

Table S1 Differences of Bland-Altman analyses comparing the mechanical power calculated with algebraic formulas (Eqs. [1-3]) and the reference method under volume controlled ventilation

MP	Scenario	Ventilator parameters	Simulator parameters	Eq. [1]-Ref. (J/min)	Eq. [2]-Ref. (J/min)	Eq. [3]-Ref. (J/min)
VC	1.1	Fixed	$C_{rs}=10$ mL/cmH ₂ O	0.96	-2.01	0.40
VC	1.2	Fixed	$C_{rs}=15$ mL/cmH ₂ O	1.48	-0.09	1.82
VC	1.3	Fixed	$C_{rs}=20$ mL/cmH ₂ O	1.35	-1.05	1.33
VC	1.4	Fixed	$C_{rs}=25$ mL/cmH ₂ O	-0.64	-2.21	-0.38
VC	1.5	Fixed	$C_{rs}=30$ mL/cmH ₂ O	-0.58	-2.15	-0.32
VC	1.6	Fixed	$C_{rs}=35$ mL/cmH ₂ O	-0.65	-2.22	-0.39
VC	1.7	Fixed	$C_{rs}=40$ mL/cmH ₂ O	-0.30	-2.69	-0.41
VC	1.8	Fixed	$C_{rs}=45$ mL/cmH ₂ O	-0.69	-3.06	-0.83
VC	2.1	PEEP =5 cmH ₂ O	Fixed	-0.58	-2.15	-0.32
VC	2.2	PEEP =7 cmH ₂ O	Fixed	-0.32	-1.89	-0.03
VC	2.3	PEEP =9 cmH ₂ O	Fixed	-0.40	-1.97	-0.06
VC	2.4	PEEP =11 cmH ₂ O	Fixed	0.50	-1.07	0.85
VC	2.5	PEEP =13 cmH ₂ O	Fixed	0.58	-0.99	0.94
VC	2.6	PEEP =15 cmH ₂ O	Fixed	1.75	0.19	2.19
VC	3.1	$T_{insp}=0.9$ s	Fixed	-0.26	-2.44	-0.19
VC	3.2	$T_{insp}=1.0$ s	Fixed	-0.58	-2.15	-0.32
VC	3.3	$T_{insp}=1.1$ s	Fixed	-0.63	-2.34	-0.50
VC	3.4	$T_{insp}=1.2$ s	Fixed	-1.14	-2.18	-0.74
VC	3.5	$T_{insp}=1.3$ s	Fixed	-1.01	-2.15	-0.72
VC	3.6	$T_{insp}=1.4$ s	Fixed	-1.10	-2.34	-0.88
VC	4.1	RR =12/min	Fixed	-0.37	-1.31	-0.22
VC	4.2	RR =16/min	Fixed	-0.15	-1.41	0.05
VC	4.3	RR =20/min	Fixed	-0.58	-2.15	-0.32
VC	4.4	RR =24/min	Fixed	-1.04	-2.92	-0.66

MP, mechanical power; VC, volume controlled; Eq., equation; Ref, reference method; PEEP, positive end-expiratory pressure; T_{insp} , time of inspiration, C_{rs} , respiratory system compliance; RR, respiratory rate.

Table S2 Bias and agreements of Bland-Altman analyses comparing the mechanical power calculated with algebraic formulas and the reference method under volume controlled ventilation

MP	VC	VC	VC
Eq	Eq. [1] vs. Ref	Eq. [2] vs. Ref	Eq. [3] vs. Ref
Bias	-0.13	-1.82	0.06
SD of bias	0.88	0.85	0.88
95% limits of agreement			
From	-1.85	-3.49	-1.66
To	1.60	-0.16	1.78

MP, mechanical power; VC, volume controlled; Ref, reference method.

Table S4 Bias and agreements of Bland-Altman analyses comparing the mechanical power calculated with algebraic formulas and the reference method under pressure controlled ventilation

MP	PC	PC	PC
Eq	Eq. [4] vs. Ref	Eq. [5] vs. Ref	Eq. [6] vs. Ref
Bias	0.26	5.41	5.42
SD of bias	1.03	2.13	2.13
95% limits of agreement			
From	-1.77	1.24	1.25
To	2.29	9.58	9.59

MP, mechanical power; PC, pressure controlled; Eq., equation; Ref, reference method.

Table S3 Differences of Bland-Altman analyses comparing the mechanical power calculated with algebraic formulas (Eqs. [4-6]) and the reference method under pressure controlled ventilation

MP	Scenario	Ventilator parameters	Simulator parameters	Eq. [4]-Ref. (J/min)	Eq. [5]-Ref. (J/min)	Eq. [6]-Ref. (J/min)
PC	1.1	Fixed	$C_{rs}=10$ mL/cmH ₂ O	2.89	11.28	11.28
PC	1.2	Fixed	$C_{rs}=15$ mL/cmH ₂ O	0.77	7.75	7.75
PC	1.3	Fixed	$C_{rs}=20$ mL/cmH ₂ O	0.09	6.40	6.40
PC	1.4	Fixed	$C_{rs}=25$ mL/cmH ₂ O	-0.49	5.13	5.13
PC	1.5	Fixed	$C_{rs}=30$ mL/cmH ₂ O	0.63	6.26	6.28
PC	1.6	Fixed	$C_{rs}=35$ mL/cmH ₂ O	-0.67	4.25	4.25
PC	1.7	Fixed	$C_{rs}=40$ mL/cmH ₂ O	-1.30	3.06	3.07
PC	1.8	Fixed	$C_{rs}=45$ mL/cmH ₂ O	0.68	5.56	5.59
PC	2.1	PEEP =5 cmH ₂ O	Fixed	0.63	6.26	6.28
PC	2.2	PEEP =7 cmH ₂ O	Fixed	-0.47	3.87	3.88
PC	2.3	PEEP =9 cmH ₂ O	Fixed	0.25	5.08	5.09
PC	2.4	PEEP =11 cmH ₂ O	Fixed	0.41	4.22	4.24
PC	2.5	PEEP =13 cmH ₂ O	Fixed	1.75	6.97	7.00
PC	2.6	PEEP =15 cmH ₂ O	Fixed	0.91	5.47	5.48
PC	4.1	RR =12/min	Fixed	-0.47	2.30	2.31
PC	4.2	RR =16/min	Fixed	-0.33	3.60	3.60
PC	4.3	RR =20/min	Fixed	0.63	6.26	6.28
PC	4.4	RR =24/min	Fixed	-0.53	5.31	5.32

MP, mechanical power; PC, pressure controlled; Eq., equation; Ref, reference method; PEEP, positive end-expiratory pressure; C_{rs} , respiratory system compliance; RR, respiratory rate.