

BRITISH MEDICAL JOURNAL

SATURDAY 9 MAY 1981

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We may return unduly long letters to the author for shortening so that we can offer readers as wide a selection as possible. We receive so many letters each week that we have to omit some of them. Letters must be signed personally by all their authors. We cannot acknowledge their receipt unless a stamped addressed envelope or an international reply coupon is enclosed.

Correspondents should present their references in the Vancouver style (see examples in these columns). In particular, the names and initials of all authors must be given unless there are more than six, when only the first three should be given, followed by et al; and the first and last page numbers of articles and chapters should be included. Titles of papers are not, however, included in the correspondence section.

Heat stroke and community runs

SIR,—Enthusiasm for community "fun runs" and marathons is on the increase, as shown by the 7000 runners competing in the recent London marathon and by the plans for similar runs throughout the country. Increased physical fitness is a desirable aim in such runs, and though longevity may not be improved most runners will attest to an increased enjoyment of life resulting from regular running.

There are, however, some serious risks in such large community runs involving highly motivated but not necessarily well-trained runners. One problem is siriasis (heat stroke), named because the dogstar, Sirius, rises with the sun in the middle of summer.¹ It is at this time of year that heat stroke is most likely to occur. English summers are not noted for their warmth, but life-threatening heat stroke can occur in otherwise normal individuals in temperate climates even over relatively short runs.²

Heat stroke is caused by excessive heat storage when the ambient temperature prevents heat dissipation by radiation or convection and sweat evaporation is limited by humidity.³ It is to be distinguished from heat cramps and heat exhaustion, both milder forms of heat illness. Heat stroke is an acute medical emergency characterised by three cardinal

signs: severe central nervous system disturbance, hyperpyrexia (rectal temperature greater than 41°C), and usually anhidrosis. The higher the body temperature the greater is the mortality. Clinically severely affected patients present with confusion, disorientation, combative delirium, vomiting, diarrhoea, and occasionally convulsions and coma. Situations predisposing to impaired heat loss or excessive heat production may encourage the development of hyperthermia. Clothing which restricts sweat loss, disease states associated with reduced skin blood flow such as heart failure, or drug therapy with anticholinergic drugs like propantheline or disopyramide may restrict heat loss; and pre-existing fever associated with intercurrent infection may result in excessive heat production. Amphetamine use also probably encourages excessive heat production. Physicians consulted by would-be runners should bear these problems in mind when advising runners about participating in such runs.

Pathological changes in heat stroke are characterised by widespread petechiae evident clinically in the skin, and microscopically in brain, liver, and kidneys in patients dying of heat stroke. Early treatment is essential if the risk of progressive heat stroke is to be avoided. Treatment consists of temperature reduction,

support of vital systems, and appropriate fluid replacement. More detailed advice concerning the clinical features and pathological changes in heat stroke and its medical treatment is available elsewhere.³

With increased numbers of runners participating in community runs, cases of heat stroke are certain to occur and it is essential that organisers of runs, ambulance personnel, general practitioners, and hospital emergency room staffs are aware of the possibility of heat stroke. The organisers of the London marathon are to be congratulated on their efficient organisation of such a large event. Light rain and a low temperature on the day of the marathon considerably reduced the risk of heat stroke. It is to be hoped that the many community runs planned for the coming summer are as well organised and free of significant avoidable illness.

The risk of heat stroke can be reduced by ensuring that runners train under the conditions of the run, thus acclimatising themselves to strenuous exertion in a warm environment; that runners who are unwell before the run are advised not to participate; that adequate fluid is available and drinking encouraged throughout the run; that runs avoid the hottest part of the day and year as the London marathon has done; and, lastly,