

Supplementary material

Tidal volume estimation during helmet noninvasive ventilation: an experimental feasibility study

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Table S1. Average tidal volumes (V_T) measured by the turbine driven ventilator and the lung simulator at different levels of PEEP in simulated normal condition.

	TDV	LS
PEEP 5	534 ± 1	483 ± 3
PEEP 8	513 ± 1	481 ± 3
PEEP 10	501 ± 1	480 ± 1

Data are expressed in ml and reported as mean ± SD.

PEEP: positive end expiratory pressure (in cmH₂O); TDV: turbine driven ventilator; LS: lung simulator.

Table S2. Average tidal volumes (V_T) measured by the turbine driven ventilator and the lung simulator at different levels of PEEP in simulated restrictive condition.

	TDV	LS
PEEP 5	419 ± 1	358 ± 2
PEEP 8	384 ± 1	374 ± 1
PEEP 10	365 ± 1	364 ± 1
PEEP 12	360 ± 2	371 ± 2

Data are expressed in ml and reported as mean ± SD.

PEEP: positive end expiratory pressure (in cmH₂O); TDV: turbine driven ventilator; LS: lung simulator.

Table S3. Average tidal volumes (V_T) measured by the turbine driven ventilator and the lung simulator at different levels of PEEP in simulated obstructive condition.

	TDV	LS
PEEP 5	487 ± 1	323 ± 3
PEEP 8	462 ± 1	329 ± 2
PEEP 10	444 ± 1	317 ± 3

Data are expressed in ml and reported as mean ± SD.

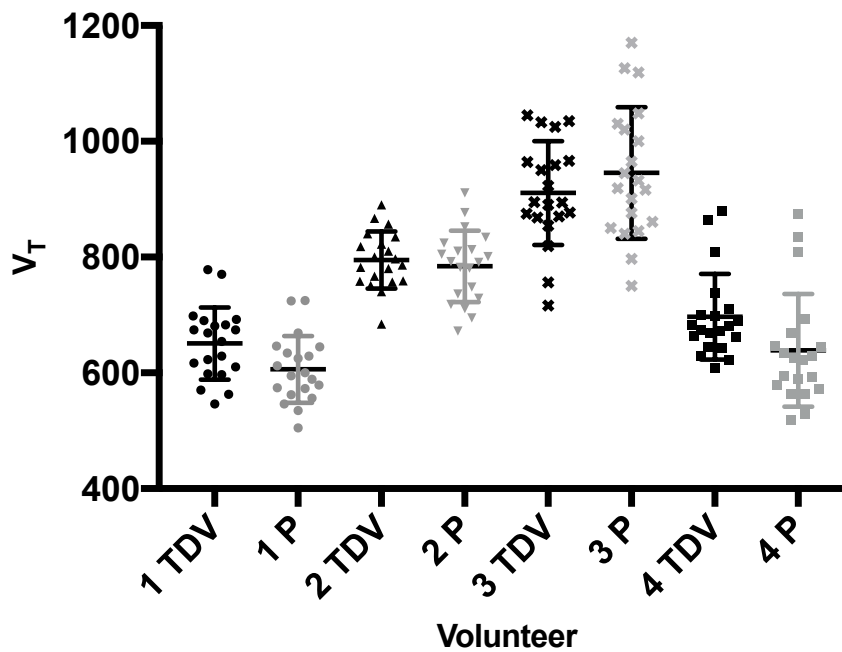
PEEP: positive end expiratory pressure (in cmH₂O); TDV: turbine driven ventilator; LS: lung simulator.

Table S4. Average tidal volumes (V_T) measured by the turbine driven ventilator and the lung simulator at different leak flows.

	TDV	LS
LF 30	513 ± 1	481 ± 3
LF 50	510 ± 1	479 ± 2
LF 80	515 ± 2	490 ± 3

Data are expressed in ml and reported as mean ± SD.
 LF: leak flow (expressed in liters per minute); TDV: turbine driven ventilator; LS: lung simulator.

Figure S1. Distribution of tidal volumes (V_T) measured by the turbine driven ventilator and the pneumotachograph for each healthy volunteer.



V_T : Tidal volume (in ml). Measurement by the turbine driven ventilator (TDV) and by the pneumotachograph (P) for each volunteer are reported with the same legend but different color (black - TDV, grey - LS). Bars describe mean ± SD.