DOPING VERSUS MEDICATION CONTROL

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The ethical demand of sports defines that any athlete should perform according to his/her own merits. Subsequently, the use of any drugs that can enhance performance is considered as unfair and banned as doping. The principles of fair sports apply also to equine athletes. Doping controls apply the principle of a zero tolerance, and the continuous improvement of the analytical techniques, see to be successful in reducing the number of non-compliance with doping regulations. However, there are numerous situations and scenarios in which a performing horse requires therapeutic support and hence medication. Human athletes can actively decide to take certain forms of medication, including anti-inflammatory agents, as they are aware of the consequences of their effects. In contrast, animals rely on the decision of a trainer or veterinarian evaluating the need for medication and performing a risk-benefit analysis of the therapeutic outcome. Originally any form of medication (besides the use of anti-infective agents) was considered as doping. However, the responsibility to maintain animal health and welfare also during competitions indicates that medication of performing horses can be mandatory. These considerations have resulted in a positive list of therapeutic agents that may be used on the decision of a veterinarian. Subsequently, the control of a performing horse needs to discriminate between doping control and medication control to guarantee fair sport as well we the safety and welfare of the performing horse.

The assessment of medication, whether it has a direct or indirect influence on performance is complex. In daily practice, this question is translated into the pharmacological assessment of a critical (residual) concentration of a drug that is able to positively influence performance and what time interval should be recommended between active medication and onset on an exercise/competition. The first approach was the application of withdrawal periods (set for food producing animals) also in sports. These are well defined and aim to protect the consumer's safety following the consumption of food from animal origin. The rationale for these withdrawal periods is a toxicological and microbiological risk assessment, aiming at the identification of a tissue concentration (muscle, fat) or product (milk, eggs) that cannot induce any adverse health effects in consumers. This value addresse primarily the consumer, taking into account consumption habits (exposure assessment) and is not representative for the evaluation of positive (or adverse) effects in the animal (here horse).

In the case medication control, a guidance level should define the residual amounts of a drug in body fluids (serum or urine) that are unlike to be associated with any biological significance- in other words corresponds to a biological no-effect-level in the target animal, the horse. It needs to be emphasized that no-effect levels, which are commonly determined in rodent species, need to be checked to their appropriateness for horses as in equines (or other performing animal categories) the NOEL for many drug is not determined. The analysis of the dose-response curve allows, however, in most cases an estimation of this concentration without biological activity. The remaining difficulty is the estimation of the time between treatment and decline of tissue/blood urine levels that could be handled as a guidance value. Various mathematical and kinetic calculations have been presented in the past and are validated by scientists. A full consensus what is defined as the most optimal procedure, however, has not been achieved yet.