

Age (years)	Sex	Height (m)	Weight (kg)	BMI (kg/m ²)	IBW (kg)	ASA
73	F	1.6	60	23.4	52	2
65	F	1.69	91	31.9	61	2
62	M	1.73	80	26.7	69	2
62	M	1.75	100	32.7	70	2
57	F	1.71	64	21.9	62	1
76	M	1.87	88	25.2	81	2
21	F	1.62	60	22.9	54	1
57	M	1.75	80	26.1	70	2
53	F	1.63	92	34.6	55	2
61	M	1.79	85	26.5	74	2
68	M	1.9	84	23.3	84	2
71	M	1.76	80	25.8	71	3
66	M	1.78	78	24.6	73	3
76	M	1.84	100	29.5	81	3
59	F	1.72	80	27	63	2
56	F	1.61	100	38.6	53	2
39	F	1.7	102	35.3	61	2
17	F	1.66	57	20.7	58	1
33	F	1.76	75	24.2	67	1
42	F	1.8	94	29	70	1

Table S1. Patient characteristics.

Patient no	VT (ml)	VT (ml/kg)	PEEP 1 (cmH ₂ O)	PPLAT 1 (cmH ₂ O)	PEEP 2 (cmH ₂ O)	PPLAT 2 (cmH ₂ O)
1	320	6.15	5	11	12	16
2	370	6.07	5	10	12	16
3	420	6.09	5	12	12	18
4	420	6.00	5	16	12	21
5	370	5.97	5	12	12	20
6	490	6.00	5.4	11.5	12.2	18.5
7	330	5.81	4	11.4	11.9	17.5
8	420	6.00	5	13	12	20
9	330	6.00	5	13	12	19
10	450	6.08	5	12	12	20
11	500	5.93	5.4	12.4	12.4	19.1
12	430	6.06	5	12	12	19
13	440	6.00	5	13	12	19
14	490	6.02	5.3	15.7	12.3	22.5
15	380	5.95	5.3	12.5	12.3	19.1
16	320	6.02	5.8	16.5	12.9	22.5
17	370	6.03	5.4	15.2	12.4	22.7
18	350	6.00	5.4	10	12.4	16.5
19	400	5.93	5.4	11.3	12.3	18
20	420	5.94	5.2	13.7	12.2	20
Mean	398.9	6.0	5.1	12.7	12.2	19.2
SD	57.3	0.1	0.3	1.9	0.2	2

Table S2. Respiratory data Supine

	Coefficient of variation 22-44cm			
	PES _{EE}		Δ PES	
	Supine Mean (SD) Median (min-max)	Prone Mean (SD) Median (min-max)	Supine Mean (SD) Median (min-max)	Prone Mean (SD) Median (min-max)
PEEP 5	0.74 (0.3) 0.64 (0.4-1.4)	1.77 (1.0) 1.2 (0.3-6.6)	2.44 (2.5) 1.33 (0.5-10.3)	3.27 (3.9) 0.95 (0.6-10.9)
PEEP 12	0.69 (0.4) 0.6 (0.2-1.4)	1.18 (1.5) 1.13 (0.3-5.4)	1.6 (0.8) 1.00 (0.3-4.1)	4.19 (6.5) 1.29 (0.6-18)

Table S3. Coefficient of variation within patients, for total esophagus (22-44cm).

	End-expiratory PES _{30-42cm} and PES _{opt}					
	Supine			Prone		
	PES _{30-42cm} Mean (SD)	PES _{opt} Mean (SD)	Difference Mean-Mean (95% CI)	PES _{30-42cm} Mean (SD)	PES _{opt} Mean (SD)	Difference Mean-Mean (95% CI)
PEEP 5	15.6 (8.7)	9.5 (7.6)	6.1 (4.0; 8.2)*	10.2 (11.5)	4.2 (8.8)	6.0 (2.7; 9.3)*
PEEP 12	16.5 (8.6)	9.9 (7.8)	6.6 (4.1; 9.0)*	11.9 (10.9)	6.7 (10.0)	5.3 (2.4; 8.1)*

Table S4. Comparing end-expiratory PES. *Confidence interval separated from 0

	Coefficient of variation PES _{OPT}			
	PES _{EE}		Δ PES	
	Supine Mean (SD) Median (min-max)	Prone Mean (SD) Median (min-max)	Supine Mean (SD) Median (min-max)	Prone Mean (SD) Median (min-max)
PEEP 5	0.96 (1.9) 0.43 (0.1; 8.8)	1.06 (0.9) 1.04 (0; 2.9)	0.55 (0.4) 0.47 (0.1; 1.6)	0.38 (0.4) 0.4 (0; 1.6)
PEEP 12	0.93 (1.4) 0.3 (0.1; 4.7)	0.82 (1.3) 0.33 (0; 5.5)	0.53 (0.36) 0.49 (0.1; 1.4)	0.43 (0.3) 0.4 (0; 1.2)

Table S5. Coefficient of variation within patients, for optimal PES.

	PES _{EE} PEEP 5 Supine	PES _{EE} PEEP 12 Supine	Δ PES PEEP 5 Supine	Δ PES PEEP 12 Supine	PES _{EE} PEEP 5 Prone	PES _{EE} PEEP 12 Prone	Δ PES PEEP 5 Prone	Δ PES PEEP 12 Prone
22-44cm	0.5	0.48	0.54	0.46	1.01	0.87	0.91	0.87
30-42cm	0.56	0.53	0.82	0.71	1.13	0.91	0.84	0.84
PES _{OPT}	0.8	0.79	0.57	0.6	2.09	1.5	0.6	0.62

Table S6. Coefficient of variation between patients.

	Supine		Prone	
	PES _{30-42cm}	PES _{OPT}	PES _{30-42cm}	PES _{OPT}
Max-Min	25.0	7.8	21.9	5.8
SD	8.9	4.1	8.0	3.2

Table S7. Average difference between maximal and minimal PES_{EE} and mean SD of PES_{EE} within patients. PES_{EE} in cmH₂O with PEEP 5.

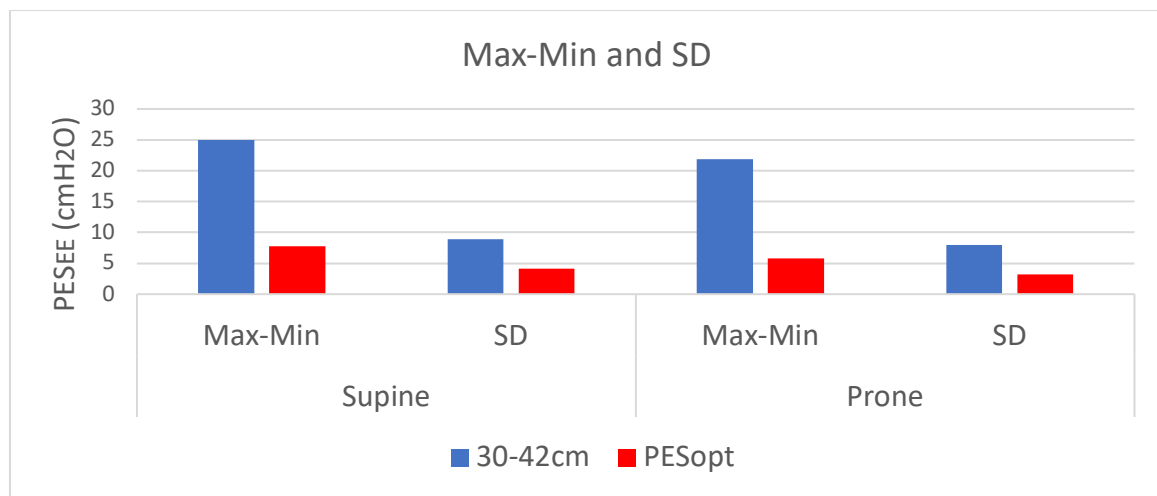
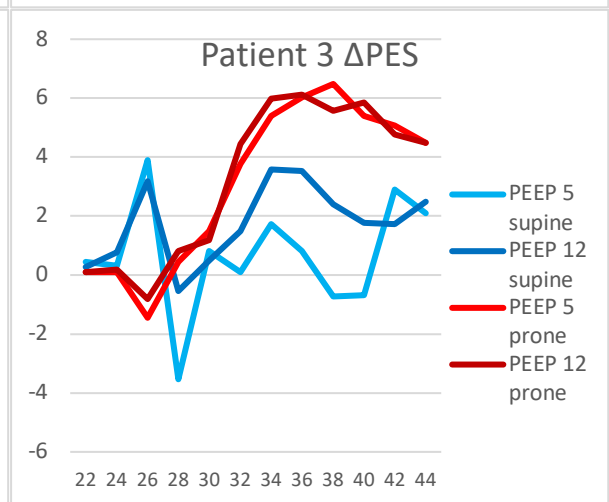
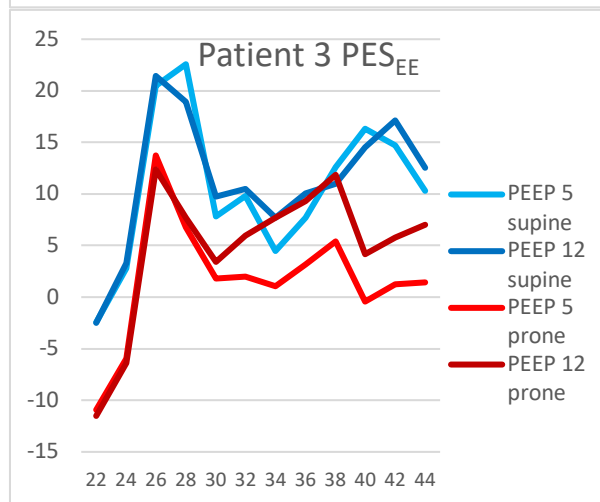
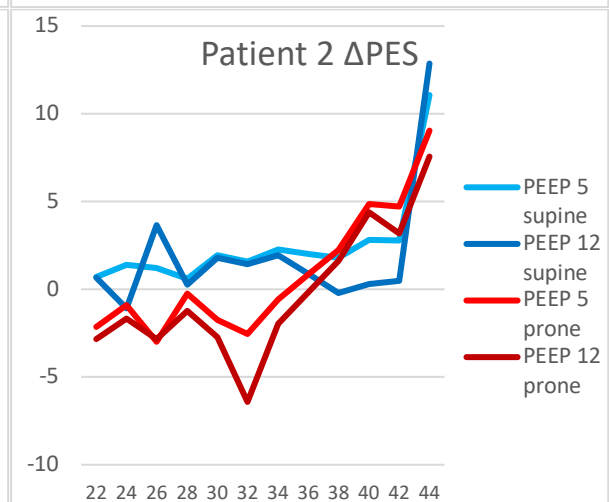
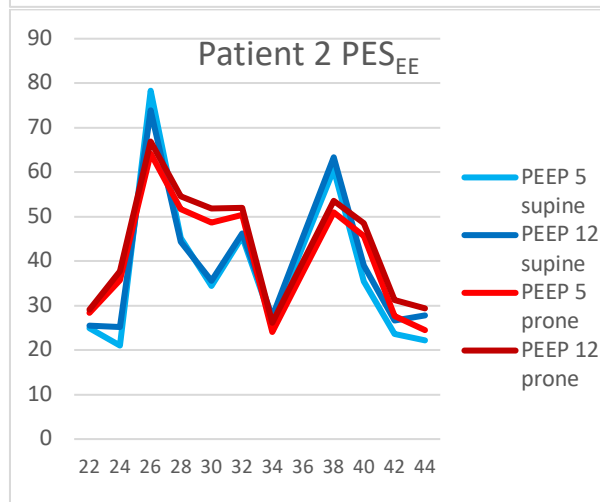
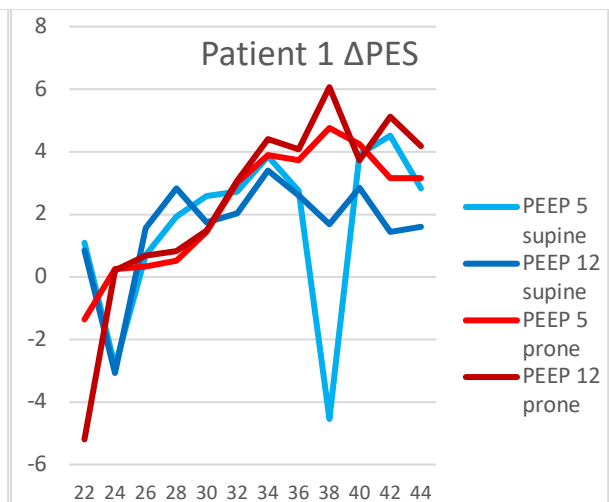
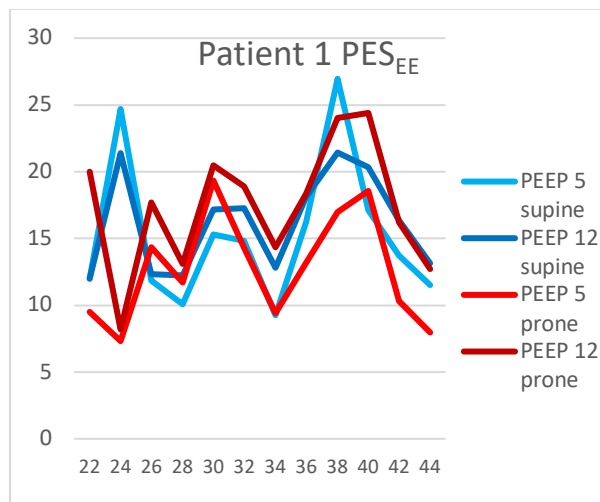
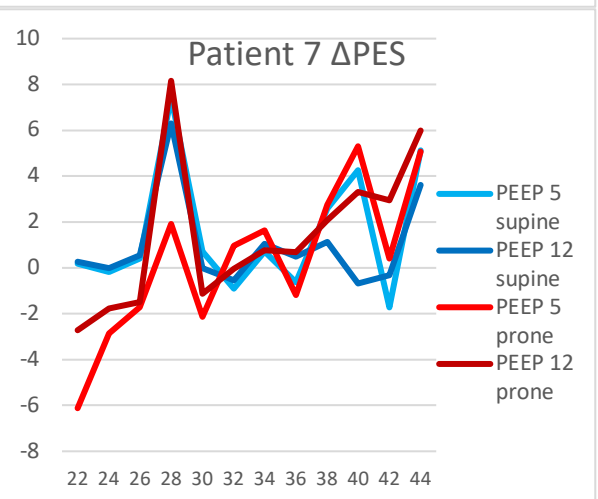
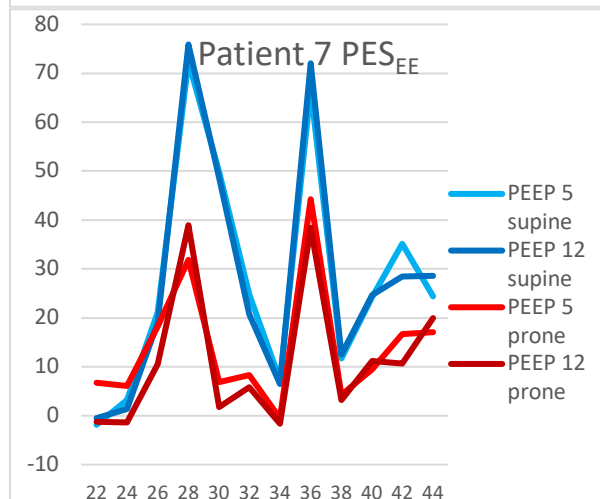
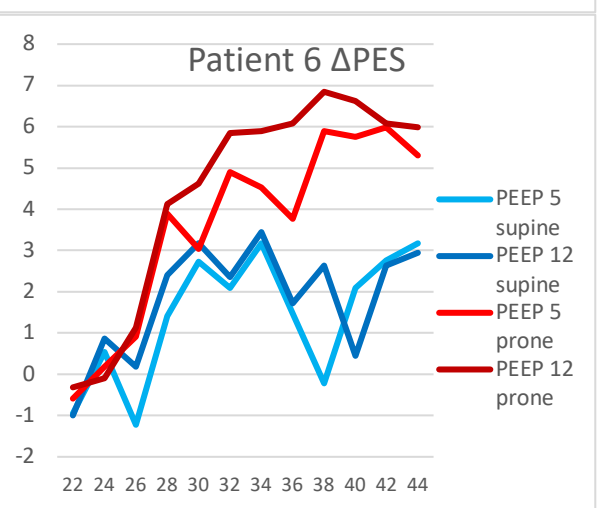
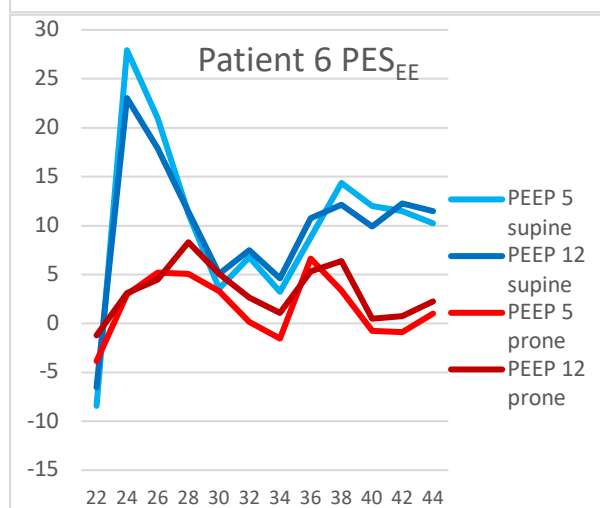
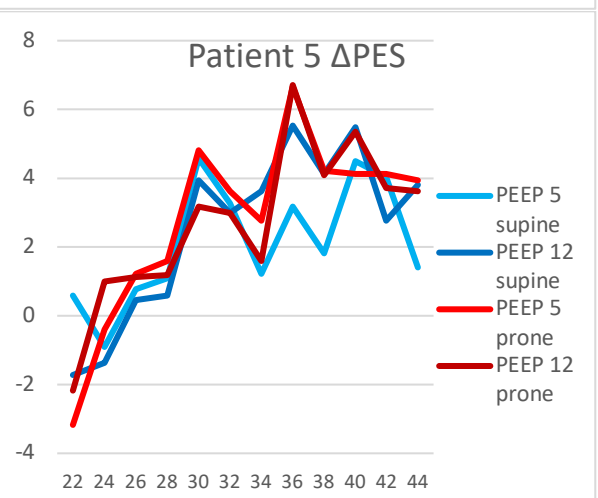
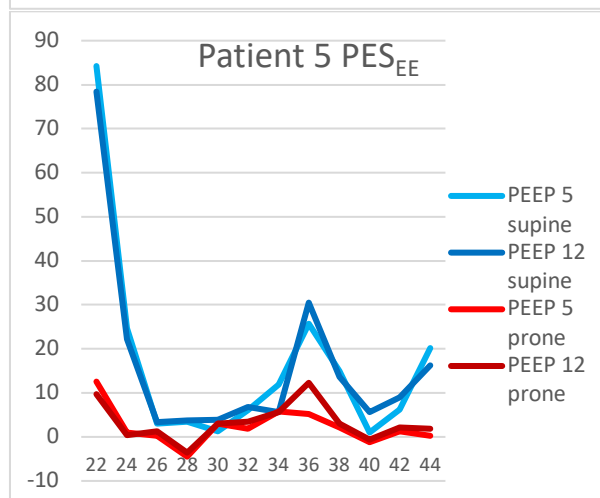
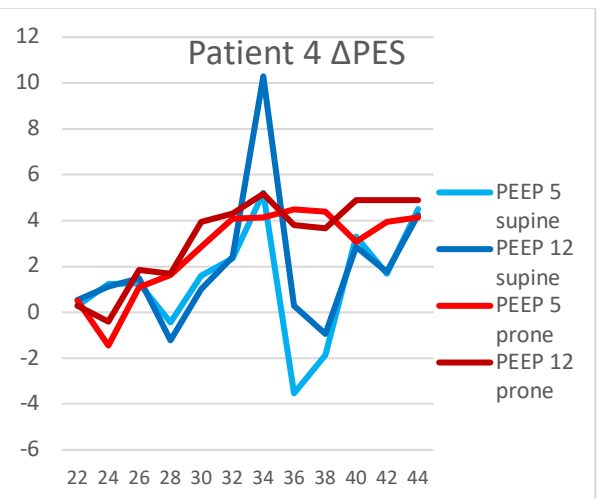
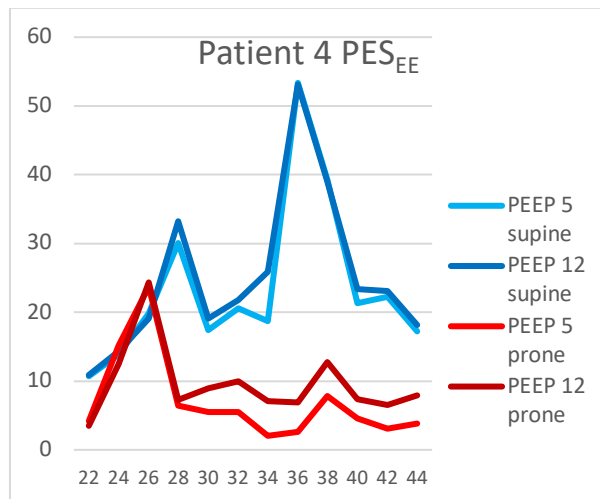


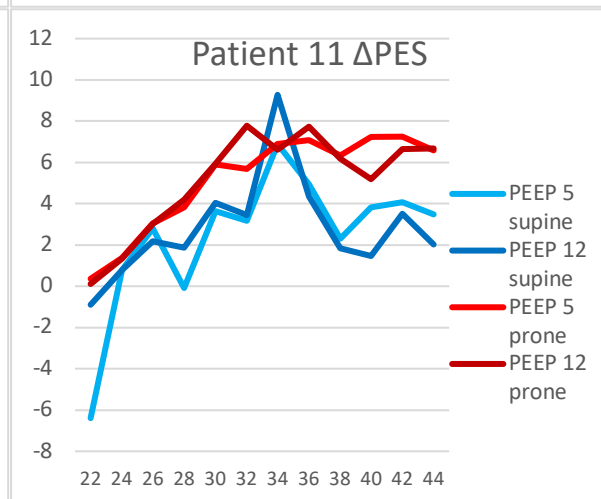
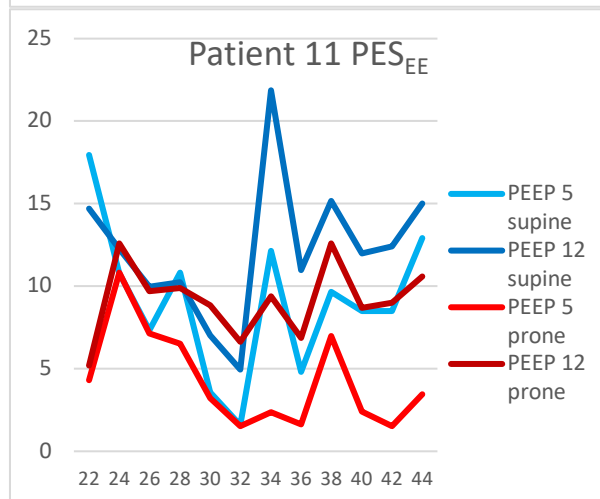
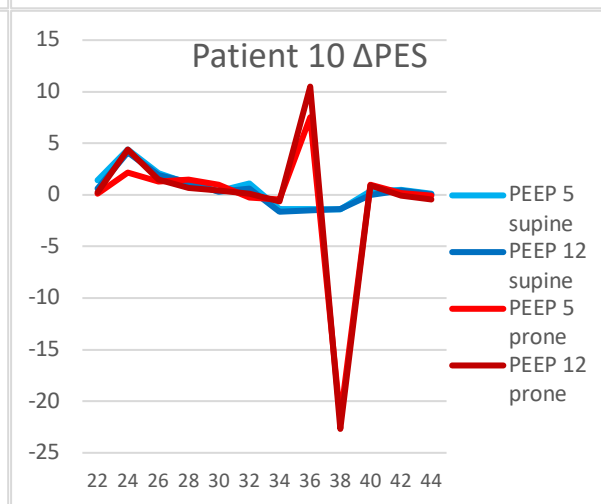
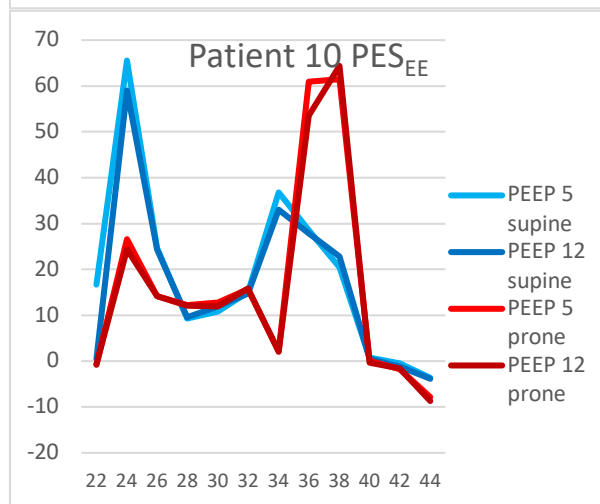
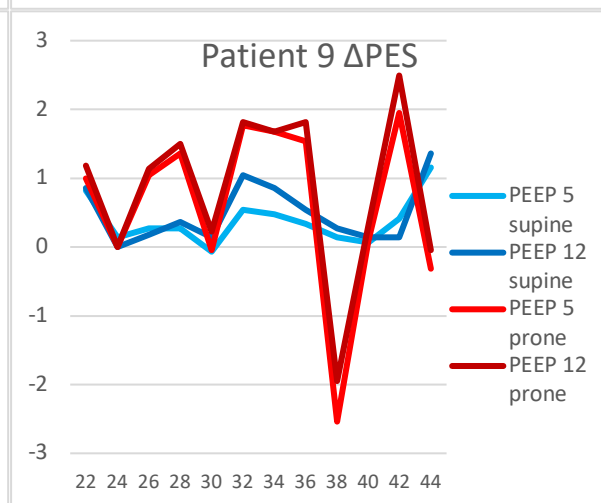
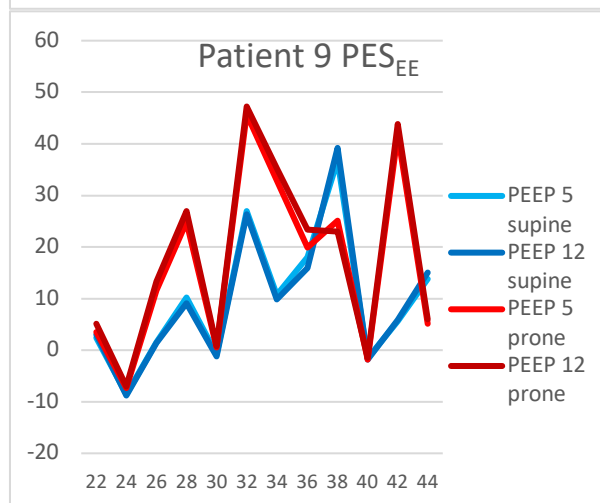
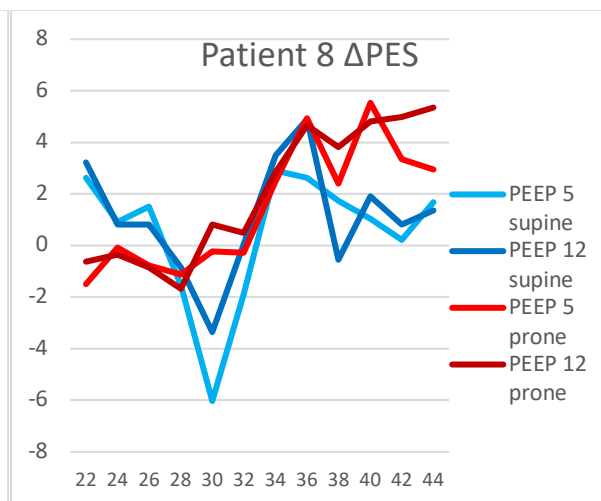
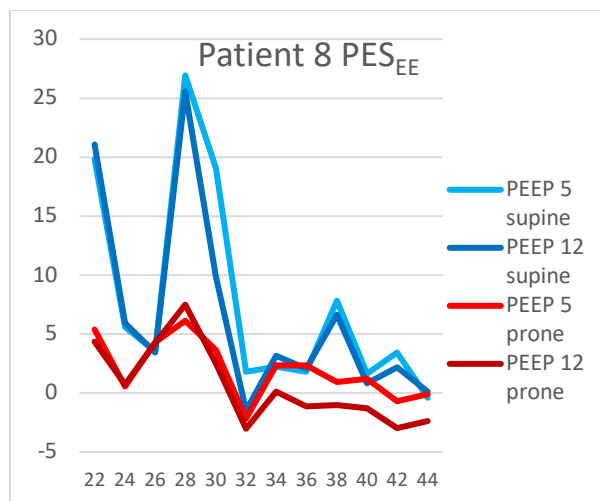
Figure S1. Average difference between maximal and minimal PES_{EE} and mean SD of PES_{EE} within patients. PES_{EE} in cmH₂O in supine and prone with PEEP 5.

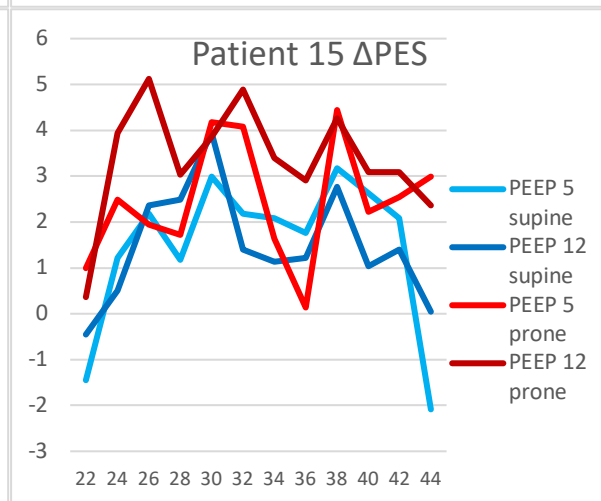
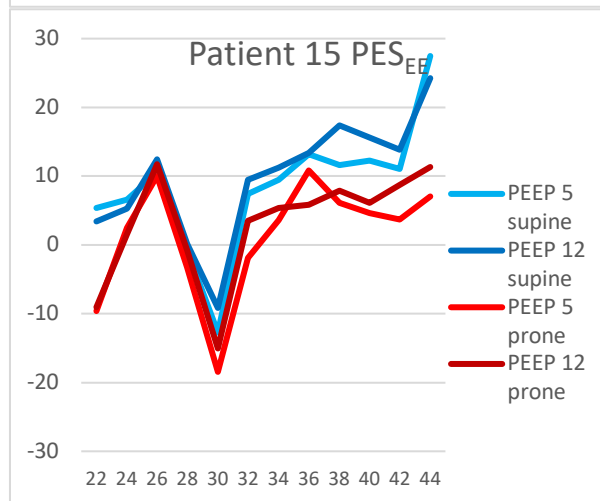
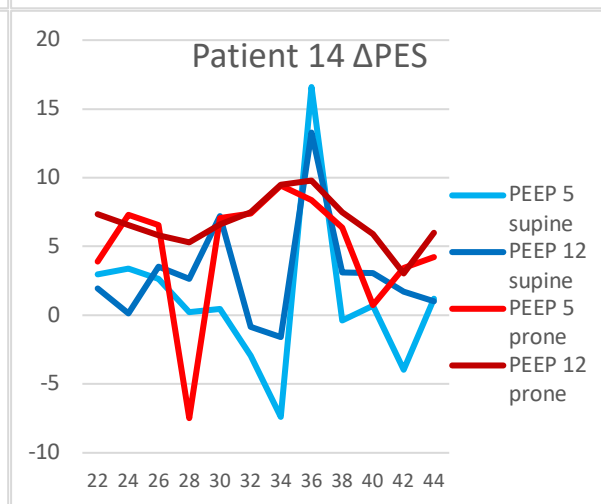
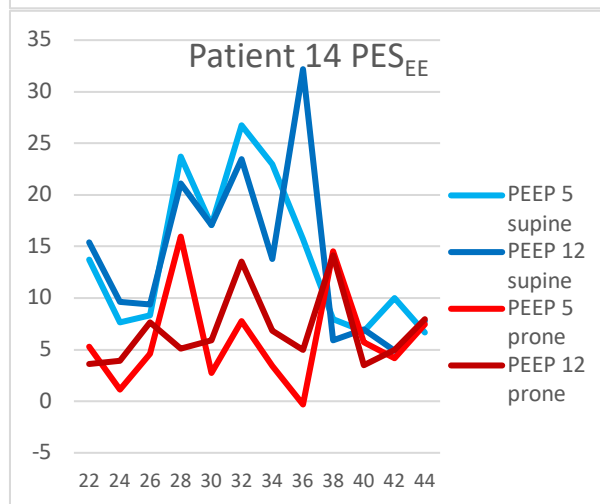
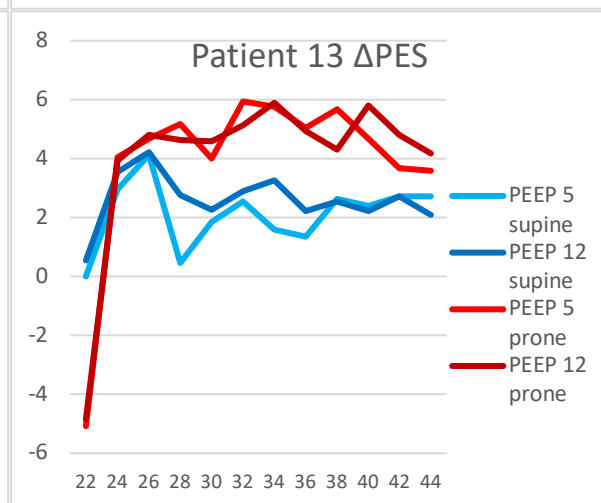
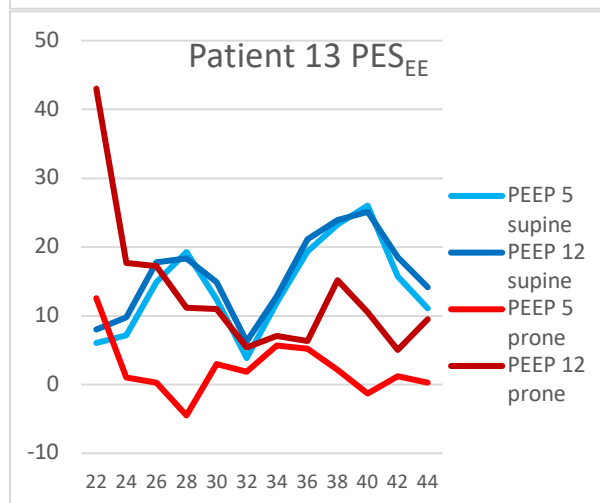
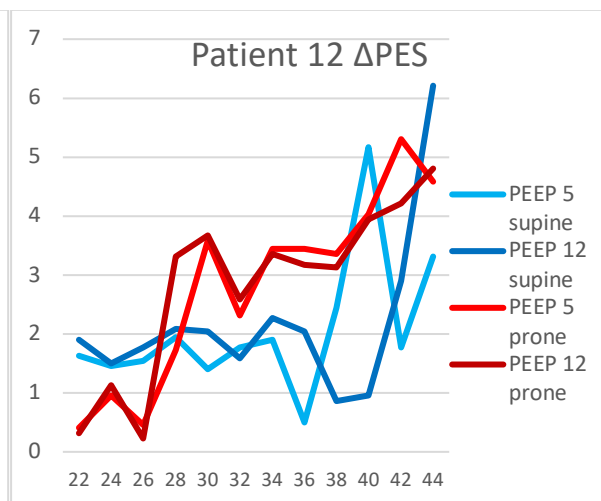
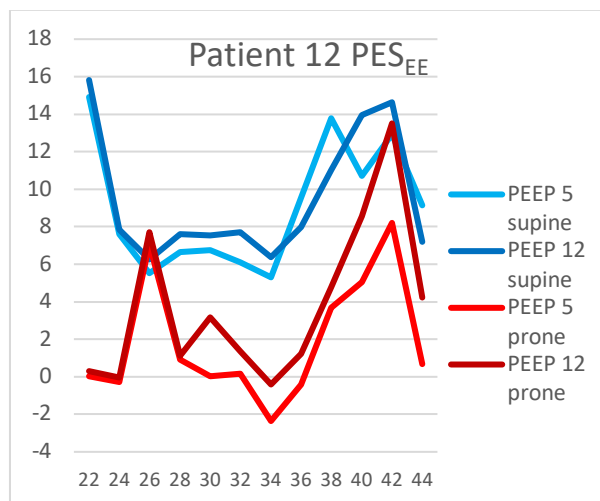
	Δ PES/ Δ PAW Mean (SD)
22-44cm	0.89 (0.44)
30-42cm	1.08 (0.44)
PES _{OPT}	1.12 (0.37)

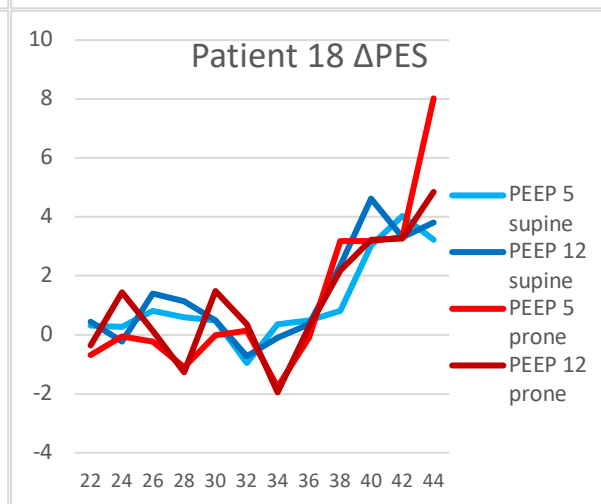
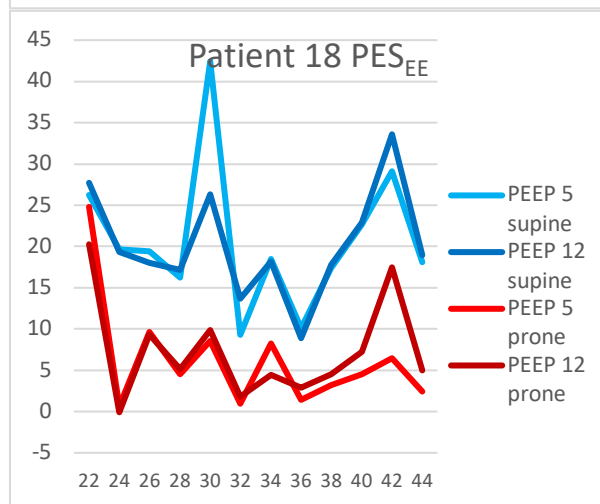
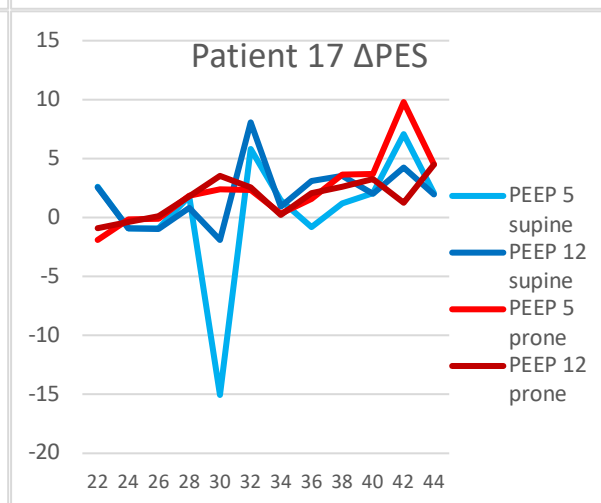
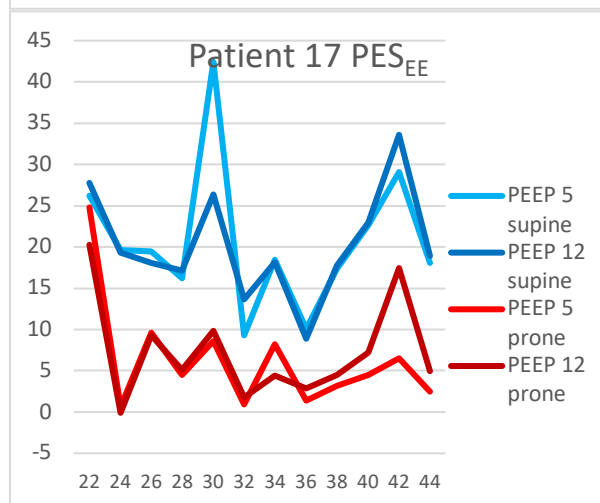
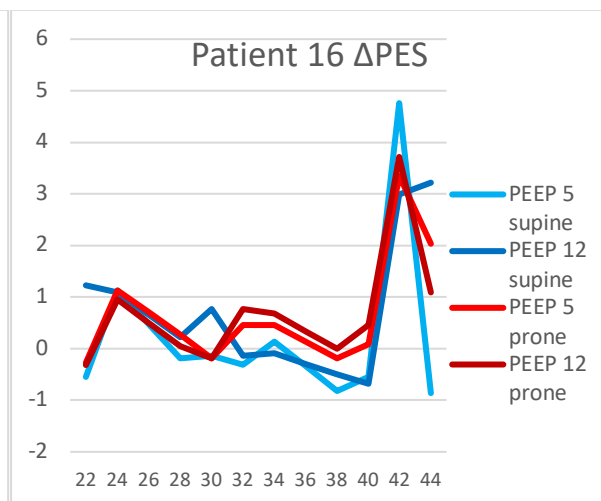
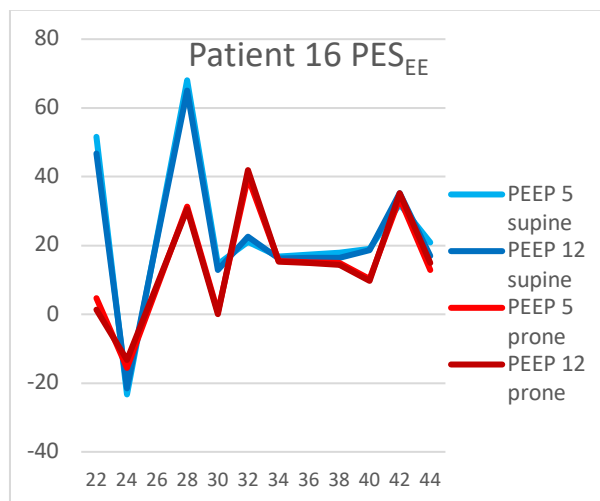
Table S8. Δ PES/ Δ PAW-ratio. During Baydur maneuver in pressure support ventilation.











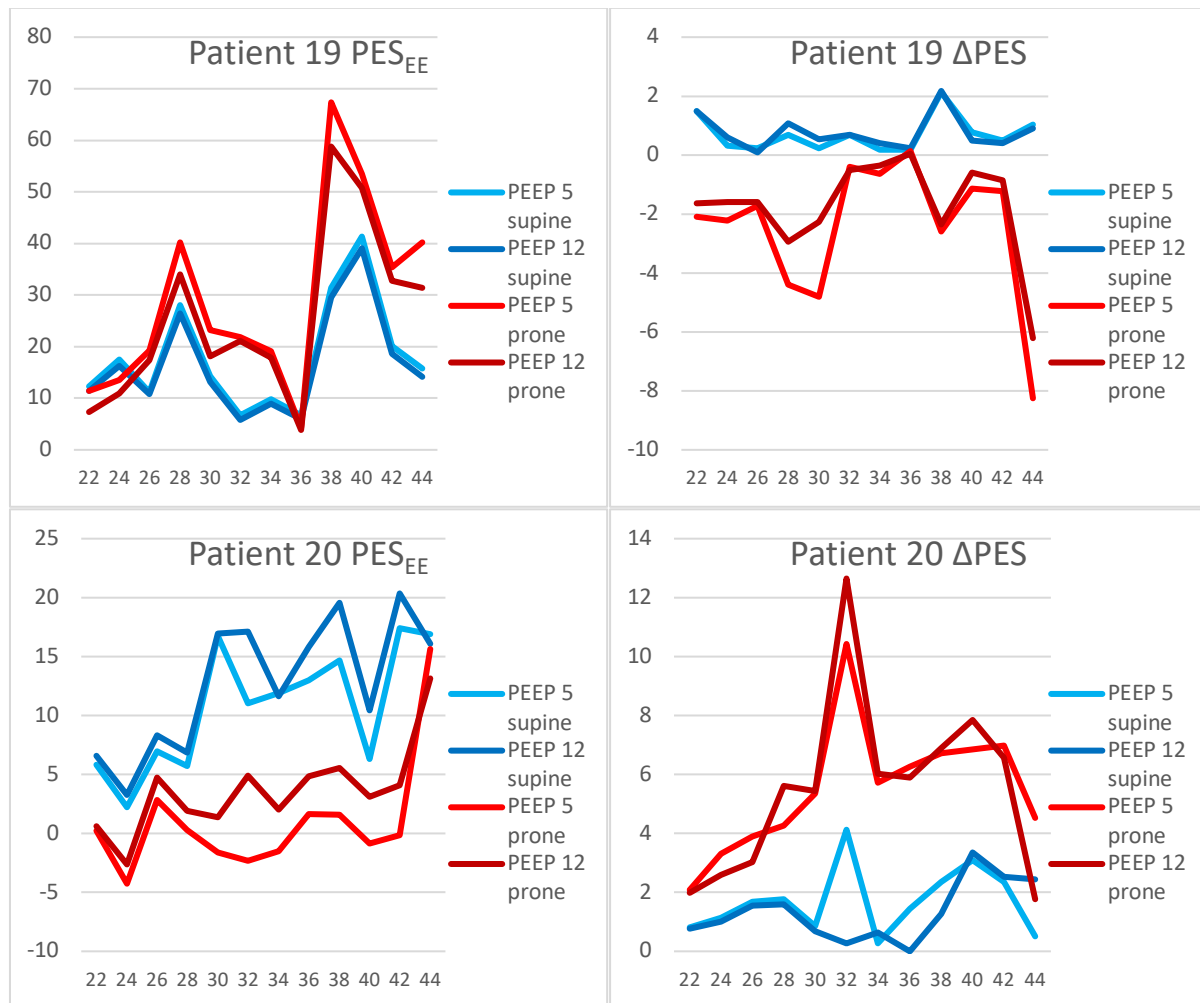


Figure S2-41. Left column all individual patients PES_{end-expiratory}. Right column all individual patients ΔPES. Pressure in cmH₂O on the Y-axis. X-axis show distance from the nostril in cm.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Selected sensors (cm)	32	30	30	30	30	30	34	34	34	30	30	30	30	30	30	34	32	30	32	32
	34	34	34	32	32	32	38	36	40	40	32	32	32	36	32	42	34	38	34	34
	42	42	36	34	40	34	40	40	42	42	36	34	34	40	34		38	40	36	40

Table S9. Sensors included in PES_{OPT} in each patient

Patient	Sex (M/F)	Weight (kg)	Length (m)	BMI (kg/m²)	Diagnosis	FiO₂	PEEP	PS
1	M	68	1,8	21	Encephalitis	0,25	10	8
2	M	63	1,84	19	Pneumonia	0,3	8	8
3	M	95	1,85	28	Cardiac arrest	0,3	12	11
4	M	68	1,74	22	Burns	0,45	8	8
5	M	76	1,72	26	Covid-19	0,4	8	8
6	M	102	1,72	34	Postoperative bleeding	0,3	12	10
7	M	66	1,7	23	Traumatic brain injury	0,3	10	8
8	M	121	1,88	34	Cardiac arrest	0,45	10	8
9	F	100	1,64	37	Cardiac arrest	0,25	12	10
10	M	107	1,85	31	Postoperative bleeding	0,35	10	8

Table S10. Patient characteristics in separate cohort.

BMI=body mass index, FiO₂= fraction of inspired oxygen, PEEP= positive end-expiratory pressure, PS= pressure support