naal bed rest may actually have a deleterious effect upon fetal growth and well-being and that until this basic problem is settled it is not possible to say whether the better results obtained by Dr. Varma and Professor Curzen in their decompressed patients are more likely to have been effected by the decompression itself or by the lesser amount of enforced bed rest to which they were subjected.—I am, etc.,

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- 1 Varma, T. R., and Curzen, P., *Journal of Obstetrics and Gynaecology of the British Commonwealth*, 1973, 80, 1086.
- 2 Mathews, D. D., and Loeffler, F. E., *Journal of Obstetrics and Gynaecology of the British Commonwealth*, 1968, 75, 268.
- 3 Greene, J. W., Duhring, J. L., and Smith, K., *American Journal of Obstetrics and Gynecology*, 1965, 92, 1030.
- 4 Mathews, D. D., Patel, I. R., and Sengupta, S. N., *Journal of Obstetrics and Gynaecology of the British Commonwealth*, 1971, 78, 610.

Effects of Exertion on Hormone Secretion

SIR,—Physical activity or exercise is a stimulus to the secretion of many hormones, including cortisol¹ and testosterone.^{2,3} However, the response may depend on the physical fitness of the individual and the degree (or type) of exercise.

In order to study the response during very strenuous exercise we determined plasma testosterone by radioimmunoassay in 13 Finnish amateur sportsmen aged 30–40 years who were participants in the second non-competitive marathon run in Athens on 20 October 1973. Some determinations were also made on a Greek participant (no. 14), a former marathon prizewinner. All were in good physical condition before the event and had trained regularly, running as part of a programme to increase physical fitness. Eleven of the participants (nos. 1–11) ran the marathon (42.2 km) in 210–285 min. One of the participants (no. 12) took only 180 min, and because his physical condition after the run was exceptionally good he is considered separately. Participant no. 13 collapsed after having run 15 km in 66 min, and he also is considered separately. It must be emphasized that the temperature was very high, about 30°C in the shade. Water was available ad libitum every 5 km and at the finish, before blood sampling. The samples were obtained within 30 min of completion of the run. Control samples were taken at 1200 and 1600 hr (approximate times of start and finish of the marathon) some days before or after the run.

The results of the plasma cortisol determinations ($\mu\text{mol/l.}$) are shown in table I.

The results of the plasma testosterone determinations (nmol/l.) are shown in table II.

As was to be expected, the mean plasma cortisol value increased highly significantly ($P < 0.001$); however, in the participant who collapsed the value did not increase. Surprisingly, the plasma testosterone values fell

TABLE II—Results of the plasma testosterone determinations (nmol/l.)

Participant No.	Control Samples		After Marathon
	1200 hr	1600 hr	
1–11	21.6 $\pm$ 11.5 (S.D.)	23.4 $\pm$ 11.8 (S.D.)	14.1 $\pm$ 9.4 (S.D.)
12	27.4	33.2	36.0
13	13.9	11.0	3.0
14	—	19.9	11.4

significantly ($P < 0.001$) in all participants with the exception that participant no. 12, who was better trained than the others, had a slightly increased value. The participant who collapsed had a very low value—in fact within the normal female range. Thus these results show that strenuous physical exercise has different effects on hormone secretion in different individuals. Because some of the results cannot be explained at present the investigation will be continued during the next marathon run in Athens.—We are, etc.,

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- 1 Sutton, J., et al., *Medical Journal of Australia*, 1972, 2, 127.
- 2 Sutton, J. R., et al., *British Medical Journal*, 1973, 1, 520.
- 3 Lipsett, M. B., et al., *Recent Progress in Hormone Research*, 1966, 22, 245.

Amitriptyline and Imipramine Poisoning in Children

SIR,—Drs. H. W. Asbach and H. W. Schüler (18 May, p. 386) report the use in two children of haemodialysis in imipramine poisoning. The conclusion is that compared with conservative management “the duration of coma seems to be favourably shortened.” No information is given as to the amount of imipramine recovered by dialysis, but the authors cite Harthorne *et al.*¹ as reporting “successful haemodialysis treatment after imipramine poisoning.” Harthorne *et al.* in the reference cited stated in fact that “dialysis did not remove significant amounts of imipramine” and that out of a total of 5,375 mg of imipramine ingested only 30 mg was recovered after 5½ hours of dialysis.

It is indeed unfortunate that you should have published Drs. Asbach and Schüler's letter which contained no facts to substantiate their claim that “the amount of imipramine recovered in the dialysate is not so small as has been supposed” (apart from a reference to unpublished work *in vitro*) and cited a reference which clearly proved the futility of using haemodialysis to remove imipramine in this form of poisoning.

It is to be hoped that haemodialysis or any other method attempting to increase elimination will continue to play no part in the management of patients poisoned by

tricyclic drugs until it can be demonstrated that worthwhile amounts of the drugs are indeed removed by the method advocated.—I am, etc.,

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- 1 Harthorne, J. W., Marcus, A. M., and Kaye, M., *New England Journal of Medicine*, 1963, 268, 33.

Sleeping Sickness

SIR,—Your leading article on this subject (4 May, p. 236) excellently draws attention to some new techniques becoming available for the “subspecific” differentiation of trypanosomes but calls for two comments, one major and one minor.

You mention the use of human volunteers for a “final test of infectivity to man” of strains already categorized by the blood incubation infectivity test (B.I.I.T.). It is not possible in a letter to discuss the serious doubts which attach to past experimentation with human subjects in Africa for this purpose, but I must record that to my mind it is ethically indefensible to inoculate B.I.I.T.-positive strains—that is, those indicated as infective to man—into humans to confirm that indication. This concordance between test result and infectivity to man may be studied by trial in the B.I.I.T. of strains isolated from naturally infected subjects. Only the opposite concordance, that of negativity in the B.I.I.T. with non-infectivity for man, calls for experimentation with humans; and the subjects used for such experimentation should be people who have never visited Africa and who may therefore be assumed not to have any acquired immunity to infection with *Trypanosoma brucei* subspecies.

The B.I.I.T. is dependent on the “neutralization” by human serum of the infectivity of *T. brucei brucei* (non-man-infecting) to laboratory rodents and on the absence of such “neutralization” effect in the case of *T. brucei rhodesiense* (man-infecting). It is not necessarily dependent, as you suggest, on the lysis of the organisms.—I am, etc.,

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Inversion of the Appendix

SIR,—In his letter reporting a unique late complication following the operation of inversion of the appendix Mr. G. H. Dickson (18 May, p. 385) invites accounts of other complications that may have been met with. I suspect that he will receive few replies as not many surgeons use this procedure and many are not even aware of what it implies. In addition, complications

TABLE I—Results of the plasma cortisol determinations ($\mu\text{mol/l.}$)

Participant No.	Control Samples		After Marathon
	1200 hr	1600 hr	
1–11	0.44 $\pm$ 0.19 (S.D.)	0.26 $\pm$ 0.10 (S.D.)	1.15 $\pm$ 0.36 (S.D.)
12	0.54	0.44	1.45
13	0.41	0.24	0.26
14	—	0.45	1.24