

Doping- Veterinary Perspective

Refer lecturer for course updated notes.

Students are obliged to follow the courses for evaluation process and presented notes are preliminary drafts for the whole evaluation process.

- Animal doping is an act of employing drug(s) in animals to deceive public about the health and/or performance of an animal in any competitive show, trade (sale) or activity.
- The drug used for doping is called dope while the treated animal is said to be doped.
- The term 'dope' has probably originated from a Dutch word 'dop', the name of an alcoholic beverage made of grape skins used by Zulu warriors in order to enhance their prowess in battle or as a stimulant drink used in ceremonial dances in Southern Africa.
- [file:///C:/Users/Begum/Downloads/Animal Doping An Overview.pdf](file:///C:/Users/Begum/Downloads/Animal%20Doping%20An%20Overview.pdf)

- Horses may be “doped” to improve athletic performance or to hide soundness or temperament problems.
- The first laws regarding equine doping were put in place in England in 1666, though the practice certainly predates the law.
- Illicit use of anabolic steroids was reported in 1941 and involved testosterone use, drugging with such compounds as stonozolol and androstenedione, as well as numerous new “designer” anabolic steroids.

- In racing animals; high physical capacity and competition instinct or desire is a necessity;
- Increase of speed/power or both (horse, dog, camel, pidgeon etc)
- these characteristics are normally acquired through breeding and developed training programs.
- These properties may also be increased through some stimulants, anabolics, opioids (horses) that increase work and performance. substances (ergogenic substances)

- Increase performance of training through delaying and eliminating fatigue,
- increase in endurance, anxiety and excitement that affect performance negatively
- soothe or prevent animal movements such as muscle-joint-tendo damage-pain and race speed
- suppression of limiting conditions, more harmonious functioning of the locomotor system (musculoskeletal system)
- Inhibit other drugs

- Intentionally used compounds; against
- Race Ethics
- Race Rules
- Prevent the race to be held in equal terms

- The following substances are prohibited substances for the purpose of a horse racing on a Race day or a trial to which the Third Appendix applies:

1.1 Substances capable at any time of causing either directly or indirectly an action or effect, or both an action or effect within one or more of the following mammalian body systems:

- 1.1.1 the blood system;
- 1.1.2 the cardiovascular system;
- 1.1.3 the digestive system;
- 1.1.4 the endocrine system;
- 1.1.5 the immune system;
- 1.1.6 the musculoskeletal system;
- 1.1.7 the nervous system;
- 1.1.8 the respiratory system;
- 1.1.9 the reproductive system;
- 1.1.10 the urinary system.

1.2 Substances falling within the following categories of substances:

- 1.2.1 acidifying agents;
- 1.2.2 adrenergic blocking agents;
- 1.2.3 adrenergic stimulants;
- 1.2.4 agents affecting calcium and bone metabolism;
- 1.2.5 alcohols;
- 1.2.6 alkalinising agents;
- 1.2.7 anabolic agents other than as defined in paragraph 8 of Part B below;
- 1.2.8 anaesthetic agents;
- 1.2.9 analgesics;
- 1.2.10 antiangina agents;
- 1.2.11 antianxiety agents;
- 1.2.12 antiarrhythmic agents;
- 1.2.13 anticholinergic agents;
- 1.2.14 anticoagulants;
- 1.2.15 anticonvulsants;
- 1.2.16 antidepressants;
- 1.2.17 antiemetics;
- 1.2.18 antifibrinolytic agents;
- 1.2.19 antihistamines;
- 1.2.20 antihypertensive agents;
- 1.2.21 anti-inflammatory agents;
- 1.2.22 antinauseants;
- 1.2.23 antineoplastic agents;
- 1.2.24 antipsychotic agents;
- 1.2.25 antipyretics;
- 1.2.26 antirheumatoid agents;

- 1.2.27 antispasmodic agents;
 - 1.2.28 antithrombotic agents;
 - 1.2.29 antitussive agents;
 - 1.2.30 blood coagulants;
 - 1.2.31 bronchodilators;
 - 1.2.32 bronchospasm relaxants;
 - 1.2.33 buffering agents;
 - 1.2.34 central nervous system stimulants;
 - 1.2.35 cholinergic agents;
 - 1.2.36 cobalt
 - 1.2.37 corticosteroids;
 - 1.2.38 cytotoxic agents;
 - 1.2.39 depressants;
 - 1.2.40 diuretics;
 - 1.2.41 endocrine secretions and their synthetic counterparts;
 - 1.2.42 erectile dysfunction agents;
 - 1.2.43 fibrinolytic agents;
 - 1.2.44 haematopoietic agents;
 - 1.2.45 haemostatic agents;
 - 1.2.46 hormones (including trophic hormones) and their synthetic counterparts;
 - 1.2.47 hypnotics;
 - 1.2.48 hypoglycaemic agents;
 - 1.2.49 hypolipidaemic agents;
 - 1.2.50 immunomodifiers;
 - 1.2.51 masking agents;
 - 1.2.52 muscle relaxants;
 - 1.2.53 narcotic analgesics;
 - 1.2.54 neuromuscular agents;
 - 1.2.55 oxygen carriers;
 - 1.2.56 plasma volume expanders;
 - 1.2.57 respiratory stimulants;
 - 1.2.58 sedatives;
 - 1.2.59 stimulants;
 - 1.2.60 sympathomimetic amines;
 - 1.2.61 tranquillisers;
 - 1.2.62 vasodilators;
 - 1.2.63 vasopressor agents.
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The following substances and their metabolites and artefacts are excluded from paragraphs 1.1 to 1.3:

- 2.1 antimicrobials (antibiotics) and other anti-infective agents with the exception of procaine penicillin;
- 2.2 antiparasitics that are ACVM registered for use in horses;
- 2.3 altrenogest when administered to mares and fillies;
- 2.4 ambroxol;
- 2.5 bromhexine;
- 2.6 chondroitin sulphate;

- 2.7 demborexine;
- 2.8 glucosamine;
- 2.9 hyaluronic acid;
- 2.10 licensed vaccines against infectious agents that are ACVM registered for use in horses;
- 2.11 omeprazole;
- 2.12 polysulphated glycosaminoglycan;
- 2.13 pentosan polysulphate;
- 2.14 ranitidine.

Banned compounds in Turkey

10. Aşağıdakiler Yasaklı Maddelerdir:

- Herhangi bir zamanda, memelilerde, aşağıdaki vücut sistemlerinden biri veya daha fazlasına etki etmeye muktedir olan maddeler:
 - sinir sistemi
 - kardiyovasküler sistem
 - solunum sistemi
 - sindirim sistemi
 - üriner sistem
 - üreme sistemi
 - muskuloskeletal sistem
 - kan sistemi
 - bulaşıcı maddelere karşı lisanslı aşılardan hariç olmak üzere, bağışıklık sistemi
 - endokrin sistemi
- Endokrin salgılar ve bunların sentetik karşılıkları
- Maskeleyen maddeleri.

11. Yasaklı bir maddeye yönelik bulgu, maddenin kendisinin, ya da maddeye ait bir metabolitin, ya da maddeye ait bir izomerin ya da metabolite ait bir izomerin tespit edilmesi anlamındadır. Yasaklı maddenin verildiğine ya da sair şekilde uygulandığına yönelik herhangi bir bilimsel göstergenin tespit edilmesi de, maddenin bulunmasına eşdeğerdir.

Madde 6. – YASAKLI MADDELER

Amaç

1. Amaç, işbu Uluslararası Anlaşmanın “Giriş” kısmında ilave avantajları ayrıntılı olarak verildiği üzere, atın kendine özgü liyakatinin hilafına, atın menfi ya da müspet performans göstermesine yol açmaya muktedir maddelerin kullanımı vasıtasıyla, at yarışlarının dürüstlüğünü muhafaza etmektir.

e ve veteriner danışmanlarına yardımcı olmak amacı ile, Yarış Makamları da, kendi kurallarına Yasaklı örnekler dahil edebilir.

n mahkemelerine yönlendirme sağlamak amacı ile, Yarış Makamları, Yasaklı Maddelere dair bir sınıflandırma :

14. Eşikler sadece aşağıdaki maddeler için belirlenebilir:

- at için endojen olan maddeler
- geleneksel olarak at yemi olarak kullanılan ya da üretilen bitkilerden kaynaklanan maddeler
- at yemlerindeki, yetiştirme, işlem ya da muamele, depolama ya da nakliye sürecinde kirlenmeden kaynaklanan maddeler.

15. Eşikler, imza eden ülkelerin resmi analistleri ve veterinerleri ile görüşüldükten sonra ve Federasyon tarafından onaylanmasını müteakip, Federasyonun Yasaklı Maddeler Danışmanlar Konseyi tarafından tavsiye edilecektir.

16. Aşağıdaki eşik değerlerin altındaki yasaklı maddeler ile ilgili olarak herhangi bir işlem yapılmayacaktır:

Eşik ismi	Eşik
Arsenik	• İdrarda mililitre başına toplam 0.3 mikrogram arsenik
Boldenon	• (İğdişler hariç olmak üzere) erkek atlarda, idrarda mililitre başına, 0.015 mikrogram serbest ve konjüğe boldenon
Karbon dioksit	• Plazmada litre başına 36 milimol karbon dioksit
Dimetil sülfoksit	• idrarda mililitre başına 15 mikrogram dimetil sülfoksit veya
	• Plazmada mililitre başına 1 mikrogram dimetil sülfoksit

Non approved substances

- Any pharmacological substance which is not addressed by any of the subsequent sections of the List and with no current approval by any governmental regulatory health authority for human therapeutic use (e.g. drugs under pre-clinical or clinical development or discontinued, designer drugs, substances approved only for veterinary use) is prohibited at all times.

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4. The following prohibited substances, including other substances with a similar chemical structure or similar biological effect(s), are not to be administered to racehorses at any time in their career:-

4.1 Non-approved substances

Any substance not addressed by any of the subsequent classes of substances, and which has no current approval by any government regulatory authority for veterinary use, or any substance not universally recognised by veterinary regulatory authorities as valid veterinary therapeutic treatment.

4.2 Anabolic agents

- (a) anabolic androgenic steroids,
- (b) other anabolic agents, including but not limited to selective androgen receptor modulators (SARMs),
- (c) beta-2 agonists, unless the substance is prescribed by a veterinarian as a bronchodilator at the appropriate dose,

4.3 Peptide hormones, growth factors and related substances

- (a) erythropoiesis-stimulating agents, including but not limited to erythropoietin (EPO), epoetin alfa, epoetin beta, darbepoetin alfa, and methoxy polyethylene glycol-epoetin beta, peginesatide, hypoxia inducible factor (HIF) stabilisers and HIF activators.
- (b) growth hormones and growth hormone releasing factors, insulin-like growth factor-1 (IGF-1), and other growth factors,
- (c) synthetic proteins and peptides and synthetic analogues of endogenous proteins and peptides not registered for medical or veterinary use,

4.4 Hormones and metabolic modulators

- (a) aromatase inhibitors,
- (b) selective estrogen receptor modulators (SERMS) and other anti-estrogenic substances,
- (c) agents modifying myostatin function, including but not limited to myostatin inhibitors,
- (d) insulins
- (e) peroxisome proliferator activated receptor δ (PPAR δ) agonists, including but not limited to GW 1516,
- (f) AMPK activators, including but not limited to AICAR (5-aminoimidazole-4-carboxamide-1- β -D-ribofuranoside).

1. ANABOLIC ANDROGENIC STEROIDS (AAS) a. Exogenous*

- 1-Androstenediol (5 α -androst-1-ene-3 β ,17 β -diol);
- 1-Androstenedione (5 α -androst-1-ene-3,17-dione);
- 1-Androsterone (3 α -hydroxy-5 α -androst-1-ene-17-one);
- 1-Testosterone (17 β -hydroxy-5 α -androst-1-en-3-one);
- Bolasterone;
- Calusterone;
- Clostebol;
- Danazol ([1,2]oxazolo[4',5':2,3]pregna-4-en-20-yn-17 α -ol);
- Dehydrochlormethyltestosterone (4-chloro-17 β -hydroxy-17 α -methylandrosta-1,4-dien-3-one);
- Desoxymethyltestosterone (17 α -methyl-5 α -androst-2-en-17 β -ol and 17 α -methyl-5 α -androst-3-en-17 β -ol);
- Drostanolone;
- Ethylestrenol (19-norpregna-4-en-17 α -ol);
- Fluoxymesterone;
- Formebolone;
- Furazabol (17 α -methyl [1,2,5]oxadiazolo[3',4':2,3]-5 α androstan-17 β -ol);
- Gestrinone

- Mestanolone;
- Mesterolone;
- Metandienone (17 β -hydroxy-17 α -methylandrosta-1,4-dien-3-one);
- Metenolone;
- Methandriol;
- Methasterone (17 β -hydroxy-2 α ,17 α -dimethyl-5 α -androstan-3-one);
- Methyl-dienolone (17 β -hydroxy-17 α -methyl-estra-4,9-dien-3-one);
- Methyl-1-testosterone (17 β -hydroxy-17 α -methyl-5 α -androst-1-en-3-one);
- Methyl-nortestosterone (17 β -hydroxy-17 α -methyl-estr-4-en-3-one);
- Methyltestosterone;
- Metribolone (methyltrienolone, 17 β -hydroxy-17 α -methyl-estra-4,9,11-trien-3-one);
- Mibolerone;
- Norboletone;
- Norclostebol;
- Norethandrolone;
- Oxabolone;
- Oxandrolone;
- Oxymesterone;
- Oxymetholone;
- Prostanazol (17 β -[(tetrahydropyran-2-yl)oxy]-1 $'$ H-pyrazolo[3,4:2,3]-5 α -androstane);
- Quinbolone;
- Stanozolol;
- Stenbolone;
- Tetrahydrogestrinone (17-hydroxy-18 α -homo-19-nor-17 α -pregna-4,9,11-trien-3-one);
- Trenbolone (17 β -hydroxy-estr-4,9,11-trien-3-one);
- and other substances with a similar chemical structure
- or similar biological effect(s).

b. Endogenous** AAS and their Metabolites and isomers, when administered exogenously, including but not limited to:

- 4-Androstenediol (androst-4-ene-3 β ,17 β -diol);
- 4-Hydroxytestosterone (4,17 β -dihydroxyandrost-4-en-3-one);
- 5-Androstenedione (androst-5-ene-3,17-dione);
- 7 α -hydroxy-DHEA;
- 7 β -hydroxy-DHEA;
- 7-keto-DHEA;
- 19-Norandrostenediol (estr-4-ene-3,17-diol);
- 19-Norandrostenedione (estr-4-ene-3,17-dione);
- Androstanolone (5 α -dihydrotestosterone, 17 β -hydroxy-5 α androstan-3-one);
- Androstenediol (androst-5-ene-3 β ,17 β -diol);
- Androstenedione (androst-4-ene-3,17-dione);
- Boldenone;
- Boldione (androsta-1,4-diene-3,17-dione);
- Epiandrosterone (3 β -hydroxy-5 α -androstan-17-one);
- Epi-dihydrotestosterone (17 β -hydroxy-5 β -androstan-3-one);
- Epi-testosterone;
- Epitestosterone;
- Nandrolone (19-nortestosterone);
- Prasterone (dehydroepiandrosterone, DHEA, 3 β -hydroxyandrost-5-en-17-one);
- Testosterone.

2. OTHER ANABOLIC AGENTS

- Including, but not limited to: Clenbuterol, selective androgen receptor modulators (SARMs, e.g. andarine, LGD-4033, enobosarm (ostarine) and RAD140), tibolone, zeranol and zilpaterol

PEPTIDE HORMONES, GROWTH FACTORS, RELATED SUBSTANCES, AND MIMETICS

- The following substances, and other substances with similar chemical structure or similar biological effect(s), are prohibited
- 1. Erythropoietins (EPO) and agents affecting erythropoiesis, including, but not limited to:
 - 1.1 Erythropoietin-Receptor Agonists,
 - e.g. Darbepoetins (dEPO);
 - Erythropoietins (EPO);
 - EPO based constructs [e.g. EPO-Fc, methoxy polyethylene glycol-epoetin beta (CERA)];
 - EPO-mimetic agents and their constructs (e.g. CNTO-530, peginesatide).

PEPTIDE HORMONES, GROWTH FACTORS, RELATED SUBSTANCES, AND MIMETICS

Cont'ed

- 1.2 Hypoxia-inducible factor (HIF) activating agents, e.g. Argon; Cobalt; Daprodustat (GSK1278863); Molidustat (BAY 85-3934); Roxadustat (FG-4592); Vadadustat (AKB-6548); Xenon.
- 1.3 GATA inhibitors, e.g. K-11706.
- 1.4 TGF-beta (TGF- β) inhibitors, e.g. Luspatercept; Sotatercept.
- 1.5 Innate repair receptor agonists, e.g. Asialo EPO; Carbamylated EPO (CEPO).

PEPTIDE HORMONES, GROWTH FACTORS, RELATED SUBSTANCES, AND MIMETICS

Cont'ed-2

- 2. Peptide Hormones and their Releasing Factors,
 - 2.1 Chorionic Gonadotrophin (CG) and Luteinizing Hormone (LH) and their releasing factors in males, e.g. Buserelin, deslorelin, gonadorelin, goserelin, leuprorelin, nafarelin and triptorelin;
 - 2.2 Corticotrophins and their releasing factors, e.g. Corticorelin;
 - 2.3 Growth Hormone (GH), its fragments and releasing factors, including, but not limited to:
 - Growth Hormone fragments, e.g. AOD-9604 and hGH 176-191;
 - Growth Hormone Releasing Hormone (GHRH) and its analogues, e.g. CJC-1293, CJC-1295, sermorelin and tesamorelin;
 - Growth Hormone Secretagogues (GHS), e.g. lenomorelin (ghrelin) and its mimetics, e.g. anamorelin, ipamorelin, macimorelin and tabimorelin;
 - GH-Releasing Peptides (GHRPs), e.g. alexamorelin, GHRP-1, GHRP-2 (pralmorelin), GHRP-3, GHRP-4, GHRP-5, GHRP-6, and examorelin (hexarelin).

PEPTIDE HORMONES, GROWTH FACTORS, RELATED SUBSTANCES, AND MIMETICS

Cont'ed-3

- 3. Growth Factors and Growth Factor Modulators, including, but not limited to:
 - Fibroblast Growth Factors (FGFs);
 - Hepatocyte Growth Factor (HGF);
 - Insulin-like Growth Factor-1 (IGF-1) and its analogues;
 - Mechano Growth Factors (MGFs);
 - Platelet-Derived Growth Factor (PDGF);
 - Thymosin- β 4 and its derivatives e.g. TB-500; Vascular-Endothelial Growth Factor (VEGF);

PEPTIDE HORMONES, GROWTH FACTORS, RELATED SUBSTANCES, AND MIMETICS

Cont'ed-4

- and other growth factors or growth factor modulators affecting muscle, tendon or ligament protein synthesis/ degradation, vascularisation, energy utilization, regenerative capacity or fibre type switching

BETA-2 AGONISTS

- All selective and non-selective beta-2 agonists, including all optical isomers, are prohibited. Including, but not limited to:
- Fenoterol;
- Formoterol;
- Higenamine;
- Indacaterol;
- Olodaterol;
- Procaterol;
- Reproterol;
- Salbutamol;
- Salmeterol;
- Terbutaline;
- Tretoquinol (trimetoquinol);
- Tulobuterol;
- Vilanterol.

HORMONE AND METABOLIC MODULATORS

1. Aromatase inhibitors including, but not limited to:

2-Androstenol (5 α -androst-2-en-17-ol);

2-Androstenone (5 α -androst-2-en-17-one);

3-Androstenol (5 α -androst-3-en-17-ol);

3-Androstenone (5 α -androst-3-en-17-one);

4-Androstene-3,6,17 trione (6-oxo);

Aminoglutethimide;

Anastrozole;

Androsta-1,4,6-triene-3,17-dione (androstatrienedione);

Androsta-3,5-diene-7,17-dione (arimistane);

Exemestane;

Formestane;

Letrozole;

Testolactone.

2. Selective estrogen receptor modulators (SERMs) including, but not limited to:

Raloxifene;

Tamoxifen;

Toremifene.

3. Other anti-estrogenic substances including, but not limited to:

Clomifene;

Cyclofenil;

Fulvestrant.

HORMONE AND METABOLIC MODULATORS- Cont'ed

4. Agents preventing activin receptor IIB activation including, but not limited, to:

Activin A-neutralizing antibodies;

Activin receptor IIB competitors such as:

Decoy activin receptors (e.g. ACE-031);

Anti-activin receptor IIB antibodies (e.g. bimagrumab)

Myostatin inhibitors such as:

Agents reducing or ablating myostatin expression;

Myostatin-binding proteins (e.g. follistatin, myostatin propeptide);

Myostatin-neutralizing antibodies (e.g. domagrozumab, landogrozumab, stamulumab).

5. Metabolic modulators:

5.1 Activators of the AMP-activated protein kinase (AMPK), e.g. AICAR, SR9009; and Peroxisome Proliferator Activated Receptor δ (PPAR δ) agonists, e.g. 2-[2-methyl-4-[[4-methyl-2-[4-(trifluoromethyl)phenyl]thiazol-5-yl)methylthio]phenoxy]acetic acid (GW1516, GW501516);

5.2 Insulins and insulin-mimetics;

5.3 Meldonium;

5.4 Trimetazidine.

DIURETICS AND MASKING AGENTS

- The following diuretics and masking agents are prohibited, as are other substances with a similar chemical structure or similar biological effect(s). Including, but not limited to: • Desmopressin; probenecid; plasma expanders, e.g. intravenous administration of albumin, dextran, hydroxyethyl starch and mannitol. • Acetazolamide; amiloride; bumetanide; canrenone; chlortalidone; etacrynic acid; furosemide; indapamide; metolazone; spironolactone; thiazides, e.g. bendroflumethiazide, chlorothiazide and hydrochlorothiazide; triamterene and vaptans, e.g. tolvaptan. Except: • Drospirenone; pamabrom; and ophthalmic use of carbonic anhydrase inhibitors (e.g. dorzolamide, brinzolamide); • Local administration of felypressin in dental anaesthesia.

PROHIBITED METHODS: MANIPULATION OF BLOOD AND BLOOD COMPONENTS

- The following are prohibited: 1. The Administration or reintroduction of any quantity of autologous, allogenic (homologous) or heterologous blood, or red blood cell products of any origin into the circulatory system. 2. Artificially enhancing the uptake, transport or delivery of oxygen. Including, but not limited to: Perfluorochemicals; efaproxiral (RSR13) and modified haemoglobin products, e.g. haemoglobin-based blood substitutes and microencapsulated haemoglobin products, excluding supplemental oxygen by inhalation. 3. Any form of intravascular manipulation of the blood or blood components by physical or chemical means.

PROHIBITED METHODS: CHEMICAL AND PHYSICAL MANIPULATION

- 1. Tampering, or Attempting to Tamper, to alter the integrity and validity of Samples collected during Doping Control. Including, but not limited to: Urine substitution and/or adulteration, e.g. proteases.
- 2. Intravenous infusions and/or injections of more than a total of 100 mL per 12 hour period except for those legitimately received in the course of hospital treatments, surgical procedures or clinical diagnostic investigations.

PROHIBITED METHODS: GENE AND CELL DOPING

- The following, with the potential to enhance sport performance, are prohibited:
 - 1. The use of polymers of nucleic acids or nucleic acid analogues.
 - 2. The use of gene editing agents designed to alter genome sequences and/or the transcriptional, post-transcriptional or epigenetic regulation of gene expression.
 - 3. The use of normal or genetically modified cell

PROHIBITED SUBSTANCES: STIMULANTS

- ***α: Non-Specified Stimulants:***

- Adrafinil;
- Amfepramone;
- Amfetamine;
- Amfetaminil;
- Amiphenazole;
- Benfluorex;
- Benzylpiperazine;
- Bromantan;
- Clobenzorex;
- Cocaine;
- Cropropamide;
- Crotetamide;
- Fencamine;
- Fenetylline;
- Fenfluramine;
- Fenproporex;
- Fonturacetam [4-phenylpiracetam (carphedon)];
- Furfenorex;
- Lisdexamfetamine;
- Mefenorex;
- Mephentermine;
- Mesocarb;
- Metamfetamine(d-);
- p-methylamfetamine;
- Modafinil;
- Norfenfluramine;
- Phendimetrazine;
- Phentermine;
- Prenylamine;
- Prolintane.

PROHIBITED SUBSTANCES: STIMULANTS

- **b: Specified Stimulants.** Including, but not limited to: 3-Methylhexan-2-amine (1,2-dimethylpentylamine); 4-Methylhexan-2-amine (methylhexaneamine); 4-Methylpentan-2-amine (1,3-dimethylbutylamine); 5-Methylhexan-2-amine (1,4-dimethylpentylamine); Benzfetamine; Cathine^{**}; Cathinone and its analogues, e.g. mephedrone, methedrone, and α - pyrrolidinovalerophenone; Dimetamfetamine; Ephedrine^{***}; Epinephrine^{****} (adrenaline); Etamivan; Etilamfetamine; Etilefrine; Famprofazone; Fenbutrazate; Fencamfamin; Heptaminol; Hydroxyamfetamine (parahydroxyamphetamine); Isometheptene; Levmetamfetamine; Meclofenoxate; Methylenedioxyamphetamine; Methylephedrine^{***}; Methylphenidate; Nikethamide; Norfenefrine; Octopamine; Oxilofrine (methylnephrine); Pemoline; Pentetrazol; Phenethylamine and its derivatives; Phenmetrazine; Phenpromethamine; Propylhexedrine; Pseudoephedrine^{*****}; Selegiline; Sibutramine; Strychnine; Tenamfetamine (methylenedioxyamphetamine); Tuaminoheptane;

Narcotics

- The following narcotics are prohibited:
- Buprenorphine;
- Dextromoramide;
- Diamorphine (heroin);
- Fentanyl and its derivatives;
- Hydromorphone;
- Methadone;
- Morphine;
- Nicomorphine;
- Oxycodone;
- Oxymorphone;
- Pentazocine;
- Pethidine

CANNABINOIDS

- The following cannabinoids are prohibited: •
- Natural cannabinoids, e.g. cannabis, hashish and marijuana, •
Synthetic cannabinoids e.g. Δ 9-tetrahydrocannabinol (THC) and other
cannabimimetics. Except: • Cannabidiol.

GLUCOCORTICOIDS

- All glucocorticoids are prohibited when administered by oral, intravenous, intramuscular or rectal routes. Including but not limited to: Betamethasone; Budesonide; Cortisone; Deflazacort; Dexamethasone; Fluticasone; Hydrocortisone; Methylprednisolone; Prednisolone; Prednisone; Triamcinolone.

<i>Threshold name</i>	<i>Threshold</i>
Arsenic	<ul style="list-style-type: none"> 0.3 microgram total arsenic per millilitre in urine
Boldenone	<ul style="list-style-type: none"> 0.015 microgram free and conjugated boldenone per millilitre in urine from male horses (other than geldings)
Carbon dioxide	<ul style="list-style-type: none"> 36 millimoles available carbon dioxide per litre in plasma
Cobalt*	<ul style="list-style-type: none"> 0.1 microgram total cobalt per millilitre in urine 0.025 microgram total cobalt (free and protein bound) per millilitre in plasma <p>*Racing Authorities should provide an advisory regarding the use of cobalt containing supplements</p>
Dimethyl sulphoxide	<ul style="list-style-type: none"> 15 micrograms dimethyl sulphoxide per millilitre in urine, or 1 microgram dimethyl sulphoxide per millilitre in plasma
Estranediol in male horses (other than geldings)	<ul style="list-style-type: none"> 0.045 microgram free and glucuroconjugated 5α-estrane-3β, 17α-diol per millilitre in urine when, at the screening stage, the free and glucuroconjugated 5α-estrane-3β, 17α-diol exceeds the free and glucuroconjugated 5,10 estrene-3β,17α-diol in the urine
Hydrocortisone	<ul style="list-style-type: none"> 1 microgram hydrocortisone per millilitre in urine
Methoxytyramine	<ul style="list-style-type: none"> 4 micrograms free and conjugated 3-methoxytyramine per millilitre in urine
Salicylic acid	<ul style="list-style-type: none"> 750 micrograms salicylic acid per millilitre in urine, or 6.5 micrograms salicylic acid per millilitre in plasma
Testosterone	<ul style="list-style-type: none"> 0.02 microgram free and conjugated testosterone per millilitre in urine from geldings, or 100 picograms free testosterone per millilitre in plasma from geldings, or 0.055 microgram free and conjugated testosterone per millilitre in urine from fillies and mares (unless in foal)

N.B.: The conjugated substance is the substance that can be liberated from conjugates.

Each threshold, including those for the same substance in urine and plasma, can be applied independently.

Article 6C - PROHIBITED PRACTICES

Practices that jeopardize the health and welfare of the horse, the welfare of the rider, and other participants as well as the integrity of horseracing are inappropriate and prohibited. The responsibility for enforcing the regulation of any such practice lies with the Horseracing Authority.

1) PRACTICES THAT HAVE NO PLACE IN THE TREATMENT OR MANAGEMENT OF A HORSE INTENDED TO RACE

- The use of any unapproved object, device, behavioural activity, or chemical to achieve an inappropriate response, at any time during training or racing.
- Subjecting horses to medical or surgical procedures outside of a valid and transparent owner-trainer-veterinarian relationship and those inconsistent with providing medical and/or welfare benefits to the horse.
- Use of physical or veterinary procedures or medication treatments to mask the effects or signs of injury so as to allow training or racing to the detriment of the horse's health and welfare.
- Practices that are fraudulent, potentially fraudulent or may have adverse consequences for the integrity of the industry.

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Targeted Metabolomics Approach To Detect the Misuse of Steroidal Aromatase Inhibitors in Equine Sports by Biomarker Profiling

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