INTERNATIONAL JOURNAL OF LAW MANAGEMENT & HUMANITIES

[ISSN 2581-5369]

Volume 9 | Issue 6

2026

© 2026 International Journal of Law Management & Humanities

Follow this and additional works at: https://www.ijlmh.com/
Under the aegis of VidhiAagaz (https://www.vidhiaagaz.com/)

This article is brought to you for free and open access by the International Journal of Law Management & Humanities at VidhiAagaz. It has been accepted for inclusion in the International Journal of Law Management & Humanities after due review.

In case of **any suggestions or complaints**, kindly contact **support@vidhiaagaz.com**.

To submit your Manuscript for Publication in the **International Journal of Law Management & Humanities**, kindly email your Manuscript to **submission@ijlmh.com.**

Doping in Sport: Health Risks, Psychosocial Drivers, and the Evolving Anti-Doping Response

DR. BALJEET SINGH*

ABSTRACT

Doping in sport is often discussed as a problem of prohibited drugs, positive tests, and sanctions. That framing is incomplete. Contemporary anti-doping governance also addresses prohibited methods and conduct that undermines testing and investigation, while effective prevention must account for health risks, athlete decision-making, team cultures, medical practice, and the commercial pressures surrounding sport. This narrative review synthesizes selected peer-reviewed literature and official anti-doping instruments to examine four connected questions: how doping is defined and regulated; what is known about health consequences; why athletes may consider prohibited performance enhancement; and how detection and prevention can be combined more effectively. The evidence indicates that health risks vary by substance, dose, duration, route, combinations, and the population studied, so findings from non-athlete users should not be generalized uncritically to elite athletes. Research on athlete attitudes identifies perceived performance benefits, social influence, recovery concerns, and financial or career pressures as relevant factors, although attitudes do not directly establish actual use. The World Anti-Doping Code and the annually updated Prohibited List provide a harmonized framework, but testing alone cannot address every source of risk. A more credible response combines risk-based testing and investigation with values-based education, competent medical advice, supplement-risk management, confidential reporting, and proportionate, procedurally fair results management. The review concludes with priorities for prevention and research, including better evaluation of education, improved evidence on long-term health outcomes in athletic populations, and clearer coordination between international standards and national implementation.

Keywords: *Doping in sport, performance-enhancing drugs, athlete health, anti-doping policy, prevention*

* Author is an Assistant Director of Physical Education and Sports at National Law Institute University, Bhopal, Madhya Pradesh, India.

© 2026. International Journal of Law Management & Humanities [ISSN 2581-5369]

I. INTRODUCTION

Competitive sport rewards performance, but the pursuit of marginal gains can also create incentives to use substances or methods prohibited under anti-doping rules. Doping is therefore not solely a pharmacological or laboratory issue. It is also a health, behavioural, ethical, legal, and governance problem. The World Anti-Doping Code defines doping through the occurrence of one or more anti-doping rule violations; the framework consequently reaches beyond a positive analytical finding to conduct such as attempted use, tampering, trafficking, administration, and certain failures to comply with testing requirements.[1]

The regulatory landscape is dynamic. The World Anti-Doping Agency (WADA) publishes an annually updated Prohibited List, and the 2026 List took effect on 1 January 2026. It distinguishes substances and methods prohibited at all times, those prohibited in competition, and those prohibited only in particular sports.[2] A drug being medically useful does not automatically make it permissible in sport, just as inclusion on a prohibited list does not mean that every substance carries the same risk profile or is prohibited in every context. Athletes and their support personnel therefore need current, sport-specific advice rather than relying on old lists or informal guidance.

This article takes in turn the definition of doping, its historical development, health consequences, behavioural drivers, detection and enforcement, prevention, and the Indian regulatory context, and organizes them around a focused argument: effective anti-doping policy must integrate credible scientific detection with athlete-centred prevention and fair governance. An earlier review of elite athletes' attitudes and beliefs has identified perceived performance benefits, peer norms, coaches' influence, and concerns about the effectiveness of testing as recurring issues.[3] Medical evidence also cautions against treating performance-enhancing drugs as a single, uniform category because harms differ by agent, pattern of use, and user population.[4] The purpose here is to synthesize these strands, identify limitations in the evidence, and outline practical implications for sports organizations and athlete-support systems.

---

[1] WORLD ANTI-DOPING AGENCY, WORLD ANTI-DOPING CODE 2021 arts. 1, 2 (2021), https://www.wada-ama.org/sites/default/files/resources/files/2021_wada_code.pdf (last visited Oct. 27, 2026).

[2] WORLD ANTI-DOPING AGENCY, THE 2026 PROHIBITED LIST: INTERNATIONAL STANDARD (2025) (effective Jan. 1, 2026), https://www.wada-ama.org/sites/default/files/2025-09/2026list_en_final_clean_september_2025.pdf (last visited Oct. 27, 2026).

[3] Jaime Morente-Sánchez & Mikel Zabala, *Doping in Sport: A Review of Elite Athletes' Attitudes, Beliefs, and Knowledge*, 43 SPORTS MEDICINE 395 (2013), https://doi.org/10.1007/s40279-013-0037-x.

[4] Harrison G. Pope Jr., Ruth I. Wood, Alan Rogol, Fred Nyberg, Larry Bowers & Shalender Bhasin, *Adverse Health Consequences of Performance-Enhancing Drugs: An Endocrine Society Scientific Statement*, 35 ENDOCRINE REVIEWS 341 (2014), https://doi.org/10.1210/er.2013-1058.

© 2026. International Journal of Law Management & Humanities [ISSN 2581-5369]

II. Review approach and boundaries

This is a focused narrative review, not a systematic review or meta-analysis. A targeted literature search was undertaken using public web-indexed scholarly records, including PubMed-indexed records, and official WADA, National Anti-Doping Agency (NADA) India, and legal sources. Search concepts included doping in sport, athlete attitudes and beliefs, adverse health effects of performance-enhancing drugs, anti-doping education, the Athlete Biological Passport, and anti-doping law. Priority was given to peer-reviewed reviews, a small number of historical or analytical primary studies, and official instruments directly relevant to current policy.

The search was designed to support a critical narrative synthesis rather than to identify every eligible study. It was not an exhaustive multi-database search, and no protocol registration, duplicate independent screening, formal risk-of-bias tool, or PRISMA flow diagram was used. The selection of sources is therefore purposive, and the article should not be read as a systematic estimate of doping prevalence or the comparative effectiveness of particular interventions. The 2026 Prohibited List is used for current regulatory examples; the 2021 Code is cited as the governing Code text provided by WADA, while readers should check official WADA and national resources for subsequent amendments, technical documents, and sport-specific guidance before making a compliance decision.[5,6] The 2027 World Anti-Doping Code applies in full from 1 January 2027. It retains the definition of doping in Article 1 and the eleven categories of violation in Article 2 relied on here, including the rule in Article 2.1.1 that intent need not be shown to establish a presence violation. It does alter the sanctioning provisions in Article 10 that bear on intent and contamination: Article 10.2.1.2 adds a three-year period of ineligibility where an athlete cannot establish that a violation was not intentional but can establish how the substance entered their system and that the context was unrelated to sport performance, and Article 10.6.1.2 refers to a contaminated source rather than a contaminated product.[7]

III. Doping as a regulatory and scientific concept

The word "doping" is sometimes used loosely to mean any drug use by an athlete. That usage is too broad. Many athletes use medicines for legitimate conditions, and clinical treatment should not be conflated with prohibited enhancement. Under the anti-doping framework, the

[5] World Anti-Doping Code 2021, *supra* note 1.
[6] 2026 Prohibited List, *supra* note 2.
[7] World Anti-Doping Agency, World Anti-Doping Code 2027 arts. 1, 2, 10.2.1.2, 10.6.1.2, 27.1 (2026), https://www.wada-ama.org/en/resources/world-anti-doping-code-and-international-standards/world-anti-doping-code.

© 2026. International Journal of Law Management & Humanities [ISSN 2581-5369]

relevant question is whether a substance or method is prohibited under the applicable rules and whether conduct meets the elements of an anti-doping rule violation. The Code identifies multiple categories of violation, including presence of a prohibited substance or its markers in a sample, use or attempted use, evasion or refusal of sample collection, whereabouts failures, tampering, possession, trafficking, administration, complicity, prohibited association, and actions intended to discourage or retaliate against reporting.[8] These categories demonstrate why a laboratory result is important but not the only means by which a violation may be established.

The Prohibited List is not a permanent catalogue. It is updated annually and separates all-time prohibitions from in-competition and sport-specific prohibitions. The 2026 List includes categories such as anabolic agents, peptide hormones and related substances, beta-2 agonists, hormone and metabolic modulators, diuretics and masking agents, prohibited methods, stimulants, narcotics, cannabinoids, glucocorticoids, and beta-blockers in particular sports.[9] The exact status of a medicine may depend on the substance, route of administration, timing, sport, and applicable rules. Therapeutic Use Exemptions (TUEs) exist to permit medically justified treatment when the relevant criteria are met; they are not a general exemption from checking the rules.

This regulatory approach also requires precision in discussing intent. Some rule violations can be established without proving that an athlete intended to cheat; questions of intent, fault, contamination, and cooperation may instead affect results management or consequences under the applicable rules.[10] A responsible account should therefore avoid language that labels every violation as deliberate misconduct or assumes that every adverse analytical finding reveals the same underlying behaviour. At the same time, inadvertent exposure should not be presumed whenever a prohibited substance is detected. Each case requires evidence-based assessment under the applicable procedures.

IV. HISTORICAL DEVELOPMENT AND THE CHANGING ANTI-DOPING RESPONSE

The history of doping reflects a continuing interaction between attempts to enhance performance and efforts to regulate the means used. Earlier practices involved stimulants and other substances used to delay fatigue or suppress pain; later developments included anabolic-androgenic steroids, hormone-based agents, blood manipulation, and designer substances. Historical analysis of the state-directed doping system in the former German Democratic Republic documents how drug use could become embedded in organized sport and medical

[8] WORLD ANTI-DOPING CODE 2021, *supra* note 1, arts. 2.1-2.11.
[9] 2026 PROHIBITED LIST, *supra* note 2.
[10] WORLD ANTI-DOPING CODE 2021, *supra* note 1, arts. 2.1.1, 10.2, 10.5, 10.6, 10.7.

© 2026. International Journal of Law Management & Humanities [ISSN 2581-5369]

structures rather than remaining an isolated athlete decision.[11] Such cases caution against explaining doping only as an individual moral failure.

The identification of tetrahydrogestrinone (THG) illustrates the challenge posed by substances developed or used in ways that were difficult for existing testing methods to detect. Catlin and colleagues described the identification, synthesis, and analytical detection of THG, demonstrating both the capacity of sophisticated drug design to challenge controls and the role of scientific investigation in closing detection gaps.[12] Historical accounts of Olympic doping have also described the medical risks associated with performance-enhancing substances, although individual episodes should not be used as proof of the prevalence or effects of doping across all sports.[13]

The adoption of a common Code created a framework for more harmonized rules, standards, testing, investigations, education, and results management across sports and jurisdictions.[14] Harmonization is valuable because athletes may compete internationally under overlapping authorities. However, a common text does not guarantee uniform practice: resources, education, testing capacity, investigation expertise, medical access, and institutional incentives can differ across countries and sports. The policy challenge is thus both to maintain common standards and to ensure that implementation is sufficiently independent, transparent, and responsive to local risks.

V. Health Consequences: Avoid Treating All Substances Alike

Health risks provide a major rationale for preventing the misuse of performance-enhancing drugs, but they must be described with substance-specific and population-specific care. An Endocrine Society scientific statement links performance-enhancing drug use to a range of cardiovascular, endocrine, psychiatric, metabolic, hepatic, renal, neurological, infectious, and musculoskeletal harms. It also emphasizes that much of the documented use occurs among non-athlete weightlifters and that users may take supraphysiological doses, combine several agents,

[11] Werner W. Franke & Brigitte Berendonk, *Hormonal Doping and Androgenization of Athletes: A Secret Program of the German Democratic Republic Government*, 43 Clinical Chemistry 1262 (1997), https://doi.org/10.1093/clinchem/43.7.1262.

[12] Don H. Catlin, Michael H. Sekera, Brian D. Ahrens, Borislav Starcevic, Yu-Chen Chang & Caroline K. Hatton, *Tetrahydrogestrinone: Discovery, Synthesis, and Detection in Urine*, 18 Rapid Communications in Mass Spectrometry 1245 (2004), https://doi.org/10.1002/rcm.1495.

[13] H.M. Prendergast, T. Bannen, T.B. Erickson & K.R. Honore, *The Toxic Torch of the Modern Olympic Games*, 45 Veterinary and Human Toxicology 97 (2003).

[14] World Anti-Doping Code 2021, *supra* note 1 (Purpose, Scope and Organization of the World Anti-Doping Program and the Code).

© 2026. International Journal of Law Management & Humanities [ISSN 2581-5369]

or use them alongside other drugs.[15] These findings are important for public health, but they cannot be transferred uncritically to every elite athlete or every prohibited substance.

Anabolic-androgenic steroids are associated with endocrine effects, including suppression of endogenous hormonal function and potential reproductive consequences. Cardiovascular and metabolic concerns have also been reported, while psychiatric effects may include changes in mood or behaviour in some users. The magnitude and reversibility of such outcomes vary; dose, duration, route, co-use, age, pre-existing conditions, and the reliability of the product all matter.[16] Claims that all steroid users will experience a specific outcome, or that every outcome is irreversible, would overstate the evidence.

Other classes raise different concerns.[17] Erythropoiesis-stimulating agents and blood manipulation can alter red-cell mass and blood viscosity, creating potential circulatory risk;[18] stimulants can affect cardiovascular and neurological function; diuretics may cause fluid and electrolyte disturbances; and some prohibited methods carry risks related to invasive procedures or unsafe handling of blood. A general list of harms is useful for awareness but should not imply that each harm is equally established for every agent. The evidence base differs from substance to substance, and established effects must be distinguished from plausible risks or effects observed mainly in non-sport populations.[19]

Therapeutic use introduces another essential distinction. An athlete may have a genuine medical need for a substance that is prohibited in sport, and untreated illness is not an acceptable prevention strategy. Athlete health and rule compliance should be reconciled through qualified clinical care, medication checks, and the TUE process where applicable.[20,21] Anti-doping education should not replace a clinician's assessment, and clinicians should not assume that a routinely prescribed medicine is automatically permitted for every sport or period of competition.

VI. PSYCHOSOCIAL AND CONTEXTUAL DRIVERS OF DOPING

Doping decisions are influenced by a combination of individual beliefs and the sporting environment. A review of elite athletes' attitudes, beliefs, and knowledge found that performance expectations, financial gain, recovery, perceptions of competitors' behaviour, and

[15] Pope et al., *supra* note 4.
[16] *Id.*
[17] 2026 PROHIBITED LIST, *supra* note 2, classes S2, S5, S6, M1, M2.
[18] Pope et al., *supra* note 4.
[19] *Id.*
[20] WORLD ANTI-DOPING CODE 2021, *supra* note 1, art. 4.4.
[21] 2026 PROHIBITED LIST, *supra* note 2.

coaches' influence were recurring themes. The reviewed studies also showed that athletes could acknowledge that doping was unfair or risky while still believing that prohibited substances could improve performance.[22] This tension matters: knowledge of rules does not necessarily translate into a commitment to comply when competitive incentives are strong.

Psychological models describe doping vulnerability as a process shaped by goals, perceived opportunities, commitment to performance enhancement, and situational pressures rather than a single stable personality trait.[23] Fear of deselection, injury-related urgency, uncertainty about competitors, sponsorship or prize incentives, and the belief that "everyone else is doing it" may increase the perceived cost of remaining clean. These factors should be treated as plausible risk mechanisms, not as proof that athletes facing pressure will dope. Behaviour is heterogeneous, and protective factors, including ethical commitment, supportive coaching, trust in medical advice, and a credible expectation of fair enforcement, can influence decisions in the opposite direction.

Coaches and athlete-support personnel can either reinforce or challenge risky norms. They often occupy trusted positions and may be influential sources of information about training, recovery, nutrition, and medicines. Research examining medical practitioners' knowledge and beliefs likewise highlights the importance of the wider support system in anti-doping practice.[24] The implication is not that coaches or health professionals are inherently sources of risk, but that organizations should define responsibilities clearly, provide accessible education, and avoid creating incentives that reward results while ignoring athlete welfare.

The strength of the evidence requires caution. Attitude surveys commonly rely on self-report, which may be affected by social desirability, recall, or reluctance to disclose prohibited behaviour. Attitudes are not equivalent to observed doping, and studies in elite athletes may not represent youth, recreational athletes, or sport-specific subcultures. Prevention programmes should therefore measure more than knowledge scores or stated intentions: they should assess decision-making skills, confidence in checking medicines and supplements, ability to resist pressure, use of advice channels, and behavioural or organizational outcomes where these can be measured ethically.

---

[22] Morente-Sánchez & Zabala, *supra* note 3.

[23] Andrea Petróczi & Eugene Aidman, *Psychological Drivers in Doping: The Life-Cycle Model of Performance Enhancement*, 3 SUBSTANCE ABUSE TREATMENT, PREVENTION, AND POLICY art. 7 (2008), https://doi.org/10.1186/1747-597X-3-7.

[24] Susan H. Backhouse & Jim McKenna, *Doping in Sport: A Review of Medical Practitioners' Knowledge, Attitudes and Beliefs*, 22 INTERNATIONAL JOURNAL OF DRUG POLICY 198 (2011), https://doi.org/10.1016/j.drugpo.2011.03.002.

© 2026. International Journal of Law Management & Humanities [ISSN 2581-5369]

VII. Detection, Investigation, and Fair Enforcement

Anti-doping programmes combine analytical testing with intelligence, investigations, longitudinal monitoring, and results management. The Code provides for in-competition and out-of-competition testing, sample analysis, investigation, and procedural steps for managing potential violations.[25] The Athlete Biological Passport (ABP) complements direct detection by examining changes in selected biological variables over time rather than relying only on finding a particular substance in a single sample.[26] Such longitudinal approaches can support investigations, but they depend on qualified interpretation, standardized processes, and appropriate safeguards for athletes' data.

Testing is necessary but cannot be expected to detect every prohibited practice. The timing of sample collection, the substances or methods used, analytical capabilities, and the resources available to testing organizations all shape what can be detected. A finding rate is not the same as prevalence: it reflects the testing programme, sample selection, assay coverage, and reporting procedures as well as underlying behaviour. Low rates of adverse analytical findings therefore do not by themselves prove that doping is rare, and higher rates do not automatically demonstrate that a sport has the highest true prevalence. An analysis of World Anti-Doping Agency testing figures from 2003 to 2015 found that adverse and atypical finding proportions varied across sports.[27] Such data describe findings among tested samples, however, and should not be treated as direct estimates of underlying doping prevalence.

Fair enforcement matters to the legitimacy of the system. Athletes need clear notice of the rules, reliable sample-handling procedures, access to relevant results information, a meaningful opportunity to respond, and consistent application of sanctions. The Code contains detailed provisions on proof, results management, hearings, consequences, and appeals.[28] Anti-doping policy should not treat due process as an obstacle to clean sport; it is part of the credibility of enforcement. Similarly, data collection and intelligence reporting require privacy protections, proportionality, and safeguards against retaliation.

---

[25] World Anti-Doping Code 2021, *supra* note 1, arts. 5, 6, 7, 8.

[26] World Anti-Doping Code 2021, *supra* note 1, art. 2.2 cmt., art. 3.2 cmt., app. 1 (definition of Athlete Biological Passport).

[27] Millán Aguilar-Navarro, Jesús Muñoz-Guerra, María del Mar Plara & Juan Del Coso, *Analysis of Doping Control Test Results in Individual and Team Sports from 2003 to 2015*, 9 Journal of Sport and Health Science 160 (2020), https://doi.org/10.1016/j.jshs.2019.07.005.

[28] World Anti-Doping Code 2021, *supra* note 1, arts. 3, 7, 8, 10, 13.

© 2026. International Journal of Law Management & Humanities [ISSN 2581-5369]

VIII. Prevention beyond punishment

A sustainable prevention strategy needs multiple components. Education should be continuous, role-specific, values-based, and evaluated for its effect rather than delivered only as a one-time rules lecture. WADA's International Standard for Education places education within the anti-doping framework and provides a basis for planning programmes for athletes and support personnel.[29] Educational content should include current rule awareness, medication checks, TUE pathways, supplement risk, testing rights and responsibilities, and practical ways to respond to pressure. The aim is not simply to transmit a list of prohibited substances but to strengthen athletes' capacity to make safe, informed decisions. An evaluation of prevention initiatives across 53 national anti-doping organizations found that knowledge-focused approaches were generally better implemented than affective, social-skills, life-skills, and values-based elements; resource limitations and difficulties collaborating with sports organizations were common barriers.[30]

Medical support should be accessible and independent enough to prioritize athlete welfare. Teams and institutions should establish reliable routes for checking medicines against the current Prohibited List and obtaining qualified advice before use. Supplement-related risks also require a careful message: product labels and marketing claims are not a guarantee of composition, and a contaminated or inaccurately labelled product can create a compliance problem. Risk-reduction advice should encourage athletes to question whether a supplement is necessary, review evidence for its benefit, and seek qualified advice rather than promising that any certification scheme removes all risk.

Organizations should also address incentives and climates that may normalize prohibited enhancement. Coaches, administrators, medical staff, families, and athlete representatives can set expectations that performance does not override health or fair play. Confidential reporting channels and protection against retaliation can help bring forward information that laboratory testing alone may not reveal. Where violations occur, responses should distinguish the facts and degree of fault in each case and should include proportionate consequences consistent with the rules. Prevention and enforcement are complementary: education without credible controls can lose legitimacy, while testing without support may leave drivers of behaviour unchanged.

---

[29] World Anti-Doping Agency, International Standard for Education (2021), https://www.wada-ama.org/sites/default/files/resources/files/ise_2021_october2019.pdf (last visited Oct. 27, 2026).

[30] Katharina Gatterer, Matthias Gumpenberger, Marie Overbye, Bernhard Streicher, Wolfgang Schobersberger & Cornelia Blank, *An Evaluation of Prevention Initiatives by 53 National Anti-Doping Organizations: Achievements and Limitations*, 9 Journal of Sport and Health Science 228 (2020), https://doi.org/10.1016/j.jshs.2019.12.002.

Table 1 summarizes a practical prevention framework. It is intended as a planning aid, not as evidence that each component has the same effect in every setting. Programmes should establish a baseline, define outcomes in advance, and evaluate delivery, participant learning, decision-making, and unintended effects.

Component	Practical action	Example evaluation question
Education	Provide recurring, role-specific education on current rules, medicines, TUEs, supplement risk, ethics, and resisting pressure.	Can athletes correctly find current information and explain what they would do in a realistic scenario?
Medical support	Enable timely access to qualified clinicians and medication-checking advice; clarify responsibility for TUE applications.	Do athletes know whom to contact before taking a medicine, and can they access that support in time?
Supplement risk	Encourage evidence-based decisions about need, benefit, contamination risk, and product traceability.	Do athletes assess necessity and risk instead of relying only on marketing or team custom?
Sport culture	Align selection, coaching, and reward systems with health, integrity, and fair play, not results at any cost.	Do athletes report pressure to use prohibited methods, and do they feel able to refuse?
Testing and investigation	Use risk-informed testing, competent analysis, intelligence, and longitudinal monitoring with appropriate safeguards.	Are the programme's coverage, rationale, and outcomes reviewed against identified risks?
Fair process and reporting	Provide clear procedures, meaningful opportunities to respond, confidential reporting, and protection from retaliation.	Do athletes understand their rights and trust the procedures for raising concerns?

Table 1: Components of a prevention-oriented anti-doping programme

Note. This table is a practice-oriented synthesis of the review and is not a claim that any single component is sufficient on its own.

IX. Regulatory Implementation and the Indian Context

International rules are implemented through national and sport-specific systems. In India, the National Anti-Doping Act, 2022 provides a statutory framework concerning the National Anti-Doping Agency and the regulation of anti-doping activities. Section 14 constitutes the Agency as a body corporate, and sections 11 and 12 provide for the National Anti-Doping Disciplinary Panel and the National Anti-Doping Appeal Panel.[31] NADA India lists the National Anti-Doping Rules, 2021, and published a notice confirming amendments to those Rules effective 12 April

[31] The National Anti-Doping Act, 2022, No. 15, Acts of Parliament, 2022, §§ 11, 12, 14 (India), https://prsindia.org/files/bills_acts/acts_parliament/2022/The%20National%20Anti%20Doping%20Act%202022.pdf, *as amended by* The National Anti-Doping (Amendment) Act, 2025, No. 26, Acts of Parliament, 2025 (India), https://egazette.gov.in/WriteReadData/2025/265481.pdf.

© 2026. International Journal of Law Management & Humanities [ISSN 2581-5369]

2024.[32] The international Code, the annual Prohibited List, national legislation, and the operative national rules are therefore distinct instruments and cannot be treated interchangeably.

For athletes and support personnel, the practical consequence is straightforward: consult the most current official sources for the sport and jurisdiction concerned. Educational material prepared from an earlier list can become inaccurate when the list changes; a summary of international principles cannot replace the detailed national rules governing testing, results management, or appeals. The 2026 Prohibited List is already in force, but future readers should verify the list and related standards again at the time of use.[33,34]

Implementation also involves institutional capacity. Testing, education, investigation, and fair adjudication require staff, budgets, credible laboratory pathways, communication with sport organizations, and access to medical advice. National-level systems may differ in their ability to deliver these elements, and a formally adopted rule does not itself establish that education is accessible or that enforcement is applied consistently. Evaluation should therefore report both formal policy and actual delivery. Where possible, organizations should publish transparent programme information while protecting the confidentiality and privacy of individual athletes.

X. Implications for Policy and Future Research

First, research should distinguish between prevalence, attitudes, adverse analytical findings, and adjudicated violations. These indicators answer different questions and should not be treated as interchangeable. Multi-method research that combines carefully designed surveys, qualitative work, testing-programme data, and policy evaluation may provide a more complete picture, although ethical and privacy constraints must be respected.

Second, the long-term health evidence remains uneven across substances and athlete populations. Future studies should specify the agent, dose or exposure pattern, duration, co-use, age, sex-related variables where relevant, and health outcomes measured. Where evidence comes primarily from non-athlete populations or high-dose use, limitations in generalizability should be explicit. Researchers should also distinguish adverse effects associated with a substance from outcomes that may be influenced by training load, other drugs, underlying health conditions, or other confounders.

[32] National Anti-Doping Agency, India, *Notice: Amendments to the National Anti-Doping Rules, 2021* (Apr. 12, 2024), https://nadaindia.yas.gov.in/api/media/serve/Amendment-to-NADA-Rules-2021.pdf (last visited Nov. 7, 2026).
[33] 2026 Prohibited List, *supra* note 2.
[34] National Anti-Doping Agency, India, *supra* note 32.

© 2026. International Journal of Law Management & Humanities [ISSN 2581-5369]

Third, prevention should be evaluated against meaningful outcomes. A programme can improve knowledge without necessarily changing behaviour or organizational practice. Evaluations should examine whether athletes actually check medications, know how to seek a TUE, can recognize supplement risks, feel able to refuse pressure, and trust reporting and medical-support systems. Studies should report implementation barriers, costs, reach, and sustained effects, not only immediate post-training satisfaction.

Finally, emerging methods and designer substances require continued investment in analytical science, data interpretation, and international cooperation. Historical examples such as THG demonstrate how new substances can challenge existing tests, while the ABP illustrates the value of longitudinal evidence.[35] Scientific sophistication should be matched by transparent procedures and proportionate governance so that improved detection does not come at the expense of procedural fairness or justified medical care.

XI. LIMITATIONS

This review has important limitations. It is narrative and purposive, not systematic; it does not quantify the prevalence of doping, compare intervention effects, or provide a formal risk-of-bias assessment. The included evidence spans different periods, sports, populations, and methods, and results may not transfer directly across them. The health literature includes evidence from non-athlete users as well as sporting populations, and the psychological literature often relies on self-report. Policy documents describe formal requirements but do not independently establish how consistently those requirements are implemented. In addition, anti-doping rules and technical standards change, so readers must consult the current official documents before applying any practical recommendation.

XII. CONCLUSION

Doping in sport is best understood as an interconnected health, behavioural, scientific, ethical, and regulatory challenge. The contemporary anti-doping framework appropriately extends beyond positive tests to a wider range of prohibited conduct, while the annual Prohibited List requires athletes and support personnel to maintain current knowledge. Evidence on health consequences supports prevention but also demands substance-specific language and caution when findings from different populations are compared. Research on athlete beliefs shows why knowledge alone is insufficient: perceived benefits, social norms, career pressures, and support-personnel influence can shape decisions, even when athletes recognize the risks.

[35] Catlin et al., *supra* note 12.

© 2026. International Journal of Law Management & Humanities [ISSN 2581-5369]

The strongest response is not a choice between education and enforcement. It combines scientifically credible testing and investigation with accessible medical advice, values-based education, supplement-risk management, fair procedures, protected reporting, and evaluation of real-world outcomes. Anti-doping policy will be more credible when it protects athlete health and due process while addressing the institutional conditions that can make prohibited enhancement seem attractive.

*****

© 2026. International Journal of Law Management & Humanities [ISSN 2581-5369]