

List over prohibited substances and withdrawal times in Scandinavia, valid from September 3rd 2018.

This list has been developed in collaboration with the Scandinavian countries through NEMAC (Nordic Equine Medication and Anti-doping Committee).

The List of prohibited substances and withdrawal times consists of two parts: the A-list, listing substances and treatment methods that are prohibited for horses in competition and in training for competition, and the B-list, listing substances that are prohibited in competition; the withdrawal times for these substances as well as treatment methods with withdrawal times.

The list may be reviewed several times per year. This list is valid, starting from September 3rd 2018, and is enforced until a new list takes effect. A valid list of withdrawal times can be found at any time on each of the NEMAC member countries official websites:

- The Norwegian Trotting Association (DNT) www.travsport.no
- The Norwegian Jockey Club (NJ) www.ovrevoll.no
- The Swedish Trotting Association (ST) www.travsport.se
- The Swedish Horseracing Authority (SG) www.svenskgalopp.se
- The Danish Trotting Association (DTC) www.trav.dk
- The Danish Jockey Club (DG) www.danskgalop.dk

General information:

Medical records

According to UET's international agreement on trotting races, the trainer is responsible for all treatments the horse receives. All treatment should be given with the intention to attend to the horse's health and well-being. Any treatments that requires a withdrawal time shall be kept in up-to-date medical records, and be made available for inspection when requested at the racetrack as well as in the stables. The medical records must at least contain: the name of the veterinary surgeon/the person responsible for the actual treatment, the identity of the horse, start and end date and time of the medication or treatment, description of the treatment/medication/active substance, route of administration, dosage/amount of the medication given, and the withdrawal time. Passport and medical records must be available for presentation with the horse at all times. Omitting, incompletely or improperly listing treatments in the medical record constitutes a breach of the Doping Regulations.

Medication control on the race day

According to the Nordic countries' rules and regulations, any horse registered for race can be brought in for a medication control both before the start of the race, or be hold back for up to three (3) hours after the race was finished. Blood samples, urine samples and/or hair samples can be taken. One of the stable/trainers crew (aged 16 or older) must supervise the horse during the medication control. Please bring your horse's passport and medical record to the

medication control. The horse is allowed to drink fresh water during the medication control, but no other supplements can be given until the medication control is finished.

Out of competition testing (OOC-testing)

To ensure fair competition, transparency, horse welfare and to control that medical records are kept up to date, the NEMAC member-countries carry out OOC-testing. This implies that doping control and control of the medical records can take place at any time during the horse's life. Trainers must therefore notify their domestic racing jurisdiction when moving a horse to or from the stables, so that the inspectors appointed by the racing organization can find the horse on the registered location at any time when carrying out unannounced inspections and OOC-testing.

Contamination by pharmaceutical products

Generally, great care must be taken to ensure that horses that are under medical treatment are kept in a stall of their own and are fed any medicated feed from labeled buckets or containers. Horses undergoing drug treatment may excrete medication through urine and faeces and potentially transfer residues of the drugs to other horses through feed stuff, shavings or straw. Persons handling the horses must ensure that any medication for personal use is kept away from the horses at all times. No person may urinate in the horse's immediate environment (such as the stall, box or horse trailer) as medication excreted in urine from humans may transfer to the horse through contaminated feed or bedding.

A. LIST OF PROHIBITED SUBSTANCES

1. Prohibited substances

The following substances are prohibited in competition:

- Substances that may affect or have an effect, or both, on the following organ systems:
 - The nervous system
 - The cardiovascular system
 - The respiratory system
 - The digestive system
 - The urinary system
 - The reproductive system
 - The muscular and skeletal systems
 - Blood and blood forming organs
 - The immune system
 - The endocrine system

- Endogenous hormones or similar synthetic substances
- Substances with a masking effect
- Substances which directly or indirectly manipulate the expression of genes

Either a finding of the substance itself, the finding of a metabolite of the substance, or the finding of a prodrug of the substance indicates the finding of such substances.

Administration of or exposure to such substances may constitute a positive finding of the substance.

2. Genetic and cellular manipulation

Modification of the genome of a horse at any point in the horse's life will result in a lifetime disqualification from competing.

Gene therapy or cellular manipulation applied to a race horse must not:

- Positively or negatively affect the horse's performance capacity
- Negatively affect the horse's welfare

3. Specified prohibited methods

Prohibited methods include, but are not limited to:

- Racing a pregnant mare after day 120 of pregnancy
- Neurectomy (surgical and/or chemical)
- Cryotherapy before racing
- Withholding drinking water before racing
- Manipulation of blood and blood components, including administration or retransfer of homologous or heterologous blood or products of red blood cells to the circulatory system, except where such treatment is necessary to save the horse's life.
- Artificially increasing oxygen uptake and/or oxygen transport in the tissue, including but not limited to the use of modified hemoglobin products
- Any kind of intravascular artificial manipulation of blood or blood components
- Manipulation of inhaled air with the aim to increase the volume of Red blood cells (e.g., high-altitude barns, hyper- and hypobaric chambers)

4. Substances that have no place in the management of a horse intended to race

The following substances, including other substances with a similar chemical structure or similar biological effect, and their releasing factors, are prohibited to use, store, manufacture, import, export, sell, distribute, acquire, send or transfer at any time:

4.1. Non-approved substances. Substances which are not listed in any of the classes below, and which have not been approved by any national or international medicines agency, may not be administered to a race horse.

4.2. Anabolic substances

- a) Anabolic androgenic steroids

- b) Other anabolic substances, including but not limited to selective androgen receptor modulators (SARMs)
- c) Beta-2 agonists, except in cases where such substance is prescribed by a veterinary physician for use in bronchodilator treatment and used in dosages approved for such treatment by the medicines agency.

4.3. Peptide hormones, growth factors, and similar substances

- a) Erythropoietin stimulating agents, including but not limited to erythropoietin (EPO), epoetin alfa, epoetin beta, darbepoetin alfa, methoxy polyethylene glycol-epoetin beta, peginesatide, hypoxia-inducible factor (HIF-1) stabilizers (e.g., cobalt) and activators (e.g., xenon, argon).
- b) Growth hormones or growth hormone inducing factors, insulin-like growth factor (IGF-1), fibroblast growth factor (FGF), hepatocyte growth factor (HGF), mechanogrowth factor (MGF), platelet derived growth factor (PDGF) and other growth factors.
- c) Synthetic proteins and peptides and synthetic analogues of endogenous proteins and peptides that are not approved for use in human or veterinary medicine.

4.4. Hormones and metabolic modulators

- a) Aromatase inhibitors
- b) Selective estrogen receptor modulators (SERMs) and other anti-estrogen substances
- c) Substances which may modify myostatin function, including but not limited to myostatin inhibitors.
- d) Insulin
- e) Peroxisome proliferator-activated receptor gamma 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)

4.5. Various other prohibited treatments and substances

- Cobratoxin and other toxins with similar structure and effect
- Capsaicin
- Pitcher plant extracts (e.g Sarapin, Saralgyl)
- Polyacrylamide hydrogel
- Treatment with substances containing eg. arsenic, lead, mercury, croton oil or cedar oil. In addition, other products, preparations and substances applied in the purpose to affect circulation in the skin and underlying tissues are prohibited if this causes discomfort, pain or skin damage in the horse (blistering agents/counterirritants).
- Use of radioactive implants
- GnRH vaccine
- hCG (Human chorionic gonadotropin) use in stallions

- Pergolide
 - Ozone
 - Supplying unnaturally high doses of naturally occurring substances (e.g. cobalt and nickel)
 - Alkalizing substances (e.g. bicarbonate and citrates) are prohibited the last 24 hours before a race
 - Treatment with bisphosphonates in horses younger than 4 years, or bisphosphonates administered in other ways than the drug is approved/registered for. The use of bisphosphonates without a marketing authorization for horses is also prohibited. This includes all amino-bisphosphonates (e.g. zoledronate, alendronate, pamidronate).
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B. LIST OF WITHDRAWAL TIMES

The withdrawal times listed here should be considered minimum requirements and are counted as lasting from the last administration of a medication or substance, or termination of other treatment until the start of the first race. The times listed below are valid unless a specific withdrawal time is given for the particular substance or treatment. When a substance or drug is detected in biological material from the horse, it is considered prohibited even if the substance or drug was administered earlier than the listed withdrawal time.

a) No withdrawal time

- Topical application on skin of substances which only have a protective, disinfecting, softening, absorbing, astringent, drying or keratolytic effect
- Cooling off the horse with liquid water
- Use of saline- and/or lubricating laxatives (e.g. Glauber's salt)
- Any disinfectants, e.g. chloramine, chlorhexidine, cetylpyridinium chloride
- Intrauterine implants for delaying oestrus ("marbles")

b) Prohibited on the day of the racing

The day of the race is defined as starting at midnight, 00:00, and ends when the horse has finished its race/races.

- Nasal strips
- Inhalation therapy
- Insertion of nasoesophageal/nasogastric tube
- Rectal fluid therapy
- Cooling by means other than liquid water, mud or topical preparations/liniments which do not have a withdrawal time
- Use of electric massagers and other electrical devices
- **Physical treatment including chiropractic-, soft laser-, light- (including LED-light), naprapathic-, osteopathic-, ultrasound- and magnetic field treatment**

- c) 96 hours minimum
- Injection or infusion, regardless of preparation
 - Substances which have an effect on the nervous system
 - Substances which have an effect on the muscular and skeletal systems
 - Substances which have a muscle relaxant effect
 - Antimicrobial and antifungal drugs (with the exception of procaine benzylpenicillin which has a withdrawal time of 14 days)
 - Pharmacy manufactured medication
 - Medication for human use, for which no withdrawal time is specified
 - Veterinary medication not indicated for use in horses
 - Herbal medication (for oral administration)
 - Homeopathic medication
 - Equipment for treatment or treatment methods marketed with claim for analgesic effect (“medical claim”)
 - Transcutaneous nerve stimulation (TNS)
 - Acupuncture
 - Laser (other than soft laser)
- d) 7 days minimum
- Expectorant medication, e.g. bromhexine, dembrexine, acetylcysteine
- e) 10 days minimum
- Shock wave or pulsed wave therapy (NOTE: Treatment must only be administered by an authorized veterinary surgeon)
- f) 14 days minimum
- Injections in the joints or bursae, joint/synovial puncture
 - Glucocorticoids (cortisone) with a short-term effect and rapid excretion. In the case of injections in the joints, tendon sheaths or bursae **with any other glucocorticoid than dexamethasone sodium phosphate**, the withdrawal time is 28 days
 - Bronchodilator medication (e.g. salbutamol, salmeterol, beclomethasone, budesonide, **theophylline**)
 - Anti-inflammatory medication
 - NSAID, except NSAID with long elimination, e.g. firocoxib, 30 days w.t.
 - DMSO
 - ACTH
 - IRAP
 - Cyclosporine and other immunosuppressing substances
- g) 28 days minimum
- Any glucocorticoids (cortisone) with the exception of those mentioned in section f) above.

Long-acting glucocorticoids such as triamcinolone acetonide, betamethasone phosphate/betamethasone acetate and methylprednisolone acetate are authorized for marketing for human use, but not for equine use. Therefore, there rests a greater responsibility upon the veterinary physician when prescribing these medications for use in horses.

The recommended withdrawal times after injection of such medication in joints, bursae or tendon sheaths are based on dosages empirically established as common in clinical practice, injected in one or two joints. However, if higher doses are used or more than two joints/bursae/tendon sheaths are treated with injections, the withdrawal times should be extended significantly beyond the 28 days. In such cases, an appropriately long withdrawal time must be determined by the veterinary physician's professional judgment. Methylprednisolone acetate has a particularly long-lasting effect and is very slowly eliminated. It is therefore not recommended for use in racing horses. Triamcinolone acetonide and other depot formulations may have a very long elimination time even after intramuscular injection.

h) 60 days minimum

- Bisphosphonates (Tildren® and Osphos®) is not allowed to use in horses younger than 4 years of age. Veterinary examination and evaluation is required before bisphosphonates are administered. The products have to be administered on the indications and with the routes of administration approved by the manufacturer and the drug authorities. This implies that eg. intra- articular injections are prohibited. Bisphosphonates without a marketing authorization for horses, including all amino-bisphosphonates, are also prohibited.

i) One year

- Long acting hormone therapy to delay oestrus (e.g., Progesterone)

Withdrawal times for drugs authorized for marketing for equine use in Scandinavian countries

The withdrawal times for drugs listed in the Danish, Norwegian or Swedish Pharmaceutical Product Compendium for veterinary medicine are valid only when adhering to the manufacturer's recommendation regarding dosage, dosage intervals, administration method and duration of treatment. In the case of deviations from those, prolonging the withdrawal times may be necessary.

Name of active substance and withdrawal time for drugs authorized for marketing for equine use:

Active substance	Min. WT time	Important info
Acepromazine	7 days	
Acetylcysteine	7 days	
Adrenaline	96 hours	
Altrenogest	14 days	Only permitted for use in mares

Bencylpenicillin	96 hours	
Benzylpenicillin procaine	14 days	
Benzylpenicillin procaine + dihydrostreptomycin	14 days	
Benzylpenicillin procaine + dihydrostreptomycin + sulfadimidine	14 days	
Buprenorphine	6 days	
Buserelin acetate	96 hours	
Butorphanol	6 days	
Butylscopolamine	96 hours	
Cimetidine	96 hours	
Clenbuterol	28 days	
Clodronate	60 days	Intra articular injection prohibited. Not permitted to use in horses under the age of 4 years
Cloprostenol	96 hours	
Cromoglycate	14 days	
Dantrolene sulphate	14 days	
Detomidine	96 hours	
Dexamethasone	28 days	
Dexamethasone sodium phosphate	14 days	
Dihydrostreptomycin	96 hours	
Dinoprost	96 hours	
Enrofloxacin	96 hours	
Febantel	96 hours	
Fenbendazole	96 hours	
Firocoxib	30 days	
Flunixin	14 days	
Gentamicin	96 hours	
Heparin	96 hours	
Hydroxietyl salicylate	96 hours	
Isoflurane	96 hours	
Ivermectin	96 hours	
Ivermectin and praziquantel	96 hours	
Ketamine	96 hours	
Ketanserin	0 hours	
Ketoprofen	14 days	
Levomenthol	96hours	
Lidocaine	96 hours	
Lidocaine + adrenaline	96 hours	
Luprostiol	96 hours	
Meloxicam	14 days	
Mepivacaine	6 days	
Metamizole/Dipyrone	7 days	
Moxidectin	96 hours	

Moxidectin/praziquantel	96 hours	
Omeprazole	96 hours	
Oxytetracycline	96 hours	
Oxytetracycline + Polymyxin B	96 hours	
Oxytocin	96 hours	
Pergolide mesylate	Prohibited	Not permitted in racing horses
Phenylbutazone	14 days	
Polysulfated glycosaminoglycan	14 days	
Praziquantel	96 hours	
Prednisolone	14 days	
Procaine	96 hours	
Pyrantel pamoate	96 hours	
Ranitidine	96 hours	
R-cloprostenol	96 hours	
Romifidine	5 days	
Scopolamine	96 hours	
Sodium hyaluronate	14 days	
Sucralfate	96 hours	
Sulfadiazine	96 hours	
Sulfadoxine	96 hours	
Suxibuzone	14 days	
Tetanus vaccine	96 hours	
Teophylline	14 days	
Tiludronic acid	60 days	Intra articular injection prohibited. Not permitted to use in horses under the age of 4 years
Trimethoprim	96 hours	
Trimethoprim + sulfadiazine	96 hours	
Trimethoprim/sulfadoxine	96 hours	
Vaccinations against horse flu, tetanus, herpes, rabies and ringworm	96 hours	
Vedaprofen	14 days	
Vitamin A, D2 og E (for injection)	96 hours	
Vitamin B (for injection)	96 hours	
Vitamin E (for injection)	96 hours	
Xylazine	96 hours	

Withdrawal times for medication administered through an inhaler

The use of inhalation apparatus is not permitted on race day.

Bronchodilator medication given through an inhaler (e.g. salbutamol, salmeterol, beclomethasone, budesonide)	14 days
Saline	Not permitted on race day
Other medication for use by inhalation	Depending on the withdrawal time of the drug

Withdrawal times for products for external use, feed and supplements

Preparations which only have a protective, disinfectant, softening, absorbing, adstringent, drying or keratolytic effect, used topically on the skin, have no withdrawal time. Ointments or liniments containing antibacterial or antifungal substances have a general withdrawal time of 96 hours, with the exception of preparations containing procaine benzylpenicillin, NSAIDs, or glucocorticoids, which have a withdrawal time of 14 days.

In order to avoid positive samples after races, nothing but ordinary feed and water should be given on the day of the race.

a) Withdrawal time 96 hours:

Substances classified as human medicines or herbal medicines, e.g.:

- Benzocaine
- Glucosamine
- Harpagophytum procumbens (Devil's claw)
- Heparin
- Caffeine (including Guarana products)
- Levomenthol, menthol
- Salicylic acid, diethylamine- hydroxyethyl- and methyl salicylate

b) Withdrawal time 48 hours:

Herbal medicines, e.g.:

- Aesculus hippocastanum (horse chestnut)
- Agnus castus (monk's pepper)
- Echinacea purpurea (purple coneflower)
- Hypericum perforatum L. (St John's wort)
- Symphytum officinale L. (common comfrey)
- Valeriana officinalis (valerian)

c) No withdrawal time:

Other substances and natural remedies with some documented effect

- Alpha casozepine
- Allium sativum (garlic)
- Aloe vera (genuine aloe vera)
- Arnica montana
- Avocado and Soybean unsaponifiable extracts (ASU)
- Boswellia sp.
- Bee glue (Propolis)
- Calendula sp. (marigold)
- Chondroitin sulfate
- Curcuma longa (curcumin, turmeric)
- Di-/trimethylglycine (D-/TMG)
- Eucalyptus
- Gamma oryzanol, rice bran oil

- Ginkgo biloba
- Ginseng
- Green-lipped mussel extract (GLE)
- Hamamelis (witch-hazel)
- Hyaluronic acid (orally)
- Camphor
- Creatine
- L-carnitine
- Melaleuca alternifolia (tea tree oil)
- MSM, methylsulfonylmethane
- Neem oil
- Octacosanol
- Rosa sp. (rosehip powder)
- Schisandra chinensis
- Tryptophan
- Yucca, Yucca schidigera
- Zingiber officinale (ginger)

Threshold values for certain endogenous and/or naturally occurring substances

THRESHOLD NAME	THRESHOLD
Arsenic	- 0.3 microgram total arsenic per millilitre in urine
Boldenone	- 0.015 microgram free and conjugated boldenone per millilitre i urine from male horses (other than geldings)
Carbon dioxide	- 36 millimoles available carbon dioxide per litre in plasma
Cobalt	- 0.1 microgram (= 100 ng) total cobalt per millilitre in urine - 0.025 microgram (= 25 ng) total cobalt (free and protein bound) per milliliter in plasma
Dimethyl sulphoxide (DMSO)	- 15 micrograms dimethyl sulphoxide per millilitre in urine, or - 1 microgram dimethyl sulfoxide per millilitre in plasma
Estradiol in male horses (other than geldings)	- 0.045 microgram free and glucuroconjugated 5 α -estrane-3 β , 17 α -diol per millilitre in urine when, at the screening stage, the free and glucuroconjugated 5 α -estrane-3 β , 17 α -diol exceeds the free and glucuroconjugated 5,10 estrene-3 β ,17 α -diol in the urine
Hydrocortisone	- 1 microgram hydrocortisone per milliliter in urine
Methoxytyramine	- 4 micrograms free and conjugated 3-methoxytyramine per millilitre in urine
Salicylic acid	- 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, fillies and mares (unless in foal), or - 0.055 microgram free and conjugated testosterone per millilitre in urine from fillies and mares (unless in foal)
Prednisolone	<ul style="list-style-type: none"> - 0.01 microgram free prednisolone per millilitre in urine

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.

List of substances with adopted screening limits

Substances that have established screening limits are listed below. Substances for which there are screening limits in both urine and plasma are marked with an asterisk *. The actual screening limits are not public according to decisions made in the European Horserace Scientific Liaison Committee (EHSLC) and the Nordic Equine Medication and Anti-doping Committee (NEMAC).

- Acepromazine*
- Altrenogest*
- Atropine
- Betamethasone
- Bromhexine/ambroxol
- Bufotenine
- Butorphanol*
- Butylscopolamine (N-butylscopolamine) *
- Caffeine*
- Camphor
- Carprofen*
- Clenbuterol
- Cocaine
- Dantrolene
- Dembrexine*
- Detomidine (3'-hydroxydetomidine) *
- Dexamethasone
- Diclofenac*
- Dimethyltryptamine (DMT)
- Dipyrone (as 4-MAA) (=metamizole) *
- Eltenac
- Etamiphylline
- Firocoxib*
- Flunixin*
- Furosemide*

- Guaifenesin
- Hordenine
- Hydroklortiazid*
- Ibuprofen
- Ipratropium
- Ketoprofen
- Lidocaine (3-hydroxy lidocaine) *
- Meclofenamic acid*
- Meloxicam*
- Menthol
- Mepivacaine
- Morphine (morphine glucuronide)
- Naproxen
- Nimesulide
- Omeprazole*
- Oxazepam
- Phenylbutazone*
- Prednisolone
- Procaine *
- Romifidine*
- Salbutamol
- Scopolamine
- Teophylline
- Theobromine
- Tiludronic acid
- Triamcinolone acetonide
- Trimethoprim*
- Vedaprofen*
- Xylazine (metabolite/s)

NOTE: If two or more similar substances are found in a sample, the screening limits will not apply (due to the so-called “cocktail rule”). This is to ascertain that multiple similar medications are not used in combination in smaller doses to avoid exceeding the screening limits. The screening limits do not apply for out-of-competition testing.

Exceptions to the “cocktail rule” are findings of the following combinations:

- Detomidine, romifidine or xylazine in combination with butorphanol
- Atropine and scopolamine
- Butylscopolamine and dipyron/metamizole

International collaboration

DTC/DG, DNT/NJ, and ST/SG are members of the Nordic Equine Medication and Anti-doping Committee (NEMAC) and joint members European Horserace Scientific Liaison Committee (EHSLC).

NEMAC is responsible for developing lists of withdrawal times valid for the Nordic countries. Make sure you always use the latest version of this document – you will find it on the NEMAC member's official homepages.