DISCUSSION

Height is highly correlated with various linear body dimensions and body weight with various breadths, girths and with skinfold measurements. Age, height and weight are good determinants of a number of aspects of physique (Khosla and McBroom, 1985). Women short distance runners are younger, taller and heavier for their height than medium and long distance runners. This trend was similar to that observed in men (Khosla, 1978).

The ages of gold medallists in the short and medium distance events (100 m to 1500 m) ranged from 20 to 30 years (Fig. 1). Several finalists older than 30 were observed in the medium and long distance events (800 m to marathon). Age is an important factor in the type of running event; sprinters may have to retire early but medium and long distance runners can continue well beyond their thirties. It is of interest to note that among the 3000 m finalists, whose ages ranged from 18 to 34 Zola Budd was the youngest whilst the gold medallist was the oldest (Fig. 1).

Height is an important factor in the type of running event. The gold medallists in all events other than the marathon were taller than the average height of women in Great Britain (Fig. 2). It is interesting to note that 100 m sprinters are significantly shorter than 200 m and 400 m runners. It is probable that some relatively shorter medalists may derive some advantage with a quicker start (faster reaction) in the 100 m sprint. But the advantage of a faster reaction by a shorter sprinter is not enough in the 200 m and 400 m runs. Because of the height bias in the running events, competitors from Asian and Latin American countries (average height round 155 cm) experience difficulty in competing in the running events. It is of interest to record that even Japan did not participate in any of the female running events excepting the marathon in the Los Angeles Olympics.

Height for height the finalists in the sprinting events are heavier than medium and long distance runners. Adjusting for height the endurance runners were lighter than sprinters by about 6 kg. In terms of height, the silver medallist sprinter at Los Angeles (158 cm) was comparable to the bronze medallist marathon runner (157 cm). But in terms of body weight the sprinter was 9.5 kg (21 lb) heavier (55.5 kg vs 46.0 kg). Much of the excess weight in the sprinting events is probably composed of muscle mass on a medium framed body. It appears that the optimum weight for height standard is related to frame size; obviously at a given height, a small framed body with a specified weight considered optimum for a medium frame will become a burden to the sprinter.

In the newly introduced 3000 m run, Zola Budd was the lightest (adjusted weight 44 kg) in the range of weights 44 to 56 kg (Fig. 3). She was 6.8 kg lighter than the average of the three medallists, and 3.7 kg lighter than Mary Decker. Many other factors of physiological and psychological nature are of importance in the making of finalists. But very little information is documented on them besides age, height and weight. Low heart rate (less than 50 bpm) is an important variable in successful marathon runners (Khosla and Campbell, 1982). In general possession of optimum standards on age, height and weight are not sufficient by themselves, but they are prerequisites in the selection and training of potential champions in international competitions, and in the national competitions of western countries (Khosla and McBroom, 1984).

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OBITUARY

Dr. Triloke Khosla, MSc, PhD

The article printed above is published posthumously, as Dr. Khosla, we were distressed to hear, died suddenly in India while on a holiday with the object of finding and purchasing a home for his imminent retirement. Triloke Khosla settled in Wales many years ago, as a Medical Statistician to the Welsh National School of Medicine. Like many statisticians, he took a keen interest in the statistics of sport, and soon realised, by analysis of the physiques of medallists that body, build, especially height and weight were most important factors for success. After joining the British Association of Sport and Medicine in 1970, he delivered a paper at one of our meetings but put the case for height and/or weight categories in track and field athletes on similar lines to weight categories in boxing, wrestling and weight-lifting. As each Olympiad passed, he was able to gain more evidence to support his view and several articles were published in the British Journal of Sports Medicine, letters and articles in the British Medical Journal, and a book that was published by the National University of Wales.

It is regrettable that his views have not been given wider acceptance, but as he has said and written, "Sport for All" really means "Sport for Tall". We shall miss him at our meetings, and a gap will be left in the sporting and medical literature by someone who at least did something with the information collected at major sporting events.

We extend our deepest sympathy to his widow and his family.

H. E. Robson