Reprint from

RECENT ADVANCES IN DOPING ANALYSIS (10)

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Sport und Buch Strauß, Köln, 2002

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In: W. Schänzer, H. Geyer, A. Gotzmann, U. Mareck (eds.) Recent advances in doping analysis (10). Sport und Buch Strauß, Köln, (2002) 235-239

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Local Anaesthetics in Sport

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Introduction

The IOC concluded in Seoul on 21st April 1986 to put local anaesthetics on Appendix A of the Olympic Movement Anti-Doping Code.
The regulation underwent some changes (vasoconstrictor agents were not allowed at first; notification was a must until January 1999, however notification in case of dental applications was explicitly excluded in 1998).

The present-day regulation reads:
III. CLASSES OF PROHIBITED SUBSTANCES IN CERTAIN CIRCUMSTANCES
C. Local anaesthetics
Injectable local anaesthetics are permitted under the following conditions:

a. bupivacaine, lidocaine, mepivacaine, procaine, and related substances, can be used but not cocaine. Vasoconstrictor agents may be used in conjunction with local anaesthetics;
b. only local or intra-articular injections may be administered;
c. only when medically justified.

Where the rules of a responsible authority so provide, notification of administration may be necessary.
(Olympic Movement Anti-Doping Code, Appendix A:
Prohibited Classes of Substances and Prohibited Methods, 2001-2002, 1 September 2001) [1]

Experimental

Sample Preparation

Local anaesthetics can be detected after sample preparation according to the Screening I procedure which is routinely used for stimulants and narcotics [2]. The recovery rates for local anaesthetics processed with this non-optimised method range from 60-75%.

The federations' ideas about the IOC-regulation:

A questionnaire and, a few days later, a supplement have been sent to 59 anti-doping representatives of German Sports Federations. 34 federations answered the questionnaire and 34 federations answered the supplement.

The questions and answers to choose:

1. Did you have local anaesthetic-positive cases? yes, number if known, no
2. Would you order a B-analysis? yes, no
3. Would you inform your athlete? yes, orally, in writing, no
4. Would you inform the athlete's physician? yes, orally, in writing, no
5. Would you make your athlete hand in the certificate? yes, no
6. Would you impose restrictions upon an athlete, if no certificate is available? yes, caution, suspension, other, no
7. Do you think the IOC-regulation concerning local anaesthetics makes sense? yes, no, partially

The questions and answers to choose of the supplement:

8. Do you have the cited regulation in your federation's statutes? yes, no
9. Does your federation as responsible authority require of the athlete to notify the application of local anaesthetics? yes, no

Results

Table 1: **Number of local anaesthetics found from May 1996 to December 2001**

Lidocaine	167
Mepivacaine	30
Bupivacaine	19
Benzocaine	10
Prilocaine	8
Procaine	5
Ropivacaine	1
Total	**240**

Table 2: **Trends of local anaesthetics application** [3]

Year	1996	1997	1998	1999	2000	2001
In-Competition samples	(Jan-Dec) 5094	4220	5453	8424	7563	8167
Samples with local anaesthetics	(May-Dec) 18	19	31	57	55	54
Percentage		0,5%	0,6%	0,7%	0,7%	0,7%

Table 3: **Whether the athletes notified the application of local anaesthetics on the doping control forms**

Year	1996	1997	1998	1999	2000	2001
Number of athletes who notified local anaesthetic applications	1	1	12	27	27	25
Number of samples containing local anaesthetics	18	19	31	57	55	54
Percentage of notification	5,6%	5,3%	38,7%	47,4%	49,1%	46,3%

Included in the above table of notification of local anaesthetic application were injections of vitamins and throat medications that notifiably contained local anaesthetic additions!

Table 4: **Frequency rate of local anaesthetics in different sports**

Sports	Number of local anaesthetics detected
Soccer	119 (in 113 samples)
Cycling	42
Boxing	27
Athletics	15
Weightlifting	12
Icehockey	3
American Football	2
Bobsleigh and Tobogganing	2
Bodybuilding and Fitness Sport	2
Dancing	2
Judo	2
Roller-Skating	2
Wrestling	2
Canoeing	1
Iceskating	1
Roller-Hockey	1
Rowing	1
Rowing or Canoeing	1
Rugby	1
Wheelchair-Tabletennis	1
Other (not identified)	1

Results of the questionnaire campaign:

- Only 6 of the 34 federations who replied ever had findings of local anaesthetics in their athletes' samples.
- All federations would inform the respective athlete in case of a local anaesthetic finding, predominantly in written form.
- 26 federations would inform the athlete's physician, as well mainly by writing.
- All federations demand to see the certificate of local anaesthetic administration.
- 30 federations would impose restrictions upon their athletes, if they can't hand in a certificate of the local anaesthetic application; 11 would caution, 4 would either caution or suspend, 9 would suspend the respective athlete (one anti-doping representative mentioned "fine" as other option of restriction).
- Far the most anti-doping representatives think the IOC-regulation does make sense.
- 24 federations have the cited IOC-regulation in their statutes or conform to it.
- 18 federations require of their athletes to notify local anaesthetic administration.

Conclusion

Local anaesthetics can easily and with sufficient recovery rate be detected using the Screening I procedure.

We found the most local anaesthetics in samples from soccer, cycling and boxing, however on average the respective federations send in much more samples than many other federations. About 60% of the detected local anaesthetics have not been notified on the doping control forms by the athletes. According to the questionnaire campaign 88% of the German federations would prosecute such cases (in case they don't have certificates from the athlete not mentioned on the doping control form). In how far this actually takes place cannot be specified. [4]

References

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