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When the patient is an athlete

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Patients who are active in competitive sports will be subject to the World Anti-Doping Code – sometimes without being aware of it themselves. In such cases, it will be extremely helpful if the doctor who treats them is familiar with the code and its guidelines for therapeutic use.

As medical advisors in Anti-Doping Norway, we have formed the general impression that there is limited knowledge about use of medication in an anti-doping context among doctors and other healthcare personnel whose day-to-day work does not bring them into contact with this group of patients.

Athletes and antidoping regulations

As an independent foundation, Anti-Doping Norway is the administrative body in charge of doping regulations in Norwegian sport. In Norway, all members of sports clubs and associations are affiliated with the Norwegian Olympic and Paralympic Committee and Confederation of Sports (NIF) and anyone who takes part in a sporting event organised by a NIF member organisation is subject to the anti-doping regulations (1). As NIF's membership is in the region of 1.3 million, a large part of Norway's population is therefore obliged to comply with the anti-doping regulations. However, it is clear that many are unaware of the implications. Although the duties in connection with medical treatment are more onerous for elite athletes, of which there are approximately 4000–5000 in Norway, all over 15 years of age who take part in organised sports should know the rules if they are required to use medications that fall under the World Anti-Doping Agency's Prohibited List (2).

If possible, the simplest solution for the doctor as well as the athlete is to change the treatment so that the patient will not have to use a medication that contains substances on the Prohibited List

International anti-doping efforts started in earnest in the 1960s and '70s, because it was clear that doping issues represented a considerable health risk to athletes. Before stimulants and narcotics were prohibited in 1967, some athletes died while competing due to unregulated use of stimulants (3). The health perspective is therefore an important part of the anti-doping work, and this is reflected in all assessments of whether a substance or method should be put on the anti-doping Prohibited List. To warrant inclusion on this list, at least two of the following three criteria must have been met: Using the substance or method has a performance-enhancing potential; using the substance or method can harm the health of the athlete; or using the substance or method may harm the reputation of the sport (4). Additionally, substances or methods that can mask the use of other performance-enhancing substances are also prohibited. Some substances and methods are universally prohibited (groups S0–S5 (Table 1) and M1–M3 (Table 2)), while others are banned in competitions only (group S6–S9 (Table 3)). Additionally, some substances are prohibited only in particular sports, like beta-blockers in shooting (group P1).

Table 1

The Prohibited List, banned substances (prohibited in and out-of-competition)

Group	OOC (*out-of-competition*), prohibited at all times	Example, medications
S0	Non-approved substances still at testing stage	
S1	Anabolic agents	Testosterone
S2	Peptide hormones, growth factors, related substances and mimetics	Growth hormones, EPO
S3	Beta-2 agonists	Salbutamol, formoterol
S4	Hormone and metabolic modulators	Insulins
S5	Diuretics and masking agents	Hydrochlorotiazide, furosemide

Table 2

The Prohibited List, banned methods (prohibited in and out-of-competition)

Group	Methods	Examples
M1	Manipulation of blood and blood components	Blood transfusions
M2	Chemical and physical manipulation	Intravenous infusions of more than 100 mL per 12-hour period[1]
M3	Gene doping	

[1]Except if part of a hospital treatment, surgical procedure or clinical diagnostic examination.

Table 3

The Prohibited List, substances prohibited in-competition

Group	IC (*prohibited in-competition*[1])	Example, medications
S6	Stimulants	Methylphenidate
S7	Narcotics	Morphine
S8	Cannabinoids (cannabis)	Tetrahydrocannabinol
S9	Glucocorticoids (systemic use)	Prednisolone, triamcinolone
P1	Beta-blockers[2]	Metoprolol[2]

[1] Must not be present in the body during a competition.

[2]Prohibited in some sports.

Will my patient have to apply for therapeutic use exemption?

If possible, the simplest solution for the doctor as well as the athlete is to change the treatment so that the patient will not have to use a medication that contains substances on the Prohibited List. If this approach is impossible, it will be necessary to apply for therapeutic use exemption. The application must be completed by the athlete and the doctor, and should be sent to Anti-Doping Norway, or the relevant international sports federation, for assessment by a specialist medical committee (Box 1).

Box 1 For an athlete to be authorised to use a medication that contains substances on the Prohibited List, the following criteria must be met (5):

a) The athlete has a clear diagnosed medical condition which requires treatment using a prohibited substance or method.
b) The therapeutic use of the substance will not, on the balance of probabilities produce significant enhancement of performance beyond the athlete's normal state of health.
c) The prohibited substance or method is an indicated treatment for the medical condition, and there is no reasonable permitted therapeutic alternative.
d) The necessity to use that substance or method is not a consequence of the prior unauthorized use of a substance or method which was prohibited at the time of use.
If one of these criteria is not met, the medication cannot generally be approved for use in sports.

If the anti-doping regulations apply to the patient, it is necessary to establish whether the medication the patient needs contains substances on the Prohibited List. If the relevant medication is registered in Norway, this information is easy to access by searching for it in the Norwegian Pharmaceutical Product Compendium or on Anti-Doping Norway's website.

Colour-coded silhouette labels (Figure 1) alert users of the Norwegian Pharmaceutical Product Compendium to whether there are doping issues associated with specific medications.

Figure 1 *A green silhouette means that the medication is permitted without any restrictions, an amber silhouette means that the medication is prohibited with certain exceptions, while a red silhouette means that the medication contains substances on the Prohibited List. Figure: Anti-Doping Norway/the Norwegian Pharmaceutical Product Compendium*

Anti-Doping Norway's Medical Committee is made up of specialists in a range of fields, currently endocrinology, psychiatry, pulmonary medicine, paediatrics and sports medicine. Non-conflicting interests and independence are important qualities for Anti-Doping Norway, which is why no committee member holds a high-ranking position in any Norwegian sport. The most important argument for approval in assessments of therapeutic

use exemption applications is that the four above criteria are fulfilled. Judgement is applied in each individual case, but the level of discretion is restricted by the World Anti-Doping Agency's regulations and guidance (5).

The athlete's competing level determines when and where they need to apply for a therapeutic use exemption. If the patient is defined as an elite athlete who competes at national (6) or international level, it is a *requirement* that an application is submitted as soon as a diagnosis has been made. If the patient is *not* defined as an elite athlete who competes at international or national level, an application for therapeutic use exemption can be submitted after a positive doping test, i.e. so-called retroactive exemption, when asked to do so by Anti-Doping Norway (7). However, all athletes must ensure that the criteria for exemption are fulfilled, whether applications are submitted prospectively or retroactively. Most Norwegian athletes can have their application assessed by Anti-Doping Norway, but some elite sports people will need to have their application assessed by international sports federations or other international bodies (such as the International Olympic Committee). In principle, decisions made by Anti-Doping Norway should be recognised by the international sports federations, but such recognition is not automatic. The various sports federations follow different rules in this respect, and the current regulations must be clarified on a case-by-case basis – with assistance from Anti-Doping Norway if required. All rulings are time-limited (7).

Hypogonadism, asthma and injection steroids

To assess an application for therapeutic use exemption, sufficient medical information is needed. There are clear guidelines issued by the World Anti-Doping Agency with respect to the diagnostic medical details required for various conditions (8). For example, applications to use testosterone must be accompanied by documentation that verifies a specific organic condition. In practice, this means that authorisation will only be granted in cases of a serious pituitary or testicular disease. A low testosterone blood count is not sufficient. For an asthma diagnosis, spirometry with reversibility testing is required. If this is negative, a positive bronchial provocation test is required. If beta-2 agonists other than salbutamol, salmeterol, vilanterol or formoterol are used, an explanation must be given of why an alternative beta-2 agonist has been prescribed.

Traditionally, triamcinolone injections have been used for seasonal allergies. International medical guidelines advise against steroid injections for treating allergies, one of the reasons being insufficient verification of efficacy and the risk of adverse side effects (9). It has also been proved that long-term use of corticosteroids can lead to muscle wasting (10), which is clearly detrimental for athletes.

The guidelines allow for a short course (a couple of days) of oral corticosteroids in cases of pronounced problems where alternative medications have proved ineffective. However, specific immunotherapy (allergy vaccination) is the recommended treatment for serious allergies. Because there are alternative therapies available, many applications for therapeutic use exemption are rejected because criterion c) has *not* been fulfilled.

If an athlete is caught for doping, the consequences are serious

The media regularly focuses on the use of local glucocorticoid injections and painkillers in sport (11, 12). This normally involves medications with substances that are permitted according to the Prohibited List, such as non-steroidal anti-inflammatory drugs, but there is nevertheless cause for concern when athletes need painkillers to take part in a match/competition. This is an issue that should be discussed and considered by medical support personnel to ensure that athletes are never left to self-medicate and suffer the adverse effects that this may entail. Our anti-doping efforts were born out of a need to protect the athletes' health (3), and in our opinion, correct use of medication in sport is a part of this perspective. Ethical guidelines for health personnel in Norwegian sport have been drawn up by the Ethics in Sports Medicine Committee. According to these guidelines,

health personnel are required to protect the health of athletes by preventing disease and injury, and by helping athletes who are ill or injured to recover. All choices made and advice given by health personnel must be based on a concern for the athlete's health. The guidelines also make it clear that any treatment that has the sole aim of enhancing sporting performance falls beyond the remit of health personnel (13).

Conclusion

There are stringent rules in place to ensure that all competitions are fair. Anti-Doping Norway is constantly working to ensure that the regulations are communicated accurately and in a way that makes them easy to understand for sports people, their families and support workers. If an athlete is caught for doping, the consequences are serious. Good medical practice and assistance with correct use of drugs on the Prohibited List will limit the risk considerably. Doctors who treat athletes should carefully study the therapeutic use regulations for this group of patients.

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