



Sniff test: does what we measure at the nose reflect what happens in the chest wall?

Antonella LoMauro, Cristina Martorana, Andrea Aliverti, Mario Nosotti, Alessandro Palleschi, Emilia Privitera
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Abstract

Nasal pressure measured during sniff (SNIP) is a technically simple voluntary test. Since the contraction of the diaphragm expands the abdomen, the volume variation during sniff manoeuvre should therefore be predominantly abdominal in order to be considered a specific index of diaphragm strength.

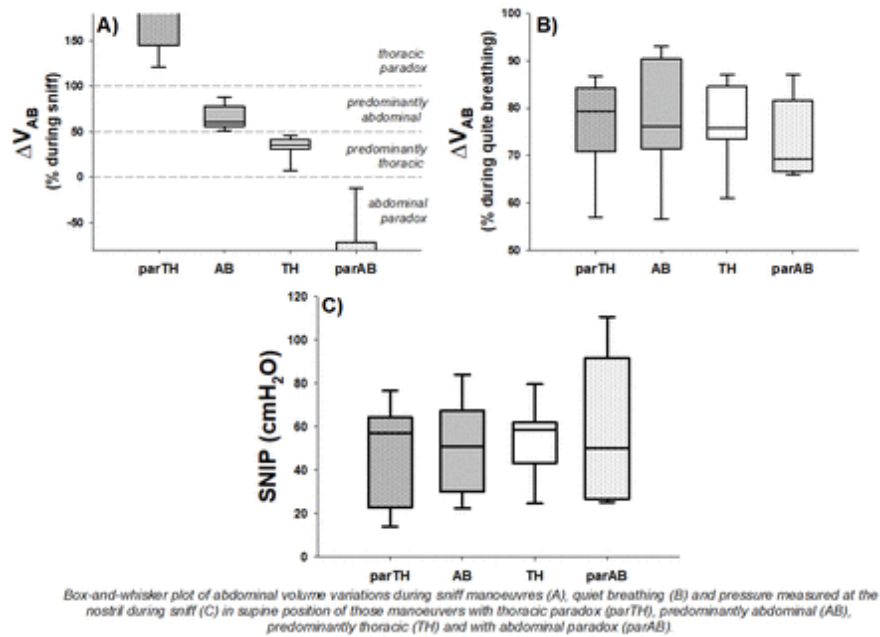
We aimed to verify if and how SNIP varied according to thoraco-abdominal volume variations.

We measured abdominal volume variations, using opto-electronic plethysmography, during quiet breathing (AB_{QB}) and sniff manoeuvres (AB_{SN}) in supine position on 30 patients (age: 42; FVC:47.5%; FEV₁:30%) on the waiting list for lung transplant. SNIP was measured simultaneously with AB_{SN} . 68 sniff were analysed and classified into 4 groups according to AB_{SN} : 16 with thoracic paradox, 24 predominantly abdominal, 16 predominantly thoracic and 12 with abdominal paradox.

By definition AB_{SN} was different ($p < 0.001$) among the 4 groups, whereas AB_{QB} (~75%; $p = 0.373$) and SNIP (~53 cmH₂O, $p = 0.792$) were similar (figure 1).

SNIP did not change with the different thoraco-abdominal strategies. The diaphragm was not weak and leded inspiration, therefore AB_{SN} varied because the patients misperformed the manoeuvre.

In order to not misunderstand the clinical significance of a sniff test, care should be paid also in thoraco-abdominal movement because SNIP, per se, cannot differentiate between thoracic or diaphragmatic manoeuvre with the risk to lose its specificity.



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