

ABSTRACT

The aim of this thesis was to evaluate changes in resting energy expenditure (REE) in ten lactating women between three weeks and nine months postpartum to find out whether there is any link with the parameters presented in this study.

Measurements were taken at four intervals. At three weeks and at three, six and nine months postpartum. They were taken in the morning after a night fast (12 hours) and used indirect calorimetry with a canopy in awake lying subjects for approximately 25 minutes. The room was shaded with minimal noise with a temperature around 20 °C. Urine was collected over 24 hours and was examined for nitrogen concentration.

The median REE was 1591,86 kcal/day at 3 weeks postpartum, 1398,08 kcal/day at 3 months, 1401,78 kcal/day at 6 months and 1455,03 kcal/day at 9 months postpartum. Values of REE per kilogram of body weight are $21,8 \pm 0,36$ kcal/kg and are consistent throughout the measurement period. The oxidation of lipids was dominant compared to other substrates and the lowest was oxidation of sacharides during the whole observation period. Correlations were found in parameters such as, body weight and REE per kilogram, breast milk and respiratory quotient (RQ), length of gravidity with RQ/ volume of exhaled carboxydioxide/ volume of inhaled oxygen. Another was between protein oxidation and length of gravidity, and height and weight of a newborn. Also, there was a correlation between REE and these parameters: Length of delivery time in hours, height and weight of a newborn, change in mother's body weight during breastfeeding, difference between body weight and ideal body weight in lactating women, body weight and body surface area of breastfeeding women.

The thesis high-lighted some interesting correlations between examined parameters which could be a topic for further research. Furthermore, the difference between the Harris-Benedict's equation and indirect calorimetry measurements was proved and a linear regression line was created to potentially predict REE for lactating women.

Key words: Resting energy expenditure, lactation