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## Residue and Risk Assessment of Polybrominated Diphenyl Ethers (PBDEs) from Human Breast Milk in Two Area, Korea

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This research was conducted to investigate the residual level of polybrominated diphenylethers (PBDEs) into the Korean breast milk and its risk assessment for infants. The samples for breast milk were collected from a maternity on 30th days after giving birth women who lived in Seoul and Chuncheon. A sum total of samples for each 22 were 44 in two areas. The PBDEs was analyzed by high-resolution gas chromatography/high-resolution mass spectrometry (HRGC/HRMS)-selected ion monitering (SIM) using isotope dilution method. Seven major congeners of PBDEs (BDE-28, BDE-47, BDE-99, BDE-100, BDE-153, BDE-154 and BDE-183) were quantified in this study. From the results, The residual concentrations for $\sum_7$PBDEs into breast milk were detected the range of 0.82 to 13.13 ng/g fat (mean±SD 2.96±2.86 ng/g), our values for them were similar to that of Japanese, but were less than that of American and European. In the distribution ratio of concentrations for $\sum_7$PBDEs congeners in breast milks, the ratio of 2,2′,4,4′-TeBDE to them was in the highest position of the value of 34%, and then followed as 2,2′,4,4′,5,5′-HxBDE 24.6%, 2,4,4′-TrBDE 22.4%, 2,2′,4,4′,6-PeBDE 9%, 2,2′,4,4′,5-PeBDE 8% and high brominated-congeners 2,2′,3,4,4′,5′,6-HpBDE 1.9%, respectively. From the result of the hazard assessment of infants for $\sum_7$PBDEs by breast milk intake, we could find out that the average exposure amount and hazard index were 13.267ng/kg/day and 0.013 each other when nursing for 6 months after infants born. However, it was concluded that the infant health hardly had adverse seriously effects under this research condition.

**Key words:** PBDEs, HRGC/HRMS, human breast milk, risk assessment

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## The Effect of Sampling Interval on Detecting $VO_2$ Plateau during Incremental Cycle Ergometer

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The purpose of this study was to elucidate incidence of $VO_2$ plateau by comparing data derived from different time averaging intervals during incremental cycling exercise to $VO_2$max. Seventeen subjects (mean (SD) age and $VO_2$max 23.5(3.3)years and 3.65(0.73)L/min, respectively) completed $VO_2$max tests on cycle ergometer which breath by breath gas exchange data were obtained. These data were time-averaged into 11-breath, 15, 30 and 60 s sampling intervals. The incidence of plateau were 100, 35, 24 and 6% for the 11 breath, 15 s, 30 s and 60 s averaging, respectively. No correlation was between $\triangle VO_2$ at $VO_2$max and $VO_2$max (r=-0.008). 53% (maximal HR within 10 b/min) and 100% (RER≥1.15) of subjects met the criteria for attainment of $VO_2$max. This data indicate that shorter sampling intervals (11 breath) is the most suitable for detection of the $VO_2$ plateau and RER can be used for the criteria for attainment of $VO_2$max but not maximal HR. Also, the incidence of a plateau is not related to training status or physical fitness of subjects.

**Key words:** Cycle ergometer, $VO_2$ Plateau, RER, heart rate