognises only organisations which have implemented the WADC (see Article 25 of the Olympic Charter for International Federations, and Article 27 of the Olympic Charter for National Olympic Committees).

²⁸CAS 2005/A/830, *G. Squizzato v. FINA*, para 49.

²⁹See Part One, Doping Control, Section Introduction of the WADC, as well as Article 20 of the WADC on roles and responsibilities of the ADOs.

³⁰In doping disputes, this often supposes a preliminary decision as to whether there is an agreement making a specific set of rules binding on a specific Athlete (see *e.g.* CAS 2010/A/2268, *I. v. FIA*, para 67 *et seq.*); see also David 2013, p. 57 *et seq.*, on the “agreement-based system”.

³¹See *e.g.* CAS 2005/A/831, *IAAF v. Eddy Hellebuyck*, para 7.3.4.3; confirmed in CAS 2008/A/1718, *IAAF v. All Russia Athletic Federation & Yegorova et al.*, para 228.

³²CAS 2009/A/1817 & 1844, *WADA & FIFA v. CFA, Marques, Eranosian et al.*, para 131.

consistent with the WADC and an actual review of the contents of these anti-doping regulations for their conformity with the Code. A series of CAS awards under the 2009 WADC have thus raised questions as to whether CAS panels may imperceptibly be evolving towards making the WADC prevail over applicable anti-doping regulations in exceptional circumstances, despite the declared absence of direct effect of the document.³³

Along the same lines, the 2015 WADA Model Rules suggest that a provision should be inserted in applicable anti-doping regulations whereby³⁴

the Code and the International Standards shall be considered integral part of these Anti-Doping Rules and **shall prevail in case of conflict** (Article 20.4, emphasis added).

Beyond the fact that this provision is aberrational in that it would make implementation of the WADC by each ADO conceptually meaningless, inserting such a provision would hardly guarantee sufficient legal predictability to make solutions in the WADC diverging from applicable anti-doping rules automatically binding on Athletes. Athletes cannot be expected to know both the contents of the applicable rules and the equivalent rules of the WADC regime and, on top of all, determine whether a conflict exists.³⁵

It is thus reasonable to operate on the generally accepted premise that the WADC is not directly applicable in a doping dispute. Only the anti-doping regulations made binding on Athletes—or other Persons—apply. Given the absence of a direct effect of the WADC, it is terminologically inaccurate to use expressions such as a Doping Control carried out “under the rules” of the WADC or sanctions imposed “on the basis of” the WADC, as encountered at times in the academic literature and, more disconcertingly, in CAS awards themselves.³⁶ However, this book analyses evidentiary issues as contemplated by the WADC regime, without regard to specific—possibly incomplete or faulty—implementations of the WADC in individual sports’ applicable regulations. Therefore, while the reader will find many direct references to provisions of the WADC it is important to keep in mind that such direct references are merely a pragmatic shortcut for describing a more complex legal situation.³⁷

³³See in particular, CAS 2011/A/2612, *Liao Hui v. IWF*, para 98 *et seq.*, and CAS 2009/A/1752 & 1753, *Devyatovskiy & Tsikhan v. IOC*, para 4.11 *et seq.*

³⁴The Model Rules are set of standard rules that are drafted by WADA based on each new version of the WADC for the different categories of Signatories, in order to facilitate the implementation of the WADC by those Signatories. They are not mandatory, but represent WADA’s suggestions in terms of “best practices”.

³⁵On the requirements for the Athlete’s informed agreement, see Sect. 3.2.3.3 below; specifically on the binding nature of technical rules, see Sect. 5.1.2.1 below.

³⁶See *e.g.* ambiguously referring to the appeal being “governed by the provisions of the Programme [of the ITF] and the WADC”, in CAS 2012/A/2804, *Kutrovsky v. ITF*, para 7.2.

³⁷As correctly highlighted in CAS 2009/A/1879, *Valverde v. CONI*, para 19.

2.1.1.3 Fragmentation of Anti-Doping Through National Laws

As opposed to the realities of doping and anti-doping science, the legal framework under which anti-doping efforts under the World Anti-Doping Program operate is predominantly national, although the influence of European law is also perceivable on certain aspects.³⁸ At global level, doping is addressed in two international Conventions³⁹: the Council of Europe Anti-Doping Convention of 16 November 1989, effective as of 1 March 1990,⁴⁰ and the UNESCO International Convention against Doping in Sport of 19 October 2005 (“UNESCO Anti-Doping Convention”).⁴¹ These two Conventions, however, are not self-executing and do not incorporate the WADC as a set of anti-doping regulations.⁴² The correct implementation of the WADC therefore remains in the hands of private international sports organisations (primarily International Federations) and of national legislatures or governments (to the extent that states choose to intervene).⁴³

Organised sport is historically a self-regulated sector, which is ultimately an emanation of the freedom of association.⁴⁴ At least when it comes to sports who are Signatories of the WADC, the sports sector is typically structured through private organisations, whose

authority is entirely consensual, derived from the voluntary agreement between themselves and their members that is set out in the rulebook, and the continuing commitment of those members to abide by the rules and regulations that they issue and to submit to their jurisdiction to apply and enforce those rules.⁴⁵

³⁸For the restrictions imposed by EU competition law on anti-doping regulations implementing the WADC, see the famous decision of the Court of Justice of the European Union, *C-519/04, Meca-Medina & Majcen v. Commission*, 18 July 2006.

³⁹For a detailed analysis of both conventions, see Schmidt 2012, p. 22 *et seq.*; other international instruments include the “Lausanne Declaration” of 4 February 1999 adopted during the First World Conference on Doping in Sport at which the creation of WADA was decided, and the “Copenhagen Declaration” adopted in March 2003 during the Second World Conference on Doping in Sport, through which governments announced their intent to recognise the WADC. These, however, are not international conventions and have no binding effect on their signatories.

⁴⁰Effective in Switzerland as of 1st January 1993.

⁴¹Effective in Switzerland as of 1st December 2008.

⁴²The Council of Europe Anti-Doping Convention pre-dates the WADC; on the UNESCO Anti-Doping Convention that does not incorporate the WADC, see Adolphsen 2010, p. 64.

⁴³This dual system carries the potential of conflicting solutions being reached at international and national level, for example if a measure imposed by the relevant International Federation is not enforceable at national level in the Athlete’s country (David 2013, p. 67).

⁴⁴Adolphsen 2010, p. 58. The freedom of association is enshrined, in particular, in Article 20 of the Declaration of Human Rights and in Article 11 of the ECHR.

⁴⁵Lewis and Taylor 2014, A2.13, for the example of UK sports.

As a result, anti-doping programs are often rooted in consensual instruments, such as membership or contractual submission.⁴⁶ This holds true without exception for International Federations, which are constituted throughout the world as private entities (with a majority of these as associations under Swiss law).⁴⁷ International Federations have no supranational legal personality and therefore cannot claim any “special” autonomy,⁴⁸ neither from the status acquired by their incorporation in a particular jurisdiction nor from any other legal system in which they exercise their activities.⁴⁹

A first option open to International Federations is to enforce their regulations through membership. Athletes are never direct members of the International Federation governing their sport, so the International Federations need to implement their anti-doping regulations indirectly, using their authority on their member federations.⁵⁰ To this end, sports governing bodies at each level of the “pyramids of sport” undertake to incorporate the relevant regulations and to impose them at the next level below, down to the individual Athletes.⁵¹ These so-called “chains of submission” run down the pyramid, via appropriate references in the applicable

⁴⁶See, for Switzerland, the official comment accompanying the executing act to the revised Swiss Sports Act, p. 25 (*Commentaire de l'ordonnance sur l'encouragement du sport et de l'activité physique*), http://www.admin.ch/ch/f/gg/pc/documents/1924/Rapport_expl_fr.pdf (accessed 24.04.15): “*Les normes édictées par différents acteurs du monde du sport—principalement les associations et les fondations selon le Code civil suisse—constituent les bases de la lutte contre le dopage en Suisse, en droit privé. Elles tirent leur force contraignante de leur ancrage dans les contrats ou les statuts. C’est notamment le cas du Code mondial antidopage et des standards internationaux de l’AMA relatifs au travail de laboratoire ou du Statut de Swiss Olympic concernant le dopage qui met en œuvre le programme de l’AMA*”. [The norms adopted by the various actors of the world of sport—primarily associations and foundations under Swiss law—represent the basis of the fight against doping in Switzerland, under private law. They draw their binding effect from their anchor in contracts or statutes. This applies, in particular, to the World Anti-Doping Code and the WADA International Standards related to laboratory work, or the Swiss Olympic Statutes regarding doping that implement WADA’s program (author’s translation)].

⁴⁷On the contractual nature of the relationship, see Adolphsen 2007, p. 124 *et seq.*; Oswald et al. 2010, p. 210 *et seq.*

⁴⁸Even though international sports governing bodies have long claimed such special status, arguing that sports activities are “special” so that they ought to be exempted from ordinary legal rules; McArdle 2015, p. 19, refers to a “recurrent theme” in international sports law.

⁴⁹Rigozzi 2005, n° 68; Buy et al. 2009, n° 105.

⁵⁰Many aspects of the legal instruments designed to remedy the absence of direct membership are controversial. The Swiss Supreme Court historically introduced the doctrine of “indirect membership” to enable athletes to challenge decisions that directly affect them, in spite of the fact that Athletes are not immediate members of the association that made the decision (see *e.g.* BGE/ATF 119 II 271, para 3b.; Haas and Köppel 2012, n° 12); for an in-depth analysis of the submission to disciplinary sanctions, which includes submission to underlying regulations as a prerequisite, see Steiner 2010, p. 123 *et seq.* For Germany, see the analysis by Adolphsen 2007, p. 62, as well as Vieweg 1995, p. 98 and BGH Urteil Bundesgerichtshof, 28 November 1994 (“Reiter-Urteil”), reproduced in SpuRt 1-2/95, p. 43 *et seq.*, para II.3 a.).

⁵¹Baddeley 1998, p. 312; Reimann 2002, p. 42 *et seq.*

regulations.⁵² A second option is for International Federations to require Athletes to submit to their regulations by means of a separate contractual agreement (*Regelanerkennungsverträge*, i.e. by signing an individual contract for elite Athletes, by applying for a license or merely by filling in an entry form for a specific Event).⁵³

In practice, sports organisations often use combinations of membership and contractual devices⁵⁴ in order to achieve the greatest coverage possible and thereby enhance the likelihood that the regulations are enforceable on their Athletes.⁵⁵ CAS panels and national courts have also found in the past that Athletes submit to anti-doping regulations by implied conduct, through their mere participation in an Event.⁵⁶

At national level, the legal status of sports regulations varies from country to country.⁵⁷ Broadly speaking, two major paradigms have historically co-existed in a European dimension, one based on governmental abstention (traditionally Northern European countries, such as Germany, Switzerland, UK or the Netherlands), the other based on governmental intervention (traditionally countries of “Latin” legal culture, such as France, Italy, Portugal or Spain).⁵⁸

In anti-doping, the two paradigms are gradually blended into a variety of individual solutions with varying degrees of state intervention. This variety is often linked to the creation of an independent agency as a country’s NADO.⁵⁹ The legal nature—are they private, semi-public, or public?—of these NADOs may be unsettled and varies from country to country, along with the financial resources and legal instruments available to them.⁶⁰ As a result, the boundaries between public and private become increasingly difficult to define, all the more so as they rapidly evolve over time.⁶¹

⁵²Haas and Martens, 2011, p. 68.

⁵³Honsell et al. 2014 (Anton Heini/Urs Scherrer), *ad* Article 70, n° 19, deny the possibility of implied consent; Zen-Ruffinen 1997, n° 164; for an analysis of the different forms of agreement and their legal nature, see Reimann 2002, p. 43 *et seq.*

⁵⁴For the organisation of football in Germany, see Schmidt 2012, n° 12.

⁵⁵Vieweg 1995, p. 99.

⁵⁶David 2013, p. 59; see *e.g.* CAS 2011/A/2398, *WADA v. WTC & Marr*, para 5.2: “Marr participated in the Event. In participating in the Event, Marr agree to be bound by the WTC ADR”; for some other examples of the CAS panels’ or other courts’ tolerant approach, see Maisonneuve 2011, n° 659 *et seq.*; Grätz, p. 307.

⁵⁷Zen-Ruffinen 1997, n° 361.

⁵⁸Adolphsen 2010, p. 58; for a list of the countries to place into either category in the European Union, see: Siekmann and Soek 2010, p. 102; Haas and Martens 2011, p. 43; Kern 2007, 30 *et seq.*, in particular 43/44.

⁵⁹See Sect. 2.1.1.2.1 above.

⁶⁰Thill 2012, p. 624; for the German NADA, see Berninger 2012, p. 21 *et seq.*

⁶¹Beloff Michael, The specificity of sport—rhetoric or reality?, 4th Edward Grayson Memorial Lecture, British Association for Sport and Law, p. 5: “Sport, like the professions, law or medicine, is now part private, part servant of public policy”.

2.1.2 International Doping Cases Before CAS

In order to allow for the focus to be on the interplay between science and law, this book places an emphasis on “international” doping cases (Sect. 2.1.2.1). In the absence of a uniform and established criterion for defining “international” in anti-doping (Sect. 2.1.2.2), a pragmatic, practice-based definition, is to refer to doping cases brought before the Court of Arbitration for Sport (Sect. 2.1.2.3).

2.1.2.1 Purpose-Tailored Focus

The purpose of this book is not to analyse the hurdles that national laws represent for global legal harmonisation in anti-doping, nor the various legal standards of protection available to Athletes in different jurisdictions. The basic premise is that substantive differences among these protection standards are generally overstated. More often than not, these protection standards merely reflect the same principles expressed under different headings.⁶² It is a nevertheless a reality that national laws create discrepancies in approaches to anti-doping programs and thereby impede harmonisation. This lack of harmonisation is detrimental to legal certainty and equal treatment among Athletes, including those within the same sports discipline. Various solutions could be considered in future to solve these shortcomings, including full incorporation of the WADC into an international Convention.

Chapter 3 will nevertheless provide insights into the protection standards that limit ADOs in their discretion to design anti-doping programs, to the extent relevant for evidentiary matters.⁶³ For the rest, the book stays away from considerations of cross-border legal harmonisation to place the emphasis on the interaction between science and law. Its primary goal is to assess to what extent the legal treatment of evidence under the 2015 WADC has a sound basis, in particular a sound basis in science. Introducing the additional variables that national discrepancies entail would have rendered this goal impracticable. Accordingly, the book focuses on international doping cases brought before the CAS, which accounts for the frequent references to Swiss law both on procedural and substantive aspects.⁶⁴

2.1.2.2 No Universally Accepted Definition of “International”

The focus of this book is on “international”—rather than “national”—doping cases. The distinction between “international” and “national” is no easy one to make in anti-doping, nor in “sports law” generally, since there are no commonly

⁶²Viret 2014, p. 101.

⁶³See Sect. 3.2 below.

⁶⁴See Sect. 2.1.3 below.

accepted criteria to separate the two levels.⁶⁵ The 2015 WADC uses the distinction with respect to “Athletes” and with respect to “Events”. The distinction is essential, in particular, to determine the legal avenue for appeals against decisions made in anti-doping proceedings (Articles 13.2.1 & 13.2.2 of the WADC). Cases arising from participation in an International Event⁶⁶ or cases involving International-Level Athletes must be open to appeal to CAS. In all other cases, the appeal is before an independent review body to be established by each NADO.⁶⁷

The criteria for classifying an Athlete as “International-Level” are for each International Federation to determine, provided these criteria are published, easily accessible and determined in good faith.⁶⁸ The criteria for classifying an Athlete as a “National-Level” one, by contrast, are for each NADO to define.⁶⁹ The question arises as to what consequences this entails for the appeal in case of positive or negative conflicts of definitions. For example, an Athlete could be classified both as International-Level by his or her International Federation and as National-Level by his or her NADO. Conversely, it is possible that an Athlete would not properly fall under either definition. The implementation of the distinction between International-Level and National-Level thus requires some coordination between NADOs and International Federations.⁷⁰

⁶⁵Maisonneuve 2011, n° 17, considers that an international dispute is one that arises from the application of the regulations of an international sports organisation, while a national dispute arises from the application of the regulations of a national sports organisation. By contrast, when a doping case is brought before CAS, the Swiss Private International Law Act (“SPILA”) distinguishes international and national (domestic) arbitration by relying on the Swiss versus foreign residence of the parties to the dispute. On the fragmentation that these different delimitations may cause, see *idem, ibidem*, n° 850.

⁶⁶The criterion for defining an “International Event” under the WADC is the international character of the ruling body for the Event (International Federation, IOC etc.). “National Event” is defined by default, with *a contrario* reference to International Events.

⁶⁷Note that the NADO may also provide that the appeal be heard by a CAS panel instead (Comment *ad* Article 13.2.2 of the WADC).

⁶⁸The idea being that the International Federation should involve all Athletes who regularly compete at international level, according to criteria such as ranking, participation in certain Events or equivalent; see the definition of International-Level Athlete in Appendix 1 (Definitions) of the WADC and Article 4.3.2 lit. a of the ISTI, as well as Introduction of the 2015 WADA Model Rules for International Federations.

⁶⁹See the definition of National-Level Athlete in Appendix 1 (Definitions) of the WADC and Article 4.3.2 lit. b of the ISTI.

⁷⁰The revised Article 4.3.2 lit. b of the 2015 ISTI provides in this respect that the NADO “should include those nationals of its country who generally or often compete at international level and/or in International Events of Competitions (rather than at national level) but who are not classified as International-Level Athletes by their International Federation”.

2.1.2.3 Definition for the Purposes of This Book

In the absence of a universally recognised definition, the term “international doping case” as used in this book refers to a doping dispute that is brought before a CAS panel. These cases are generally adjudicated under the anti-doping regulations of an International Federation, as should be the rule for cases arising from International Events or involving International-Level Athletes pursuant to Article 13.2.1 of the WADC.

The rationales for this focus are twofold:

- The first rationale is pragmatic and arises from a concern to provide useful tools to practitioners. CAS awards are the most important source of “case-law” in doping matters,⁷¹ since nearly all high-profile cases are ultimately brought before a CAS panel. These cases are usually decided in accordance with the regulations of an International Federation. Thus, this book encompasses those cases most relevant for the practice.
- The second rationale is methodological, rooted in the decision to focus on the influence of science on evidentiary matters in anti-doping, leaving aside other controversies.⁷² CAS panels are the only judicial bodies adjudicating doping disputes without being constrained by a particular national context.⁷³ Analysing cases brought before the CAS thus largely eliminates debates surrounding the discrepancies that arise from doping cases being reviewed by national courts or national anti-doping panels. In addition, analysing cases governed by the rules of an International Federation (which includes cases where a national federation acts under the delegation of its International Federation), keeps the analysis mostly within a context of “private” anti-doping regulations.⁷⁴

The approach chosen leaves out purely national matters, in which doping decisions may be made by semi-public or public authorities in accordance with a national anti-doping law, possibly with remedies before administrative courts, as occurs in France.⁷⁵ References to such situations may still appear whenever their findings bring particularly valuable insights to the analysis. However, this type of cases has not been included in a systematic manner.

⁷¹The concept of case-law for CAS awards is a disputed one, since in theory CAS panels form autonomous arbitral tribunals that are not bound by precedents.

⁷²See Sect. 2.1.2.1 above.

⁷³Subject still to the Swiss *lex arbitrii*, see Sect. 2.1.3.1 below.

⁷⁴See Sect. 2.1.1.3 above and Sect. 3.3.1 below.

⁷⁵See Sect. 2.1.1.3 above.

2.1.3 Importance of Swiss Law in International Doping Cases

The focus on international doping cases and CAS arbitration inevitably gives Swiss law an essential role, both in terms of procedure and on the merits (Sect. 2.1.3.1). This book thus maintains a link with (Swiss) national law rather than to opt for an entirely non-national perspective (Sect. 2.1.3.2).

2.1.3.1 Swiss Law as a *Lex Arbitrii* and *Lex Causae*

The importance of Swiss law is paramount in CAS arbitration proceedings:

- Swiss law is systematically applicable for procedural aspects as a “*lex arbitrii*” (law governing the arbitration proceedings). Indeed, under the CAS Code of Sports-related Arbitration (“CAS Code”),⁷⁶ the seat of all CAS arbitration proceedings is deemed to be Lausanne, Switzerland (Article R28 of the CAS Code).
- Swiss law is regularly applicable on substantive issues as a “*lex causae*” (law applicable on the merits) in doping cases.⁷⁷ On the one hand, many International Federations have included an explicit reference to Swiss law in their regulations. On the other hand, Article R58 of the CAS Code refers to the law of the sports organisation that made the decision appealed as the default solution for “appeal” arbitration proceedings, in the absence of a specific choice of law made by the parties.⁷⁸ Most major International Federations have their offices in Switzerland and are constituted as Swiss associations (Article 62 *et seq.* of the Swiss Civil Code),⁷⁹ which leads to doping case being typically adjudicated with reference to Swiss law by CAS panels.

Doping matters before CAS are generally “international arbitration” cases governed by Chap. 12 of the Swiss Private International Law Act (“SPILA”), save in the—relatively rare—situation in which both the ADO and the Athlete are resident (respectively, for the ADO, is incorporated) in Switzerland.⁸⁰ If all parties have

⁷⁶Unless otherwise specified, the CAS Code is referred to in its version effective as of 1st March 2013.

⁷⁷With respect specifically to the burden of proof before CAS, see Rigozzi and Quinn 2012, p. 15; more generally, see David 2013, p. 125.

⁷⁸For a critical discussion of this solution, see Rigozzi 2005, n° 1215; see also Maisonneuve 2011, n° 869 *et seq.*

⁷⁹Zen-Ruffinen 1997, n° 118 & 152.

⁸⁰See the scope of application as defined in Article 176 para 1 of the SPILA; Rigozzi and Quinn 2012, p. 2; for an example of domestic arbitration in a doping dispute, see CAS 2010/A/2083, *UCI v. Jan Ullrich & Swiss Olympic*.

their residence in Switzerland, the domestic arbitration is governed by Part 3 of the Swiss Code of Civil Procedure. The idiosyncrasies that may occur in domestic arbitration disputes are not specifically dealt with in this book, since these should have at a most a minor influence on the evidentiary issues addressed herein. Most importantly, the relevant provisions of both the SPILA and the Swiss Code of Civil Procedure leave comparable discretion to the parties and the arbitral tribunal to agree on the rules governing the arbitration proceedings (cpre Articles 182 & 184 of the SPILA with Articles 373 & 375 para 1 of the Swiss Code of Civil Procedure).⁸¹

Swiss approaches to evidentiary issues are thus bound to play a significant part in CAS arbitration proceedings. Nevertheless, this book does not remain confined to Swiss law and includes numerous references to other systems of law where appropriate, given that CAS panels—being typically constituted of arbitrators from different legal cultures—tend to favour a pragmatic ad hoc approach to these issues. Chap. 3 will show that arbitral tribunals operating in an international context have gradually developed general principles of evidence that are commonly applied in international arbitration worldwide, including in sports arbitration, thus considerably diminishing the impact of the *lex arbitrii* and *lex causae* in this domain.⁸²

Importantly, many dimensions of evidentiary matters, such as the logic of proof or the evaluation of scientific evidence, are not readily amenable to positive legal regulation.⁸³ These dimensions, albeit often influenced by the diversities in national legal cultures, can thus be analysed in a genuine non-national perspective. For these dimensions, this book will often seek guidance in common law scholarly writings or court decisions, which frequently provide a more reflective view on evidence.

2.1.3.2 Decision Not to Adopt a Fully Non-national Perspective

While opting for the Swiss *lex causae* as a general reference standard, we acknowledge suggestions by leading commentators that international doping cases could be better harmonised through inserting a non-national choice of law into sports regulations or even directly into the CAS Code.⁸⁴

⁸¹With respect to the SPILA, see Rigozzi and Quinn 2012, p. 2/3.

⁸²See Sect. 3.1 below.

⁸³See Sect. 1.2.1 above.

⁸⁴On this topic, see Rigozzi 2005, n° 1226 *et seq.*; Adolphsen 2004, p. 174 *et seq.*; Haas 2007, p. 271 *et seq.*

The Swiss *lex arbitrii*, like many modern laws governing international arbitration,⁸⁵ accepts that neither the parties nor the arbitrators are limited to national laws when choosing the rules applicable to their dispute (Article 187 para 1 of the SPILA).⁸⁶ They may instead declare non-national rules of law applicable,⁸⁷ an option which is not available before national courts.⁸⁸ Sports regulations enacted by international sports organisations represent obvious candidates for such non-national rules.⁸⁹ An explicit choice-of-law clause, in favour of sports regulations and to the exclusion of any national *lex causae*, considerably limits the risk of inconsistent judicial review arising from diverging legal standards and promotes homogeneous solutions.

Were this to occur, international doping cases could be adjudicated on the sole basis of the applicable anti-doping regulations, without regard to any specific national law. Anti-doping regimes could then be assessed only by reference to general principles of international sports law, also referred to as “*lex sportiva*”.⁹⁰ The *lex sportiva* would act as a fall-back standard for interpretation, gap filling and controlling the validity of the applicable regulations (and thus, indirectly, of the WADC). Indeed, the idea of a non-national choice of law has continuously gained strength over the past years among commentators in sports law, carried by numerous contributions exploring the emergence of an “autonomous transnational sports

⁸⁵Lew et al., 2003, n° 22–22; for commercial arbitration, see Article 28 para 1 of the UNCITRAL Model Law on International Commercial Arbitration (1985), with amendments as adopted in 2006, and n° 39 of the Explanatory Note: “by referring to the choice of ‘rules of law’ instead of ‘law’, the Model Law broadens the range of options available to the parties as regards the designation of the law applicable to the substance of the dispute. For example, parties may agree on rules of law that have been elaborated by an international forum but have not yet been incorporated into any national legal system. Parties could also choose directly an instrument such as the United Nations Convention on Contracts for the International Sale of Goods as the body of substantive law governing the arbitration, without having to refer to the national law of any State party to that Convention”. The UNCITRAL Model Law, however, still limits the arbitrators themselves to the choice of the national law resulting from the conflict-of-law rules, in the absence of a party agreement.

⁸⁶Berger and Kellerhals 2015, n° 1383; Adolphsen 2007, p. 633; Adolphsen 2004, p. 174; Haas 2007, p. 271.

⁸⁷In Switzerland, this choice is accepted both for international arbitration and for domestic arbitration under the unified Swiss Civil Code of Procedure (*Message du Conseil fédéral du 28 juin 2006*, FF 2006 p. 6841 *et seq.*, p. 7008); more generally, see Berger and Kellerhals 2015, n° 1382 *et seq.*; Rigozzi 2005, n° 1177; for CAS awards, see *e.g.* CAS 2009/A/1817 & 1844, *WADA & FIFA v. CFA, Eranosian et al.*, para 125; CAS 2005/A/983 & 984, *Penarol v. Bueno, Rodriguez & PSG*, para 22 *et seq.*

⁸⁸Latty 2011, p. 35; CAS 2005/A/983 & 984, *Penarol v. Bueno, Rodriguez & PSG*, para 22.

⁸⁹CAS 2011/A/2612, *Hui v. IWF*, para 55; Haas 2007, p. 271; Maisonneuve 2011, n° 926 *et seq.*

⁹⁰Latty 2009a, in his “La *lex sportiva*: recherche sur le droit transnational”, has devoted a whole study to the topic.

order”, *i.e.* a self-contained legal system of rules and principles reflecting the needs of international sport for global solutions.⁹¹

In practice, a number of awards rendered by CAS panels are already completely detached from national laws, with or without the explicit agreement of the parties. It is not uncommon for awards to rely solely on applicable sports regulations without any review of the contents of these regulations, or with only a minimalist review under general principles of law.⁹²

However, the fact that a solution is already applied in practice does not mean that it is desirable, nor even admissible.⁹³ Our position is that a non-national choice of law does not, as matters stand, represent a viable alternative to the application of a national *lex causae* in doping disputes. Providing detailed views on this topic would go far beyond the ambit of our analysis in this book. However, the following points summarise the main objections that can be raised against the practicability and legal admissibility of a non-national choice of law:

- First, the validity of the Athlete’s consent to such choice-of-law,⁹⁴ which amounts to no less than a waiver of all standards of protection offered by the otherwise applicable *lex causae*, appears questionable.⁹⁵ It is doubtful whether the goals of a harmonised anti-doping regime ought to be regarded as sufficiently legitimate to counterbalance the absence of a genuine—informed and free—agreement to the waiver.⁹⁶

⁹¹For a recent survey of the opinions, see Vaitiekunas 2014, p. 45 *et seq.*; the terminology used varies: “*lex sportiva*”, “global sports law”, “*lex ludica*”, “public international sports law” (for an overview, see Siekmann 2011b, p. 3 *et seq.*) Generally speaking, the existence, scope, contents of such a transnational system of law is one of the most controversial legal issues related to sport.

⁹²Adolphsen 2007, p. 619, suggests two possible “unofficial” explanations for this practice: the concern of the CAS to develop a uniform case law, or a panel in which none of the members is familiar with the law applicable on the merits.

⁹³Adolphsen 2007, p. 624 *et seq.*, concedes that national courts usually have only limited means to sanction such practice.

⁹⁴McArdle 2015, p. 27, describes contractual freedom on part of Athletes when it comes to arbitration clauses as a “mythical creature”.

⁹⁵Foster 2003, p. 15, marks the fundamental difference between the justification for *lex mercatoria* as an autonomous global law, which rests on contract law, and *lex sportiva*, which rests on a “fictitious contract”; see, for a similar view, Maisonneuve 2011, n° 807 *et seq.*; also denying the possibility of an exclusive choice of law in favour of a *lex sportiva*, Fritzweiler *et al.* 2014, p. 610 *et seq.*

⁹⁶This point is debated in literature. According to Rigozzi 2005, n° 1231, the legitimate goal of such “non-national choice of law” should make it also worthy of protection in the eyes of national courts, justifying the validity of the clause despite an Athlete’s “forced” or “uninformed” consent, similar to the one that is accepted for the arbitration clause; for a similar view, see Adolphsen, 2007, p. 640; *contra*: Maisonneuve 2011, n° 811, considers that the sole application of sports regulation ensures equal treatment among all Athletes, but does not constitute a proportionate instrument; on the restrictions to consent to anti-doping regulations in general, see Sect. 3.2.3 below.

- Second, even in international arbitration, a non-national choice of law cannot completely shield private anti-doping regulations from the reach of national law and national authorities.⁹⁷ Thus, CAS panels remain bound to apply public policy provisions of those national laws that are sufficiently relevant to the dispute.⁹⁸
- Third, the body of “*lex sportiva*” that a non-national choice of law would presuppose as a substitute for judicial review under national laws is not sufficiently developed.⁹⁹ Even CAS “case-law”¹⁰⁰ cannot offer a comprehensive set of principles sufficient to provide solutions in all situations to satisfy the predictability requirement and to assess the validity of anti-doping regulations for the Athlete’s protection.¹⁰¹

For the above reasons, the position in this book is that evidentiary regimes contained in anti-doping regulations cannot disregard the *lex causae*, specifically Swiss law.¹⁰² Our position is reinforced by the recent decisions of the German local courts in the continued legal battle by German speed-skating Athlete Claudia Pechstein after her being sanctioned for blood doping based on abnormal longitudinal values alone, a finding upheld up the Swiss Supreme Court.¹⁰³ Both at first and second instance (*Landgericht* and *Oberlandgericht München*),¹⁰⁴ the German

⁹⁷Vieweg and Staschik, 2013, p. 228, point out that the autonomy of organised sport is granted by national states and oppose the view in literature that international sport can set its own autonomous legal order.

⁹⁸Vieweg and Staschik 2013, p. 228; in Swiss law, the legal source of this duty is debated, but is generally considered a parallel to the equivalent duty of the national judge that is explicitly stated in Article 19 of the SPILA (see Rigozzi 2005, n° 1187; Berger and Kellerhals 2015, n° 1425).

⁹⁹See Vieweg and Staschik 2013, p. 227, whereby commentators and CAS panels are still insecure about both the contents of *lex sportiva* and its mere existence.

¹⁰⁰We will use the term “CAS case-law” or “CAS practice” occasionally to refer to series of CAS awards on a same topic, since it has become common practice to reference precedents in CAS awards, even though there is no binding rule of precedent in international arbitration (for some critical remarks on CAS practice, see McArdle 2015, p. 33/34).

¹⁰¹Adolphsen 2007, p. 648, notes that such general principles of law which could serve as control standards for sports regulations would yet have to be defined by the arbitral tribunal; even for a mere contractual incorporation (as opposed to an actual choice-of-law). Schleiter 2009, p. 213, considers that submitting a dispute to a *lex sportiva* would, as matters stand, come close to attributing to the arbitral tribunal the right to decide *ex aequo et bono*; Maisonneuve 2011, n° 937, reaches a similar conclusion; Fritzweiler et al. 2014, p. 611, claims that the question of whether CAS will be able to develop an adequate system of protection must remain undecided as matters stand.

¹⁰²On the determination of the law applicable to the different aspects of evidence in international arbitration, see Sect. 3.1.1 below; on the limits on private autonomy imposed by Swiss law, see Sect. 3.2 below.

¹⁰³Both on appeal (Swiss Supreme Court, 4A_612/2009), and on revision (4A_144/2010).

¹⁰⁴Urteil Landgericht München, *Pechstein v. DESG & ISU*, 26 February 2014, 37 O 28331/12, reproduced in *CausaSport* 2/2014, pp. 154–177; Urteil Oberlandgericht München, 15 January 2015, U1110/14, Teil-Urteil. The Oberlandgericht on 15 January 2015, refused altogether the recognition of the CAS award for breach of public policy.

courts affirmed their jurisdiction against the arbitration clause, finding that the CAS lacked the necessary organisational independence (imbalance in the system underlying the choice of arbitrators in favour of the sport governing bodies) to represent a substitute to ordinary legal avenues and compensate for the lack of free consent of the Athlete.

The decisions have caused considerable uproar in the “sports law” community and their exact implications for the future of the CAS institution are yet to be assessed, especially since an appeal before the German *Bundesgerichtshof* was announced (German Supreme Court).¹⁰⁵ Regardless of these uncertainties, these decisions unquestionably show that national courts outside Switzerland will not automatically follow in the steps of the Swiss Supreme Court in its liberal approach to sports arbitration, so that the anti-doping movement should be mindful not to show themselves to be zealous in removing Athlete protection standards.

2.2 Focus on Evidence Under the 2015 WADC

To address the current realities of anti-doping, the WADC and related documents, in their revised 2015 version, form a natural starting point. This section proposes a survey of the main features of the WADC regime, with a focus on issues relevant to evidentiary matters (Sect. 2.2.1), as well as a brief description of the Doping Control process necessary to gather scientific evidence in the perspective of subsequent anti-doping proceedings (Sect. 2.2.2).

The survey does not present the applicable rules in every detail.¹⁰⁶ At this stage, the goal is not to assess the solutions chosen in the WADC, but to lay the foundation necessary for a critical appraisal of the regime. The emphasis is on Athletes who have reached a certain level in their sport, either at national or at international-level; these are the primary targets of the WADC.¹⁰⁷ Some rules may apply differently or not at all to the “recreational” Athlete occasionally taking part in Competitions.¹⁰⁸

¹⁰⁵Duval Antoine, The Pechstein Ruling of the OLG München (English Translation), 6 February 2015, ASSER Sport Law Blog, free access under http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2561297 (accessed 15.02.15), p. 1, refers to the decision as “ground-breaking”, “earth-shaking”, “revolutionary”.

¹⁰⁶The WADC contains a mixture of precise rules that are to be implemented without substantive changes and basic principles that leave a large discretion to the ADOs. Certain aspects of the Doping Control process may vary considerably from one sport to another or from one country to another.

¹⁰⁷See Sect. 2.1.2.2 above.

¹⁰⁸For the definition of “Athlete” in Appendix 1 (Definitions), the 2015 WADC adds more precision regarding the concept of National-Level and International-Level Athletes and specifies that NADOs may choose to adopt anti-doping rules for recreational level competitors or even for individuals engaging in fitness activities without taking part in Competitions. The definition further attempts to circumscribe to what extent provisions of the WADC must be mandatorily implemented for these Athletes also.

2.2.1 Evidentiary Regime of the WADC

The legal definition of “doping” has evolved over time, an evolution that has culminated in the “catalogue” system of the WADC and its Strict Liability rule (Sect. 2.2.1.1). The WADC contains important rules intended to regulate evidentiary issues for the purposes of anti-doping (Sect. 2.2.1.2). The legal consequences incurred by Athlete depend to a great extent on the evidentiary choices made in the WADC (Sect. 2.2.1.3).

2.2.1.1 Approach to “Doping” in the WADC

2.2.1.1.1 Legal Definition of Doping Evolving Over Time

“Doping” is historically a medical or societal concept rather than a legal one.¹⁰⁹ However, sports organisations had to settle for a precise definition if doping was to acquire a legal significance.¹¹⁰ This definition has been changing steadily over the past decades.¹¹¹ Broadly speaking, the legal understanding of “doping” has gradually mutated from describing an act of cheating, to identifying the mere detection of specific “clues” in an Athlete’s biological materials.¹¹²

Doping was initially perceived as a morally condemnable act of drug-taking, whereby an Athlete attempts to gain—and/or *de facto* succeeds in gaining—an unfair advantage over other competitors.¹¹³ This conception of doping is still widespread in the general public, even though it no longer corresponds to its current definition in modern anti-doping regulations.¹¹⁴

So long as the definition of doping included a notion of “intentional performance enhancement”, the ability of sports organisations to establish such intent on part of the Athlete was critical. Athletes were quick to explain positive results as being due to the intervention of third parties—errors on the part of their support personnel or acts of sabotage—or involuntary contamination. Sports organisations thus found it regularly impossible to establish the “faulty” character of the Athletes’ acts or an actual effect on their performance. Mostly due to the

¹⁰⁹Tamburrini and Tännsjö 2011, p. 275; Paul 2004a, p. 29; Adolphsen 2007, p. 26.

¹¹⁰Berninger 2012, p. 14.

¹¹¹For a more general reflection of the different possibilities to frame a definition for “doping” and related difficulties, see, among others, Soek 2006, p. 27 *et seq.*; Kern 2007, p. 342; Glocker 2009, p. 31 *et seq.*

¹¹²For a detailed overview of this evolution, see Soek 2006, p. 29 *et seq.*

¹¹³See *e.g.*, for early definition attempts, Adolphsen 2007, p. 27.

¹¹⁴For a critical analysis of this discrepancy between our “intuitive” perception of doping and the current legal definition, see Amos A, Inadvertent Doping and the WADA Code, Bond Law Review, vol. 19 1/2007, Article 1, available at: <http://epublications.bond.edu.au/blr/vol19/iss1/1> (accessed 16.02.15), p. 18 *et seq.*

evidentiary difficulties they were encountering, sports organisations began to modify their description of a doping offence. Doping was transformed into a factual description of objective circumstances to be regarded as a violation of anti-doping rules.¹¹⁵ This description removed all subjective elements,¹¹⁶ *i.e.* the Athlete's intent or negligence ceased to be a necessary requirement for a finding that doping had occurred. The presence or use of one or more specifically Prohibited Substances or Methods became the sole relevant criterion.¹¹⁷

It has become usual to refer to this manner of defining doping as the “strict liability rule”, a controversial aspect of anti-doping. This shift in the legal understanding of “doping” is essential in apprehending the evidentiary logic that underlies the whole WADC regime, at least within the scope of “traditional” Doping Control.¹¹⁸

2.2.1.1.2 A Catalogue of Anti-Doping Rule Violations

The pragmatic approach in the WADC regime is that “doping” represents what is prohibited under relevant rules at a certain point in time (“labelling approach”).¹¹⁹ Indeed, Article 1 of the WADC defines doping as a “catalogue” of violations:

Doping is defined as the occurrence of one or more of the anti-doping rule violations set forth in Article 2.1 through Article 2.10 of the Code.

The reference to doping as the violation of a rule, rather than as an “offence”,¹²⁰ was likely intended to contribute to the elimination of moral undertones from a finding of doping under the WADC regime.

¹¹⁵Soek 2006, p. 137 *et seq.*: “By such a rule, the human act which had been the focal point of previous rules was replaced by a factual circumstance. Liability for any human acts preceding this circumstance was thereby subsumed under the finding of Prohibited Substances. A positive test result thus precluded almost all excuses which an Athlete could possibly formulate”; *idem, ibidem*, p. 139: “In the new approach doping was thus not considered to be the description of an undesirable act, but rather the description of an undesirable state of affairs”.

¹¹⁶Some panels even started using the expression “anti-doping rule violation” even where the applicable rules were still pre-WADC and still used the term “offence” (see CAS 2005/A/831, *IAAF v. Hellebuyck*, para 7.1).

¹¹⁷To clarify the definition, some federations added explanatory sentences emphasising the strict liability the federation was applying. See *e.g.* the ITF Anti-Doping Program 1998, quoted in CAS 99/A/223, *ITF v. K.*, para 6: “Doping is forbidden. Under this Programme the following shall be regarded as doping offences: a.) A Prohibited Substance is found to be present within a player's body”.

¹¹⁸On the contours of traditional Doping Control, see Sect. 2.3.3.2 below.

¹¹⁹Tamburrini and Tännjö 2011, p. 275: “In practice, doping is everything [...] that is included in the doping lists”.

¹²⁰On this “concrete-enumerative”, rather than “abstract” definition, Paul 2004a, p. 30.

The basic anti-doping rule violation is the presence of a Prohibited Substance, or its Metabolites or Markers, in an Athlete's Sample (*i.e.* biological materials collected from the Athlete, Article 2.1 of the WADC).¹²¹

The other anti-doping rule violations under the 2015 WADC are:

- Use or Attempted Use of a Prohibited Substance or Method (Article 2.2);
- Evading, Refusing or Failing to Submit to Sample Collection (Article 2.3);
- Whereabouts Failures (Article 2.4);
- Tampering or Attempted Tampering with any part of Doping Control (Article 2.5);
- Possession of a Prohibited Substance or Method (Article 2.6);
- Trafficking or Attempted Trafficking in any Prohibited Substance or Method (Article 2.7);
- Administration or Attempted Administration of a Prohibited Substance or Method (Article 2.8);
- Complicity in an Anti-Doping Rule Violation (Article 2.9); and
- Prohibited Association (Article 2.10).

Even though anti-doping programs are gradually reinforcing the importance and resources allocated to pursue other violations in the catalogue, anti-doping rule violations based on the detection of the presence of a Prohibited Substances or evidence of a Prohibited Method in an Athlete's Sample remain the most iconic,¹²² and the ones most frequently heard by CAS panels.¹²³

2.2.1.1.3 Strict Liability Rule

The WADC commits to the "Strict Liability rule" for its two most common categories of violations (Presence of a Prohibited Substance under Article 2.1 and Use of a Prohibited Substance or Prohibited Method under Article 2.2).

The "Strict Liability rule" as it is enshrined in the WADC means that Fault or other subjective elements on the part of the Athlete are not regarded as requirements for the finding of an anti-doping rule violation.¹²⁴ The following clarifications should be provided at the outset, and will be set out in more details in Chap. 7¹²⁵:

¹²¹Lewis and Taylor 2014, B1.42.

¹²²David 2013, p. 97.

¹²³On this evolution, see Sect. 2.3.2.3 below.

¹²⁴See the newly introduced defined term "Strict Liability" in Appendix 1 (Definitions) of the 2015 WADC.

¹²⁵See Sect. 7.3.2 below.

- The WADC does not extend the Strict Liability rule to the disciplinary sanctions imposed on the Athlete. Apart from the so-called “automatic Disqualification” in connection with Testing In-Competition,¹²⁶ Consequences arising from the finding of an anti-doping rule violation are not of an objective nature. Disciplinary sanctions, such as an Ineligibility period, require a Fault on part of the Athlete, but such Fault is presumed.¹²⁷
- The Strict Liability rule does not apply to all categories of violations set forth in the WADC. For example, violations such as Attempted Use, Sample manipulation or refusal to submit to Sample collection already include an element of Fault in their definition.

2.2.1.2 Burden and Standard of Proof in the WADC

2.2.1.2.1 General Principles

Before the adoption of the WADC, CAS panels had a paramount role in defining the law of evidence applicable in doping disputes, as anti-doping regulations were often vague or confusing in this respect. Over time, CAS panels developed basic principles defining the burden of proof with respect to various facts and the related standards of proof.¹²⁸

The WADC has mostly codified the CAS practice and defines in its Article 3.1 how the burden of proof is to be allocated between the parties, and the related standard of proof:

- the ADO responsible for results management must prove the anti-doping rule violation, to the hearing panel’s “comfortable satisfaction”¹²⁹;
- Article 3.1 does not specify specific facts that must be established by Athletes, but merely provides that

[w]here the Code places the burden of proof upon the Athlete or other Person alleged to have committed an anti-doping rule violation to rebut a presumption or establish specified facts or circumstances, the standard of proof shall be by a balance of probability.

¹²⁶See Sect. 7.2.2 below.

¹²⁷See Sect. 2.2.1.3 below.

¹²⁸CAS 2005/C/976 & 986, *FIFA & WADA*, para 37, whereby the WADC rule “reflects the general principles which will be applied by CAS panels whether or not such formula is explicitly contained in the applicable anti-doping regulations”.

¹²⁹Berninger 2012, p. 172; even before the adoption of the WADC, CAS panels would place the initial burden of proving the existence of a violation on the ADO (see e.g. CAS 2000/A/274, *S. v. FINA*, 19 October 2000, para 14); the same burden applied to all anti-doping rule violation, regardless of whether these involved a positive finding (for an example of Use of a Prohibited Method by physical manipulation of the Sample, see CAS 2004/A/607, *Boevski v. IWF*, para 34).

The legal burden of proof is thus only on the Athlete where the WADC regime—respectively the applicable rules—so provide.¹³⁰ This general rule of “specific allocation” coheres with the wording of Article 3.1, but also the requirement of predictability,¹³¹ or—from a contractual perspective—the principle *in dubio contra proferentem*¹³²—as well as the principle of equal treatment. More generally, this results *a contrario* from the language of Article 3.1 that the requirements for an anti-doping rule violation must be established by the ADO, which only codifies a general principle in disciplinary sports matters.¹³³ As a rule, a burden of proof should thus at most fall on the Athlete when it comes to the prerequisites for imposing Consequences for a violation, whereas any element that pertains to establishing the requirements for the violation itself is for the ADO to prove, with possible explicit exceptions being dealt with restrictively and critically assessed.¹³⁴

Precisely because of the evidentiary choices described above, decisions made pursuant to anti-doping regulations based on the WADC suppose a two-step analysis¹³⁵ that distinguishes the prerequisites for the finding of an anti-doping rule violation on the one hand, and the prerequisites for the legal Consequences of such violation (in particular disciplinary sanctions) on the other. This distinction has become a standard pattern of the legal discussion in CAS awards¹³⁶ and forms the basis of the evidentiary regime in the WADC.

¹³⁰Rigozzi and Quinn 2012, p. 16, whereby the provision “goes on to note that certain other provisions of the WADC impose a burden on the athlete to ‘rebut a presumption’ or ‘establish specified facts or circumstances’”, with examples in which the WADC imposes a burden of proof on the Athlete; more nuanced, David 2013, p. 202: “This generally will be where the Code imposes a burden of proof on the athlete or other person to rebut a presumption or to prove specified facts to support a reduction or elimination of the applicable period of ineligibility”.

¹³¹Lewis and Taylor 2014, C 2.62, footnote 1, whereby, if there is room for argument as to exactly what is required to be proved, “any ambiguity in the rules will likely be interpreted against the Anti-Doping Organization and in favour of the athlete”.

¹³²Lewis and Taylor 2014, C 2.24, as well as Sect. 3.2.3.3 below.

¹³³See, in particular, Sect. 7.3.3.2.2.2 below.

¹³⁴See *e.g.* for the proof of procedural defects, Sect. 5.3.2 below; for challenges directed against the scientific validity of analytical tools, Sect. 6.3.4 below.

¹³⁵Soek 2006, p. 105, by contrast, favors a three-step approach inspired from criminal law: “An act of doping only becomes an offence when it falls within the scope of the description of the doping offence, when it is illegal and when the offender can be held liable for the act”.

¹³⁶See *e.g.* CAS 2004/O/679, *USADA v. Bergman*, para 5.1.1.2. The Athlete tested positive to rhEPO before the new UCI 2004 Anti-Doping Rules became effective. The panel stated from the outset that the finding of a doping offence depended solely on the presence of the substance in the Athlete’s body and that this finding was subject only to the Athlete’s argument relating to the interpretation of the test results, *i.e.* whether the test results were reliable in showing the presence of exogenous EPO in the Athlete’s Sample; For another example of a case rendered under IAAF rules 2002 edition, but after adoption of the WADC, see CAS 2005/A/831, *IAAF v. Hellebuyck*, para 7.1, where the panel divided the analysis into issues pertaining to anti-doping rule violation and those pertaining to Ineligibility; see also CAS 2006/A/1057, *UCI v. Forde & Barbados Cycling Union*, 11 September 2006.

2.2.1.2.2 Establishing the Anti-Doping Rule Violation

The ADO must establish the existence of an anti-doping rule violation, *i.e.* show that the requirements of one of the violations enumerated in the “catalogue” of Article 2 of the WADC are fulfilled.¹³⁷ These requirements may be either purely objective (in which case the violation is said to be a “Strict Liability” violation),¹³⁸ or include subjective elements.¹³⁹ If the requirements described in the relevant provision are met, an anti-doping rule violation is deemed to have been committed.¹⁴⁰

The basic anti-doping rule violation, *i.e.* the Presence of a Prohibited Substance, gives ADOs an evidentiary advantage since they can mostly limit their initial efforts to bringing forward the so-called Adverse Analytical Finding for a Prohibited Substance in an Athlete’s Sample.¹⁴¹

The shift in the definition of doping from referring to a human behaviour (the ingestion of a doping agent for means of performance enhancement) to referring to the objective outcome of such behaviour (the presence of the Prohibited Substance in a Sample) has created new types of controversies,¹⁴² especially in terms of causality.¹⁴³ In particular, this shift raises the question of what anti-doping programs ultimately seeks to prohibit: is it the ingestion of a doping substance in violation of fair competition or is it the mere violation of a provision enshrined in anti-doping rules? Is there an anti-doping rule violation if the Prohibited Substance detected never actually “entered” the Athlete’s body, because the substance was produced endogenously (*i.e.* by the Athlete’s own body)? Is there an anti-doping rule violation if the Prohibited Substance detected never “passed through” the Athlete’s body because the Sample was contaminated during Sample collection or analysis? As Part II and Part III of this book will show, answers to these issues are far from being straightforward under the current WADC regime and in CAS practice.

¹³⁷Berninger 2012, p. 179; Lewis and Taylor 2014, C 2.62.

¹³⁸See Sect. 2.2.1.1.3 above.

¹³⁹See *e.g.* Article 2.5 (Tampering), some elements of Article 2.3 (Evading, Refusing or Failing to Submit to Sample Collection), or all violations that punish an Attempt (see Comment *ad* Article 2.2 of the WADC).

¹⁴⁰See, Lewis and Taylor 2014, C 2.62: “The rules should make the requisite elements of the violation clear, so that there is no doubt as to what the Anti-Doping Organization must plead and prove”.

¹⁴¹See Sect. 5.2.2.2 below on the extent of the initial duty to produce evidence.

¹⁴²CAS 98/222, *B. v. ITU*, para 21/22; for a detailed description of the reasoning of the panel, see Soek 2006, p. 184 *et seq.*

¹⁴³See Sect. 2.3.1 below.

2.2.1.2.3 Evidentiary Approach to Procedural Defects

An anti-doping rule violation normally presupposes that its finding has not been affected by a procedural defect. Article 3.2 of the WADC contains explicit evidentiary rules with respect to procedural defects that may occur during Doping Control. Article 3.2 includes two paragraphs that each deal with a different type of procedural defect¹⁴⁴:

- Article 3.2.2 addresses situations in which the Athlete claims that the laboratory in charge of the analysis did not comply with the International Standard for Laboratories¹⁴⁵;
- Article 3.2.3 addresses situations in which the Athlete claims that there have been departures from any other International Standard or other anti-doping rules or policy “set forth in the Code or Anti-Doping Organization rules”.

Broadly speaking, the WADC subjects procedural defects to the following regime:

- Only procedural defects material to the finding of an anti-doping rule violation shall invalidate such anti-doping rule violation (referred to in this book as the “causality requirement”)¹⁴⁶;
- The Athlete must prove the existence of a procedural defect that could reasonably have caused the anti-doping rule violation;
- Thereupon, the burden shifts back to the ADO to prove that such defect did not cause the anti-doping rule violation, or otherwise establish the violation.

2.2.1.3 Legal Consequences for the Athlete

The WADC contemplates a series of Consequences to be imposed on Athletes or other Persons subject to anti-doping regulations, which include the following:

- Automatic Disqualification from the Competition in connection with an In-Competition test (Article 9 of the WADC);
- Disqualification of results obtained at the Event during which the anti-doping rule violation occurred (Article 10.1 of the WADC)¹⁴⁷;

¹⁴⁴Article 3.2.1, which has been newly introduced in the 2015 WADC, addresses situations in which the scientific validity of an analytical method or decision limit is challenged as such, as opposed to an assertion of a procedural departure in the particular matter.

¹⁴⁵This includes the Technical Documents in effect at the time the Sample is received, which are mandatory and, once promulgated, form integral part of the ISL, pursuant to the Sect. 1.0 “Introduction” of the ISL and the definition of “International Standard” in Appendix 1 (Definitions) of the WADC.

¹⁴⁶See Sect. 5.2.3 below.

¹⁴⁷Under the WADC, a “Competition” is defined as a “single race, match, game or singular sport contest” (*e.g.* the Olympic 100 m final), whereas an “Event” is “a series of individual Competitions conducted together under one ruling body” (*e.g.* the Olympic Games).

- Disqualification of results obtained at subsequent Competitions, between the anti-doping rule violation and the imposition of a suspension (Provisional Suspension or final Ineligibility, Article 10.8 of the WADC);
- A period of Ineligibility that may range up to a lifetime ban (Articles 10.2–10.7 of the WADC);
- A mere reprimand for Specified Substances and Contaminated Products in certain circumstances (Article 10.5.1 of the WADC);
- The withholding of financial support during Ineligibility, recovery of costs and possibly additional financial sanctions if the applicable regulations so provide (Articles 10.10 & 10.12.4 of the WADC);
- The automatic publication of the sanction (Article 10.13 of the WADC).

Once the anti-doping rule violation has been established, the only immediate Consequence is the automatic Disqualification of the Athlete from the Competition, if any, in connection with which the violation occurred. With respect to the disciplinary sanction, the burden of proof shifts to the Athlete, who may prove the existence of circumstances to eliminate or reduce such disciplinary sanctions, in particular his or her absence of Fault. When it comes to actual sanctions, the WADC system is therefore based on presumed Fault.

In this book, we use the term “fault”—unless otherwise specified—as encompassing all forms of subjective elements on part of the Athlete, *i.e.* all forms of intent and negligence. The capitalised term “Fault” signals that the concept is used within the meaning of and in connection with its use in the WADC regime.¹⁴⁸ We will also use the wording of the WADC when referring to phrases with a defined and well-established meaning, such as “No Fault or Negligence” (Article 10.4 of the WADC) and “No Significant Fault or Negligence” (Article 10.5 of the WADC).¹⁴⁹

2.2.2 Gathering Scientific Evidence through Doping Control

Doping Control can be viewed as a process for collecting scientific evidence and a form of “private investigation”, with the ultimate goal of enforcing the substantive rules of the WADC in the judicial process.¹⁵⁰ After some general remarks on the operational framework of the WADC regime (Sect. 2.2.2.1), this section presents

¹⁴⁸See the definition of Fault newly introduced into Appendix 1 (Definitions) of the 2015 WADC; for an extensive analysis of Fault-related issues in the revised WADC, Rigozzi et al. 2015.

¹⁴⁹See the definitions of these concepts in Appendix 1 (Definitions) of the WADC.

¹⁵⁰See more in detail, Sect. 3.3.2 below.

the main steps of a “standard” Doping Control process, starting from the whereabouts requirements (Sect. 2.2.2.2), the Testing (Sect. 2.2.2.3) and laboratory analysis (Sect. 2.2.2.4) of the Samples collected, which in case of positive findings may result in results management (Sect. 2.2.2.5) and finally disciplinary proceedings (Sect. 2.2.2.6).

The key changes of the 2015 WADC revision that have an impact on the process are specially highlighted. For more conciseness, most bibliographical references are deliberately left out in favour of internal references to the relevant passages of subsequent Chapters.

2.2.2.1 Operational Framework of the WADC Regime

While the WADC enshrines the basic provisions that govern Doping Control, the operational and technical rules are codified in the so-called “WADA International Standards”, which are also mandatory for all ADOs.¹⁵¹

There are five WADA International Standards under the 2015 WADC:

- the Prohibited List (“Prohibited List” or “List”),
- the International Standard for Testing and Investigations (“ISTI”) and related Technical Documents,¹⁵²
- the International Standard for Laboratories (“ISL”) and related Technical Documents,
- the International Standard for Therapeutic Use Exemptions (“ISTUE”), and
- the International Standard for the Protection of Privacy and Personal Information (“ISPPPI”).

WADA further regularly adopts Model Rules, Best Practices, and Guidelines, which are described as non-mandatory (Section “Purpose, Scope and Organization” of the WADC).

This book will often refer to the “WADC regime” in general, a term that is meant to encompass all documents (mandatory or non-mandatory) that are part of the system intended by WADA and proposed to—or imposed on—stakeholders. Reference is further made to “technical rules” to describe those documents that are predominantly drafted for scientists and could not be applied without specialised knowledge (*i.e.* most of the International Standards and related Technical Documents and Guidelines). The legal status of the technical rules is crucial for the treatment of scientific evidence under the WADC regime and will be assessed in Chap. 5.

¹⁵¹See Sect. 5.1.2.1 below.

¹⁵²Former “International Standard for Testing” (“IST”) under the 2009 WADC. The addendum “and Investigations” during the 2015 revision of the WADC reflects the emphasis that the stakeholders of anti-doping wish to place on intelligence-gathering and investigations.

2.2.2.2 Athlete Whereabouts System

All Athletes who participate in Competitions must submit to Testing for the purposes of Doping Control when required to do so by an ADO with authority over them (Article 5.2 of the WADC).¹⁵³ Certain categories of Athletes are subject to a more stringent regime insofar as they are required to keep ADOs informed of their whereabouts. The rationale for this is that the ability to conduct Testing outside Competitions without advance notice is an essential component of effective Doping Control (Article 4.8 of the ISTI).

As part of setting up its whereabouts system—and after carrying out a proper prioritisation in their Test Distribution Planning—each International Federation and NADO is to define different pools of Athletes, based preferably on a “pyramid approach” (see Articles 4.8.3 *et seq.* of the ISTI). The top tier of Athletes is to be included into the so-called Registered Testing Pool (“RTP”), with the effect of making these Athletes liable for “Whereabouts Failure” under Article 2.4 of the WADC. RTPs typically include the top-level Athletes in each discipline (for the RTP set up by International Federations) or in each country (for the RTP set up by NADO), but also Athletes who are considered to be at the highest risk of doping, as well as Athletes included in an Athlete Biological Passport Program (Comment *ad* Article 4.8.3 of the ISTI).¹⁵⁴

Once they receive notice that they are included in a RTP, Athletes have to submit precise information about their living, training and Competition schedules (“Whereabouts Filings”). The information must be filed on a quarterly basis for each forthcoming quarter, but the Athlete must also continuously update the information and announce all changes. The most characteristic feature of the whereabouts system is the duty to provide a daily one-hour slot during which the Athlete undertakes to be at a certain location. Failure either to give (accurate) information (“Filing Failure”) or failure to be at the location specified during the one-hour slot if Testing is attempted without success (“Missed Test”) results in a so-called “Whereabouts Failure”. Three Whereabouts Failure registered during any period of 12 months against an Athlete constitute a potential anti-doping rule violation and disciplinary proceedings will be initiated under Article 2.4 of the WADC.

The rules governing the whereabouts system are contained primarily in the ISTI (Article 4.8 and Annex I), but the ISPPPI plays an important part with respect to the processing of the whereabouts data. The data must be processed through the “Anti-Doping Administration and Management System” (ADAMS) database set up by WADA or another database approved by WADA (Article 5.6 of the

¹⁵³According to the definition of Athlete in Appendix 1 (Definitions) of the WADC, NADOs may choose to extend certain requirements to Athletes below international or national level, including to fitness activities for individuals who do not compete at all.

¹⁵⁴Formally, the ISTI requires inclusion into a RTP for Athletes on whom the ADO “plans to collect three or more Samples per year”, unless it is clearly in a position to obtain sufficient information through different means (Article 4.8.4 of the ISTI).

WADC). ADAMS is a web-based database for the sharing of personal information related to Doping Control among ADOs worldwide (Article 14.5 and Appendix 1 (Definitions) of the WADC).

2.2.2.3 Testing Strategy and Sample Collection

“Testing” is defined in the WADC as “the parts of the Doping Control process involving Test Distribution Planning, Sample collection, Sample handling, and Sample transport to the laboratory”. The collection and analysis of biological materials (“Samples”) from Athletes in order to detect Prohibited Substances or Prohibited Methods is a core aspect of the WADA Anti-Doping Program.

Each ADO undertakes to set up a Test Distribution Planning to efficiently detect, deter and prevent doping practices. The emphasis must be placed on intelligence-based Testing, depending on the sport, country or Event at stake, allowing for target Testing rather than random Testing. Test Distribution Planning must also strike an appropriate balance between Out-of-Competition and In-Competition Testing. In addition, the 2015 WADC regime newly includes a Technical Document for Sport Specific Analysis (TD2014SSA) that “establishes by means of a risk assessment which Prohibited Substances and/or Prohibited Methods are most likely to be abused in particular sports and sport disciplines” (Article 5.4.1 of the WADC). Each ADO is required to use this risk assessment as a basis to develop and implement its Test Distribution Planning (Article 5.4.2 of the WADC).

The two types of biological materials collected in routine Doping Control under the ISTI are urine and blood. While urine has traditionally been the biological matrix of choice for Doping Control, because of the relatively long detection windows it offers for many substances, some substances or methods can only be detected in blood.¹⁵⁵ Blood sampling is steadily gaining importance in support of Doping Control based on longitudinal profiles, such as the Athlete Biological Passport. Haematological profiles aim at detecting patterns in the Athletes’ blood parameters that indicate a high probability of doping. Steroid profiles, which are of even more recent use, aim at setting up a profile based on urine sampling in order to monitor steroid abuse in Athletes.¹⁵⁶ The focus is no longer on reporting the presence of Prohibited Substances in an isolated Sample, but rather on detecting the effects of these substances on the Athlete’s biological parameters, by monitoring data gathered from the Athlete over time.¹⁵⁷

The Testing procedure is described in the ISTI, including requirements for the qualifications of the Sample collection personnel (Doping Control Officers, blood collection officers, chaperones, Annex H of the ISTI) and the Doping Control

¹⁵⁵See 5.1.1.1.3 below.

¹⁵⁶The steroidal module has been formally introduced as of 1st January 2014 as part of the WADA ABP Guidelines.

¹⁵⁷See Sect. 2.3.3.3 below, and extensively Chap. 11.

stations, requirements for giving notice to Athletes of an impending Sample collection, the preparation for the Sample collection, the process of Sample collection itself, as well as steps to be followed after Sample collection (documentation, transport to the laboratory etc.).

Typically, Testing is conducted without advance notice. Athletes must be accompanied at all times by a Chaperone from the time they receive notice that they have been selected for Testing to the time they arrive at the Doping Control station. Prior to Sample collection, the Sample Collection Personnel must inform Athletes of their rights and duties, as well as the consequences of failing to comply with these duties, which may be regarded as an anti-doping rule violation (Annex A of the ISTI). Thereupon, the Athlete is instructed to select a Sample collection kit and to verify that such kit has not been tampered with. The Sample collection *stricto sensu* is carried out according to a strict protocol (Sect. 7, as well as Annex D (urine) and Annex E (blood) of the ISTI). The biological materials collected are divided into two separate containers, known as “A Sample” and “B Sample”. After Sample collection, both Samples must be sealed under the supervision of the Athlete and stored in proper conditions. The Athlete is required to fill in a Doping Control form to confirm the regularity of the Sample collection. The Doping Control form also requires the Athlete to provide various indications such as recent medications or blood transfusions, as well as the Athlete’s consent to the processing of personal data and optional agreement to research on the Samples.¹⁵⁸

Testing ends with the Doping Control Officer preparing the documentation for the attention of the Testing authority and ensuring the adequate storage of the Samples for transport to the laboratory in a timely manner. The Testing authority must have in place procedures to protect the integrity, identity and security of the Samples until their arrival at the laboratory (Sect. 8 of the ISTI).

2.2.2.4 Laboratory Analysis for Prohibited Substances and Methods

Anti-doping laboratories have a central role in the Doping Control Process and must satisfy high standards of quality and ethics. In order to be entrusted with anti-doping analyses under the WADC, laboratories must demonstrate their ability to comply with stringent scientific requirements set out, in particular, in the ISL. Laboratories have to go through a combined process of accreditation by WADA (for their compliance with the ISL) and ISO accreditation, which must be regularly renewed and updated.¹⁵⁹ WADA also has the authority to create categories of other WADA-“approved” laboratories allowed to conduct certain types of analyses only, without the need to comply with all requirements for an accreditation. These

¹⁵⁸See Sect. 3.2.2.2.2 below.

¹⁵⁹Section 4.0 of the ISL.

“approved” laboratories are essentially meant to conduct blood Sample analysis for purposes of the Athlete Biological Passport (Article 6.1 of the WADC).¹⁶⁰

The 2015 WADC provides additional support for analytical science. Under the new Article 3.2.1 of the WADC, analytical methods or decision limits approved by WADA after consultation with the relevant scientific community, and which have been the subject of peer review, are presumed to be scientifically valid. The Athlete who seeks to challenge the validity of the methods or decision limits is required to go through a complex process of notification to WADA, as well as the duty to involve WADA in the CAS proceedings.¹⁶¹

Samples are delivered to the laboratory in a coded form, so that laboratories do not know the identity of the Athlete when conducting the analysis on the A Sample. The laboratory verifies the Samples for their integrity, as well as the absence of apparent Sample degradation, and reports any irregularities to the Testing authority.¹⁶²

The ISL defines the way in which a laboratory analysis must be conducted. The laboratory performs an “Initial Testing Procedure”—often referred to as “screen testing” or “screening”—in theory, for all Prohibited Substances and Methods (or Use thereof) “covered by the Prohibited List for which there is a method that is Fit-for-purpose”.¹⁶³ The purpose of this screening process is to obtain information about the potential presence of any substance or method on a first aliquot of the A Sample.¹⁶⁴ A suspicious result arising from there is called a “Presumptive Adverse Analytical Finding”.¹⁶⁵ This result forms the basis for the laboratory to carry out the Confirmation Procedure. This “Confirmation Procedure” uses a second aliquot of the A Sample (not to be confused with the B-Sample “confirmatory” analysis)¹⁶⁶ and can be either a qualitative assessment or include a quantification, especially if this is necessary to verify whether a Threshold is reached.

The Prohibited List identifies the substances and methods, or classes thereof, that are banned under the WADC. The main distinction is between substances prohibited at all times and substances prohibited In-Competition only. At the time of writing,¹⁶⁷ all Prohibited Methods are prohibited at all times. Another important

¹⁶⁰See in more details Sect. 5.1.1.2 below.

¹⁶¹See Sect. 6.3.3.3 below.

¹⁶²Articles 5.2 (urine) & 6.2 (blood) of the ISL.

¹⁶³For the practice, see Sect. 6.3.3.1 below.

¹⁶⁴Articles 5.2.4.2 (urine) & 6.2.4.1 (blood) of the ISL.

¹⁶⁵Articles 5.2.4.3 (urine) & 5.2.4.2.1 (blood) of the ISL.

¹⁶⁶Articles 5.2.4.3.1 (urine) & 6.2.4.2.1 (blood) of the ISL; confirmation on the same aliquot is a departure from the ISL, but has not been considered material if the screening is sufficiently clear, no confusion among Samples is invoked and the B Sample confirms the results (see CAS 2007/A/1444 & 1465, *UCI v. Mayo & RFEC*, para 117 *et seq.*).

¹⁶⁷The latest available version is the 2015 Prohibited List.

distinction is the characterisation of a substance as “non-Specified” or “Specified”, since a more flexible disciplinary and sanction regime applies to the latter.¹⁶⁸

If the presence of a Prohibited Substance or evidence of a Prohibited Method is confirmed with sufficient reliability, the laboratory generates a so-called “Adverse Analytical Finding”. An Adverse Analytical Finding is typically reported based on a qualitative, as opposed to quantitative, analysis.¹⁶⁹ The mere identification of the substance is sufficient, as most substances on the Prohibited List are prohibited regardless of their concentration. Only certain substances, primarily the so-called “endogenous substances” which may be naturally present in the human body, are prohibited only if the concentration detected exceeds a certain threshold. In some cases, laboratories are asked to report a so-called Atypical Finding for an endogenous substance that is subject to further investigations by the ADO in charge of results management before it can be asserted as an anti-doping rule violation (*e.g.* an Atypical Finding may be used for follow-up target Testing on the Athlete to confirm or dismiss the suspicion of doping).¹⁷⁰

2.2.2.5 Results Management and Investigations

Having completed the analysis, the laboratory reports the results to the ADO responsible for results management. As a rule, this is the ADO that carried out the Testing. The precise features of the results management process thus depend on the ADO; the WADC merely imposes a requirement that certain basic rules designed to ensure the effectiveness and fairness of the process are observed.

Upon receipt of a laboratory report with an Adverse Analytical Finding in an A Sample, the ADO responsible for results management conducts an initial review designed to eliminate cases that should not or can obviously not be pursued (Article 7.2 of the WADC). This review seeks to determine:

- whether the relevant Athlete has been granted or will be granted a Therapeutic Use Exemption (“TUE”) in accordance with the ISTUE, and
- whether there is any apparent departure from the ISTI or ISL that caused the Adverse Analytical Finding.

If the review reveals none of the above, the ADOs notifies the Athlete of the Adverse Analytical Finding, the anti-doping rule alleged to be violated and the Athlete’s rights with respect to the B Sample analysis and laboratory documentation (Article 7.3 of the WADC).

¹⁶⁸Currently, all substances are “Specified Substances” by default, unless they fall into the classes of anabolic agents (S1), hormones (peptide hormones, growth factors and related substances, S2), agents modifying myostatin functions and metabolic modulators (S4.4 and 4.5), or those stimulants listed as non-specified (S6a).

¹⁶⁹See Sect. 6.2.2 below.

¹⁷⁰See Sect. 6.2.3.1.3 below.

If the Adverse Analytical Finding in the A Sample is for a Prohibited Method or a Prohibited Substance other than a Specified Substance, ADOs are required to provide for a mandatory Provisional Suspension to be imposed on the Athlete upon notification of the positive A Sample result, provided the Athlete is given the opportunity for a provisional hearing or an expedited final hearing. ADO may also provide for a Provisional Suspension to be imposed on Athletes for other anti-doping rule violations. In any event, Athletes must be offered the opportunity to voluntarily accept a Provisional Suspension, to be credited upon any final Ineligibility period (Articles 7.3 & 7.9 of the WADC).

Upon receiving notice of an Adverse Analytical Finding in the A Sample, Athletes may request that the B Sample be analysed or waive the right to such analysis. The ADO responsible for results management retains the right to request the B Sample analysis, regardless of the Athlete's decision (Comment *ad* Article 2.1.2 of the WADC). If a B Sample analysis is conducted, the Athlete has the right to attend such analysis or to send a representative (usually a doctor, an analyst or other scientific expert).¹⁷¹

If the B Sample analysis is carried out and does not confirm the A Sample analysis, the proceedings for presence of a Prohibited Substance must be abandoned. However, an ADO may wish to carry on the proceedings under a different heading, for example Use of a Prohibited Substance or Method, or Tampering, provided the evidence is sufficient to support that assertion.

In all matters that do not involve an Adverse Analytical Finding, the ADO is required to conduct all appropriate investigations before deciding whether the case must be brought forward as an anti-doping rule violation. This includes all ancillary violations such as Sample manipulation or refusal to submit to Testing, that are not based on analytical data but on testimonies, reports from Doping Control Officers or other evidence.

The 2015 WADC revision results in a stronger emphasis being placed on "investigations and intelligence-gathering" (Article 5.8 of the WADC). The ISTI newly includes a Part 3, entirely devoted to the subject. ADOs are requested to invest all efforts for putting in place infrastructures and procedures enabling them to process intelligence received from different sources and use such intelligence for Test Distribution Planning or Testing. As regards investigations, ADO have to be in a position to carry out fair and efficient investigations based on Atypical Findings, Athlete Biological Passport profiles or any other evidence, to determine whether there is ground to assert an anti-doping rule violation. WADA must be notified and kept updated on such ongoing investigations. ADOs are also invited to

¹⁷¹The 2015 WADC newly provides for the possibility to split the B Sample in order to carry out the A and B analyses in case of reanalysis of a Sample, without prejudicing the prosecution of a case as Presence of a Prohibited Substance (Article 2.1 *in fine* of the WADC).

increase collaboration with law enforcement authorities or other regulators, as well as to use their own rules to grant themselves investigative powers.

The types of investigations that are best described in the WADC and related technical rules are those arising from analytical results other than Adverse Analytical Findings, *i.e.* Atypical Findings and the Athlete Biological Passport (Articles 7.4 & 7.5 of the WADC). The Athlete Biological Passport is based on ongoing monitoring of Athlete biological parameters in order to detect abnormal patterns in a longitudinal profile. This system is subject to a separate process of evaluation described in specific WADA Guidelines and Technical Documents, culminating in a so-called Expert Panel making a recommendation as to whether there is sufficient evidence for initiating disciplinary proceedings.¹⁷²

In all cases, the ADO decides at the end of the results management and/or investigations whether it has grounds to make an assertion of an anti-doping rule violation against the Athlete. Thereupon, a notice of charge would typically be sent to the Athlete and the file transmitted to a hearing panel.

2.2.2.6 Hearing Process and Disciplinary Decision

The WADC leaves considerable discretion for the ADOs to design their hearing process according to their needs, but Article 8 of the WADC provides that the ADO must offer a fair hearing within a reasonable time by a fair and impartial hearing panel. The hearing panel must render a reasoned decision which must be publicly disclosed after exhaustion of all legal remedies. Article 3.2 of the WADC further includes rules that hearing panels have to apply with respect to the admissibility (Article 3.2.4) or evaluation of the evidence (Article 3.2.5).

Even though ADOs have usually set up hearing panels that operate independently from their administration, such hearing panels more often than not remain mere internal bodies of a sports organisation. However, mostly at national level for NADOs, the hearing process is more and more often “outsourced” to external anti-doping panels, which may or may not fulfil the requirements of a genuine arbitral tribunal (see *e.g.* the Swiss Olympic Disciplinary Chamber for Doping Cases, as opposed to the AAA panels used in proceedings initiated by the US Anti-Doping Agency (USADA)). Under the 2015 WADC, the case may also be heard directly before a CAS panel with the consent of all parties (Article 8.5 of the WADC).

In addition to the ordinary hearing process, some ADOs also provide for a simplified process under which the Athlete is given the opportunity to waive the right to a hearing and accept the assertion of the anti-doping rule violation and/or the Consequences proposed by the ADO (Article 8.3 of the WADC).

¹⁷²See Sect. 11.1.3 below.

The outcome of the proceedings is either a decision that no anti-doping rule violation was committed, or a decision that an anti-doping rule violation was committed and determining the consequences thereof. All decisions made under the WADC and listed in Article 13.2, or failure to make a timely decision, may be appealed before CAS by International-Level Athletes or in cases arising from participation in International Events (Article 13.2.1 of the WADC). In all other cases, decisions may be appealed before an independent and impartial body that must be established by the relevant NADO, which may also provide for an appeal directly before CAS instead (Article 13.2.2 of the WADC).

2.3 Focus on the Interplay of Science and Law

Challenges in setting up a sound anti-doping program lay in incorporating simultaneously the perspectives of scientists and lawyers. These two perspectives rest on premises, methods and thought structures that are often radically different, a factor that has fundamentally influenced the design of the WADC regime, but often remains unexpressed, or is hidden under broad statements of intent. The approach taken in this book is to openly confront this factor and its implications for evidentiary matters under the WADC regime. This Section presents a short preview on topics that will run throughout our analysis and explains the implications of these topics for the assessment that will follow.

Some common sense reflections on the logic underlying an anti-doping program reveal how this logic presents features of forensic and other sciences, but without the benefits of the insights and methods developed in these field being so far fully exploited (Sect. 2.3.1). Thus, cases based on “analytical” evidence—also the essence of forensic investigations—form the core of anti-doping proceedings (Sect. 2.3.2). However, traditional approaches to Doping Control almost reduce to nil the potential for forensic analysis of evidence, which has prompted the scientific anti-doping community to propose new approaches in better adequacy with these potentialities (Sect. 2.3.3).

2.3.1 Reflections on the Logic of Anti-Doping Programs

The soundness of an anti-doping program depends on how closely this program reflects the reality of doping and is capable of identifying—and, ideally, striking—legitimate targets. As will be shown in this book, this soundness revolves around the logic of proof, especially inferential reasoning and how evidence obtained can be brought back to underlying causes.

Setting the foundations for this assessment necessitates making explicit the “causal chain” of doping, which runs from the Athlete’s initial motives to the effects of a doping act on the sports community (Sect. 2.3.1.1). Different

components of anti-doping programs need to target different segments of this causal chain (Sect. 2.3.1.2). Viewing anti-doping programs as interventions into a causal chain reveals the proximity of the detection of doping with forensic sciences, an aspect still widely unexplored (Sect. 2.3.1.3).

2.3.1.1 Doping as a “Causal Chain” of Events

Anti-doping programs are systems aimed at avoiding the existence or diminishing the prevalence of certain conducts regarded as prejudicial to sport or otherwise considered “undesirable” within the sports community. In order to be effective and fair, anti-doping programs have different instruments to bring to bear on the doping problem, which must take into account the realities of this phenomenon. Many aspects of these instruments can be brought back to issues of logic and causality.

Causality here is not used in a particular legal sense,¹⁷³ nor with any philosophical pretence, but in a purely practical sense, *i.e.* the expression of the—assumed—chronological unfolding of events preceding the initiation of anti-doping proceedings.¹⁷⁴ Schematically, the chain of events relevant to this book can be described as follows:

- Internal disposition: an Athlete forms an intent to administer a substance or use a method. This intent can be “characterised”, *i.e.* focused on using illegitimate means for purposes of performance enhancement (in a very broad sense) or recklessly accepts such outcome,¹⁷⁵ or may simply consist in inadvertently adopting an attitude that will lead to such performance enhancement;
- Act of doping: the Athlete’s disposition materialises in a conduct that involves the Athlete’s body *i.e.* the ingestion, injection or other administration of the substance or method;
- Interaction of the substance or method with the Athlete’s organism: the field of pharmacology identifies two types of interactions when a substance is metabolised within a living organism, known as pharmacokinetic and pharmacodynamics processes¹⁷⁶;

¹⁷³Swiss law *e.g.* distinguishes “*causalité naturelle*”, which is an issue of fact, and “*causalité adéquate*”, which is an issue of law (see Werro 2005, n° 175 & 214).

¹⁷⁴See Sottas 2010, p. 115: “The abuse of a doping substance, the cause, modifies the biology of the athlete, the effect”.

¹⁷⁵In a broader context taking into account the extended goals of modern anti-doping programs, it could also be a conduct detrimental to the Athlete’s health or contrary to the spirit of sport (see Sect. 7.1.1.3 below).

¹⁷⁶See 6.2.1.2 below for more precise description. The use of a method will usually deploy physiological effects in the organism, but there is no pharmacokinetic process *stricto sensu*, insofar as no substance passes through the body.

- Outcome of the interaction: the process culminates in two types of effects. On the one hand, the substance is excreted—thus potentially detectable within a certain window—through body fluids, primarily urine.¹⁷⁷ On the other hand, the substance and method triggers physiological changes in the body, which can be reflected in changes measurable in other body fluids, in particular in the blood system.¹⁷⁸
- Effects on the Athlete’s performances: the physiological changes may result in—more or less—tangible external outcomes, which can be roughly summarised as “impact” on sports performance. This impact can be positive (*i.e.* better results through enhancement of capacities) or negative (*i.e.* worse results through an impairment on the Athlete’s health).¹⁷⁹

2.3.1.2 Intervention of Anti-Doping Programs into the Causal Chain

Anti-doping programs can intervene at any point of the causal chain and take into account any of the aspects described above in framing the prohibition, detection and sanctioning of doping.

Education and prevention will primarily target the two first segments, *i.e.* seek to modify the Athlete’s internal disposition so as to prevent or reduce the occurrence of acts of doping in the first place. The information provided, however, ought to address all segments of the chain to educate Athletes about the potential consequences of these acts.

The prohibition of doping has different facets that need to take into account different segments:

- The policy of prohibition—along with the sanctioning regime for deterrence purposes—ultimately targets the second limb, *i.e.* the act of doping (since internal dispositions (“sports ethics”) are hardly accessible to external prohibition or regulation).
- The scope of the prohibition, however, largely depends on the rationales of anti-doping, and thus the last segment, *i.e.* the outcomes on the Athlete’s performance or health. This supposes as a first step obtaining knowledge (ideally through scientific research) of the cause-to-effect relationship (*i.e.* the effects that a given act—ingestion of a substance or use of a method—exerts on a human body), and use of this knowledge against the causal direction to make an inference on the effect-to-cause relationship.¹⁸⁰

¹⁷⁷Saugy 2012, p. 649, referring to urine as the primary “elimination bin” (“*poubelle d’élimination*”) for drugs and medications in the body.

¹⁷⁸Saugy 2012, p. 662, whereby observable modifications that could be of potential use to the fight against doping can be found at different “levels of the biological cascade” (“*niveaux de la cascade biologique*”).

¹⁷⁹Farther-reaching consequences on the Athlete’s private or professional life are not taken into account here.

¹⁸⁰Sottas 2010, p. 115.

- In practice, the legal definition of what is actually regarded as prohibited may vary depending on the anti-doping paradigm taken. Traditional Doping Control and longitudinal approaches differ in this respect.¹⁸¹

A system of detection needs to be put in place, parallel to the prohibition, with a view to maximising the likelihood of uncovering the prohibited conducts, and at the same time acting as a deterrent.¹⁸² Since the segment of the act of doping itself is rarely open to direct perception of the anti-doping authorities, and the last segment (noticeable evolution of the Athlete's performances) can usually only found suspicions with respect to an act of doping, the detections system needs to rely on evidence that lies somewhere between the two ends of the causal chain (somewhere along the "biological cascade"),¹⁸³ allowing for sufficiently reliable inferences to be drawn against the causal direction (effect-to-cause inference).

2.3.1.3 Under-Exploited Proximity of Anti-Doping to Other Scientific Fields

The effectiveness of an anti-doping program thus depends, on the one hand, on its thoroughness in defining the scope of the prohibition and, on the other hand, in the aptitude of the detection system to generate evidence which, correctly evaluated, leads back to the prohibited acts with a reliability considered sufficient to meet standards applied in the judicial process.

Scientific evidence in anti-doping thus shows strong similarities with the use of forensic evidence in criminal cases,¹⁸⁴ to an extent that could actually lead one to characterise it as forensic evidence,¹⁸⁵ or at least evidence on which forensic science methods can easily be applied.¹⁸⁶ Forensic evidence is collected with a view to uncovering prohibited behaviours in a manner that allows for supporting prosecution before judicial authorities,¹⁸⁷ typically involves biological materials col-

¹⁸¹See Sect. 2.3.3 below.

¹⁸²On the importance of having in place means of detection, as a prerequisite indirectly conditioning the scope of the prohibition; Tamburrini and Tännsjö 2011, p. 288: "a ban that is not appropriately controlled is a poor warrant of fairness in competition"; see also Koh Ben, *The Rules of Law and the World Anti-Doping Code*, <http://www.ruleoflaw.org.au/the-rule-of-law-and-the-world-anti-doping-authority-code/> (accessed 26.04.15).

¹⁸³Saugy 2012, p. 662.

¹⁸⁴Paul 2004a, p. 175, refers to "detective work".

¹⁸⁵Sottas 2010, in particular p. 107, clearly considers anti-doping as a forensic area, though one with its particularities.

¹⁸⁶Marclay et al. 2013, p. 133; Sottas et al. 2008b, p. 166.

¹⁸⁷Vuille et al. 2013, p. 1095, describe forensic sciences as the application of so-called "hard" sciences to judicial matters ("*l'application des sciences dites 'dures' aux questions judiciaires*").

lected from a “suspect”, to be analysed by specialists under controlled conditions, and presented in the judicial process in an appropriate form.¹⁸⁸

The forensic approach has long since attracted the awareness of the scientific anti-doping community,¹⁸⁹ with extensive studies recently devoted to the subject of forensic intelligence in anti-doping.¹⁹⁰ In this respect, the causal chain used for purposes of this book is utterly simplified and reduced to the elements of an Athlete’s individual conduct and consequences on this same Athlete. Genuine forensic approaches could pursue strategic ambitions and would require a broader use of intelligence with much wider targets, including trafficking of doping substances, its links with organised crime, the role of the Athlete’s personal and medical entourage and the sports authorities themselves, as well as the overall impacts of doping on society.¹⁹¹

While apparently widely recognised in the scientific anti-doping community, the forensic character of scientific evidence in anti-doping seems neglected by lawyers in the field. When it comes to prosecuting a doping case, lawyers are unlikely to be familiar with even the basics of forensic sciences, to such extent that forensic methods never seem to actually pass the door of the CAS “courtroom”.¹⁹² This results in a significant loss of potentialities in exploiting anti-doping evidence.

Thus, forensic scientists are—ideally—trained in evaluating evidence against the cause-to-effect direction: in particular, to work on the basis of hypotheses (or “propositions”),¹⁹³ to distinguish different levels of hypotheses (“hierarchy”)¹⁹⁴

¹⁸⁸For some distinctive features that need to be taken into account when evaluating evidence in Doping Control, see Sottas 2010, p. 107.

¹⁸⁹See *e.g.* Sottas et al. 2008a; Giraud et al. 2008.

¹⁹⁰See the doctoral thesis in 2014 by François Marclay, “Perspectives for forensic intelligence in anti-doping and the emergence of smokeless tobacco consumption in sport”.

¹⁹¹For proposals on these broader approaches, see Marclay et al. 2013, The present book only addresses the level of the judicial process in a particular doping matter, described as “tactical intelligence” in the proposals.

¹⁹²With respect to the Athlete Biological Passport evaluation, see Schumacher and d’Onofrio 2012, p. 979.

¹⁹³In short, a “hypothesis” or “proposition” in the judicial process describes the position of a party with respect to the origin of a piece of evidence, typically in a judicial process with criminal proceedings traits, the position of the “prosecution” and the position of the “defence” (Vuille, 2011, p. 172); for transposing these concepts to the evaluation of evidence in anti-doping, see Sottas 2010, p. 111.

¹⁹⁴Forensic sciences typically distinguish three levels of hierarchy of propositions: source, activity and offence. The parties’ respective hypotheses can conflict at any of these levels (Vuille 2011, p. 173 *et seq.*). A frequent cause of imprecision when dealing with forensic evidence is the “breach of the hierarchy” of propositions, *i.e.* confusion surrounding the value of the evidence for the respective levels of proposition or failure to appropriately distinguish the different levels.

and to assign probabilities to these hypotheses so as to reflect the fact that the piece(s) of evidence they analyse only represent(s) elements of information within the broader framework of the file in the matter.¹⁹⁵ Inherent in forensic thinking is also the recognition that no identification can ever be made with certainty, but that analysing evidence always supposes probabilistic reasoning, coupled with a final act of decision-making that is not properly scientific.¹⁹⁶

The same type of reasoning is applied in the biomedical field, epidemiology or general health management, where there is need to use techniques that allow investigators to go against the flow of the “biological cascade” for diagnosis,¹⁹⁷ or methods for identifying the manner in which diseases spread within a population.¹⁹⁸ Tools have been developed in these fields to assist in the evaluation of scientific evidence and legal decision-making in complex evidentiary matrices (*e.g.* the “Positive Predictive Value”, or the use of Bayesian networks).¹⁹⁹ Drawing meaningfully from these other fields of study, requires competences that one cannot necessarily find currently in hearing panels of ADOs or CAS panels in evaluating analytical evidence of doping. Part III will discuss the shortcomings of traditional Doping Control in this respect, as well the potential for improvement through novel approaches, and seek to place these approaches into a legal perspective.

2.3.2 Analytical Science as the Core Source of Scientific Evidence

The main form of scientific evidence considered in this book is “analytical” evidence.²⁰⁰ While the qualifier “analytical” has often be understood as referring to a particular type of violation under the WADC (Sect. 2.3.2.1), “analytical” more accurately describes a particular type of source for scientific evidence, *i.e.* evidence produced through laboratory analysis (Sect. 2.3.2.2). Analytical evidence in this broad understanding should continue to form a core pillar of anti-doping even under the 2015 WADC (Sect. 2.3.2.3).

¹⁹⁵For more details on these requirements, see Aitken/Taroni 2004, p. 214 *et seq.*

¹⁹⁶Biedermann et al. 2008, p. 120 *et seq.*

¹⁹⁷Saugy 2012, p. 662; explored in the scientific anti-doping community as “-omic” approaches; see *e.g.* Reichel, p. 21, for a chart showing the different stages that could be targeted.

¹⁹⁸Sottas 2010, p. 107, makes a parallel with population-based health management as the forensic science field closest to anti-doping programs; see also Saugy et al. 2011, p. 2.

¹⁹⁹See Sects. 10.3.2.2.3 and 10.3.2.3 below.

²⁰⁰On the concept of “scientific” in the context of anti-doping, see Sect. 4.1.2 below.

2.3.2.1 Artificial “Analytical” Versus “Non-analytical” Divide

2.3.2.1.1 Current Use of the Terms in the WADC and Practice

The qualifier “analytical” has a variety of meanings in anti-doping. The expression “analytical case” may be used as equivalent to the report of an Adverse Analytical Finding, and, in turn, such report with the prosecution of a violation under Article 2.1 of the WADC, or even assimilated to the Strict Liability rule.²⁰¹ “Non-analytical” is at times used as a synonym for cases prosecuted for Use of a Prohibited Substance or Method under Article 2.2 of the WADC instead of Article 2.1.²⁰²

Despite their widespread use in practice, neither “analytical” nor “non-analytical” are defined terms under the WADC regime:

- Expressions involving the adjective “analytical” are used to describe any element in connection with a laboratory analysis process, without apparent limitation to WADA-accredited entities or compliance with the ISL.²⁰³ “Reliable analytical data” is explicitly mentioned among the means of evidence that may be used in the context of anti-doping (Comment *ad* Article 3.2 of the WADC).
- The term “non-analytical” has newly appeared in the 2015 WADC with the increased emphasis on investigations and is used to describe any other form of evidence or information gathered by ADOs with a view to prosecuting violations (Articles 5.1.2 & 5.8.3 of the WADC).

2.3.2.1.2 The Variety of Analytical Evidence

The WADC regime has been historically modelled on the Adverse Analytical Finding as the paragon of analytical evidence, reported by a WADA-accredited laboratory following analysis conducted according to the ISL and leading to

²⁰¹McLaren 2006c, p. 194: “Because non-analytical positive charges do not involve results from a positive analytical laboratory- doping test, they must be proven without the benefit of the presumption embodied in the strict liability principle”.

²⁰²The somewhat paradoxical expression of “non-analytical positive” is also encountered in literature and case law (see *e.g.* McLaren 2006c, p. 194; Hailey 2011, p. 405; David 2013, p. 132, with references to the wording of the CAS panel in the *USADA v. Montgomery* matter; CAS 2005/A/884 *Hamilton v. USADA & UCI*, para 48, quoting the *Collins v. USADA* matter). This terminology should in our view be avoided since it only creates unnecessary confusion.

²⁰³The expression “other analytical information” is used, in particular, in the Comment *ad* Article 2.2 of the WADC; “analytical data” in Comment *ad* Article 3.2 of the WADC and “analytical evidence” in Article 5.1.2 of the WADC, while Comment *ad* Article 6.1 of the WADC explicitly states: “Violations of other Articles may be established using analytical results from other laboratories so long as the results are reliable”.

prosecution for “Presence of a Prohibited Substance” (Article 2.1 of the WADC).²⁰⁴ However, analytical evidence covers a much broader range of situations in which all or part of the evidence presented originates from a laboratory analysis on biological materials (body fluids or other body parts)²⁰⁵:

- An analysis performed by a non-accredited laboratory or based on an analytical method outside the laboratory’s scope of accreditation²⁰⁶;
- Results derived from reanalysis of the initial screening data²⁰⁷;
- An analysis on biological materials other than a Doping Control Sample²⁰⁸;
- An analysis directed at aims other than identifying the presence of a Prohibited Substance or giving evidence of a Prohibited Method²⁰⁹;
- Analysis of biological parameters in blood and urine for the purpose of longitudinal profiling²¹⁰;
- Analytical data obtained through police investigations and collaboration with public authorities.²¹¹

All these are “analytical cases”, in the sense that the finding of an anti-doping rule violation is made, at least in part, on the basis of results from a laboratory analysis. By contrast, the expression “non-analytical case” should—if at all—be reserved for cases prosecuted without the support of any analytical data.²¹²

2.3.2.2 Pragmatic Definition of “Analytical” Cases

“Analytical cases” are envisaged in this book in a broad sense, encompassing all cases in which all or part of the evidence presented originates from an analysis conducted on biological materials (*i.e.* primarily Athlete Samples) by a laboratory.

²⁰⁴As a historical remnant thereof, the heading of Article 7 of the 2015 WADC, which addresses the pre-hearing process, still reads “Results management”, even though the process is by far no longer limited to analytical cases and the reviews described therein cover also cases that involve no “results” altogether.

²⁰⁵Note that, in any event, Adverse Analytical Findings for a Prohibited Method can only be prosecuted under Article 2.2 of the WADC.

²⁰⁶CAS 2005/A/884, *Hamilton v. USADA & UCI*, para 52.

²⁰⁷Two cases in weightlifting: CAS A3/2007, *ASADA v. Van Tienen*; CAS 2007/A/1283, *WADA v. ASADA & Australian Weightlifting Federation & Karapetyan*.

²⁰⁸CAS 2004/A/651, *French v. Australian Sports Commission & Cycling Australia* (DNA analysis performed on material retrieved in the Athlete’s possession).

²⁰⁹See the recent possibility to detect one type of Sample manipulation through an analysis, CAS 2009/A/1873, *WADA v. FPC & Cabreira*; for the use of blood Samples collected for screening purposes for no-start rules in certain sports, CAS 2009/A/1912, *Pechstein v. ISU*.

²¹⁰*e.g.* Samples collected as part of the Athlete Biological Passport, CAS 2010/A/2178, *Cacchioli v. CONI & UCI*; CAS 2010/A/2308, *Pellizotti v. CONI & UCI*.

²¹¹CAS 2007/A/1396 & 1402, *WADA & UCI v. Valverde & RFEC*.

²¹²Roberts 2007, p. 3, on non-analytical cases: “cases relying not on an analytical result from a laboratory but on other forms of circumstantial evidence of doping, including admissions, witness statement, e-mails and other documents”.

The decisive factor is not the legal “heading” under which a case is prosecuted, *i.e.* what type of anti-doping rule violation in the WADC catalogue is asserted. Rather, it is the type of evidence presented to support either the prosecution’s case or, increasingly, the defence’s case.²¹³

Our analysis is less concerned with doping cases based purely on non-analytical evidence, specifically on intelligence gathered through cooperation between ADOs and public authorities. Such evidence might include files from criminal proceedings, testimonies, admissions, email correspondence or other non-scientific documentary evidence. We do not specifically address either the so-called “ancillary” anti-doping rule violations, such as Whereabouts Failures (Article 2.4 of the WADC); and evading, refusing or failing to submit to Testing (Article 2.3 of the WADC).²¹⁴

Similarly, the analysis does not specifically deal with anti-doping rule violations committed by persons other than the Athlete him- or herself. The intervention of the Athlete’s sporting entourage in encouraging doping behaviour is an important aspect of the doping phenomenon, but an analysis of this topic would go beyond the remit of this book. Consequently, the term “Athlete” is used throughout, even for issues on which the WADC may refer to “Athlete or other Person”.

This is not to say that non-analytical types of evidence, or the influence of third parties, are totally absent from the analysis. However, these are used only to the extent necessary to shed light on the implications that science has on the WADC regime in a specific evidentiary context.

2.3.2.3 Analytical Evidence Is Not “*Passé*”

The choice of an assessment focused on the “analytical” dimensions of the fight against doping may attract the objection that the future lies in investigations and collaboration with public—especially criminal—authorities, rather than in Testing and the detection of Prohibited Substances and Methods. The revised 2015 WADC puts an increased focus on “smarter” approaches to anti-doping.²¹⁵ The emphasis

²¹³Lewis and Taylor 2014, C2.121, make the same distinction, whereby a “non-analytical case” is “one where the evidence is something other than analytical data from a laboratory relating to a sample”.

²¹⁴“Ancillary violations” can be described as violations that do not automatically involve the presence, Use or Possession of a Prohibited Substance or method (see Soek 2006, p. 61).

²¹⁵At operational level, a sign of this orientation is the renaming of the “International Standard for Testing” into “International Standard for Testing and Investigations” and the inclusion in the revised 2015 version of an entire section (Part 3) dedicated to intelligence-gathering and investigations.

is to be placed on intelligence-gathering and investigations to target “real cheats” and uncover significant doping conspiracies²¹⁶:

The current Code Legal Constraints makes clear that anti-doping rule violations can be proved by any reliable means. This includes both analytical and non-analytical evidence obtained through investigations. Many of the most high-profile successes have been based largely on evidence obtained either by Anti-Doping Organizations or the civil authorities through the investigations process. [deleted in the update: (For example, Lance Armstrong and the U.S. Postal Service investigations, the BALCO investigation, and Operation Puerto)].²¹⁷

There are plenty of indications that Doping Control will continue to form a central pillar of the fight against doping,²¹⁸ even if this fight is to be expanded and enriched with new instruments.²¹⁹ Hence, analytical evidence is unlikely to become obsolete.²²⁰ The words “high-profile successes” in the WADA statement above are key.²²¹ These successes tend to make headlines, but they only touch the tip of the iceberg. They involve the “stars” of a discipline and doping schemes important enough to be the object of investigations both from state and sports authorities. It takes nothing more a glance through the 164-page USADA decision in the *Lance Armstrong* matter to see that such “successes” cannot be the whole future of Doping Control even if organised sport were to invest all its revenues into anti-doping.

Analytical and non-analytical approaches are complementary and interdependent.²²² Intelligence-based evidence and investigations may be required in conjunction with traditional means of Doping Control. For example, investigations may arise from an Atypical Finding or Adverse Passport Finding reported by a laboratory.²²³ Conversely, intelligence gathered by ADOs may be used to trigger Target Testing or influence Test Distribution Planning.

²¹⁶For an overview of the main amendments designed to implement this new trend, see Rigozzi et al. 2013a, n° 6 *et seq.*

²¹⁷Under the heading “The 2015 Code amendments support the increasing importance of investigations and use of intelligence in the fight against doping”, see the WADA Overview of Key Changes, p. 3.

²¹⁸WADA Report on the Lack of Effectiveness of Testing Programs, p. 3: “While recognizing that Testing is only part of a successful fight against doping, it is nevertheless an important element in that fight and should be as effective as possible”; Minutes WADA ExCo Meeting 11 May 2013, p. 51.

²¹⁹Significant legal issues—*e.g.* in terms of privacy and data protection—that may arise along with the increased use of intelligence and investigation in anti-doping could well form the subject of a separate book.

²²⁰David 2013, p. 142.

²²¹As an aside, none of the examples cited here were purely non-analytical.

²²²Comment *ad* Article 11.1.1 of the ISTI: “While Testing will always remain an integral part of the anti-doping effort, Testing alone is not always sufficient to detect and establish to the requisite standard all of the anti-doping rule violations identified in the Code”.

²²³See Rigozzi et al. 2013b, n° 12 *et seq.*

More generally, non-analytical cases are hardly imaginable without their analytical counterparts. Without the threat of a positive test, incentives for stakeholders to cooperate would rapidly diminish. For example, the whistleblowing provision (“Substantial Assistance”, Article 10.6.1 of the WADC) that is regarded as an important instrument for a more effective fight against doping generally assumes that at least one Athlete will be caught—usually through traditional Testing—before he or she starts talking.²²⁴ If all Testing were to be abandoned, the pressure in doping *milieux* would gradually diminish and the *omerta* could continue. Criminal investigations cannot replace this pressure as many countries such as Switzerland do not treat self-doping as a punishable offence. In addition, a fight against doping relying solely on non-analytical evidence might degenerate into a cycle of rumours and false accusations directed at damaging competitors.

Around 30 laboratories worldwide are currently WADA-accredited to carry out anti-doping analyses.²²⁵ These laboratories have to analyse a minimum number of Doping Control Samples each year to maintain their accreditation.²²⁶ In 2013 alone, nearly 270,000 Samples were analysed by these laboratories worldwide.²²⁷ Laboratories also conduct research activities²²⁸ for which they may receive funding from various sources including WADA grants. ADOs create further opportunities for business by electing to outsource segments of Doping Control such as test planning and Sample collection, including to private service providers.

In sum, non-analytical types of evidence are predicted to play an increasing part in anti-doping programs and the nature of analytical evidence is to remain in constant evolution, but analytical cases are not threatened with imminent extinction. Instead of debating the merits of “analytical” and “non-analytical” cases, it seems more appropriate to identify the shortcomings of “traditional” Doping Control, as a prerequisite for exploring new or complementary approaches.

2.3.3 Legal Approaches to Anti-Doping Science

Doping practices have considerably evolved since the initial serious organised attempts to tackle these practices within the Olympic Movement some decades ago, requiring constant adaptations in anti-doping science, in a manner that legal

²²⁴For an overview of the amendments to the substantial assistance provision, see Rigozzi et al. 2013a, n° 29 *et seq.*

²²⁵A list of the accredited laboratories is published on the WADA website: <https://www.wada-ama.org/en/what-we-do/science-medical/laboratories/accredited-laboratories> (accessed 28.01.15).

²²⁶Currently 3,000 a year (Article 4.4.9 of the ISL). Business opportunities may arise with the option for laboratories to seek WADA approval to conduct blood analysis in support of the Athlete Biological Passport, without the need for full accreditation.

²²⁷See the WADA 2013 Anti-Doping Testing Figures: <https://wada-main-prod.s3.amazonaws.com/resources/files/WADA-2013-Anti-Doping-Testing-Figures-LABORATORY-REPORT.pdf> (accessed 11.08.14).

²²⁸Article 4.4.5 of the ISL.

regulations may find difficult to keep up pace with (Sect. 2.3.3.1). In particular, the manner in which Doping Control was conceived in the WADC regime has traditionally relied on an approach that is almost entirely detached from the causal chain of doping, offering little space for an elaborate evaluation of analytical evidence in the judicial process (Sect. 2.3.3.2). A persistent theme of this book will thus be to identify the shortcomings of traditional Doping Control and their causes, in order to assess how new trends and approaches developed by the scientific anti-doping community could contribute to an overall improvement in the soundness of the system (Sect. 2.3.3.3).

2.3.3.1 Changes in Doping Patterns and Anti-Doping Science

Anti-doping science is a field in constant evolution.²²⁹ It has contributed greatly to the effectiveness of the fight against doping, and the role of the anti-doping laboratories has been paramount in providing both reliable and edge scientific expertise, but also “practical, prompt, flexible, and cost-effective” analytical solutions for the client ADOs.²³⁰

However, the context of the use of doping substances and methods has also evolved in the past fifty years.²³¹ In the 1960–70s, a typical doping practice could be—very schematically—described as involving:

- Xenobiotics (*i.e.* synthetic chemical substance that cannot be produced endogenously by the human body),²³²
- used in massive doses to enhance performances In-Competition (*e.g.* amphetamines),²³³
- easily detectable—especially in urine—through straightforward and robust qualitative identification methods (primarily gas/liquid chromatography (“GC/LC”) coupled with mass spectrometry (“MS”)).²³⁴

²²⁹For an analysis of the evolving challenges that anti-doping laboratories face, see Giraud et al. 2008, p. 331 *et seq.*

²³⁰See the editorial about the goals of analytical anti-doping science by WADA-accredited laboratory director Kuuranne 2013, p. 809.

²³¹See for a comparative chart between the challenges posed by the first amphetamines in the mid 1960s *versus* use of recombinant biosimilar proteins in 2014, Botrè et al. 2014, p. 2.

²³²With use of stimulants, *e.g.* amphetamines, as a prime illustration (see Saugy 2012, p. 649 and 655; Botrè et al. 2014, p. 2); for more illustrations, Thevis et al. 2010, p. 13 *et seq.*

²³³Botrè et al. 2014, p. 2; Saugy 2012, p. 649.

²³⁴Sottas 2010, p. 104/105; on the use of chromatographic methods in Doping Control, Cooper, p. 246/247, especially the need to have a reference standard.

Advances in medical science and refinement of doping patterns pose challenges in anti-doping that were unknown at the time:

- biosimilar substances that mimic components naturally produced endogenously by the human body²³⁵;
- administered, often in training periods,²³⁶ in small doses with low resulting concentrations in urine,²³⁷ or as cocktails (possibly based on designer drugs or therapeutic products in development stages)²³⁸;
- which require the use of new, less straightforward analytical tools.²³⁹

These changes in doping practices continuously threaten to diminish the effectiveness of anti-doping science, especially the analytical tools available to uncover these practices. The combination of similarity with endogenous substances and low concentration detection capacities create challenges for analytical science that were unknown when anti-doping regulations were originally set up.²⁴⁰ Anti-doping scientists face increasing difficulties in interpreting analytical results and depend on their ability to continuously refine the tools of detection, as well as to derive meaningful information from the results obtained.²⁴¹ The development of ever more effective analytical methods using the most sophisticated technologies takes up a considerable amount—if not all—of the anti-doping laboratories resources.²⁴²

2.3.3.2 Traditional Doping Control

2.3.3.2.1 Basic Features of Traditional Doping Control

Traditional Doping Control has been the exclusive systematic instrument of detection in anti-doping since the adoption of the WADC. The WADC regime has been modelled on a traditional approach to Doping Control, rooted in a standardised approach to the causal chain of doping.

²³⁵Botrè et al. 2014, p. 2; for more examples, see Dvorak et al. 2014a, p. 3; Savulescu and Foddy, p. 305; Cooper, p. 249.

²³⁶On the development of Out-of-Competition Testing as a first change of paradigm, see Saugy 2012, p. 650.

²³⁷Saugy 2012, p. 651/652, on the development of the use of blood as a matrix with the rise of rhEPO and recombinant human Growth Hormone abuse; Sottas 2010, p. 114.

²³⁸Marclay, 2014, p. 6.

²³⁹On the rise of new detection methods, such as the “-omics”-based solutions, see Dvorak et al. 2014a, p. 4; Pitsiladis et al. 2014.

²⁴⁰See the diagrams in Fig. 1 and 2 in Botrè et al. 2014, p. 3; already in 2004, Paul 2004a, p. 96/97, on the difficulties going ahead with peptide hormone detection.

²⁴¹Marclay et al. 2013, p. 135.

²⁴²Marclay 2014, p. 5; Marclay et al. 2013, p. 133.

What this book refers to as “traditional Doping Control” or “traditional approach to Doping Control” is characterised by the following:

- Multiplication of isolated Testing, aimed at catching doping Athletes at unexpected times to fall within the detection window of the analytical test for the presence of Prohibited Substances or evidence of Prohibited Methods in the Athlete’s Sample;
- Analysis of the Samples collected for the detection of Prohibited Substances (or, less frequent in practice, evidence of a Prohibited Method), aimed at obtaining an Adverse Analytical Finding;
- Prosecution of anti-doping rule violations under Article 2.1 of the WADC, based solely on the Adverse Analytical Finding, with additional evidentiary efforts required from the ADO being limited to countering the Athlete’s explanations on the origins of the Prohibited Substance for eliminating or reducing the disciplinary sanction.

The roots of this approach go back to the origins of the fight against doping described above, and therefore rest on assumptions about doping patterns and anti-doping science that date back to the 1970s, assumptions that may no longer be adapted to the modern situation.

2.3.3.2.2 The Logic Underlying Traditional Doping Control

This approach to evidence in traditional Doping Control basically reflects the logic of analysis of GC/LC-MS identification, a technique characterised by its ability to identify exogenous compounds (that cannot be produced by the human body) with a high level of confidence and that requires only little inferential reasoning for the analytical scientists, other than to apply the identification criteria properly.²⁴³

This logic has been transposed into the legal WADC regime. Traditional Doping Control posits that detection of certain agents in the bodily fluids of the Athlete is—in and by itself—sufficient indication for the prior segment of the doping act, not only as a means of detection, but also for defining the prohibition and the modalities of proof of a violation. Our analysis will show that the WADC regime tends to eliminate most considerations of causation from the legal purview: no evaluation of the causal chain is necessary, nor—as a rule—even admissible for a violation to be established. This applies whether one considers reasoning back from the evidence against the causal direction (“effect-to-cause”, can the origins of the agent detected in the Sample truly be brought back to a doping act?), or reasoning forward from the evidence following the causal direction (“cause-to-effect”, did the agent detected truly exert the effects that served as a justification for its prohibition?).

²⁴³Sottas 2010, p. 104/105.

In other words, the WADC regime relies on an extremely narrow “legalistic” view of reality, which may satisfy the ADOs needs for evidentiary straightforwardness and easy prosecution, but may be difficult to grasp for anti-doping scientists who tend to aim at designing a system that searches for evidence of doping acts,²⁴⁴ as opposed to a system that converts evidence of doping into the actual offence.²⁴⁵

2.3.3.3 New Trends and Approaches

2.3.3.3.1 Combining Multiple Types of Evidence

Even though the pure Adverse Analytical Finding case still accounts for most of the daily business of CAS and other hearing panels, these panels may increasingly be confronted with multiple—analytical and non-analytical—types of evidence. Two high-profile cases may serve as an illustration:

- In *WADA & UCI v. Valverde*, the CAS panel divided the evidence before it into “scientific evidence” (blood bags and DNA analysis linking Valverde to the blood) on the one hand, and “documentary evidence” (extracts from documents kept by Dr Fuentes) on the other hand. The panel considered both sets of evidence, albeit with the remark that each set separately would have triggered their comfortable satisfaction. In addition, the panel enumerated for the record a number of further, mainly testimonial, pieces of evidence, on which it did not deem it necessary to rely.²⁴⁶
- In *UCI v. Ullrich & Swiss Olympic*, the panel reached the conclusion that “the evidence has been obtained from multiple sources and is internally consistent despite differences in its provenance”. “Given the volume, consistency and probative value of the evidence presented by the UCI, and the failure of Ullrich to raise any doubt about the veracity or reliability of such evidence”, the panel was satisfied that an anti-doping rule violation had been committed.²⁴⁷

The ADOs are not solely responsible for the increasing evidentiary complexity in doping cases. Athletes are also increasingly aware of their rights and tend to bring

²⁴⁴This gap is perceivable in publications by scientists in the anti-doping field, see *e.g.* Schamasch and Rabin 2012, p. 1693: “Another major challenge in anti-doping analysis is to objectively interpret the detection of a prohibited substance or method in a biological specimen at a given time in order to correctly infer that such a result is the direct consequence of doping in contrast to involuntary exposure”.

²⁴⁵See Sects. 10.1 and 10.2 below.

²⁴⁶CAS 2007/A/1396 & 1402, *WADA and UCI v. Valverde & RFEC*, para 11 *et seq.*

²⁴⁷CAS 2010/A/2083, *UCI v. Ullrich & Swiss Olympic*, para 66 *et seq.*

in their own scientific evidence, thereby forcing the ADOs to produce further counter-evidence. The resulting escalation is demonstrated by the *UCI & WADA v. Contador & RFEC* matter.²⁴⁸ What started with a straightforward Adverse Analytical Finding for clenbuterol evolved into a lengthy expert battle involving scenarios of blood transfusions and contaminated supplements, in addition to the Athlete's defence based on a "contaminated steak".

2.3.3.3.2 Shift to Longitudinal Approaches

With advances in doping patterns and anti-doping science, "traditional" Doping Control could gradually decrease in importance, in favour of a more elaborate form of analytical evidence which purports to detect the effects of agents or methods applied on the Athlete's organism, by monitoring biological parameters known to be affected by doping conducts.

The Athlete Biological Passport ("Athlete Biological Passport" or "ABP") Program is the current concretisation of these trends in the WADC regime and carries much of the hopes of anti-doping. Born from initiatives of the scientific anti-doping community for discovering more effective means of detecting doping acts (rather than doping substances in Samples), the ABP focuses on pharmacodynamics (as opposed to the pharmacokinetic process),²⁴⁹ and reintroduces at least some of the evaluation along the causal chain missing from traditional Doping Control: first, the evidence is slightly closer to the end of the causal chain, since it directly detects the physiological effects of doping on the Athlete's organism. Second, the evaluation of the ABP supposes that a "doping scenario" (*i.e.* a "hypothesis") can be posited, so that the causes for the evidence and the associated likelihood can be made explicit.

To explore the two above trends, the final Part III of this book is devoted to new evidentiary approaches, based in particular on the first experiences with the Athlete Biological Passport.²⁵⁰

2.3.3.3.3 Evolution Rather Than Revolution

Nevertheless, this book also gives an important place to "traditional" Doping Control, based on Testing and the Adverse Analytical Finding. This is not only in a concern to identify precisely the shortcomings of the current system, but also

²⁴⁸CAS 2011/A/2384 & 2386, *UCI & WADA v. Contador & RFEC*.

²⁴⁹See, on these processes, Sect. 6.2.1.2 below.

²⁵⁰Chapter 11 below.

because new paradigms such as the Athlete Biological Passport only complement but do not replace traditional Doping Control:

- the Athlete Biological Passport does not cover all the Prohibited Substances and Prohibited Methods by a substantial margin,²⁵¹ even with the introduction of the steroidal module and planned development of a hormonal module;
- its implementation requires resources that not all sports can afford to invest, nor would it necessarily make sense for all sports²⁵²;
- in certain situations the Athlete Biological Passport, can only be used in combination with traditional Doping Control, for example when abnormal profile values can be exploited for target Testing but are not sufficiently strong to form the basis for immediate prosecution.²⁵³

Thus, insights gained with respect to new orientations and the methods used in connection with these also represent an opportunity to improve traditional Doping Control, in particular by giving lawyers the tools to conduct a more effective evaluation of scientific evidence and combine the results with other types of evidence.

Finally, many evidentiary aspects of traditional Doping Control critical to our analysis, such as the status of technical rules, the credibility of the scientific network responsible for the Testing and analysis of Samples, as well as the treatment of procedural defects, apply equally—or even *a fortiori*—to Sample collection for purposes of the ABP.

²⁵¹Currently, only blood manipulation, including Use of erythropoiesis-stimulating agents (ESAs), can be detected with the haematological module, while the steroidal module targets endogenous anabolic androgenic steroids or other anabolic agents categorised under class S1 of the WADA Prohibited List (WADA ABP Guidelines, Sect. 2).

²⁵²For example, the Technical Document for Sport Specific Analysis (TD2014SSA) only recommends sports for which the minimum analysis levels ESAs is 10 % or greater to “consider the benefits of implementing the ABP haematological module”.

²⁵³See *e.g.* the Technical Document on ABP Results Management Requirements (TD2015RMR), Sect. 3.



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