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Title: Effect of energy food intake on exhaled breath temperature in healthy subjects

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Body: Background: Evaluation of the exhaled breath temperature (EBT) is a non-invasive approach to assess airway inflammation. Measuring it by a portable handheld device (PHD) has made it applicable for field studies and as an individual device for monitoring. Different activities and ambient influences may act as potential confounders. The aim of this study was to assess the effect of eating easily utilized energy food on the level and time course of EBT. Methods: Eleven non-smoking healthy subjects (3 men) at a mean age of 23 years volunteered for the study. They were trained to measure EBT with a portable handheld device (X-halo, Delmedica, Singapore). They measured their EBT and axillary temperature (AxT) in the morning before and 5, 30, 60 and 120 minutes after eating one bar of Snickers characterized by high energy content (382 kilocalories). On the next day they repeated the measurement after eating 2 bars of Snickers. Results: As opposed to AxT, EBT was affected by eating one bar of Snickers:

| | Before | After 5min | After 30min | After 60min | After 120min |
|-----------------------|------------|-------------|-------------|-------------|--------------|
| EBT [°C, mean±s.e.m.] | 33,04±0,27 | 33,52±0,27* | 33,48±0,27 | 33,49±0,27* | 33,23±0,28 |
| AxT [°C, mean±s.e.m.] | 35,65±0,13 | 35,77±0,24 | 35,70±0,18 | 35,58±0,21 | 35,61±0,25 |

* = Significant change from baseline. The same pattern was repeated on the day when the subjects had two bars of Snickers. We did not find significant dose-response relationship between EBT and the single or double dose of the energy food intake. Conclusions: Food ingestion affects the level of EBT in healthy subjects over 60 minutes. The failure to establish a dose response relationship between EBT and the different caloric regimens may indicate that they both happen to be on a plateau of the dose-response slope.