

## Lung function measured via Pletismography and Minibox in patients with airway obstruction of different severity.

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**Aim:** to compare lung function [(VC (L); FVC (L); FEV1 (L); MEF25-75% (L/sec); MEF25% (L/sec); PEF (L/sec); RV (L); TLC (L)] measured via the pressometric pletismograph (Platinum Elite DL MedGraphics - Minneapolis-U.S.) and of the Minibox spirometer (PulmOne -Ra-anana- Israel) in patient with airway obstruction of different severity. Statistical comparison: Welch test; significance assumed:  $p < 0.05$ .

**Methods:** lung function of 55 consecutive subjects (males  $n=24$ ; mean age:  $62.4\text{ys} \pm 14.9\text{sd}$ ; mean BMI:  $24.9 \pm 4.4\text{sd}$ ) was measured with both methods. Asthmatics were  $n=26$  (males  $n=9$ ; mean age:  $52.3\text{ys} \pm 13.6\text{sd}$ ; mean BMI:  $24.3 \pm 4.2\text{sd}$ ) and COPD  $n=29$  (males  $n=15$ ; mean age:  $71.4\text{ys} \pm 9.0\text{sd}$ ; mean BMI:  $24.4 \pm 4.6\text{sd}$ ).

**Results:** means  $\pm$  ds for each variable measured by the two methods are reported in tabb. 1-3 for the total sample, for asthmatic, and for COPD patients, together with the corresponding statistical comparisons (always  $p=ns$ ). Figg. 1-6 report the regressions between RV and of TLC measured via the two methods in the total sample, in asthmatic, and in COPD patients. Regression were high indeed.

**Conclusions:** lung function, and RV and TLC in particular, proved indistinguishable when measured via the pletismographic method and via the Minibox spirometer.

**Tab. 1 - Total sample (n=55)**

(males n=24; mean age: 62.4 ys±14.9sd; mean BMI: 24.9±4.4)

Variables	Pletismographic	Minibox	Welch test p
<b>VC (L)</b>	3.3±0.9	3.5 ±1.0	ns
<b>FVC (L)</b>	3.0±0.9	3.1±0.9	ns
<b>FEV1 (L)</b>	2.3±0.8	2.4±0.8	ns
<b>MEF25-75% (L/sec)</b>	2.2±1.1	2.2±1.1	ns
<b>MEF25% (L/sec)</b>	1.0±0.6	0.9±0.5	ns
<b>PEF (L/sec)</b>	5.7±1.9	6.0±1.9	ns
<b>RV (L)</b>	2.3±0.9	2.1±0.9	ns
<b>TLC (L)</b>	5.4±1.1	5.5±1.1	ns

**Tab. 2 - Asthma sample (n=26)**

(males n=9; mean age: 52.3 ys±13.6sd; mean BMI: 24.3±4.7)

Variables	Pletismographic	Minibox	Welch test p
<b>VC (L)</b>	3.5±0.8	3.7±0.8	ns
<b>FVC (L)</b>	3.3±0.8	3.4±0.7	ns
<b>FEV1 (L)</b>	2.7±0.7	2.7±0.7	ns
<b>MEF25-75% (L/sec)</b>	2.8±1.1	2.8±1.0	ns
<b>MEF25% (L/sec)</b>	1.3±0.7	1.2±0.6	ns
<b>PEF (L/sec)</b>	6.3±1.9	6.6±1.7	ns
<b>RV (L)</b>	2.1 ±0.9	2.0±1.0	ns
<b>TLC (L)</b>	5.4±1.0	5.4±1.0	ns

**Tab. 3 - COPD sample (n=29)**

(males n=15; mean age: 71.4 ys±9.0sd; mean BMI: 25.4±4.6)

Variables	Pletismographic	Minibox	Welch test p
<b>VC (L)</b>	3.1±1.0	3.3±1.2	ns
<b>FVC (L)</b>	2.7±0.9	2.8±0.9	ns
<b>FEV1 (L)</b>	2.0±0.7	2.0±0.7	ns
<b>MEF25-75% (L/sec)</b>	1.7±0.9	1.7±0.8	ns
<b>MEF25% (L/sec)</b>	0.7±0.4	0.7±0.3	ns
<b>PEF (L/sec)</b>	5.2±1.8	5.4±1.8	ns
<b>RV (L)</b>	2.4±0.8	2.3 ±0.9	ns
<b>TLC (L)</b>	5.5±1.2	5.6±1.2	ns

Fig. 1

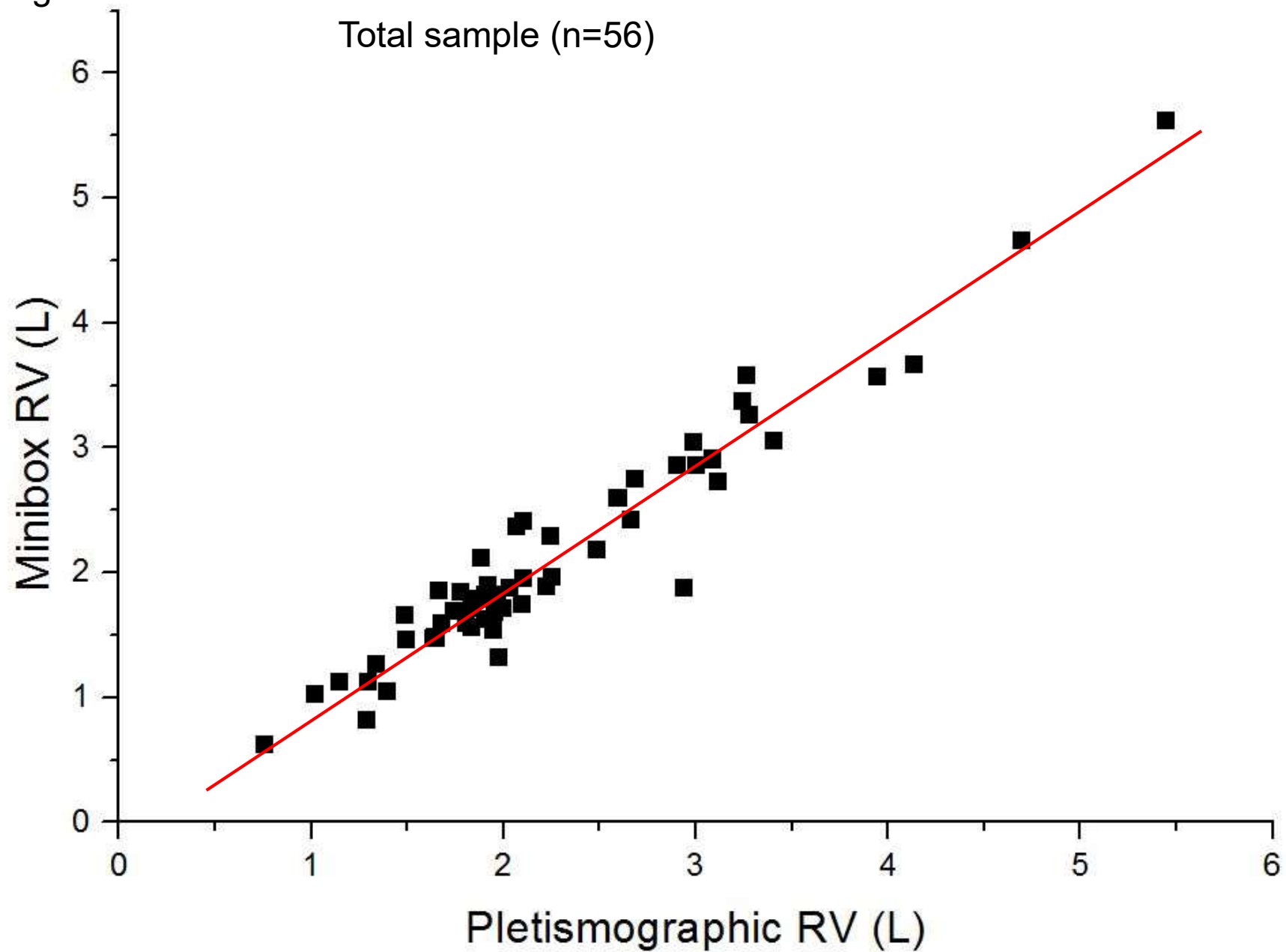


Fig. 2

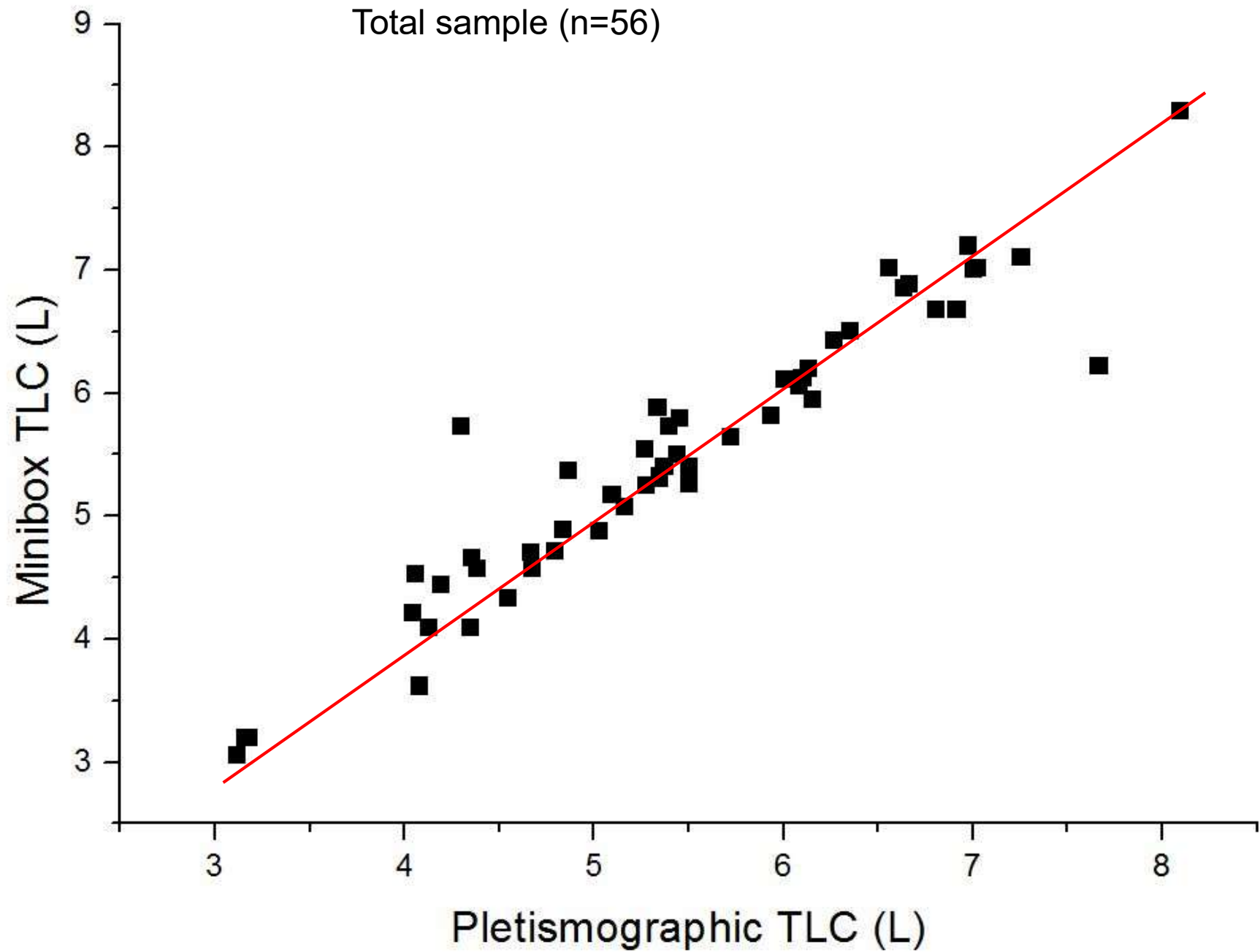


Fig. 3

Asthma patients (n=26)

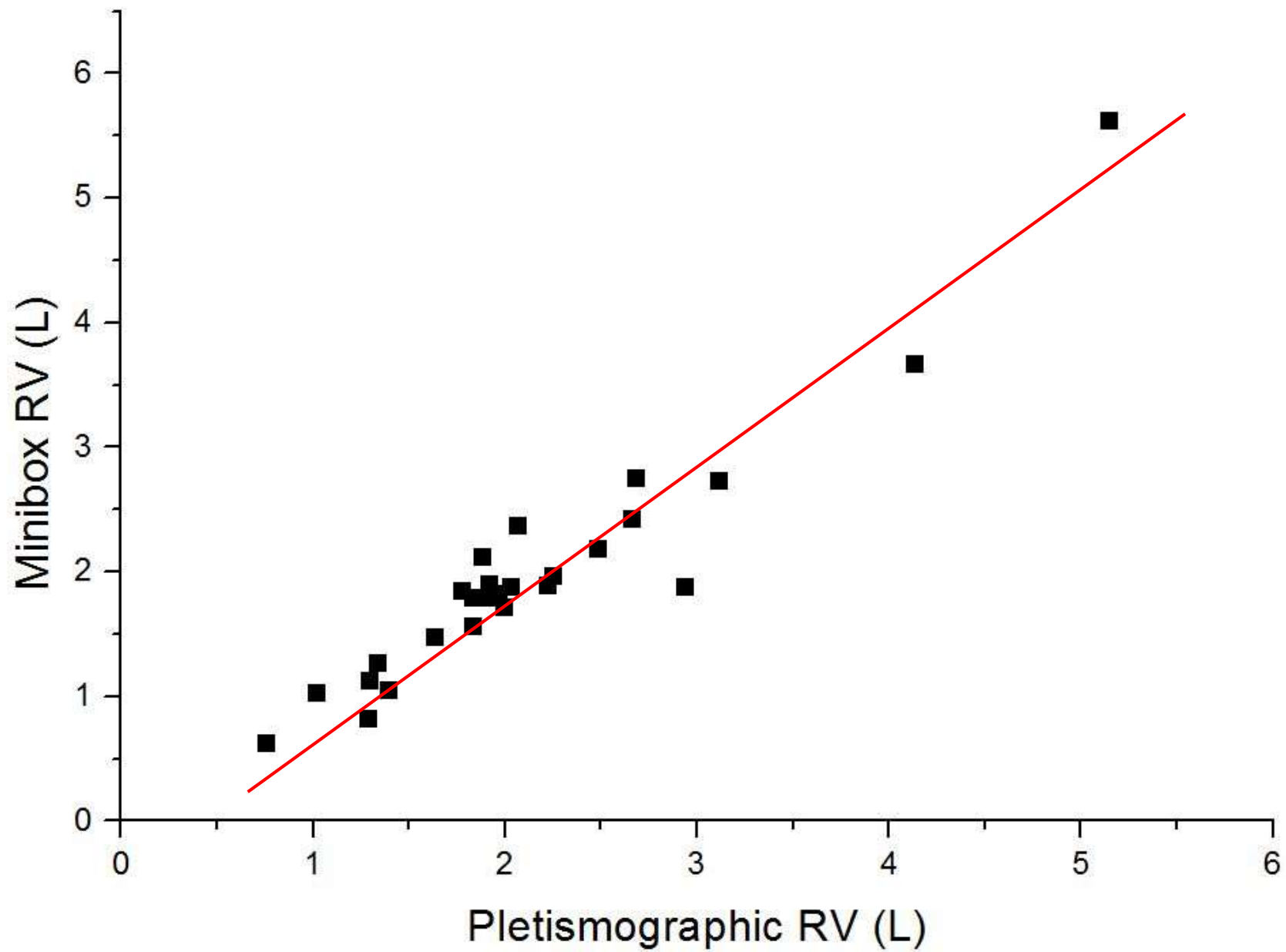


Fig. 4

Asthma patients (n=26)

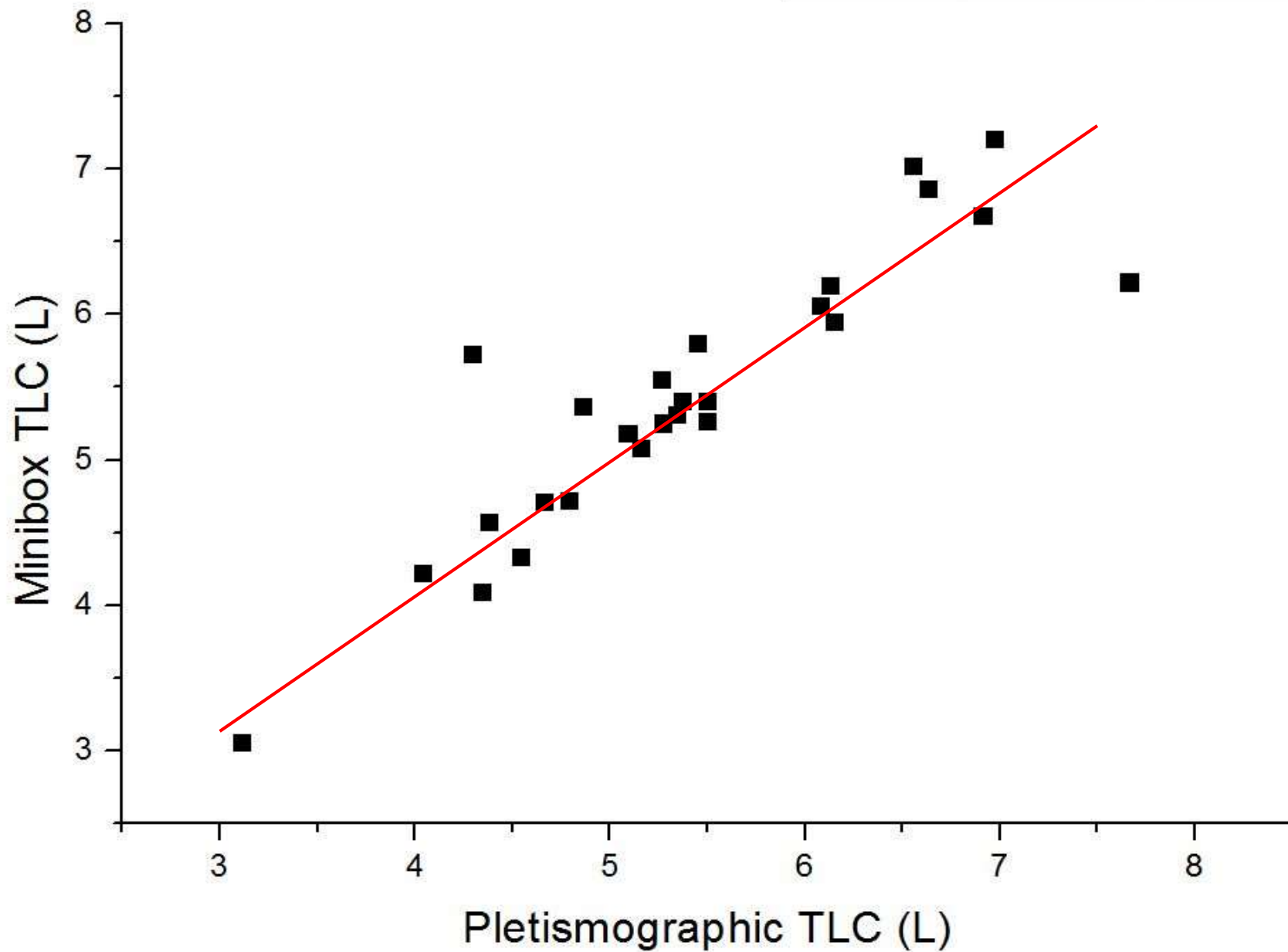




Fig. 5

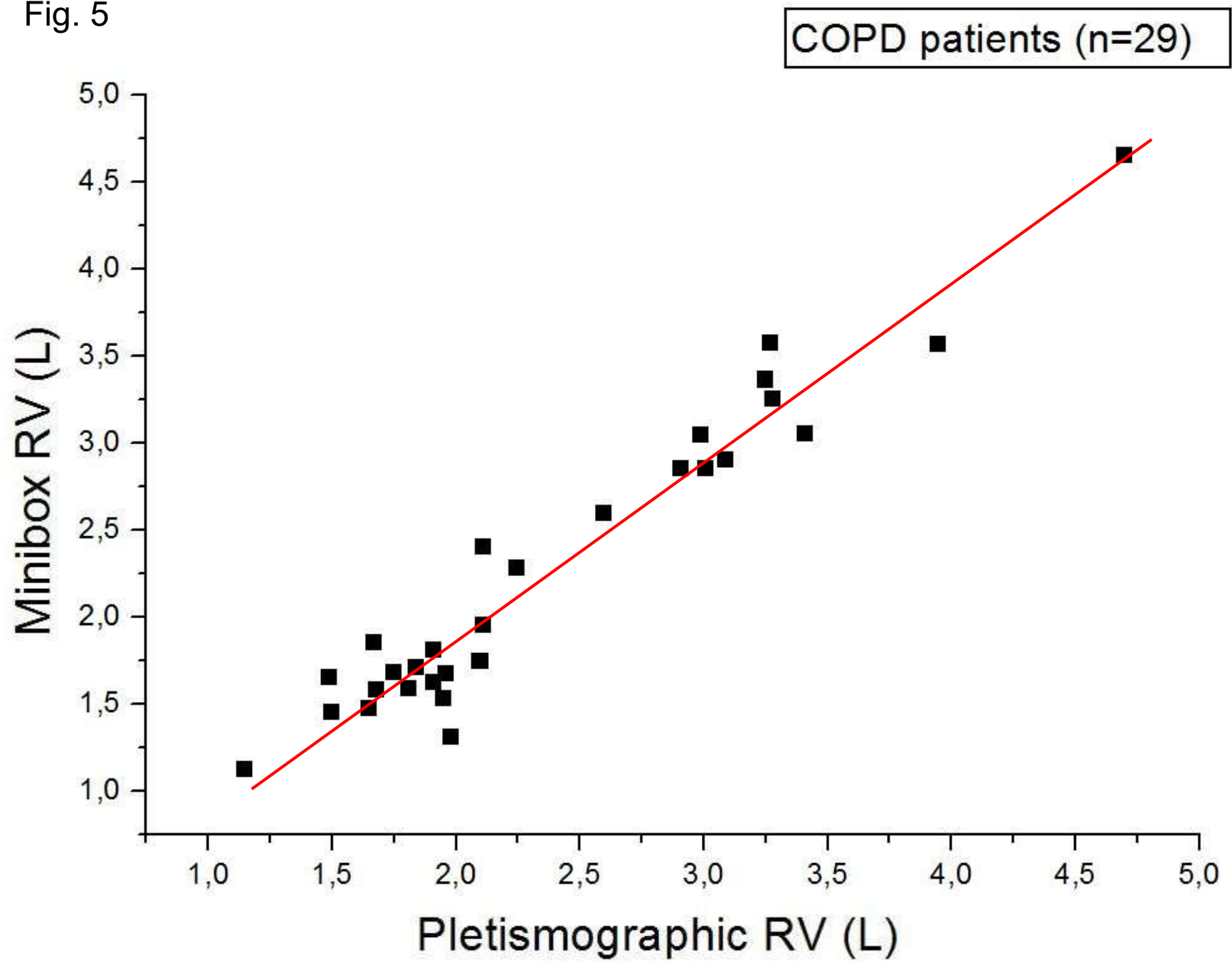


Fig. 6

