

Most international authorities who organize sporting events lay down rules as to what is meant by a drug. Thus the International Olympics Committee on Doping has issued lists of groups of drugs and has defined doping as follows:

"Doping is the administration to, or the use by, a competing athlete of any substance foreign to the body or of any physiological substance taken in abnormal quantity or taken by an abnormal route of entry into the body, with the sole intention of increasing in an artificial and unfair manner his performance in competition. When necessity demands medical treatment with any substance which, because of its nature, dosage, or application is able to boost the athlete's performance in competition in an artificial and unfair manner, this too is to be regarded as doping."<sup>2</sup>

It appears that for various reasons the International Olympics Committee has shifted responsibility to the competency of the various international sports associations. This has meant that different interpretations of the doping problem have resulted. Thus the International Cycling Union is reputed to allow the use of ephedrine.

The *Concise Oxford Dictionary* defines a drug as "an original simple medicinal substance, organic or inorganic, used alone or as an ingredient." Any substance naturally present in a foodstuff and taken in normal physiological amounts cannot, by any stretch of the imagination, be considered a medicinal substance. However, when many times the normal amount is proposed, and if it is given with the express purpose of improving, or attempting to improve, performance the question may reasonably be asked whether this constitutes "doping"—that is, the administration of a drug.

The Medicines Act has defined a "medicinal product." Under Section (e) the definition in general of a medicinal product, other than in treating disease is: "otherwise preventing or interfering with the normal operation of a physiological function, whether permanently or temporarily, and whether by way of terminating, reducing or postponing or increasing or accelerating the operation of that function, or in any other way." The use of vitamins in excessive quantity as medication would therefore constitute a medicinal product and by this definition be a drug. However, it may be difficult to say what is an excessive quantity. Moreover a competitor who gives himself an unphysiological quantity of a substance like glucose, say 100 g, believing it will improve his performance cannot reasonably be said to be doping himself. It appears therefore, Sir, difficult to say where nutrition ends and doping begins—if indeed it does when normal nutrients are concerned.—I am, etc.,

IVAN M. SHARMAN

Dunn Nutritional Laboratory,  
Cambridge

1 Sharman, I. M., Dunn, M. G. and Sen, R. N., *British Journal of Nutrition*, 1971, 26, 265.  
2 Prekop, L., *Journal of Sports Medicine and Physical Fitness*, 1965, 5, 88.

### Pollution in the Operating Theatre

SIR,—The text of your leading article "Pollution in the Operating Theatre" (15 April, p. 123) does scant justice to the scope of its

title. Polluted with anaesthetic gases the operating theatre may be, but the frequency with which wound infections occur in all theatres suggests bacterial pollution is the most compelling argument for a more logical system of theatre ventilation.<sup>1,2</sup>

As it happens, the answer to both concentrations of bacteria at the incision and anaesthetic gases at the anaesthetist already exists in the laminar/linear air-flow system of ventilation. The anaesthetist needs therefore to stimulate his surgical colleagues to examine critically this ventilation system, the introduction of which into our operating theatres will benefit all who participate in the surgical act: the surgeon, the anaesthetist, and not least, the patient.—I am, etc.,

CHARLES C. SCOTT

Department of Bacteriology,  
University of Dundee,  
Dundee

1 Scott, C. C., Sanderson, J. T., Guthrie, T. D., *Lancet*, 1971, 1, 1288.  
2 Scott, C. C., *Lancet*, 1971, 2, 1148.  
3 Scott, C. C., *Lancet*, 1970, 2, 989.

### Rh-sensitization and Third Stage of Labour

SIR,—Mr. O. A. Ladipo (18 March, p. 721) draws attention to the possibility that rhesus sensitization is to some extent an iatrogenic phenomenon. By interference with nature's management of the third stage of labour, particularly by early clamping of the placental end of the severed cord, it could be that doctors and midwives cause more potentially sensitizing fetal cells to enter the maternal circulation.

The value of his paper, however, is limited by the lack of orientation to other published work on the subject. A study<sup>1</sup> with the Kleihauer technique covered 230 cases in which conventional cord clamping was compared with a technique allowing the placental end of the severed cord to drain freely. The difference between the means for foeto-maternal haemorrhage on a "+" score system was not significant. A later study<sup>2</sup> of 22 patients compared early clamping with late clamping 3-10 mins after delivery, and recorded foeto-maternal bleeding in six early clamping cases and seven late clamping cases. Terry<sup>3</sup> studied 125 patients, comparing placental delivery by "controlled cord traction" with a technique of early cutting of the cord followed by free drainage of the placental end. He found 45 out of 67 controlled cord traction cases with transplacental bleeding as opposed to 27 of 58 managed by free drainage. In a recent review<sup>4</sup> of 200 cases in 110 of which the placental end of the cord was clamped at severance performed after cessation of cord pulsation while in 90 severance was performed at the same time but the placental end was left to bleed freely, no difference in foeto-maternal transfusion could be demonstrated.

Various criticisms could be levelled at all of these studies, none of which involved precisely the same comparisons. Viewed together with Mr. Ladipo's analysis of 200 cases divided into three categories they point to a situation which calls for assessment on a wider scale than has been carried out hitherto.

The study of factors influencing foeto-maternal haemorrhage in relation to management of the umbilical cord in the third stage of labour occupies a tiny but very clearly defined position on the medical scene. In this

letter I refer to the five papers on the subject of which I am aware, each in English in readily accessible journals and not published simultaneously. Paper 2 makes no reference to paper 1, paper 3 refers to neither 1 nor 2, paper 4 refers to 3 only while Mr. Ladipo's paper, number 5 in sequence, refers to 3 though including an uninformative mention of paper 2. The moral probably is that the problems of scientific communication in the present day are many but that nothing is more important than the choice of title for a paper, with its indexing consequences.—I am, etc.,

J. S. SCOTT

Department of Obstetrics and Gynaecology,  
University of Leeds

1 Scott, J. S., Finn, R., Miller, J., and Thomas, P., *American Journal of Obstetrics and Gynecology*, 1963, 85, 380.  
2 Dunn, P. M., and Fraser, I. D., and Raper, A. B., *Journal of Obstetrics and Gynaecology of the British Commonwealth*, 1966, 73, 757.  
3 Terry, M. F., *Journal of Obstetrics and Gynaecology of the British Commonwealth*, 1970, 77, 129.  
4 Kjersgaard Johansen, J., Schacke, E., and Stürup, A. G., *Acta Obstetrica et Gynecologica Scandinavica*, 1971, 50, 193.

### Computer-aided Diagnosis of Acute Abdominal Pain

SIR,—The report by Mr. F. T. de Dombal and his colleagues is of great interest and value (1 April, p. 9). Clinicians must welcome a computer diagnosis system in a field in which diagnosis is notoriously inaccurate. I believe that the rate of inaccurate clinical diagnosis in the series described is rather higher than may appear. "Non-specific abdominal pain" is hardly a diagnosis. In this group comprising 49% of patients it is very likely that there were, for example, a few genuine cases of appendicitis which settled without operation but which, if they had been operated upon, would have shown sufficient evidence of disease for reclassification as acute appendicitis. I could suggest other possibilities of this type, and perhaps calculations based strictly on diagnosis proved at operation would be more accurate.

It surprises me that the writers find the number of "possible disorders" so small, with only 2.6% of miscellaneous cases. Where, for example, are the ruptured physiological cysts of the right ovary, and tubal conditions which surgeons may diagnose as appendicitis, the acute mesenteric adenitis mimicking appendicitis, and the colonic obstructions due to carcinoma?

Some years ago I reviewed 1,179 emergency abdominal operations and listed 161 (15%) as involving uncommon or rare conditions.<sup>1</sup> Some of these conditions have specific signs or symptoms, the significance of which is often appreciated only in retrospect. I would hope that a computer fed with additional data would help to elucidate these rare conditions preoperatively.

There is no mention in this article of the use of the plain film of the abdomen in diagnosis. It is my firm belief that this adds to the accuracy of diagnosis. In the Leeds series the relatively low clinical diagnosis rate for perforated duodenal ulcer would probably be raised if routine x-rays were taken. Should not radiographic information be utilized in the computer system?

Such criticisms do not detract from the value of this paper. It is impressive, for example, to find a clinical diagnosis rate of 50% raised to 100% by the computer for