

## Breath constituents collected randomly in non-fasting state

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**[Purpose]** Little has been known about the factors affecting exhaled breath constituents collected randomly in non-fasting state. We measured hydrogen (H<sub>2</sub>), carbon monoxide (CO), methane (CH<sub>4</sub>), acetone, and isoprene in randomly collected breath and compared those values to meal, especially milk ingestion, exercise, and defecation.

**[Methods]** The subjects were 146 students (74 males and 72 females), aged between 19 and 21 yrs. The frequency of exercise, defecation, milk intake, and the time from the last meal was asked. The end-alveolar breath was taken into the collection bags. H<sub>2</sub> and CH<sub>4</sub> and CO were measured by gas chromatograph. Acetone and isoprene were measured by semiconductor type gas chromatograph.

**[Results]** The average values of each breath composition were as follows: H<sub>2</sub>; 12.3±1.3 ppm (m ± se), CH<sub>4</sub>; 2.5±0.1 ppm, CO; 2.0±0.2 ppm, acetone; 560±33 ppb, and isoprene; 300±24 ppb.

Acetone in male subjects (617±32ppb) was significantly higher than in female (503±35ppb, p<0.05). H<sub>2</sub>, CH<sub>4</sub> and isoprene were significantly higher in non-exercise group (n=72) than in exercise group (n=74). Acetone, however, was significantly higher in exercise group than in non-exercise group. Acetone was significantly higher in non-defecation group (n=72) than in defecation group (n=63) (p<0.05). H<sub>2</sub> in milk ingested group (n=31) was significantly lower than in non ingested group (n=115). No significant differences between groups were detected in breath CO in the present study.

**[Conclusion]** Constituents in non-fasted, randomly collected breath were affected by sex, exercise, meal and defecation.

The breath tests other than medical settings should be carefully translated.

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