

More On Stimulant Drugs In Sports

Dato' Dzulkifli Abd Razak

Article

The Sun - 07/24/96

APART FROM AMPHETAMINES AND other realtes substances, there are many other drugs that are used in sports that could produce similar effects. Although they are classed differently in medical usage, they are nevertheless doping agents and thus banned in international sporting events.

Below are some of the more common substances being misused.

Ephedrine

Just a few hours before the opening ceremony of the 26th Olympics, there was a report about a Norwegian canoeist who failed a drug test for ephedrine, another type of stimulant, at a competition in the German City of Duisburg in June.

Consequently, he was dropped from the four-man kayak team and banned from competing in Atlanta. The canoeist, Peter Ribe was a bronze medalist at the 1993 world championships in the double kayak (K-2). He claimed that he had taken a herbal product that was a subsequently found to contain the substance.

In May, another athlete, a high jumper from Italy, Antonella Bevilacqua, was also in danger of being ruled out of the Olympics after testing positive for the drug. In both cases, it was alleges that the positive tests were due to the use of Chinese traditional preparations.

Ephedrine belongs to a class of drugs called sympathomimetics. Examples of such drugs include etafedrine, methylephedrine and methoxyphenamine. Ephedrine can also be found in many plant sources, especially those of the Ephedra species which is widely used in traditional medical preparations.

Because of these, the claims of abuse of this type of substance can be rather nebulous since athletes have often claimed in the past that they were using the substance as a cure for cold.

In Malaysia, ephedrine can be found in many cough and cold preparations. Some are available as "over-the-counter" (OTC) preparations, which means they can be obtained without medical prescription. In general, ephedrine is used to relieve nasal congestion as well as wheezing in asthmatics. Common examples asre Actifed and Sudafed.

Ephedrine can increase heart rate and muscle blood flow, as well as enlarge the opening of the airways to the lungs by relaxing the smooth muscle around the bronchus. These effects are said to be the ones that are sought after by atheletes, and as a result, the doping control commission has stood firm on banning the substance, at least at the Olympics.

There have been cases, however, of athletes who had inadvertently taken the drug and were not disqualified. One example is during the 1982 Commonwealth Games in Brisbane.

Ephedrine acts in a similar way as amphetamine, though its effects are much milder. Due to its action on the cardiovascular system, it can increase blood flow to active muscles and at the same time decrease blood flow to internal organs (like the bowel) that do not require the same amount of energy at the time of competition.

At the same time, the rate of metabolism is also enhanced in cells throughout the body. Blood sugar levels is increased as well as the rate of breakdown of complex carbohydrates to simple sugars, both of which are readily available for the release of energy.

Above all, ephedrine can, to a limited extent, produce some psychomotor stimulation, though not as prominent as amphetamines.

In any case, ephedrine is not without any side-effects, especially if it is used excessively. It is known to cause palpitations hypertension, cardiac arrhythmias, angina pectoris, anxiety, tremor and headache. Those with conditions such as glaucoma, hyperthyroidism, heart disease and diabetes mellitus must not use it without the advice and supervision of health professionals.

Clenbuterol

Dual world championship German gold medalist Katrin Krabbe was allegedly tested positive for the drug clenbuterol, along with her other team-mates. She was subsequently cleared of the allegation of drug abuse.

Clenbuterol represents another class of drugs known as beta-agonists, which is also banned in sports.

Beta-agonists, like the sympathomimetics, can also increase heart rate and muscle blood flow and cause bronchodilation. In many respects, they have quite similar actions with ephedrine.

Caffeine

This compound is a naturally-occurring source of stimulants.

Last month, a Brazilian soccer player was banned because he was tested positive for caffeine above the legal amount.

Caffeine was initially used to facilitate wakefulness during long religious events. It is commonly found in beverages such as tea, coffee and cola drinks, as well as some food items.

Unlike ephedrine however, it is not normally used in modern medications although it may be found in varying amounts in anti-migraine preparations such as Cafegot, Migril and Ergodryl.

Caffeine belongs to a class of xanthines and vary markedly in its ability to cause the relaxation of smooth muscle around the airways (bronchodilation) and around blood vessels (vasodilation), as well as directly stimulating the heart and cause an increase in urine production. It can also stimulate the brain and artificially improve the mental state of users, increasing alertness and enhancing motor functions.

In low doses, caffeine does not pose any significant problems. However, caffeine has been used in pure tablet form to combat the "staleness and monotony" from long repetitive training sessions.

Doses of many hundred milligrams have been reported: compare this with the usual 5 - 10 mg in normal usage. In excessive amounts, it can cause nausea, vomiting, gastric irritation, palpitations, insomnia and even convulsions.

Very high caffeine intake can cause caffeinism, a syndrome with symptoms of anxiety, irritability and depression. The current concerns about adverse effects associated with caffeine consumption are based on small increases in blood cholesterol, an associated risk of cardiovascular disease and the risk of reproductive abnormalities.

Moreover, with prolonged intake of 600 mg (about 6 cups of coffee) or more daily, it can produce psychological dependence and mild withdrawal symptoms such as lethargy, irritability and headache.

In sports, a positive test result consists of a urine sample containing 15 microgram or more per millilitre.

Cocaine

Cocaine is the most potent stimulant of natural origin. It is extracted from the leaves of the cocoa plant (*Erythroxylon coca*), which has been cultivated in the Andean highlands of South America since prehistoric times.

The leaves of the plant are chewed in the region for refreshment and relief of fatigue, much as North Americans once chewed tobacco. The effects of cocaine are essentially indistinguishable from amphetamine except by chemical testing.

Pure cocaine was first isolated in the 1880s. It was used as an anaesthetic in eye surgery, for which no previously known drug had been suitable. It became particularly useful in surgery of the nose and throat because of its ability to constrict blood vessels and thus limit bleeding.

Although many of its therapeutic applications are now obsolete, the legal use of cocaine in the United States has in recent years been increased by the introduction of a morphine-cocaine elixir designed to relieve the suffering associated with terminal illness.

In England, where this mixture was developed at the Brompton Chest Hospital, the use of cocaine in treatment of the terminally ill has been largely abandoned after it was determined that it contributed to disquieting hallucinations and nightmares. In fact, it is one of the drugs that have also been implicated in sports to enhance performance.

Recurrent users may resort to larger doses at shorter intervals until their lives are largely committed to this addiction. Anxiety, restlessness and extreme irritability may indicate the onset of a toxic psychosis similar to that of paranoid schizophrenia. Tactile hallucinations can afflict chronic users so much that they injure themselves in attempting to remove imaginary insects from under the skin. Others are persecuted by the fear of being watched and followed. Excessive doses of cocaine may cause seizures and death from respiratory failure.

Illicit cocaine is distributed as a white crystalline powder, often adulterated to about half its volume by a variety of other ingredients, the most common of which are sugars such as lactose, inositol, mannitol and lidocaine.

Since the cost of illicit cocaine is so high, there is a tendency to adulterate the product at each level of distribution. The drug is most commonly administered by "snorting" through the nasal passages.

Symptoms of repeated use in this manner may resemble the congested nose of a person suffering from the common cold. Less commonly for heightened effect, the drug is injected directly into the bloodstream.

Unlike such drugs as LSD and heroin, cocaine is popularly accepted as a recreational drug, facilitating social interaction. It is erroneously reputed to be relatively safe from undesirable side-effects. Because of the intensity of its pleasurable effects, cocaine has the potential for extraordinary psychic dependency, which is all the more deceptive in view of its reputation as the recreational drug of choice.

Others

Around the turn of the century, when drug tests were unheard of, red wine and strychnine were already being used as stimulants, especially on the brain.

How this combination actually helps the athlete is still uncertain, and in any case, they are no longer a favourite dope.

Strychnine, also obtainable from plant sources, used to be popular in small doses in various "tonics." So was arsenic. However, when taken in large amounts, they can cause death.

Other examples of similar compounds are ethamivan, bemigrade, nikethamide, picrotoxin, leptazol and doxapram. Most of these stimulate respiration by stimulating the control centre in the brain.

In this manner, the doping effect would be to increase the competitor's breathing capacity thus creating the potential of increasing physical performance.

[Terms &](#)