

MEASUREMENT OF ENERGY EXPENDITURE IN CHILDREN  
WITH PHENYLKETONURIA (PKU)

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Resting energy expenditure (REE) has not been measured in children with PKU. As an increase in body fat has been reported in children with PKU (White et al. 1982), REE may be expected to be lower in PKU compared to normal children. Patients ( $9.2 \pm 2.3$  y) from the PKU Clinic and their non-affected sibling controls, and additional control children ( $9.4 \pm 2.6$  y) were recruited from hospital staff and their friends.

REE was measured with a flow-through ventilated hood, open circuit indirect calorimeter. All measurements were performed after an overnight fast. Anthropometric measurements of height, weight and skinfolds thickness at four sites were taken at the time of the test.

FFM was calculated from the percent body fat derived from the skinfold measurements. There was no difference in mean age, standard deviation (SD) height and weight scores, percent body fat and FFM between the PKU and control children.

Although there were more males (58% versus 41%) in the PKU group, there was no difference in REE by gender. The absolute REE was lower in the PKU group but this did not reach statistical significance. There was no significant difference in REE between the two groups standardised per unit height, weight and FFM.

	REE (kJ 24hr <sup>-1</sup> )	REE/Ht (kJ 24hr <sup>-1</sup> cm <sup>-1</sup> )	REE/Wt (kJ 24hr <sup>-1</sup> kg <sup>-1</sup> )	REE/FFM (kJ 24hr <sup>-1</sup> kg <sup>-1</sup> )
PKU(19)	5228±778	39.7±3.5	183.0±91.2	223.9±40.3
Control(17)	5450±916	40.4±3.4	189.1±36.9	226.2±34.1

Values expressed as mean ± SD

These preliminary results showed no difference in REE between children with PKU and controls. However, we have demonstrated a lower body protein (or FFM) in younger children with PKU (Allen et al. 1990). As FFM is closely correlated with REE, a lower REE would be expected in these younger children with PKU. As there were only four children less than six years of age in this sample, more data is now being collected in this age group.

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