

**Table S1:** Mechanical ventilation, blood gas and haemodynamic parameters at five time points during RALP (n=98).

Parameters		PEEP <sub>5</sub> and liberal volume (n=23)	PEEP <sub>5</sub> and restrictive volume (n=27)	PEEP <sub>IND</sub> and liberal volume (n=24)	PEEP <sub>IND</sub> and restrictive volume (n=24)	P-value
Minute volume (litres min <sup>-1</sup> )	T1	7.3 (± 0.9)	6.9 (± 0.7)	6.7 (± 0.8)	6.8 (± 1.1)	0.055
	T2	8.2 (± 1.1)	8.1 (± 0.9)	7.7 (± 1.0)	8.0 (± 1.1)	0.323
	T3	8.6 (± 1.2)	8.1 (± 1.0)	8.2 (± 1.1)	8.3 (± 1.6)	0.574
	T4	8.7 (± 2.0)	8.2 (± 1.0)	8.1 (± 1.1)	8.1 (± 1.2)	0.370
	T5	8.6 (± 2.1)	8.4 (± 1.3)	8.1 (± 1.6)	8.3 (± 1.6)	0.735
Tidal volume / PBW (ml/kg)	T1	<b>8.3 (± 0.9)</b>	<b>7.7 (± 0.5)</b>	<b>8.0 (± 0.7)</b>	<b>7.7 (± 0.8)</b>	<b>0.010</b>
	T2	7.6 (± 0.9)	7.7 (± 0.7)	7.6 (± 1.0)	7.5 (± 1.0)	0.875
	T3	7.9 (± 0.9)	7.5 (± 0.7)	7.6 (± 1.1)	7.5 (± 1.0)	0.567
	T4	7.9 (± 1.3)	7.5 (± 0.7)	7.4 (± 1.2)	7.7 (± 1.1)	0.524
	T5	8.1 (± 1.3)	7.9 (± 0.7)	8.2 (± 0.7)	7.9 (± 0.8)	0.508
PEEP (cmH <sub>2</sub> O)	T1	5 (± 0)	5 (± 0)	5 (± 0)	5 (± 0)	0.357
	T2	<b>5 (± 0)</b>	<b>5 (± 0)</b>	<b>15.2 (± 1.5)</b>	<b>15.6 (± 2.0)</b>	<b>&lt;0.001</b>
	T3	<b>5 (± 0)</b>	<b>5 (± 0)</b>	<b>15.1 (± 1.6)</b>	<b>15.6 (± 2.0)</b>	<b>&lt;0.001</b>
	T4	<b>5 (± 0)</b>	<b>5 (± 0)</b>	<b>15.1 (± 1.7)</b>	<b>15.6 (± 2.0)</b>	<b>&lt;0.001</b>
	T5	<b>5 (± 0)</b>	<b>5 (± 0)</b>	<b>15.1 (± 1.6)</b>	<b>15.6 (± 2.0)</b>	<b>&lt;0.001</b>
Plateau pressure (cmH <sub>2</sub> O)	T1	15.0 (± 2.3)	14.6 (± 2.0)	14.3 (± 2.0)	14.1 (± 1.6)	0.735
	T2	<b>26.0 (± 4.0)</b>	<b>24.5 (± 5.3)</b>	<b>27.6 (± 3.1)</b>	<b>28.8 (± 2.8)</b>	<b>0.001</b>
	T3	<b>26.7 (± 4.4)</b>	<b>26.0 (± 4.7)</b>	<b>29.3 (± 3.5)</b>	<b>28.2 (± 3.0)</b>	<b>0.015</b>
	T4	<b>27.6 (± 4.6)</b>	<b>25.9 (± 3.5)</b>	<b>29.6 (± 3.4)</b>	<b>29.5 (± 2.5)</b>	<b>0.001</b>
	T5	<b>17.0 (± 1.9)</b>	<b>16.1 (± 2.1)</b>	<b>24.0 (± 2.3)</b>	<b>25.0 (± 2.6)</b>	<b>&lt;0.001</b>
Driving pressure (cmH <sub>2</sub> O)	T1	10.2 (± 2.2)	9.9 (± 2.3)	9.7 (± 2.1)	9.5 (± 1.7)	0.711
	T2	<b>21.4 (± 4.0)</b>	<b>19.9 (± 5.4)</b>	<b>13.6 (± 2.7)</b>	<b>13.5 (± 2.7)</b>	<b>&lt;0.001</b>
	T3	<b>22.0 (± 4.2)</b>	<b>21.2 (± 4.8)</b>	<b>14.7 (± 3.5)</b>	<b>12.9 (± 2.8)</b>	<b>&lt;0.001</b>
	T4	<b>23.0 (± 4.5)</b>	<b>21.6 (± 3.5)</b>	<b>15.0 (± 2.9)</b>	<b>14.3 (± 2.7)</b>	<b>&lt;0.001</b>
	T5	<b>12.4 (± 1.8)</b>	<b>11.5 (± 2.2)</b>	<b>9.2 (± 1.4)</b>	<b>9.6 (± 1.8)</b>	<b>&lt;0.001</b>
Dynamic lung compliance (ml cm H <sub>2</sub> O <sup>-1</sup> )	T1	80.7 (± 18.7)	79.7 (± 21.2)	82.2 (± 21.0)	80.9 (± 18.9)	0.979
	T2	<b>31.6 (± 7.7)</b>	<b>37.0 (± 13.3)</b>	<b>48.3 (± 14.7)</b>	<b>57.4 (± 19.7)</b>	<b>&lt;0.001</b>
	T3	<b>31.5 (± 7.8)</b>	<b>33.9 (± 9.9)</b>	<b>45.6 (± 13.8)</b>	<b>55.3 (± 13.4)</b>	<b>&lt;0.001</b>
	T4	<b>29.7 (± 8.2)</b>	<b>30.8 (± 7.3)</b>	<b>44.4 (± 15.6)</b>	<b>51.8 (± 15.3)</b>	<b>&lt;0.001</b>
	T5	<b>67.5 (± 28.4)</b>	<b>70.5 (± 20.3)</b>	<b>91.9 (± 31.8)</b>	<b>89.1 (± 14.3)</b>	<b>&lt;0.001</b>

<b>Mechanical power #</b> (J/min)	<b>T1</b>	10.0 (±1.9)	9.1 (± 1.4)	9.1 (± 1.4)	9.0 (± 1.9)	0.099
	<b>T2</b>	<b>17.4 (± 3.4)</b>	<b>16.2 (± 3.9)</b>	<b>23.4 (± 4.0)</b>	<b>24.0 (± 3.5)</b>	<b>&lt;0.001</b>
	<b>T3</b>	<b>18.5 (± 3.6)</b>	<b>16.9 (± 3.5)</b>	<b>25.4 (± 3.9)</b>	<b>24.5 (± 5.0)</b>	<b>&lt;0.001</b>
	<b>T4</b>	<b>19.3 (± 5.2)</b>	<b>17.2 (± 3.3)</b>	<b>25.2 (± 3.9)</b>	<b>25.0 (± 3.8)</b>	<b>&lt;0.001</b>
	<b>T5</b>	<b>13.1 (± 3.6)</b>	<b>12.0 (± 2.1)</b>	<b>22.1 (± 4.9)</b>	<b>23.0 (± 5.5)</b>	<b>&lt;0.001</b>
<b>pH</b>	<b>T1</b>	7.40 (± 0.03)	7.40 (± 0.03)	7.41 (± 0.03)	7.41 (± 0.03)	0.299
	<b>T2</b>	7.37 (± 0.02)	7.37 (± 0.03)	7.37 (± 0.04)	7.38 (± 0.03)	0.631
	<b>T3</b>	7.37 (± 0.03)	7.37 (± 0.03)	7.36 (± 0.04)	7.37 (± 0.04)	0.874
	<b>T4</b>	7.36 (± 0.04)	7.36 (± 0.04)	7.35 (± 0.05)	7.35 (± 0.04)	0.980
	<b>T5</b>	7.35 (± 0.04)	7.34 (± 0.04)	7.34 (± 0.04)	7.34 (± 0.04)	0.848
<b>PaCO<sub>2</sub></b> (mmHg)	<b>T1</b>	39.0 (± 3.5)	37.9 (± 3.5)	37.5 (± 3.1)	37.5 (± 3.4)	0.406
	<b>T2</b>	40.7 (± 2.9)	39.6 (± 3.1)	41.0 (± 4.0)	39.9 (± 3.4)	0.406
	<b>T3</b>	41.7 (± 3.9)	40.1 (± 3.6)	41.5 (± 4.2)	40.8 (± 4.2)	0.462
	<b>T4</b>	42.5 (± 5.6)	41.2 (± 3.1)	42.3 (± 4.3)	42.4 (± 4.9)	0.713
	<b>T5</b>	42.5 (± 5.5)	42.6 (± 4.3)	41.9 (± 4.7)	42.0 (± 5.7)	0.957
<b>End-tidal CO<sub>2</sub></b> (mmHg)	<b>T1</b>	33.5 (± 2.0)	33.0 (± 2.8)	31.8 (± 1.7)	32.6 (± 2.1)	0.073
	<b>T2</b>	35.8 (± 2.6)	35.4 (± 2.3)	36.1 (± 3.3)	35.5 (± 2.9)	0.821
	<b>T3</b>	37.0 (± 3.8)	35.7 (± 2.7)	36.0 (± 3.0)	36.6 (± 2.8)	0.502
	<b>T4</b>	37.4 (± 4.6)	36.3 (± 3.1)	36.0 (± 3.2)	37.5 (± 3.8)	0.348
	<b>T5</b>	39.1 (± 4.0)	39.0 (± 3.1)	38.8 (± 4.2)	39.8 (± 3.5)	0.777
<b>PaO<sub>2</sub>/FiO<sub>2</sub> ratio</b> (mmHg)	<b>T1</b>	420 (± 93)	402 (± 115)	428 (± 112)	395 (± 118)	0.715
	<b>T2</b>	<b>329 (± 100)</b>	<b>334 (± 94)</b>	<b>408 (± 87)</b>	<b>425 (± 86)</b>	<b>&lt;0.001</b>
	<b>T3</b>	<b>316 (± 103)</b>	<b>320 (± 103)</b>	<b>398 (± 92)</b>	<b>397 (± 90)</b>	<b>0.002</b>
	<b>T4</b>	<b>315 (± 99)</b>	<b>315 (± 87)</b>	<b>382 (± 93)</b>	<b>380 (± 82)</b>	<b>0.007</b>
	<b>T5</b>	<b>339 (± 90)</b>	<b>336 (± 83)</b>	<b>395 (± 83)</b>	<b>413 (± 76)</b>	<b>0.002</b>
<b>SpO<sub>2</sub></b> (%)	<b>T1</b>	99.6 (± 0.6)	99.4 (± 1.3)	99.6 (± 1.0)	98.8 (± 2.1)	0.168
	<b>T2</b>	<b>98.4 (± 1.3)</b>	<b>98.0 (± 1.6)</b>	<b>99.6 (± 0.7)</b>	<b>98.8 (± 1.4)</b>	<b>&lt;0.001</b>
	<b>T3</b>	<b>97.8 (± 1.5)</b>	<b>97.6 (± 1.7)</b>	<b>99.0 (± 1.2)</b>	<b>98.7 (± 1.3)</b>	<b>&lt;0.001</b>
	<b>T4</b>	<b>97.7 (± 1.7)</b>	<b>97.3 (± 1.5)</b>	<b>98.8 (± 1.2)</b>	<b>98.3 (± 1.3)</b>	<b>&lt;0.001</b>
	<b>T5</b>	<b>98.7 (± 1.5)</b>	<b>98.1 (± 1.4)</b>	<b>99.5 (± 1.1)</b>	<b>98.8 (± 1.4)</b>	<b>0.006</b>
<b>Respiratory rate</b> (n/min)	<b>T1</b>	12.2 (± 0.7)	12.2 (± 1.0)	11.8 (± 1.1)	12.1 (± 1.2)	0.586
	<b>T2</b>	14.9 (± 1.6)	14.3 (± 1.4)	14.5 (± 2.2)	14.8 (± 2.3)	0.657
	<b>T3</b>	15.0 (± 1.6)	14.7 (± 1.5)	15.3 (± 1.8)	15.1 (± 2.1)	0.700
	<b>T4</b>	15.2 (± 1.9)	14.8 (± 1.7)	15.6 (± 2.0)	14.8 (± 2.0)	0.414
	<b>T5</b>	14.6 (± 2.6)	14.4 (± 1.7)	14.0 (± 2.7)	14.6 (± 2.1)	0.782

<b>Mean arterial pressure</b> (mmHg)	<b>T1</b>	74.5 (± 11.0)	78.6 (± 12.4)	77.4 (± 14.5)	79.1 (± 20.7)	0.726
	<b>T2</b>	103.4 (± 10.7)	101.2 (± 10.8)	104.3 (± 15.1)	101.1 (± 10.8)	0.728
	<b>T3</b>	99.0 (± 11.3)	96.6 (± 11.9)	97.4 (± 11.9)	96.8 (± 13.7)	0.900
	<b>T4</b>	<b>96.3 (± 11.0)</b>	<b>89.1 (± 10.0)</b>	<b>94.0 (± 11.8)</b>	<b>87.7 (± 11.8)</b>	<b>0.028</b>
	<b>T5</b>	82.5 (± 10.8)	78.9 (± 10.6)	74.6 (± 8.1)	78.8 (± 11.2)	0.077
<b>Noradrenaline</b> (mg/h)	<b>T1</b>	0.13 (± 0.11)	0.14 (± 0.08)	0.15 (± 0.09)	0.13 (± 0.15)	0.897
	<b>T2</b>	0 (± 0)	0.01 (± 0.04)	0.01 (± 0.03)	0.01 (± 0.04)	0.601
	<b>T3</b>	0 (± 0)	0 (± 0.02)	0.01 (± 0.02)	0.02 (± 0.04)	0.105
	<b>T4</b>	0 (± 0)	0.01 (± 0.03)	0 (± 0.02)	0.01 (± 0.05)	0.327
	<b>T5</b>	<b>0.16 (± 0.11)</b>	<b>0.21 (± 0.13)</b>	<b>0.23 (± 0.13)</b>	<b>0.29 (± 0.17)</b>	<b>0.010</b>

Notes: p<0.05: in bold; entries depict the mean (SD), and p-values compare the four arms using repeated-measures ANOVA; PaCO<sub>2</sub>: partial pressure of carbon dioxide in arterial blood; PBW: predicted body weight; SpO<sub>2</sub>: peripheral oxygen saturation; T1: 5 min after intubation in supine position, T2: 30 min after the start of pneumoperitoneum and Trendelenburg position, T3: 60 min after the start of pneumoperitoneum and Trendelenburg position, T4: 90 min after the start of pneumoperitoneum and Trendelenburg position, T5: before extubation in supine position