



## Anti-Doping Convention

Strasbourg, 16.XI.1989

### Appendix – AMENDMENTS TO THE APPENDIX

(approved by the Monitoring Group under Article 11.1.b of the Convention at its 51st meeting)  
(Strasbourg, 24 October 2019)

## THE 2020 PROHIBITED LIST - WORLD ANTI-DOPING CODE

DATE OF ENTRY INTO FORCE: 1 JANUARY 2020

### SUBSTANCES AND METHODS PROHIBITED AT ALL TIMES (IN- AND OUT-OF-COMPETITION)

IN ACCORDANCE WITH ARTICLE 4.2.2 OF THE WORLD ANTI-DOPING CODE, ALL *PROHIBITED SUBSTANCES* SHALL BE CONSIDERED AS "*SPECIFIED SUBSTANCES*" EXCEPT SUBSTANCES IN CLASSES S1, S2, S.4.4, S.4.5, S6.A, AND *PROHIBITED METHODS* M1, M2 AND M3.

## PROHIBITED SUBSTANCES

### S0. 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.

### S1. ANABOLIC AGENTS

Anabolic agents are prohibited.

#### 1. ANABOLIC ANDROGENIC STEROIDS (AAS)

when administered exogenously, including but not limited to:

- 1-Androstenediol (5 $\alpha$ -androst-1-ene-3 $\beta$ ,17 $\beta$ -diol);
- 1-Androstenedione (5 $\alpha$ -androst-1-ene-3,17-dione);
- 1-Androsterone (3 $\alpha$ -hydroxy-5 $\alpha$ -androst-1-ene-17-one);
- 1-Epiandrosterone (3 $\beta$ -hydroxy-5 $\alpha$ -androst-1-ene-17-one);

- 1-Testosterone (17 $\beta$ -hydroxy-5 $\alpha$ -androst-1-en-3-one);
- 4-Androstenediol (androst-4-ene-3 $\beta$ ,17 $\beta$ -diol);
- 4-Hydroxytestosterone (4,17 $\beta$ -dihydroxyandrost-4-en-3one);
- 5-Androstenedione (androst-5-ene-3,17-dione);
- 7 $\alpha$ -hydroxy-DHEA;
- 7 $\beta$ -hydroxy-DHEA;
- 7-Keto-DHEA;
- 19-Norandrostenediol (estr-4-ene-3,17-diol);
- 19-Norandrostenedione (estr-4-ene-3,17-dione);
- Androstanolone (5 $\alpha$ -dihydrotestosterone, 17 $\beta$ -hydroxy-5 $\alpha$ androstan-3-one);
- Androstenediol (androst-5-ene-3 $\beta$ ,17 $\beta$ -diol);
- Androstenedione (androst-4-ene-3,17-dione);
- Bolasterone;
- Boldenone;
- Boldione (androsta-1,4-diene-3,17-dione);
- Calusterone;
- Clostebol;
- Danazol ([1,2]oxazolo[4',5':2,3]pregna-4-en-20-yn-17 $\alpha$ -ol);
- Dehydrochlormethyltestosterone (4-chloro-17 $\beta$ -hydroxy-17 $\alpha$ -methylandrosta-1,4-dien-3-one);
- Desoxymethyltestosterone (17 $\alpha$ -methyl-5 $\alpha$ -androst-2-en-17 $\beta$ -ol);
- Drostanolone;
- Epiandrosterone (3 $\beta$ -hydroxy-5 $\alpha$ -androstan-17-one);

Epi-dihydrotestosterone (17 $\beta$ -hydroxy-5 $\beta$ -androstan-3-one);  
 Epitestosterone;  
 Ethylestrenol (19-norpregna-4-en-17 $\alpha$ -ol);  
 Fluoxymesterone;  
 Formebolone;  
 Furazabol (17 $\alpha$ -methyl  
 [1,2,5]oxadiazolo[3',4':2,3]-5 $\alpha$ -androstan-17 $\beta$ -ol);  
 Gestrinone;  
 Mestanolone;  
 Mesterolone;  
 Metandienone (17 $\beta$ -hydroxy-17 $\alpha$ -methylandrosta-1,4-dien-3-one);  
 Metenolone;  
 Methandriol;  
 Methasterone (17 $\beta$ -hydroxy-2 $\alpha$ ,17 $\alpha$ -dimethyl-5 $\alpha$ -androstan-3-one);  
 Methyl-1-testosterone (17 $\beta$ -hydroxy-17 $\alpha$ -methyl-5 $\alpha$ -androsta-1-en-3-one);  
 Methylclostebol;  
 Methyldienolone (17 $\beta$ -hydroxy-17 $\alpha$ -methylestra-4,9-dien-3-one);  
 Methylnortestosterone (17 $\beta$ -hydroxy-17 $\alpha$ -methylestr-4-en-3-one);  
 Methyltestosterone;  
 Metribolone (methyltrienolone, 17 $\beta$ -hydroxy-17 $\alpha$ -methylestra-4,9,11-trien-3-one);  
 Mibolerone;  
 Nandrolone (19-nortestosterone);  
 Norboletone;  
 Norclostebol;  
 Norethandrolone;  
 Oxabolone;  
 Oxandrolone;  
 Oxymesterone;  
 Oxymetholone;  
 Prasterone (dehydroepiandrosterone, DHEA, 3 $\beta$ -hydroxyandrost-5-en-17-one);  
 Prostanazol (17 $\beta$ -[(tetrahydropyran-2-yl)oxy]-1'H-pyrazolo[3,4:2,3]-5 $\alpha$ -androsta-1-en-3-one);  
 Quinbolone;  
 Stanozolol;  
 Stenbolone;  
 Testosterone;  
 Tetrahydrogestrinone (17-hydroxy-18 $\alpha$ -homo-19-nor-17 $\alpha$ -pregna-4,9,11-trien-3-one);  
 Trenbolone (17 $\beta$ -hydroxyestr-4,9,11-trien-3-one);

and other substances with a similar chemical structure or similar biological effect(s).

## 2. OTHER ANABOLIC AGENTS

Including, but not limited to:

Clenbuterol, selective androgen receptor modulators [SARMs, e.g. andarine, LGD-4033 (ligandrol), enobosarm (ostarine) and RAD140], tibolone, zeranol and zilpaterol.

## S2. 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. Darbepoietin (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).
  - 1.2 Hypoxia-inducible factor (HIF) activating agents, e.g. 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- $\beta$ ) signaling inhibitors, e.g. Luspatercept; Sotatercept.
  - 1.5 Innate repair receptor agonists, e.g. Asialo EPO; Carbamylated EPO (CEPO).

## 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).

## 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- $\beta$ 4 and its derivatives e.g. TB-500; Vascular-Endothelial Growth Factor (VEGF).

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

## S3. BETA-2 AGONISTS

All selective and non-selective beta-2 agonists, including all optical isomers, are prohibited.

Including, but not limited to:

**F**enoterol;  
**F**ormoterol,  
**H**igenamine;  
**I**ndacaterol;  
**O**lodaterol;  
**P**rocaterol;  
**R**eproterol;  
**S**albutamol;  
**S**almeterol;  
**T**erbutaline;  
**T**retoquinol (trimetoquinol);  
**T**ulobuterol;  
**V**ilanterol.

### Except:

- Inhaled salbutamol: maximum 1600 micrograms over 24 hours in divided doses not to exceed 800 micrograms over 12 hours starting from any dose;
- Inhaled formoterol: maximum delivered dose 54 micrograms over 24 hours;
- Inhaled salmeterol: maximum 200 micrograms over 24 hours.

The presence in urine of salbutamol in excess of 1000 ng/mL or formoterol in excess of 40 ng/mL is not consistent with therapeutic use of the substance and will be considered as an *Adverse Analytical Finding (AAF)* unless the *Athlete* proves, through a controlled pharmacokinetic study, that the abnormal result was the consequence of a therapeutic dose (by inhalation) up to the maximum dose indicated above.

**S4. HORMONE AND METABOLIC MODULATORS**

The following hormone and metabolic modulators are prohibited:

1. Aromatase inhibitors including, but not limited to:
  - 2-Androst-enol** (5 $\alpha$ -androst-2-en-17-ol);
  - 2-Androst-enone** (5 $\alpha$ -androst-2-en-17-one);
  - 3-Androst-enol** (5 $\alpha$ -androst-3-en-17-ol);
  - 3-Androst-enone** (5 $\alpha$ -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:
  - Bazedoxifene**;
  - Ospemifene**;
  - Raloxifene**;
  - Tamoxifen**;
  - Toremifene**.
3. Other anti-estrogenic substances including, but not limited to:
  - Clomiphene**;
  - Cyclofenil**;
  - Fulvestrant**.
4. Agents preventing activin receptor IIB activation including, but not limited, to:
  - Activin A-neutralising 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-neutralising 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  $\delta$  (PPAR $\delta$ ) 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.

**S5. 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 ophtalmic use of carbonic anhydrase inhibitors (e.g. dorzolamide, brinzolamide).
- Local administration of felypressin in dental anaesthesia.

The detection in an *Athlete's Sample* at all times or *In-Competition*, as applicable, of any quantity of the following substances subject to threshold limits: formoterol, salbutamol, cathine, ephedrine, methylephedrine and pseudoephedrine, in conjunction with a diuretic or masking agent, will be considered as an *Adverse Analytical Finding (AAF)* unless the *Athlete* has an approved *Therapeutic Use Exemption (TUE)* for that substance in addition to the one granted for the diuretic or masking agent.

## PROHIBITED METHODS

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### M1. 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.

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### M2. CHEMICAL AND PHYSICAL MANIPULATION

The following are prohibited:

1. *Tampering, or Attempting to Tamper*, to alter the integrity and validity of *Samples* collected during *Doping Control*.  
Including, but not limited to:  
*Sample* substitution and/or adulteration, e.g. addition of proteases to *Samples*.
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.

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### M3. GENE AND CELL DOPING

The following, with the potential to enhance sport performance, are prohibited:

1. The use of nucleic acids or nucleic acid analogues that may alter genome sequences and/or alter gene expression by any mechanism. This includes but is not limited to gene editing, gene silencing and gene transfer technology.
2. The use of normal or genetically modified cells.

## SUBSTANCES AND METHODS PROHIBITED *IN-COMPETITION*

IN ADDITION TO THE CLASSES S0 TO S5 AND M1 TO M3 DEFINED ABOVE, THE FOLLOWING CLASSES ARE PROHIBITED *IN-COMPETITION*:

### PROHIBITED SUBSTANCES

#### **S6. STIMULANTS**

All stimulants, including all optical isomers, e.g. *d*- and *l*- where relevant, are prohibited.

#### **Stimulants include:**

##### **a: Non-Specified Stimulants:**

Adrafinil;  
Amfepramone;  
Amfetamine;  
Amfetaminil;  
Amiphenazole;  
**B**enfluorex;  
Benzylpiperazine;  
Bromantan;  
**C**lobenzorex;  
Cocaine;  
Cropropamide;  
Crotetamide;  
**F**encamine;  
Fenetylline;  
Fenfluramine;  
Fenproporex;  
Fonturacetam [4-phenylpiracetam (carphedon)];  
Furfenorex;  
**L**isdexamfetamine;  
**M**efenorex;  
Mephentermine;  
Mesocarb;  
Metamfetamine(*d*-);  
p-methylamphetamine;  
Modafinil;  
**N**orfenfluramine;  
**P**hendimetrazine;  
Phentermine;  
Prenylamine.  
Prolintane.

A stimulant not expressly listed in this section is a *Specified Substance*.

##### **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);  
**B**enzfetamine;  
**C**athine<sup>\*\*</sup>;  
Cathinone and its analogues, e.g. mephedrone, methedrone, and  $\alpha$ -pyrrolidinovalerophenone;  
**D**imetamfetamine (dimethylamphetamine);  
**E**phedrine<sup>\*\*\*</sup>;  
Epinephrine<sup>\*\*\*\*</sup> (adrenaline);  
Etamivan;  
Etilamfetamine;  
Etilefrine;  
**F**amprofazone;  
Fenbutrazate;  
Fencamfamin;  
**H**eptaminol;  
Hydroxyamfetamine (parahydroxyamphetamine);  
**I**sometheptene;  
**L**evmetamfetamine;  
**M**eclofenoxate;  
Methylenedioxymethamphetamine;  
Methylephedrine<sup>\*\*\*</sup>;  
Methylphenidate;  
**N**ikethamide;  
Norfenefrine;  
**O**ctodrine (1,5-dimethylhexylamine);  
Octopamine;  
Oxilofrine (methylsynephrine);  
**P**emoline;  
Pentetrazol;  
Phenethylamine and its derivatives;  
Phenmetrazine;  
Phenpromethamine;  
Propylhexedrine;  
Pseudoephedrine<sup>\*\*\*\*\*</sup>;

Selegiline;  
Sibutramine;  
Strychnine;  
Tenamfetamine  
(methylenedioxyamphetamine),  
Tuaminoheptane;

and other substances with a similar chemical structure or similar biological effect(s).

**Except:**

- Clonidine;
- Imidazole derivatives for dermatological, nasal or ophthalmic use and those stimulants included in the 2020 Monitoring Program\*.

\* Bupropion, caffeine, nicotine, phenylephrine, phenylpropanolamine, pipradrol, and synephrine: These substances are included in the 2020 Monitoring Program, and are not considered *Prohibited Substances*.

\*\* Cathine: Prohibited when its concentration in urine is greater than 5 micrograms per milliliter.

\*\*\* Ephedrine and methylephedrine: Prohibited when the concentration of either in urine is greater than 10 micrograms per milliliter.

\*\*\*\* Epinephrine (adrenaline): Not prohibited in local administration, e.g. nasal, ophthalmologic, or co-administration with local anaesthetic agents.

\*\*\*\*\* Pseudoephedrine: Prohibited when its concentration in urine is greater than 150 micrograms per milliliter.

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## S7. NARCOTICS

The following narcotics, including all optical isomers, e.g. *d-* and *l-* where relevant, are prohibited:

Buprenorphine;  
Dextromoramide;  
Diamorphine (heroin);  
Fentanyl and its derivatives;  
Hydromorphone;  
Methadone;  
Morphine;  
Nicomorphine;  
Oxycodone;  
Oxymorphone;  
Pentazocine;  
Pethidine.

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## S8. CANNABINOIDS

All natural and synthetic cannabinoids are prohibited, e.g.:

- In cannabis (hashish, marijuana) and cannabis products
- Natural and synthetic tetrahydrocannabinols (THCs)
- Synthetic cannabinoids that mimic the effects of THC

**Except:**

- Cannabidiol.

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## S9. 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.

**SUBSTANCES PROHIBITED IN PARTICULAR SPORTS**

**P1. BETA-BLOCKERS**

Beta-blockers are prohibited *In-Competition* only, in the following sports, and also prohibited *Out-of-Competition* where indicated.

- Archery (WA) \*
- Automobile (FIA)
- Billiards (all disciplines) (WCBS)
- Darts (WDF)
- Golf (IGF)
- Shooting (ISSF, IPC) \*
- Skiing/Snowboarding (FIS) in ski jumping, freestyle aerials/halfpipe and snowboard halfpipe/big air
- Underwater sports (CMAS) in constant-weight apnoea with or without fins, dynamic apnoea with and without fins, free immersion apnoea, Jump Blue apnoea, spearfishing, static apnoea, target shooting, and variable weight apnoea.

\* Also prohibited *Out-of-Competition*

**Including but not limited to:**

<b>A</b> cebutolol;	<b>L</b> abetalol;
<b>A</b> lprenolol;	<b>M</b> etipranolol;
<b>A</b> tenolol;	<b>M</b> etoprolol;
<b>B</b> etaxolol;	<b>N</b> adolol;
<b>B</b> isoprolol;	<b>O</b> xprenolol;
<b>B</b> unolol;	<b>P</b> indolol;
<b>C</b> arteolol;	<b>P</b> ropranolol;
<b>C</b> arvedilol;	<b>S</b> otalol;
<b>C</b> eliprolol;	<b>T</b> imolol.
<b>E</b> smolol;	



