

## DATA SUPPLEMENT

---

### SUBJECT CHARACTERISTICS

Exclusion of the 8 subjects with a baseline FEV<sub>1</sub> of under 70% of predicted provides the following demographic and clinical parameters (Supplement Table 1). Exclusion means that the conditions the power calculation provided (n = 17 for both groups) are no longer met.

<i>Characteristics</i>	<b>Non-EIB (n=22)</b>	<b>EIB (n=12)</b>	<b>Significance (P value)</b>
<i>Age (years)</i>	12.3 (3.0)	12.8 (3.3)	0.64
<i>Height (cm)</i>	153.2 (19.4)	154.5 (20.9)	0.92
<i>Weight (kg)</i>	48.8 (21.7)	48.3 (16.2)	0.91
<i>Male (%)</i>	87(34)	92(29)	0.66
<i>Inhalation allergies? (%)</i>	83(39)	67(49)	0.33
<i>ICs usage? (%)</i>	52(51)	67(49)	0.36
<i>FEV<sub>1</sub> predicted at baseline (%)</i>	93 (10)	90 (10)	0.36
<i>FEV<sub>1</sub> decrease (%)</i>	7.1 (3.9)	26.4 (15.3)	<b>&lt; 0.001</b>
<i>Peak amplitude EMG (μV)</i>	1.72 (0.97-2.62)	1.72 (0.96 – 2.11)	0.77
<i>Peak width (s)</i>	3.35 (2.72 – 3.68)	2.94 (2.14 – 3.66)	0.52
<i>Area under curve</i>	2.63 (1.43 – 3.90)	3.67 (1.19 – 6.37)	0.54
<i>Tonic activity (μV)</i>	1.62 (1.39 – 2.04)	1.95 (1.52 – 2.43)	0.21

**Supplement Table 1: Demographic and clinical parameters of the study population. Data is displayed as mean ( $\pm$ SD) with corresponding p-value, or as a percentage. Measured EMG parameters are displayed as median (IQR), significant differences are displayed in bold print.**

## CORRELATION

There was a very strong correlation between the decrease in FEV<sub>1</sub> and the increase in peak amplitude of the diaphragm, a Spearman's rho of 0.82 was found (Supplement Figure 1).

## GROUP COMPARISON

EMG parameters at the diaphragm were comparable between groups at baseline (Supplement Figure 2). At the nadir FEV<sub>1</sub> we found a significant increase in peak amplitude and area under curve (Supplement Table 1).

	Non-EIB (n=22)	EIB (n=12)	P-value
$\Delta$ Peak amplitude ( $\mu$ V)	0.20 (-0.10 - 0.54)	3.01 (1.82 - 7.74)	<b>&lt; 0.001</b>
$\Delta$ Peak width (s)	-0.68 (-1.10 - (-0.54))	0.09 (-0.56 - 1.45)	0.05
$\Delta$ AUC ( $\mu$ Vs)	-0.25 (-0.87 - 0.47)	3.91 (0.65 - 14.10)	<b>&lt; 0.01</b>
$\Delta$ Baseline activity ( $\mu$ V)	0.21 (-0.52 - 0.72)	-0.32 (-1.12 - 0.31)	0.37

**Supplement Table : Overview of the increases in measured EMG parameters between baseline and at the nadir FEV1. All data is displayed as a median (IQR) with the corresponding P-value, significant differences are displayed in bold print.**

It is possible to distinguish between EIB and non-EIB using the difference in peak amplitude with a sensitivity of 92% and a specificity of 91% at a cut-off value of 1.15 $\mu$ V. The area under curve of the ROC curve was 0.96 (Supplement Figure 3). The measure area under curve allows to distinguish between EIB and non-EIB with a sensitivity of 75% and a specificity of 91% using a cut-off value of 1.57 $\mu$ Vs. The area under curve of the ROC curve is 0.80 (Supplement Figure 3).