

Drug abuse: Cannabis

Cannabis accounts for about 43% of all positive cases in football. It is hardly used with intent to enhance performance. Its widespread use rather represents the lifestyle pressures faced by some players. Nevertheless, currently, cannabis remains on the list of forbidden substances and users will be sanctioned accordingly. This should not belie the fact that the true problem is not a doping problem, but a social problem.

Marijuana, or cannabis, refers to the dried leaves and flowers of the *Cannabis sativa* plant. Hashish is the dried juice or resin that is extracted from the leaves. The active ingredient in hashish and marijuana is THC (delta⁹-Tetrahydrocannabinol) which subjectively causes relaxation and contentment. Objective tests of psychological and physical performance, however, all show impairment when under the influence of cannabis. For example, driving ability and memory declines while the heart rate increases and the blood pressure drops.

Absorption and Degradation in the Body

The absorption and degradation of THC depend on the method of intake. Most frequently, it is either inhaled or ingested. Inhaled THC appears in the blood within minutes and exerts its maximum effects within 15 to 30 minutes. After two to three hours, the effect has completely vanished. Oral intake leads to later, but longer lasting effects, reaching their maximum after two to three hours.

In the body, THC is degraded mainly to its metabolite THC-COOH (11-nor-9-carboxy-THC) and is what is measured in the urine during a doping test.

Excretion and Detection in Urine

THC-COOH can be detected in the urine for an average of four hours after smoking cannabis, with a range of two to eight hours. The long-term excretion of THC-COOH varies considerably between different individuals because it binds so easily to the body's fat tissues,.

How fast and for how long THC-COOH is excreted into the urine strongly depends on the actual condition of an individual. After taking a single dose of THC, the degradation product usually remains detectable in the urine for three to five days, but it has also been found for as long as twelve days. It is easily understood that after stopping their THC consumption, the heavy user will take far longer than infrequent users to produce a negative urine results: The average time to negative screening for THC-COOH is reported to be 8.5 days for infrequent users, varying from three to 18 days vers, compared to 19.1 days with a range from three to up to 46 days for regular users.

15 ng/ml Cut-off for Positive Doping Test

In a positive test, the urinary concentration of THC-COOH is crucial with regard to the consequences. The limit of 15 ng/ml has been chosen to rule out false positive cases due to passive inhalation. It has been demonstrated that passive inhalation will not lead to any results above this limit.

Urinary concentration between 20 and 50 ng/ml is usually observed after cannabis consumption some time ago, but is hardly related to any recent intake of the drug.