Supplementary Appendix:

Evaluation of Malnutrition Risk in Lung Transplant Candidates Using the Nutritional Risk Index

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TABLES:

Table S1: Characteristic of Eligible Lung Transplant Candidates Included in the Study Compared to those Excluded

Table S2: Posttransplant Outcomes based On Nutritional Risk Index in those Surviving to Hospital Discharge in Patients without Cystic Fibrosis

Table S3: Posttransplant Outcomes based On Nutritional Risk Index in those Surviving to Hospital Discharge in Patients with Cystic Fibrosis

Table S4: Change in Body Weight Posttransplant Based on Pretransplant Body Mass Index Categories

FIGURES:

Figure S1: Differences in Nutritional Risk Index Values between Diagnostic Groups.

Figure S2: Correlations of Nutritional Risk Index with Body Mass Index, Albumin, Body Weight, and Malnutrition Screening Tool at Time of Lung Transplant Assessment.

Figure S3: Spaghetti Plot of Body Weight Change Pretransplant and Posttransplant for Lung Transplant Patients Surviving to Hospital Discharge

Table S1: Characteristic of Eligible Lung Transplant Candidates Included in the Study

Compared to those Excluded

Characteristics at Lung Transplant Assessment	Included (n=247)	Excluded (n=36)	p value
Age, Median Years	59 IQR [47-64]	57 [47-62]	0.49
Male Sex, n (%)	142 (57%)	22 (61%)	0.60
Body Mass Index (kg/m^2)	24.8 ± 5.0	26.2 ± 6.0	0.77
Nutritional Risk Index	108 ± 12	109 ± 17	0.70
Interstitial Lung Disease COPD Cystic Fibrosis Pulmonary Arterial Hypertension Other	139 (56%) 50 (20%) 29 (12%) 13 (5%) 16 (6%)	18 (50%) 6 (17%) 6 (17%) 5 (14%) 1 (3%)	0.25
Listing Status One-Two Rapidly Deteriorating	 216 (88.5%) 31 (12.5%)	 27 (75%) 9 (25%)	0.045
Six-Minute Walk Distance (m)	315 ± 113	335 ± 121	0.40
Median Days from Lung Transplant Assessment to Listing	87 IQR [55-150]	219 [31–300]	0.07

Data are presented as mean ± SD, median with IQR [25-75%] and proportions (%).

Abbreviations: COPD = Chronic Obstructive Pulmonary Disease

Table S2: Posttransplant Outcomes based On Nutritional Risk Index in those Surviving to Hospital Discharge in Patients without Cystic Fibrosis

Parameter	Non-CF Group	Non-CF Median Difference 10 units in NRI (95% CI) (Unadjusted)	p value	Non-CF Median Difference 10 units in NRI (95% CI) (ªAdjusted)	p value
Days of Mechanical Ventilation (n=151)	2 [1-5]	0 (-0.6 to 0)	1.0	-0.4 (-0.6 to 0.02)	0.08
ICU Days (n=157)	4 [2-15]	0 (-0.5 to 0.7)	1.0	-0.5 (-1.3 to 0.3)	0.46
Hospital Stay (Days) (n=157)	25 [17 - 47]	-1.4 (-5.0 to 0.3)	0.50	-3.2 (-4.0 to 0.12)	0.065
Parameter	**Non-CF Group**	**OR for every 10 units NRI (95% CI)**	**p value**	**OR for every 10 units NRI (95% CI)**	**p value**
Discharge to Inpatient Rehab vs. Home (n=157)	28/157 (18%)	0.81 (0.55 to 1.21)	0.31	0.74 (0.49 to 1.11)	0.14

Data presented as median with IQR [25-75%] and median difference (95% CI).

ªMultivariable Models adjusted for Age, Sex and Diagnosis

Abbreviations: CF= Cystic Fibrosis; ICU = Intensive Care Unit; NRI = Nutritional Risk Index;

OR = Odds Ratio

Table S3: Posttransplant Outcomes based On Nutritional Risk Index in those Surviving to Hospital Discharge in Patients with Cystic Fibrosis

Parameter	Non-CF Group	CF Median Difference 10 units in NRI (95% CI) (Unadjusted)	p value	CF Median Difference 10 units in NRI (95% CI) (*Adjusted)	p value
Days of Mechanical Ventilation (n=23)	1 [1-3]	-0.2 (-0.6 to 0.2)	0.40	0 (-1.4 to 0)	1.0
ICU Days (n=23)	3 [2-6]	0 (-0.9 to 0.4)	1.0	0 (-0.8 to 1.7)	1.0
Hospital Stay (Days) (n=23)	20 [18-36]	-2.0 (-3.5 to 3.6)	0.62	-0.5 (-5.2 to 3.3)	0.96
Parameter	**Non-CF Group**	**OR for every 10 units NRI (95% CI)**	**p value**	**[a]OR for every 10 units NRI (95% CI)**	**p value**
Discharge to Inpatient Rehab vs. Home (n=23)	1/23 (4%)	0.40 (0.04 to 3.90)	0.43	--	---

Data presented as median with IQR [25-75%] and median difference (95% CI).

[a]Multivariable Models adjusted for Age and Sex.

Discharge disposition not adjusted given small sample size.

Abbreviations: CF= Cystic Fibrosis; ICU = Intensive Care Unit; NRI = Nutritional Risk Index;

OR = Odds Ratio

Table S4: Change in Percent Body Weight Posttransplant Based on Pretransplant Body Mass Index Categories

Parameter	Univariate Mean Difference in Percent Change in Weight (95% CI)	p	‡ Adjusted Model Mean Difference in Percent Change in Weight (95% CI)	p
[a]3 Months Post-Tx Percent Change in Weight (n=176)				
BMI Categories -Normal BMI (18.5-24.9 kg/m^2) -Underweight (< 18.5 kg/m^2) -Overweight (25.0 to 29.9 kg/m^2) -Obese (≥ 30 kg/m^2)	Reference 7.3 (2.6 to 12.1) -2.1 (-5.7 to 1.4) -5.8 (-10.0 to -1.7)	< 0.0001	Reference 5.3 (0.4 to 10.2) -2.5 (-5.9 to 1.0) -5.7 (-9.6 to -1.7)	0.002
[a]6 Months Post-Tx Percent Change in Weight (n=172)				
BMI Categories -Normal BMI (18.5-24.9 kg/m^2) -Underweight (< 18.5 kg/m^2) -Overweight (25.0 to 29.9 kg/m^2) -Obese (≥ 30 kg/m^2)	Reference 15.6 (10.1 to 21.2) -3.1 (-7.2 to 1.1) -5.8 (-10.5 to -1.0)	< 0.0001	Reference 14.5 (8.9 to 20.2) -4.5 (-8.5 to -0.6) -6.8 (-11.4 to -2.3)	< 0.0001
[a]12 Months Post-Tx Percent Change in Weight (n=155)				
BMI Categories -Normal BMI (18.5-24.9 kg/m^2) -Underweight (< 18.5 kg/m^2) -Overweight (25.0 to 29.9 kg/m^2) -Obese (≥ 30 kg/m^2)	Reference 17.6 (10.8 to 24.4) -2.0 (-7.1 to 3.1) -6.3 (-12.0 to -0.5)	< 0.0001	Reference 16.2 (8.7 to 23.6) -3.3 (-8.5 to 1.8) -7.4 (-13.1 to -1.7)	< 0.0001

Data presented as Mean Difference (95% CI).

[a]Percent body weight change taken from last available assessment pretransplant.

‡ Adjusted for Age, Sex and Diagnosis

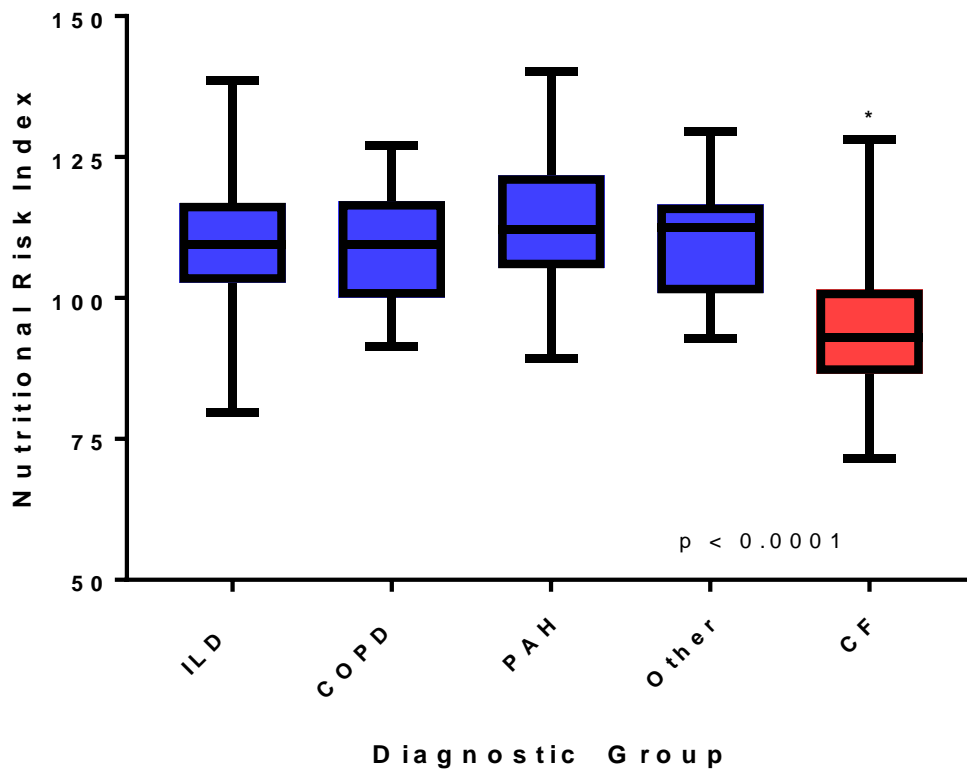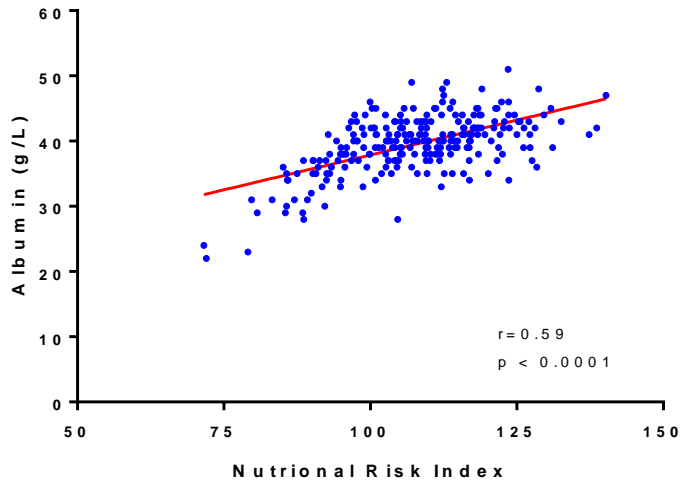**Abbreviations:** BMI = Body Mass Index; Tx = Transplant

Figure S1: Differences in Nutritional Risk Index Values between Diagnostic Groups.
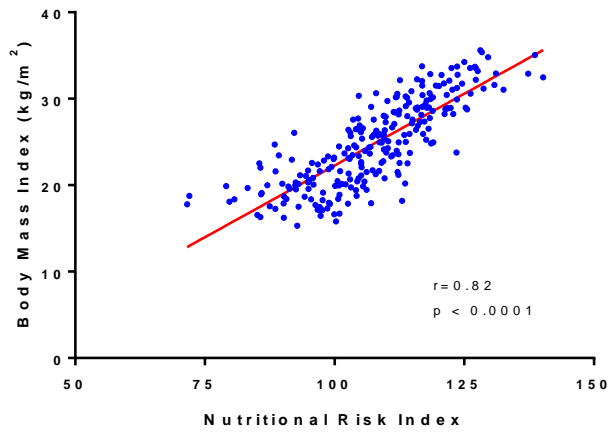
*One-way ANOVA with post hoc Bonferroni correction demonstrated that only the Cystic Fibrosis group had a lower Nutritional Risk Index than the other 4 groups (p < 0.0001).

Abbreviations: COPD = Chronic Obstructive Pulmonary Disease; CF = Cystic Fibrosis; ILD = Interstitial Lung Disease; PAH = Pulmonary Arterial Hypertension
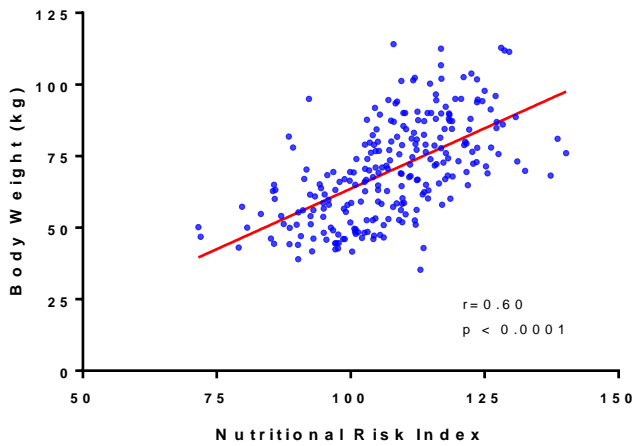
A

r = 0.59
p < 0.0001

Albumin (g/L) vs Nutrional Risk Index

B

r = 0.82
p < 0.0001

Body Mass Index (kg/m²) vs Nutritional Risk Index

C

r = 0.60
p < 0.0001

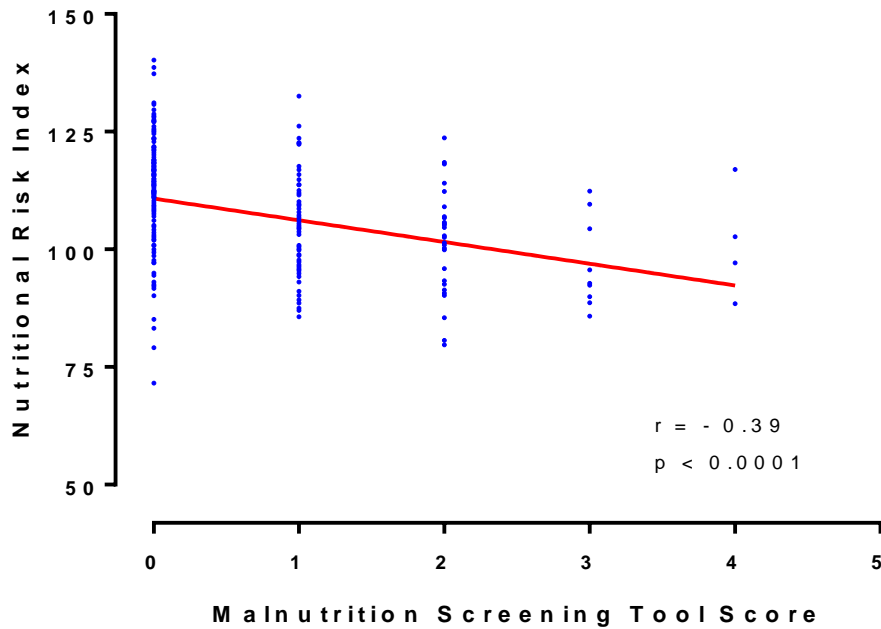Body Weight (kg) vs Nutritional Risk Index

D

r = -0.39

p < 0.0001

Figure S2: Correlations of Nutritional Risk Index with Body Mass Index, Albumin, Body Weight, and Malnutrition Screening Tool at Time of Lung Transplant Assessment. S2-A: Pearson Correlation between Albumin versus Nutritional Risk Index **S2-B:** Pearson Correlation between Body Mass Index versus Nutritional Risk Index **S2-C:** Pearson Correlation between Body Weight versus Nutritional Risk Index **S2-D:** Spearman Correlation between Nutritional Risk Index and Malnutrition Screening Tool (n=244).
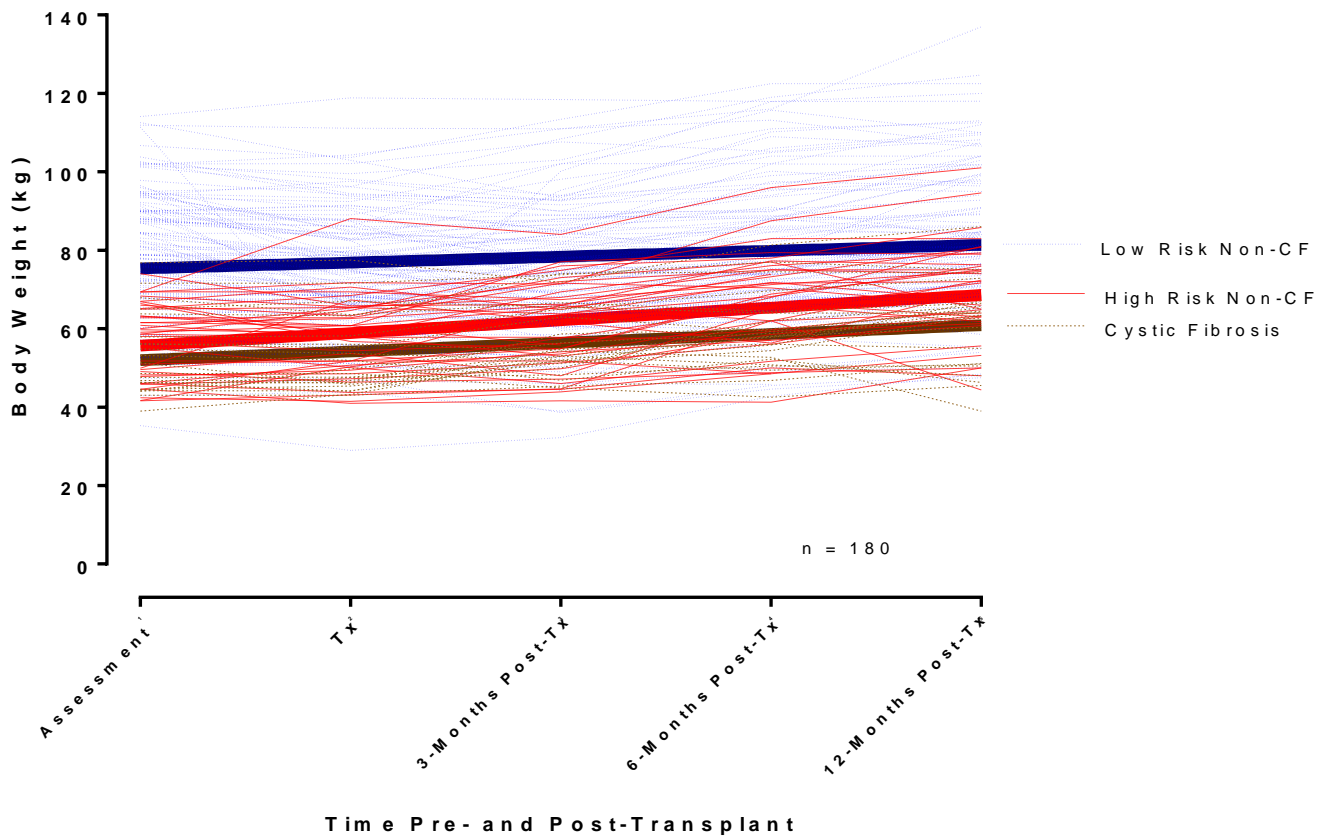
Figure S3: Spaghetti Plot of Body Weight Change Pretransplant and Posttransplant for Lung Transplant Patients Surviving to Hospital Discharge

High and low malnutrition risk for non–cystic fibrosis patients shown, whereas malnutrition risks combined for cystic fibrosis patients.

Abbreviations: CF=Cystic Fibrosis; Tx = Transplant