LETTERS TO THE EDITOR

Sports drinks and teeth

EDITOR,—In a previous issue of this journal Dr Milosevic published an article entitled "Sports drinks hazard to teeth". The article described the erosive potential of sports drinks based on an analysis of pH and buffer capacity. Moreover, a case was presented of an athlete who had appreciable dental erosion due to regularly drinking a still isotonic sports drink from a pouch. Both the title and the case presented gave the reader the impression that there is a direct relation between sports drink consumption and dental damage.

We consider that the article contains erroneous and misleading information.

FALSE pH VALUE

The author gave the pH of Isostar (a powder based drink) as 2.38 (the lowest value of all the drinks listed)! This figure is wrong and must be based on either a wrong measurement, typing errors, or testing of an old product no longer marketed. Actual measurements by Professor JM ten Cate, Department of Cariology and Endodontology, Academic Centre for Dentistry (ACTA), Amsterdam, the Netherlands, as well as measurements in our own laboratories of all Isostar powder and liquid products in stock at the moment in England (24 March 1997), confirm that the true pH values for Isostar powder based drinks are: lemon pH 4.1, orange pH 4.08. The liquid products have comparable values.

Results from an internal study at ACTA, Amsterdam, finished in 1994, showed that Isostar orange with a pH of 4.0 and a relatively low buffer capacity caused appreciably less erosion than a variety of other tested soft drinks—namely, fruit juices and competitive sports drinks (ten Cate JM, unpublished data). Moreover, it was shown that mixing the drink with artificial saliva (10 and 50% mixtures) results in a pH that is even above the critical pH of 5.5. Based on these data Novartis Nutrition decided to set the pH of all Isostar drinks at 4.0, while having a relatively low buffer capacity. These facts about Isostar are in marked contrast to the impression made by Dr Milosevic's article, which meanwhile has been cited by the international press.

NO DIRECT EVIDENCE

Dr Milosevic presented no direct evidence on a relation between sports drink consumption and dental erosion as can be seen by the following phrases from the article:

- "Sport drinks had the same cariogenicity as fruit juice and carbonated beverages.⁷ However, levels of decay were not significantly different between a group of Swedish school athletes and a non-athletic control group." (page 28)
- "A five day fluid intake record showed that hot beverages were rarely consumed, the subject (of the dental damage case presented) preferring fresh fruit juice and carbonated beverages." (page 29)
- "... erosion cannot be attributed unequivocally to the sports drink since the subject (from the case presented) also drank fresh

fruit juice and carbonated beverages. Such drinks are potentially erosive..." (page 30)

- "Ranking the erosive potential of the sports drinks is thus difficult..." (page 30).

Thus it must be concluded that the author fails to support his opinion with direct evidence. Moreover, the citation of an incorrect pH value has in an unacceptable way brought discredit to the product Isostar—a product that is based on sound scientific research, including the aspect of dental erosion.

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1 Milosevic A. Sports drinks hazard to teeth. *Br J Sports Med* 1997;31:28-30.

Author's reply

EDITOR,—I would like to respond to the above letter from Drs Brouns and Muntjewerf of Novartis Nutrition AG about my recent article "Sports drinks hazard to teeth".¹ They make a number of points with which I must take issue.

I refute the suggestion that my paper contained erroneous and misleading information. Having repeated the Isostar pH measurement, I am satisfied that the results of the tests that were performed on all of the drinks under consideration were accurate, including the pH values.

As mentioned in the article the calcium, phosphate, and fluoride concentrations of the drinks were examined as well, which are all relevant factors when considering potential for dental erosion.

I did not single out Isostar from the other drinks under examination, still less did I discredit it as a product. In fact, Isostar came out of the study favourably as the relatively high concentrations of calcium and phosphate in the drink would, as I said in the article, tend to reduce any erosive potential.

I consider my paper to be well balanced and, read as a whole, my message to the profession was clear. The results of my study corroborate the findings of earlier papers that these types of drink have the potential to cause dental erosion. There is, in my view, need for greater awareness of this issue and also for further research.

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1 Milosevic A. Sports drinks hazard to teeth. *Br J Sports Med* 1997;31:28-30.

Doping in sport : doctors are providing drugs

EDITOR,—Studies dedicated to doping in sport have until now concentrated on events after the use of banned substances: drug testing, side effects, etc. On the other hand, few works have examined what happens before this abuse. An understanding of what happens

Table 1 Doping in adult amateur sports: sources of drugs according to athletes

Sources of drugs	Drugs users (%)
Doctor/general practitioner	61
Black market	20
Proximity network	15
Other	4
Total	100

before their use might, however, help to create new tools that would perhaps allow more effective prevention of doping.

With this in mind, we focused our attention on an unexplored subject—namely, how adult amateur athletes obtain illicit drugs.

METHODS

During a study among 2000 French amateur athletes of both sexes aged 17 and above, 186 subjects admitted that they had used prohibited substances in the previous 12 months, and 73 agreed to answer a questionnaire on the way they had obtained these drugs, provided that their anonymity was strictly respected. The working sample comprised 58 men and 15 women aged between 17 and 45 years (mean (SD) 25.8 (6.9)), including seven elite athletes and 66 athletes involved in national or regional level events (no body builders and no power athletes). The drugs used were stimulants (46%), narcotics (29%), corticoids (9%), anabolic-androgenic steroids (4%), diuretics (4%), and other (8%). Use of more than one drug was reported by 13 athletes. Three subjects used drugs without knowing their names.

RESULTS

Subjects obtained drugs through three main networks: doctors, the black market, and the proximity network (table 1).

Drugs prescribed by a doctor (that is, stimulants, corticoids, anabolic-androgenic steroids, diuretics) were quoted by two thirds of the subjects (61%). Their usual general practitioners were most often the prescriber and, according to the athletes, the prescription was usually written with the full knowledge of the doctor during routine consultation. In six cases, however, the prescription was obtained by giving the excuse of a disease or a previous injury, as prescribing anabolic steroids to athletes is ethically unacceptable in France. Systematically, the doctor delivered the prescription within the framework of the national health insurance scheme, in other words the cost of the drugs was reimbursed by social security.

The black market was used by one fifth (20%) of the subjects, particularly for narcotics such as cannabis and cocaine. The suppliers were "traditional" dealers met outside stadiums.

The proximity network allowed the acquisition of drugs from people within a close circle—coaches, team mates, or relatives, and was quoted by 15% of the athletes.

DISCUSSION

General practitioners do encounter doping in sport: in France, one in three during the past 12 months.¹ In 1991, of 517 family doctors and paediatricians in Texas, 55% reported being asked about steroids or seeing possible steroid users in their practices during the previous five years.² Finally, a number of doctors prescribe prohibited drugs through inattention or being fooled by the athlete making the request.³ Practitioners must therefore improve their knowledge of doping, and con-