Table E1: Patient Characteristics by GSAQ Score Tertiles				
Variables, mean (SD)	GSAQ Tertiles			p-value
	T1	T2	T3	
n	124	74	108	
GER Score range	0-4	6-15	16-223	
Female, n (%)	42 (34)	27 (36)	49 (45)	.184
Race, n (%)				.191
White	45 (36)	26 (35)	47 (44)	
Black	64 (52)	38 (51)	51 (47)	
Other	15 (12)	10 (14)	10 (9)	
Hispanic/Latino, n (%)	25 (20)	11 (15)	17 (16)	.571
Birth weight < 2.5 kg, n (%)	12 (10)	3 (4)	3 (3)	.078
Age of asthma diagnosis, years	3.1 (2.8)	3.5 (3.2)	3.6 (3.5)	.194C
BMI ≥95th percentile, n (%)C	38 (31)	21 (28)	35 (32)	.846
Anthropometric measures T				.225
BMI-percentile	75.5 (25.8)	68.4 (30.1)	72.9 (29.0)	
Environment				.928
ETS exposure at home, n (%)	21 (17)	14 (19)	19 (18)	
Co-morbidities				
GER disease	0 (0)	0 (0)	0 (0)	--
Allergic rhinitis	68 (55)	51 (69)	62 (57)	.130
Neuropsychiatric disorder	0 (0)	0 (0)	0 (0)	--
Controller treatments, n (%)				
ICS-LABA	75 (60)	48 (65)	51 (47)	.035
LTRA	69 (56)	32 (43)	60 (56)	.514
Utilization for Asthma				
Urgent care visits in past year	2.3 (2.6)	3.0 (3.4)	3.4 (5.4)	.042T
Steroid bursts in past year	1.6 (1.6)	2.0 (2.3)	1.8 (2.1)	.377
Values are means (SD) unless noted, SD – standard deviation, GSAQ – GERD symptom assessment questionnaire, GERD – gastroesophageal reflux disease, BMI – body mass index, ETS – environmental tobacco smoke, IQR – intraquartile range, ICS – inhaled corticosteroids, LABA – long acting Beta-agonists, LTRA – leukotriene receptor antagonist, T - ANOVA test for linear trend used for continuous variables, C - Cochran-Armitage Trend test for categorical variables, K – Kruskal-Wallis test.				

Table E2a: Correlation Coefficients between Asthma and GSAQ score subscales in Obese Children (BMI≥95th percentile)										
	ACQ	Woken	morning	activities	SOB	Wheeze	SABA	FEV1	FEV1%	FEV1/FVC
GER score	**.474** **(<.0001)**	0.325 (0.0013)	0.392 (<.0001)	**0.437** **(<.0001)**	**0.460** **(<.0001)**	0.385 (0.0001)	.344 (0.0006)	-0.001 (0.9925)	.017 (.864)	.028 (.784)
Abdominal pain	0.355 (0.0004)									
Chest pain / heartburn	0.259 (0.0112)									
Difficulty swallowing	0.288 (0.0046)									
Night-time pain / awakening	0.307 (0.0025)									
Nausea	**0.439** **(<.0001)**									
Vomiting / Regurgitation	0.150 (0.1467)									
Burping / belching	.373 (.0002)									
Choking when eating	.384 (<.0001)									
Pain after eating	.238 (0.0201)									

Measures are Pearson's correlation coefficients (p-values), GSAQ – GERD symptoms assessment questionnaire, GERD – gastroesophageal reflux disease, ACQ – asthma control questionnaire score, FEV1% – Forced expiratory volume in 1 second (percent predicted), SOB – shortness of breath, SABA – short acting beta-agonist use, FEV1% – forced expiratory volume in 1 second percent predicted, FVC – forced vital capacity (liters), Dark grey boxes indicate p-value significance <0.01, Light grey boxes indicate p-value significance < 0.05. **BOLDED** values represent R values ≥ 0.400. Woken – "on average, during the past week, how often were you woken by your asthma during the night?" Morning – "on average, during the past week, how bad were your asthma symptoms when you woke up in the morning?" Activities – "In general, during the past week, how limited were you in your activities because of your asthma?" SOB – "In general, during the past week, how much shortness of breath did you experience because of your asthma?" Wheeze – "In general, during the past week, how much time did you wheeze?" SABA – "On average, during the past week, how many puffs/inhalations of short-acting bronchodilator have you used each day? FEV1 – FEV1 percent predicted subscale of ACQ represented by a 7-point ordinal scale, FEV1% - FEV1 percent predicted, FVC – forced expiratory volume.

Table E2b: Correlation Coefficients between Asthma and GSAQ score subscales in Lean Children (BMI 20-65th percentile)										
	ACQ	Woken	Morning	Activities	SOB	Wheeze	SABA	FEV1	FEV1%	FEV1/FVC
GER score	0.354 (0.0011)	0.28866 (0.0085)	**0.44623** **(<.0001)**	0.24140 (0.0289)	0.36542 (0.0007)	0.22239 (0.0446)	0.12055 (0.2807)	-0.04071 (0.7165)	0.0508 (0.6143)	0.1660 (0.0970)
Abdominal pain	0.135 (0.2263)									
Chest pain / heartburn	0.254 (0.0211)									
Difficulty swallowing	0.179 (0.1076)									
Nausea	0.217 (0.0506)									
Vomiting / Regurgitation	0.082 (0.4624)									
Burping / belching	0.072 (0.5224)									
Choking when eating	0.127 (0.2538)									
Pain after eating	0.189 (0.0884)									

Measures are Pearson's correlation coefficients (p-values), GSAQ – GERD symptoms assessment questionnaire, GERD – gastroesophageal reflux disease, ACQ – asthma control questionnaire score, FEV1% – Forced expiratory volume in 1 second (percent predicted), SOB – shortness of breath, SABA – short acting beta-agonist use, FEV1% – forced expiratory volume in 1 second percent predicted, FVC – forced vital capacity (liters), Dark grey boxes indicate p-value significance <0.01, Light grey boxes indicate p-value significance < 0.05. **BOLDED** values represent R values ≥ 0.400. Woken – "on average, during the past week, how often were you woken by your asthma during the night?" Morning – "on average, during the past week, how bad were your asthma symptoms when you woke up in the morning?" Activities – "In general, during the past week, how limited were you in your activities because of your asthma?" SOB – "In general, during the past week, how much shortness of breath did you experience because of your asthma?" Wheeze – "In general, during the past week, how much time did you wheeze?" SABA – "On average, during the past week, how many puffs/inhalations of short-acting bronchodilator have you used each day? FEV1 – FEV1 percent predicted subscale of ACQ represented by a 7-point ordinal scale, FEV1% - FEV1 percent predicted, FVC – forced expiratory volume.

Table E3: Impulse Oscillometry Measures by BMI-percentile grouping				103
Variables, mean (SD)	BMI-percentile groups			p-value[T] 104
	20-65%	85-94%	95-100%	105
n	21	12	23	106
Impedance (KPa/L/sec), mean (SD)				
Z5	8.3 (2.8)	8.6 (2.5)	7.7 (2.1)	.478
Resistance (KPa/L/sec), mean (SD)				
R5	7.8 (2.6)	7.5 (2.2)	7.7 (2.5)	.851
R10	6.3 (2.0)	6.1 (1.5)	5.9 (1.2)	.433
R15	5.7 (1.9)	5.3 (1.4)	5.2 (0.9)	.314
R20	5.3 (1.7)	4.8 (1.3)	5.0 (0.9)	.382
R25	5.3 (1.7)	4.9 (1.2)	4.9 (0.7)	.339
R35	5.7 (1.8)	5.6 (1.4)	5.4 (0.6)	.534
Reactance (KPa/L/sec) [1], mean (SD)				
X5	-2.7 (1.3)	-3.5 (1.7)	-3.0 (1.7)	.527
X10	-1.7 (1.1)	-2.4 (1.2)	-1.5 (1.1)	.715
X15	-1.2 (0.9)	-1.3 (0.8)	-1.0 (1.0)	.612
X20	-0.5 (0.7)	-0.5 (0.6)	-0.3 (0.8)	.309
X25	0.1 (0.7)	0.4 (0.7)	0.4 (0.6)	.178
X35	1.2 (0.6)	1.5 (0.8)	1.6 (0.5)	.053
AX (KPa/L)	25.0 (17.3)	29.4 (16.3)	21.9 (16.9)	.558
F res (L/sec)	23.5 (5.9)	23.9 (5.5)	20.9 (5.7)	.159
SD – standard deviation, T – ANOVA test for linear trend, R – resistance, X – reactance, AX – area of reactance, F res – Resonant frequency				