puerperium is a time of special danger, as the rapid involution of the uterus may tear apart adhesions which wall-off abscess cavities thus leading to spreading peritonitis.

In view of these risks I feel therefore that a small but definite place exists for termination of pregnancy in certain patients with active Crohn's disease. Sterilization is, of course, a different matter, as alternative methods of contraception will often suffice or vasectomy may be performed on the husband.—I am, etc.,

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- 1 Lloyd-Jones, R. L., and Soltan, D. H. K., *Journal of Obstetrics and Gynaecology of the British Empire*, 1958, **65**, 811.
2 Borcham, P. F., and Soltan, D. H. K., *British Medical Journal*, 1970, **2**, 341.

Anabolic Steroids in Athletics

SIR,—Self-administration of anabolic steroids by athletes is common, especially at international level. The efficacy in improving performance is not in doubt.¹ In view of the oft-repeated statement in the popular media that taken in low doses these drugs have no side effects² we feel it urgently necessary to make known some preliminary observations on a clinical trial currently taking place of their use in healthy young adults.

Ten experienced male weight-lifters, aged 19-25, who were all either contemplating the use of anabolic steroids or else had used them before, took part in a double-blind crossover trial comparing methandienone (Dianabol) with a placebo of identical appearance. The doses given were 10 mg per day (five subjects) and 25 mg per day (five subjects). The recommended dose is 2.5-15 mg per day. It is thought that doses up to 300 mg per day have been taken by some athletes. Each half of the crossover trial lasted six weeks. The men were seen and examined at fortnightly intervals, at which time blood was taken for alanine transaminase and cholesterol estimations. Side effects were seen on both dosage regimens, as follows.

Blood Pressure.—Eight subjects had rises of blood pressure, usually of the order of 5-10 mm Hg (but two men, both low dose, had rises from 130/85 to 150/110 and from 120/70 to 160/90 respectively; neither had a family history of hypertension). Though fluctuations occurred in the placebo-treated men, a paired *t* test shows the difference to be significant at the 10% level for systolic pressures and at the 5% level for diastolic pressures.

Prostatism.—One man (high dose) suffered from urinary frequency and discomfort on micturition. A midstream specimen of urine produced no significant bacterial growth.

Acne.—Two men (one high dose, one low dose) had facial acne.

Biochemical Change.—One man (high dose) was found to have an alanine transaminase of 75 units per ml after six weeks of methandienone. His pretrial alanine transaminase was 13 units per ml.

Sexual Activity.—One man (high dose) had a marked diminution of libido.

Miscellaneous.—Four subjects (three high dose, one low dose) suffered from dizziness, headache, and faintness or lethargy or both.

All side effects disappeared after stopping treatment. No side effects were seen in any subject while on the placebo. Though testicular function was not studied it should be mentioned that methandienone has been

shown³ to depress testicular weight in experimental animals.

The data are insufficient for meaningful statistical analysis. However, though the study is incomplete, we consider it unwise to state that at low doses anabolic steroids have no side effects.—We are, etc.,

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1 *British Medical Journal*, 1971, **1**, 104.

2 Williams, J., *The Guardian*, 23 August, 1972, p. 12.

3 Boris, A., Stevenson, R. H., and Trmal, T., *Steroids*, 1970, **15**, 61.

Was it a Drug?

SIR,—Dr. A. A. Lewis suggests (2 September, p. 588) that most local medical committees would be delighted to allow prescriptions for modified foods such as salt-free butter for patients on low salt diet and starch-free foods for diabetics. I doubt whether the committees would have so liberal an attitude to something so vulnerable to abuse, since these modified foods still have the same appearance and taste as conventional foods. Dr. Lewis asks what lines of reasoning are followed by local medical committees when considering the propriety of a general practitioner's prescribing of a preparation on E.C.10. I suggest that a guiding principle may be: Will this form of treatment increase the probability of rapid cure or improvement of the patient's disease and at the same time contribute to overall economies in Health Service expenditure on the total treatment of the patient?

A familiar example of the long-sighted approach is seen in the case of the old man living alone on a small income whose diet is deficient in protein and vitamin. As you pointed out in your leading article, "Operating on the Elderly" (27 May, p. 480), such patients rarely show overt signs of malnutrition, but if they should come to operation their hospital stay is often prolonged because their protein and vitamin deficiency leads to delay in wound healing and increased liability to postoperative infection. If by correcting protein or vitamin deficiency before hospital admission for a "cold" operation postoperative stay in the ward is reduced the cost of dietary correction is well worthwhile. Ideally, the general practitioner should be able to tell his elderly, perhaps hypertensive patient to "eat more protein before you go into hospital—but don't have too much salt—and not too much carbohydrate. It's better not to be too overweight when you're having an operation." But dietetics is quite a complicated subject, especially for the men, and protein foods are expensive. Old people are often reluctant to change their eating habits, but a high-protein, low-carbohydrate, low-fat, low-sodium preparation in powder form is something the patient can and will take as a medicine—just as he will take vitamin capsules or iron tablets when prescribed.

When a general practitioner judges it to be good medicine and to be in the overall interests of the Health Service economy to

prescribe under the Health Service a "borderline preparation" he should be able to do so without the irritating deterrent of possible challenge by and justification to the local medical committee. Could not some acceptable formula be agreed with the Department of Health whereby E.C.10 prescriptions for nutritional supplements such as vitamins, protein, iron, and other minerals could be routinely allowable provided they were endorsed by the general practitioner with a brief clinical indication such as "probable protein deficiency—for operation"; "iron deficiency anaemia"; etc.? This would give greater freedom to the doctor but would still deter him from frivolous prescribing, and would be in the interests of the patient and of the Health Service economy.—I am, etc.,

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Immunosuppression by Co-trimoxazole

SIR,—We read with interest the article by Drs. P. M. Gaylarde and I. Sarkany (15 July, p. 144) about the effect of co-trimoxazole (trimethoprim-sulphamethoxazole) on phytohaemagglutinin-induced lymphocyte transformation. We would like to report here some of the results of our study on the possible immunosuppressive effects of co-trimoxazole in man, as these, in our opinion, would further indicate that the phenomenon reported by Drs. Gaylarde and Sarkany could be relevant clinically.

Despite the observation that human folate reductase is inhibited by concentrations of trimethoprim 10,000-times greater than are required to inhibit the bacterial enzyme,¹ it seemed possible that trimethoprim or co-trimoxazole could affect human cells actively proliferating, such as cells engaged in immunological responses. In mice trimethoprim has been shown to have an immunosuppressive effect comparable to that of azathioprine when tested by prolongation of skin allograft survival.² In a preliminary study trimethoprim was found to suppress the induction of contact hypersensitivity in man to dinitrochlorobenzene.³ The present study was undertaken to determine the possible effect on the antibody response of the combination of drugs in the form and dosage widely used in human medicine.

Forty healthy male volunteers from the Finnish defensive forces were vaccinated according to the routine vaccination schedule against tetanus and boosted four weeks later. Serum samples were taken before the first inoculation and four and five weeks later. Twenty individuals were given sulphamethoxazole 400 mg and trimethoprim 80 mg twice daily by mouth. The treatment was begun immediately after vaccination and lasted for four days. Twenty other individuals served as untreated controls. Tetanus antoxin titres were determined by passive haemagglutination⁴ modified for microtitration. The sera were first absorbed with sheep red cells to remove heterophilic antibodies. The titrations were done blindly.

The results (see Fig.) show the rise of antitoxin titre in drug-treated (dotted line) and control groups (solid line) (13 and 10 individuals, respectively). Only those individuals whose initial tetanus antitoxin titres were $\leq 1:25$ are included. The mean titre in the drug-treated group is highly significant.