

Erratum to: Calculation of total energy expenditure in publications on physical activity energy by Yamada et al. in 2009 and 2013

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In the calculation of total energy expenditure (TEE) in two publications (Yamada et al. 2009, 2013) a serious mistake has slipped in and therefore needs to be rectified. The correct TEE is 1.2 times higher than the published miscalculated TEE. The CO₂ production rate ($r\text{CO}_2$), and TEE were miscalculated by the DLW method previously as:

$$r\text{CO}_2 = 0.4554 \times \text{TBW (g)} \times (1.007k_o - 1.041k_d).$$

$$\text{The miscalculated TEE (kcal day}^{-1}\text{)} = (3.9/\text{FQ} + 1.1) \times r\text{CO}_2.$$

Where TBW is total body water. They should be:

$$\text{TBW (mol)} = \text{TBW (g)}/18.02$$

$$r\text{CO}_2 \text{ (mol day}^{-1}\text{)} = 0.4554 \times \text{TBW (mol)} \\ \times (1.007k_o - 1.041k_d)$$

$$r\text{CO}_2 \text{ (L day}^{-1}\text{)} = 22.4 \times r\text{CO}_2 \text{ (mol day}^{-1}\text{)}.$$

The correct TEE (kcal day⁻¹) = (3.9/FQ + 1.1) × $r\text{CO}_2$ (L day⁻¹).

Thus, the correct TEE is proportional to 1.2 times (22.4/18.02) higher than the miscalculated TEE. Presentation of the calculation of the correction factor of 1.2. The miscalculated TEE was used to estimate the physical activity level (PAL). With the corrected TEE, the average PAL increases from the originally reported 1.66 to 1.97. This corrected average PAL is substantially higher than other published values (Blanc et al. 2004; Speakman and Westerterp 2010). The correlation coefficients between variables are not affected because the miscalculation is proportional to a constant.

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