THE BORDER BETWEEN DOPING AND TREATMENT AT PARALIMPIC GAMES

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Abstract
A lot of tests are done on the athletes who are participating at the Paralympics in order to discover the presence of steroids or blood stimuli.

The researchers who are observing the athletes claim that one third of those with spine problems cheat in order to improve their performances. They use a „stimulation” method which raises the blood pressure and improves the athletic performance. In medical terms this method is defined as being the freely introduction of a dangerous stimulus and it is called autonomic dysreflexia

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Introduction
Generally, the athletes who have spine problems (paraplegia) have the blood pressure lower than 120mmHG, unlike a person without disabilities.

For raising the blood pressure some athletes use the “stimulation”, they hurt themselves just to improve their sports skills. Some of them used electric shocks, some hit their toes with the hammer or even tried to strangle their testicles.

An unofficial study made by BBC showed that during the Paralympics from Beijing, about 17% of the athletes answered with “yes” when they were asked if they used this form of doping, but dr. Andrew Krassioukov, medicine professor at the British Columbia University said that the real percentage is about 30%: “as a doctor I understand why these athletes do that, but as a scientist I am terrified”.[1]

Working with the G.F Strong Rehabilitation Center and with the medicine school from the British Columbia University, doctor Krassioukov spoke about this method: “it is not the same thing like the regular people doing drugs. The athletes with disabilities tried to find a normal function for their body.” The injuries at the spine is stopping a regular blood pressure and it affects the heart rhythm, said the expert.[2]

The athletes with spine problems are examined in order to find the stimulus that makes the arterial pressure raises. They do not feel the pain in the paralysed area, so they can try different methods and the body reacts with the raise of the blood pressure.

These techniques might, actually, become lethal, by causing a heart attack so they’ve been forbidden by the international sport structures since 1994. In medical terms, this method is defined as the deliberate introduction of a dangerous stimuli and it’s called autonomic dysreflexia.

Autonomic dysreflexia also known as autonomic hyperreflexia, is a hyperactive autonomic nervous system which causes the sudden onset of severe high blood pressure. This disorder is generally found in patients with a spinal cord injury above the T7 spine and may cause the paralysis of the lower limbs. From the point of view of seriousness, a spinal cord injury might be thorough, which can cause a complete loss of movement and of the sensations of the below section, or incomplete, when some sensibilities still persist and there is a certain level of nerve control.

Generally speaking, the partial injuries are associated with a significant recovery, while the complete ones have a cautious prognosis regarding the recovery.

Autonomic dysreflexia is caused by a vasoconstriction reflex, triggered by a painful or irritant stimulus which are interrupted in their journey to the brain and can’t be modulated by it.

This clinical syndrome can lead to a potentially life-threatening hypertension, which actually, can cause a vascular accident. Autonomic dysreflexia is a life-threatening disease, which can appear suddenly, and also is considered a medical emergency.
If the lesion is not treated accurate and promptly, it can lead to a fit of apoplexy, strokes and even death. The spinal cord represents the passage of communication between the brain, on one side, and muscles, blood vessels, and organs, on the other side. Also, in the spinal cord are located the nervous, sexual and sphincterian impulses. Through the sensitive fibers, the brain will be informed about the changes that take place in the external environment or about the changes of the connection between the brain and the body, and through the vegetative fibers, the sphincterian, sexual, circulatory and secretory reflex activity, is adjusted. The disruption between the brain and the body, below the injury makes impossible the existence of any nerve impulse, any perception of the skin, muscles and joints, the perturbation of the muscular and sphincterian reflex activity, followed by incontinence, urinary and faecal retention, sexual dysfunctions, circulatory disfunctions and thermoregulation.

Autonomic dysreflexia is caused by the insertion of a noxious stimuli below the lesion in spinal cord. Nerve impulses are sent to the brain via the spinal cord, however, in spinal cord transection, these impulses are unable to travel past the injury. Because the pulse can not reach the brain, a reflex that increases the activity in the affected area of the autonomic nervous system is activated. Accordingly, it leads to spasms and a narrowing of the blood vessels, causing an increased blood pressure.

This high sympathetic flow produces a release of different neurotransmitters (noradrenaline, dopamine b hydroxylase, dopamine), causing piloerection, pallor and severe vasoconstriction in the arterial vasculature. The result consist in increased arterial pressure and vasodilation in the intracranial vessels above the level of the lesion. Patients usually have migraines caused by vasodilaton of sensitive intracranial vessels.

The complications associated with autonomic dysreflexia are a direct result of the peripheral arterial pressure and includes retinal hemorrhage/cerebral hemorrhage, myocardial infarction and seizures. Morbidity in terms of autonomic dysreflexia is associated with hypertension, which can cause retinal hemorrhage/cerebral hemorrhage, myocardial infarction and seizures.

Brad Zdanivsky, a 36-year-old quadriplegic canadian climber who says that started the "stimulation" after he suffered a car accident in 1994 because he did not want his passion to conquer mountains to disappear. „I tried several methods, I've taken the „stimulation" to another level, I did electroconvulsive on my leg, finger and even genitals”. „You can let your bladder to fill, you don't go to the toilet for a couple hours and then you let the pain to produce its desired effect”. He also says: „There were times when I put electroconvulsive on my leg or on my finger. So, my arterial pressure increased significantly and I was able to lift more weights and pedal faster”.

„Boosting”, the name of the phenomenon described by Zdanivsky, comes with its risks. The shocks can produce a wave too big of blood to ascend to the brain, thus causing strokes that put life in danger at any moment. Is an extreme sport which brings you closer than ever to death and it's an illegal risk some are willing to take. According to a british journalist with years of experience in studying players with disabilities, quoted by BBC, some athletes have used small hammers in order to break a finger, so that their heart rate and arterial tension will increase.[3]

The International Paralympic Committee, condemned and banned since 1994 such techniques, but they could not stop them, and that today there are still people like Zdanivsky, who recognize that they practice this "stimulation", show us that the phenomenon exists.

In a poll realised by the International Paralympics Committee, the athletes were asked to answer the question: „Did you cause intentionally your autonomic dysreflexia to improve your performance in training or competition?”.

10 (16.7%) of the 60 athletes who answered the question, said yes while 50 (83.3%) of them said no. All the affirmative answers were obtained from the male athletes, most of them paticipating in Rugby in wheelchair (55.5%), then the athletes marathoners in wheelchair (22.2%) and the athletes racing long distances (22.2%).

So far, it seems that only the wheelchair athletes use this type of doping. The doctors warn against such methods, but there is no solution to detect this method of doping. The best solution found so far is to measure the blood pressure before the competition. If the systolic blood pressure is greater than 180 mm Hg and symptoms like: face reddened, excessive sweating in the spinal injuries, low pulse appear, then the athletes are not allowed to participate in the competition in that moment. After 10 minutes, they would be subjected to another test. If the suspected athlete has the same results, he would not be allowed to participate at the competition because of the health issues.
Conclusion:
According to the analysis, it appears the difference between paraplegics athletes’ performances and athletes’ with lower limb amputations performance. The athletes with lower limb amputations have an advantage because they have a normal systolic blood pressure. Because of the fact that a lot of paraplegics athletes have a low blood pressure (under 120 mm Hg), there are big differences between a paraplegic athlete and one with lower limb amputation.

The purpose of the Paralympics Games is to create equal conditions between the athletes. There is a need to tie depending on the category of disability.

Although, in this conditions there is a possibility to be some athletes in the same category of disability who use the advantage of this „stimulation‟.

Reference
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