

Caffeine, nicotine and analgesics

Performance enhancing chemicals have been in existence for centuries, allowing athletes to extend their training capacity, recover from injury and boost performance. In some cases, the chemical or drug can have such serious and severe side effects that they have become a banned substance in the sporting arena. Other chemicals and stimulants remain acceptable (as explored below) and may give a competitive edge to those willing to consume them.

Caffeine

The ergogenic potential of caffeine is not exactly a recent phenomenon. Indeed, there is documentation to suggest that it has been used to enhance performance for more than 30 years. However, with caffeine having been removed from the banned list of the International Association of Athletics Federations (IAAF), it is not an illegal substance and is now widely used to boost performance across all sports.

A precise explanation for the ergogenic effects of caffeine remains elusive. It is likely that the enhancement in endurance capacity results from caffeine's ability to facilitate the use of fat as an exercise fuel, thus sparing the body's limited carbohydrate reserve. Caffeine's facilitating effect on neuromuscular activity is thought to be responsible for any improvement in short duration, high intensity exercise.

In addition, caffeine can act as a diuretic, which could lead to an unnecessary pre-exercise loss of fluid, with negative knock-on effects on thermal balance and exercise performance, particularly in hot environments. However, this diuretic effect is reduced when caffeine is consumed during exercise, which helps to explain why some athletes rely on defizzed cola during events. The ergogenic effects of caffeine vary greatly, but are most predictable in trained athletes.

Athletes should also be aware that beneficial effects do not occur consistently in habitual caffeine users, suggesting a level of 'caffeine tolerance'. One way round this may be for caffeine users to shun all caffeinated foods and drinks for a period of 4-6 days prior to pre-event supplementation in order to optimise its benefits.

Nicotine

Briefly, nicotine can stimulate the brain at all levels, significantly increase breathing, lower HDL (the good fats) levels, increase blood pressure and constrict peripheral blood vessels.

Some individuals experience nausea and vomiting, decreased urinary flow, increased free fatty acids. Nicotine increases the oxygen requirements of the heart muscle, but lowers oxygen supply, and this effect may lead to heart attacks

The use of nicotine in high doses is toxic and can cause nicotine poisoning. Signs of nicotine poisoning are vomiting, sweating, mental confusion, diminished pulse rate, headache, breathing difficulty, respiratory failure caused by muscle paralysis and death. Impaired oxygen transport secondary to increases in

carboxyhemoglobin. In many cases smoking will increase breathing rate during submaximal exercise, and this will reduce athletic performance.

As an addictive drug, nicotine can act as a relaxant, reducing stress. However for sports performance, using this drug will reduce the ability to train effectively and ultimately performance will suffer. Despite the well-proven facts regarding the longer term negative effect on the body of nicotine, it is not a banned substance and there is no minimum age limit on consumption (only the purchase). Smoking the drug is prohibited in public places.

With regard to smelling cigarette smoke on junior judokas, this does not necessarily mean that they are necessarily inhaling the drug. Clearly all juniors should be aware of the effects of smoking, and within the sport as well as socially, it should be discouraged for the benefit of their own well-being.

Analgesics

Commonly referred to as painkillers, these drugs block pain signals reaching the brain. There are two kinds of analgesic, narcotics and non-narcotics. The non-narcotics contain Acetaminophen, and are present in over-the-counter pain relievers. The narcotics contain a derivative of Opium or Morphine and are a prescribed painkiller for chronic pain relief. The side effects include euphoria, loss of balance, nausea, muscle cramps and breathing problems.

Narcotics remain a banned substance for athletes. Not only will the image of the sport suffer if performance enhancing drugs were acceptable, but also the drug will mask the effects of pain, giving the athlete a false sense of security allowing them to continue to train at the risk of further and more considerable health problems. Narcotic analgesics may reduce anxiety and may artificially enhance the athlete's performance.

Non-narcotics such as Asperin are not on the banned list, however if competing, care should be taken when using such pain relief as some may contain chemicals such as Codine.

With regard to issuing pain killers to a junior judoka during competition, I would not provide any form of painkiller for any other person. If the judoka was in need of pain relief, for example they may have a headache, they may use a non-narcotic analgesic as long as there are no traces of a banned substance within the ingredients. In competition it is always advisable to confirm with the officials or governing body that the non-narcotic analgesic is acceptable, if in any doubt.

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