

Solutions

2.1 A For a simplified field estimate, sweat loss in kilograms is approximately pre-activity mass minus post-activity mass plus drink mass minus urine mass. Express the estimate per hour only after recording duration. This approximation omits some respiratory and metabolic mass changes and assumes comparable dry clothing and a suitable balance.

2.2 Estimated loss= $70.0-69.7+0.40-0.10=0.60$ kg in one hour.

2.3 False. A change in mass is not necessarily a change in body fat. A modelled sweat estimate does not justify fluid restriction, diagnosis, or a one-size-fits-all sports recommendation.

2.4 water balance. water balance means Relationship between water inputs, outputs and storage.

3.1 Loss= $0.4+0.5-0.1=0.8$ kg. The model assumes other mass flows can be neglected and measurements are accurate. Classroom mass balance does not supply individual clinical advice.