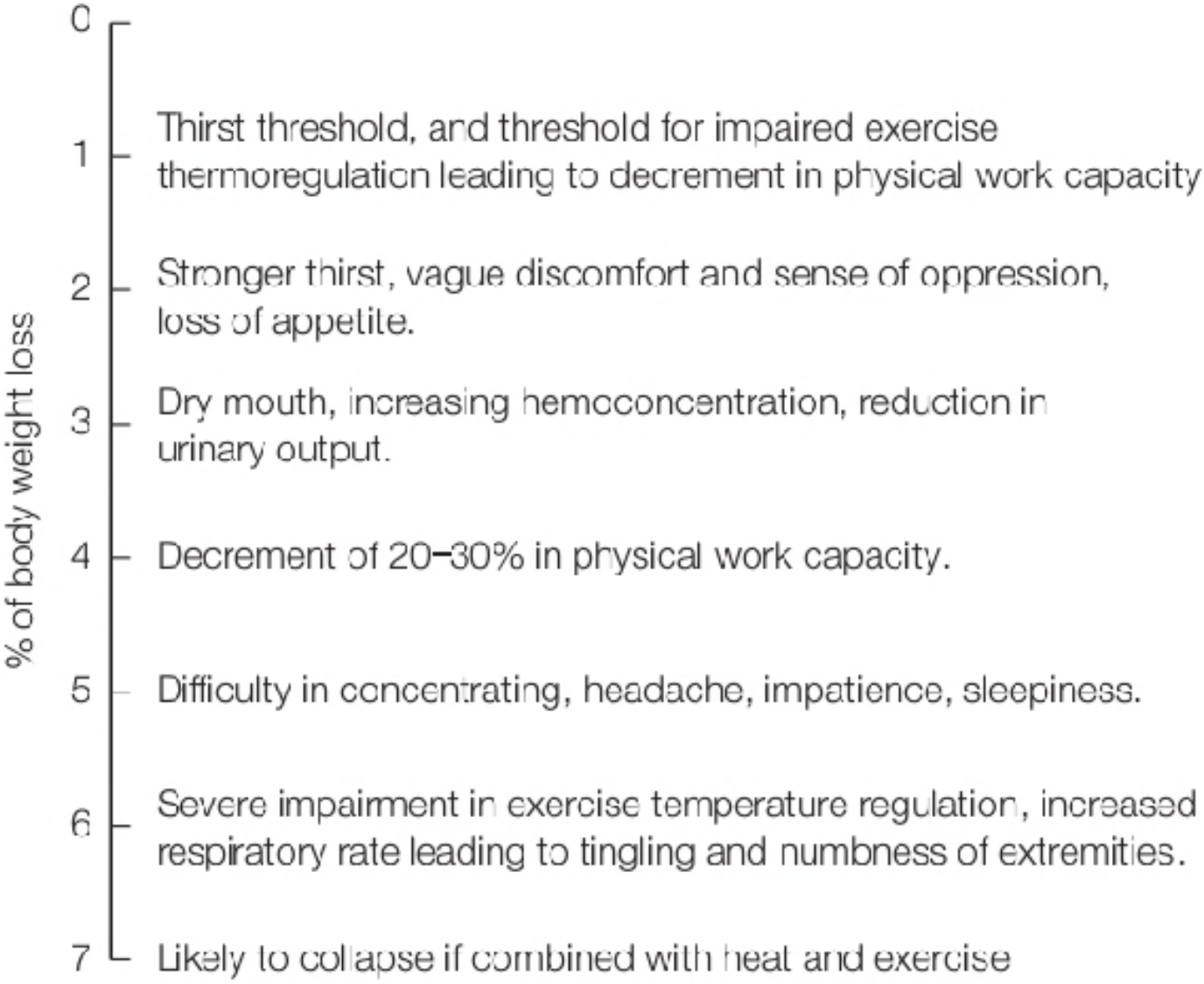
Dehydration

Heat generated by the muscles during exercise must be dissipated in an attempt to maintain body temperature within a narrow physiological band. **Evaporative heat loss** via **sweating** is a major means employed by the body to cool down. Sweating does not only occur at high ambient temperatures but also happens when exercising in a cool environment at a high exercise intensity. Under such circumstances, sweat rates between 1 and 3 L h^{-1} are not uncommon. **Body mass losses** in marathon runners range from 1–4 kg (i.e. 1–6% loss for a 70 kg person) at 10°C to more than 5.5 kg (8% loss) in warmer environments.

A body water loss of as little as 1% of body mass impairs performance whilst a 4% loss impairs exercise capacity by as much as 30%. **Heat exhaustion** can occur at around 5% body mass loss and circulatory collapse and heat stroke at around 10% body mass loss due to water loss (see *Fig. 1*).


% of body weight loss
0
1
Thirst threshold, and threshold for impaired exercise thermoregulation leading to decrement in physical work capacity
2
Stronger thirst, vague discomfort and sense of oppression, loss of appetite.
3
Dry mouth, increasing hemoconcentration, reduction in urinary output.
4
Decrement of 20–30% in physical work capacity.
5
Difficulty in concentrating, headache, impatience, sleepiness.
6
Severe impairment in exercise temperature regulation, increased respiratory rate leading to tingling and numbness of extremities.
7
Likely to collapse if combined with heat and exercise