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Medication use in sports

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Introduction

Studies have shown that the use of several categories of medication differs from sport to sport. Regarding the percentage of inhaled β -agonist notifications during the Sydney 2000 Olympic Games for instance, 20% of the triathlon athletes and cyclists declared the use of an inhaled β -agonist. Similar results were observed in endurance sports, e.g. cross country skiing, during the Nagano 1998 Olympic Winter Games [1]. The emphasis on declared use of β -agonists in endurance sports was also noticed in Finnish athletes [2]. Also interesting was the higher percentage of inhaled corticosteroids in endurance sports compared to sports requiring motor skills [2]. Besides differences between sports, it also appears that the medication use can change over time. For instance, the percentage of analgesics declared on doping control forms by Turkish soccer players increased from 25.3 % to 34.5 % over a period of 3 years [3]. Following these observations this study aimed at the evaluation of the declared use of medication on the doping control forms of samples analysed in the Ghent Doping Control Laboratory between 2002 and 2005.

Experimental

The declared use of medication on doping control forms collected from 2002 until 2005 was examined. A database was created based on the active ingredients present in the medication belonging to the following categories: corticosteroids, non-steroidal anti-inflammatory drugs (NSAID), narcotic analgesics, local anaesthetics, beta-agonists and anti-depressants.

Classification according to the active ingredient avoids double counting of concomitantly used medication based on the same active ingredient. The doping control forms originating from the Flemish Community (VLG), the UCI, KBWB (Royal Belgian Cycling Federation), DoCoNed (Doping Control The Netherlands) from 2002 until 2005 were evaluated. From 2004, samples from the Communauté Française (CF) are also included.

Results and discussion

In general, the percentage of athletes declaring one or more drugs belonging to the monitored categories increased from 19.80% in 2002 to 24.67% in 2005 (Table 1).

Table 1: Declared use of medication in sports in the period 2002-2005 according to the organisation responsible for the sample collection.

Year	Total %	Origin	NSAID (%)	Anaesthetics (%)	Narcotic analgesics (%)	Corticosteroids (%)	Beta-agonists (%)
2002	19.80						
	N = 3858	Total	12.03	0.73	0.54	6.22	3.55
		VLG	13.23	0.31	0.78	3.19	2.20
		DoCoNed	13.98	0.07	0.35	4.68	3.05
		UCI	2.70	4.32	0.00	25.41	11.08
		KBWB	3.01	3.01	0.60	10.84	6.63
2003	22.19						
	N = 4417	Total	12.63	0.66	0.72	8.06	4.41
		VLG	13.00	0.36	0.81	5.20	3.18
		DoCoNed	15.21	0.81	0.46	6.59	4.45
		UCI	0.34	2.36	2.02	33.67	12.79
		KBWB	1.88	0.00	0.00	16.25	5.63
2004	24.57						
	N = 5190	Total	13.20	0.87	0.66	8.32	4.39
		VLG	14.06	0.59	0.86	8.37	4.50
		DoCoNed	13.93	0.71	0.57	7.07	4.00
		CF	14.43	0.17	0.60	3.61	2.23
		UCI	3.40	7.17	0.00	31.32	11.70
		KBWB	2.45	0.61	0.00	15.95	9.82
2005	24.67						
	N = 5180	Total	12.76	0.33	0.39	9.23	5.42
		VLG	12.44	0.35	0.22	9.26	5.07
		DoCoNed	13.78	0.40	0.47	6.18	4.84
		CF	16.26	0.00	0.82	4.70	2.86
		UCI	3.04	1.01	0.00	36.49	17.91
		KBWB	3.97	0.00	0.00	14.57	8.61

N: Total number of samples analysed

The declared use of NSAIDs is the highest on the forms from the national doping organisations (NADO) with percentages between 13.00% and 16.26%. Declared use of NSAIDs on the forms of the cycling federations (UCI and KBWB) however is low compared to the NADOs. The most important observation however was the incidence of the declared use of β_2 -agonists and corticosteroids on the forms of the cycling federations UCI and KBWB. Percentages of declared corticosteroids for the UCI increased from 25.41% in 2002 to 36.49% in 2005 and declared beta-agonists from 11.08% to 17.91%. The occurrence of these drugs on the forms of the KBWB is lower compared to the UCI, but higher than the percentages obtained for the NADOs. A possible explanation for this difference in percentages between cycling federations and NADOs could be the level of athletes tested and the sport in which tests were carried out. While the UCI and KBWB only test cyclists, the NADOs test many different sports. Most controls by the UCI and KBWB are carried out on

professionals, most frequently having good medical guidance, while NADOs test athletes at both amateur and elite level. Figure 1 summarises the results of the declared medication subdivided according to the tested sport for the most frequently tested sports in 2004. It seems that the use of NSAIDs and paracetamol is most prevalent in athletics and ball sports while corticosteroids and beta-agonists are used most frequently in cycling. Similar results can be found in all other examined periods.

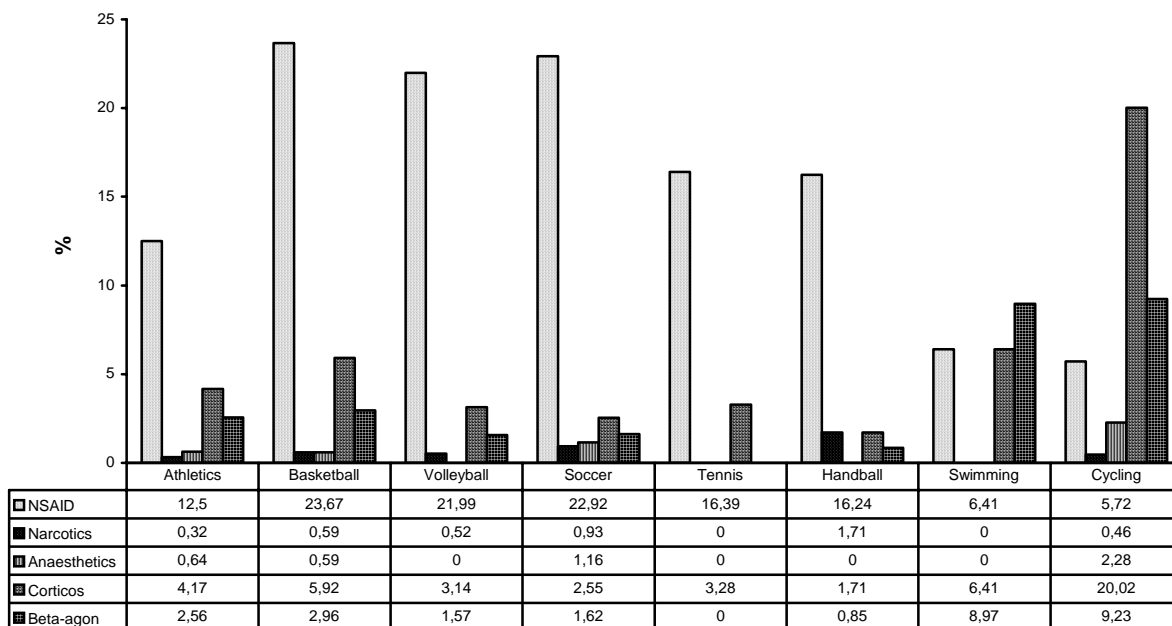


Figure 1: Declared use of medication in different sports in 2004.

The situation of declared corticosteroids in cycling is summarised in Figure 2.

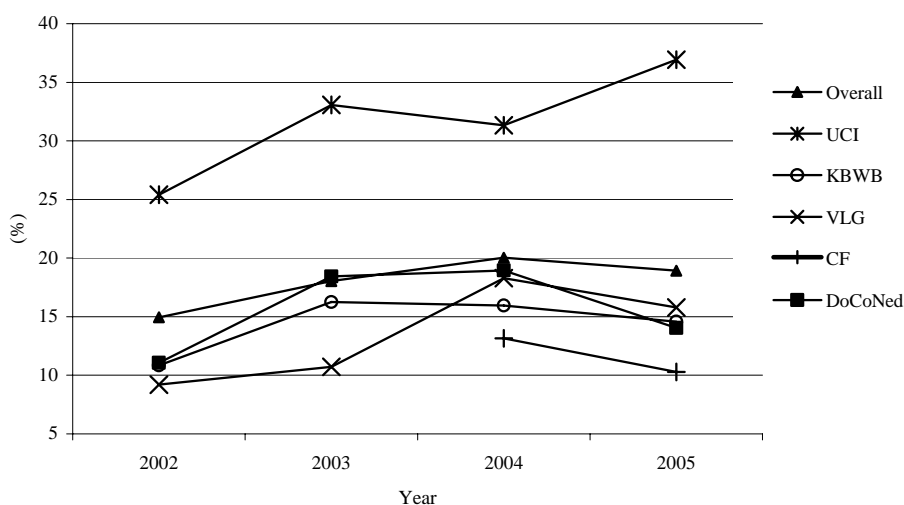


Figure 2: Declared use of corticosteroids in cycling between 2002 and 2005 according to the controlling organisation.

A small decrease in overall declared corticosteroids is caused by a decrease in use in samples originating from the NADOs and KBWB. The use of corticosteroids in samples from the UCI however increased to more than 36% in 2005.

Conclusion

The declared use of medication in sports is depending on the the tested sport and probably on the level of the tested athletes. NSAIDs are most frequently reported on the forms of the NADOs with a high prevalence in ball sports. β -agonists and corticosteroids in particular are excessively used in cycling with percentages up to 36.5 % in samples originating from the UCI. If these trends keep on rising in the future, the TUE system and the WADA reporting level of 30 ng/ml need to be revised.

Acknowledgements

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