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## Association study between milk composition and birth factors

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**Background:** The macronutrient composition of human milk is affected by premature delivery and postpartum age. However, only small numbers of studies investigated the effects of other maternal and infantile factors.

**Objectives:** The purpose of this study is to analyze the macronutrient of human milk and to find out the various maternal and infantile factors that can affect the composition of human milk.

**Methods:** 478 healthy and exclusively breast feeding mothers who visited a breast feeding center between February 2014 and September 2014, and who delivered healthy term neonates within 3 months were enrolled. The birth data including maternal age, delivery mode, birth weight and height, gender of infant, and postpartum age were collected. Macronutrient of the samples was analyzed using Semisolid-state mid-infrared milk analyzer (MIRIS\* Human Milk Analyzer, HMA, Miris AB, Uppsala, Sweden).

**Results:** In multivariate logistic regression analysis, various maternal and infantile factors were found to be associated with the milk composition; higher fat content with Cesarean section (OR=2.47, CI 1.5-4.05, p<0.001) and birth height (OR=0.84, CI 0.75-0.95, p=0.004); higher protein content with postpartum age (OR=0.89, CI 0.86-0.93, p<0.001); higher carbohydrate content with vaginal delivery (OR=0.50, CI 0.31-0.82, p=0.005) and male infant (OR=0.56, CI 0.36-0.88, p=0.012); higher water content with birth height (OR=1.18, CI 1.07-1.31, p=0.001); higher calorie with postpartum age (OR=0.95, CI 0.92-0.98, p=0.003), male infant (OR=0.33, CI 0.13-0.82, p=0.017), and birth height (OR=0.74, CI 0.62-0.88, p<0.001).

**Conclusion:** In the present study, various maternal and infantile factors were found to affect milk composition. Interestingly, delivery mode, gender of infant, and birth height were found to be associated with the changes in human milk composition as well as postpartum age.

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