Supplementary Table S1. Characteristics of the whole cohort prior to matching.

	COVID (n=20)	NCOVID (n=105)	p-value
Age (y)	57 (50-62)	54 (42-61)	0.182
Female gender, n (%)	6 (30)	37 (35)	1.000
Weight (kg)	90 (80-100)	82 (71-100)	0.329
Height (cm)	176 (170-185)	175 (165-181)	0.344
BMI (kg/m^2)	28.2 (24.7-31.1)	27 (25-33)	0.617
Pre-ECMO LOS in hospital (d)	6 (4-16)	0 (0-1)	0.000*
Coronary Artery Disease, n (%)	1 (5)	16 (15)	0.467
Prior Myocardial Infarction, n (%)	1 (5)	11 (10)	0.690
VA-ECMO n(%)	1 (5)	38 (33)	0.007
Arterial Hypertension, n (%)	14 (70)	35 (33)	0.002*
COPD, n (%)	3 (15)	17 (16)	1.000
Diabetes mellitus type 2, n (%)	7 (35)	16 (15)	0.048
Pulmonary Hypertension, n (%)	2 (10)	0 (0)	0.022*
Chronic kidney disease, n (%)†	2 (10)	10 (10)	0.000*
Nicotine use, n (%)	4 (20)	43 (41)	0.126
Immunosuppressive medication, n (%)	1 (5)	16 (15)	0.467
History of Malignancy, n (%)	1 (5)	5 (5)	1.000
Laboratory parameters			
pO2 (mmHg)	68 (54-72)	77 (60-116.5)	0.023*
FiO2 (percentage)	60 (50-80)	82 (54-100)	0.036*
Creatinine (mg/dL)	1.2 (0.9–1.7)	1.07 (0.76-1.86)	0.091
Bilirubin (mg/dL)	0.6 (0.45–1.9)	0.56 (0.32-1.8)	0.054
Hemoglobin (g/dL)	9.8 (8.8–10.5)	10.5 (9.375-11.5)	0.105
Respiratory Extracorporeal Membrane Oxygenation Survival Prediction Score			
Total RESP Score	0 (-3-2)	2 (1-5)	0.003*
Survival Prediction (percentage)	57 (33-57)	57 (57-76)	0.001*
PaCO$_2$ ≥75 mmHg, n (%)	6 (32)	23 (22)	1.000
Peak inspiratory pressure ≥42cmH$_2$O, n (%)	0 (0)	1 (1)	1.000
Outcomes			
90-day mortality, n (%)†	9 (45)	61 (58)	0.455
ECMO duration (d)	16 (11-23)	12 (7-20)	0.129
Total LOS in hospital (d)	29 (14-55)	29 (11-53)	0.638
Thromboembolic Events, n (%)	8 (40)	18 (17)	0.028*
Pulmonary Artery Embolism	6 (30)	5 (5)	0.008*
Peripheral Venous Thrombosis	4 (20)	8 (8)	0.121
Peripheral Arterial Thrombosis	1 (5)	5 (5)	1.000
Other Thromboembolic Events††	0 (0)	5 (5)	1.000
Major Bleeding Events, n (%)	9 (45)	44 (42)	1.000
Endobronchial	2 (11)	18 (17)	0.736
Mucosal	3 (16)	6 (6)	0.141
Cannulation Side	2 (10)	19 (18)	0.526
Gastrointestinal	2 (10)	2 (2)	0.119
Cerebral	0 (0)	4 (4)	1.000
Hemothorax	1 (5)	14 (13)	1.000

Continuous variables are presented as median and interquartile range (IQR). *p values under 0.05 are significant and tagged with asterisks. Abbreviations: BMI—body mass index kg/m2; ECMO—extracorporeal membrane oxygenation; ICU—intensive care unit; LOS—length of stay; NCOVID—non-COVID; VV—venovenous; †Death during 90 days after initiation of ECMO therapy.
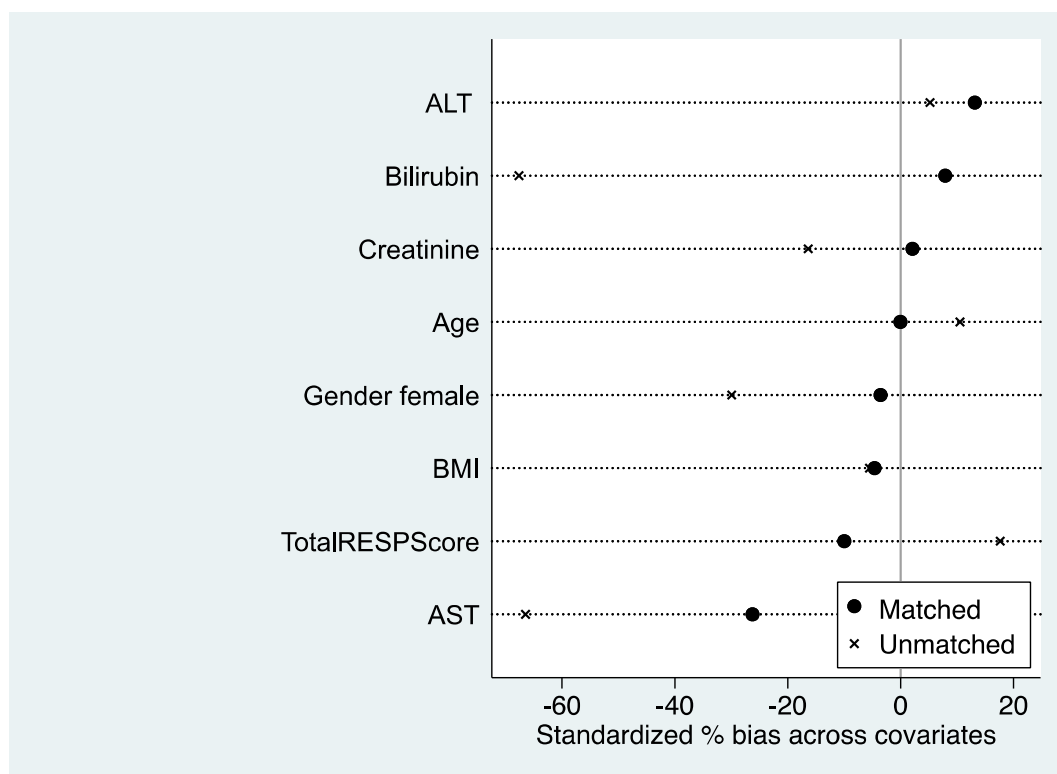
Supplementary Table S2. Laboratory parameters.

	COVID (n=20)	NCOVID (n=34)	p-value
Hb (g/dl)			
Pre-ECMO	9.8 (8.8-10.5)	9.6 (8.9-11.4)	0.764
24h after ECMO-initiation	9.6 (8.8-10.7)	9.8 (8.9-11)	0.536
Pre-Explantation	9.7 (9.3-10.5)	9.6 (8.2-10.7)	0.447
Leucocytes (/nL)			
Pre-ECMO	13 (10-17)	11 (9-19)	0.558
24h after ECMO-initiation	14 (10-19)	11.4 (7-14)	0.122
Pre-Explantation	13 (8-18)	12 (6-14)	0.294
Platelet (G/L)			
Pre-ECMO	222 (165-395)	131 (87-214)	0.074
24h after ECMO-initiation	205 (124-304)	106 (38-171)	0.05*
Pre-Explantation	163 (96-208)	86 (54-120)	0.02*
PCT (percentage)			
Pre-ECMO	4 (2-6)	1 (0-6)	0.053
24h after ECMO-initiation	4 (2-7)	2 (1-13)	0.266
Pre-Explantation	6 (2-10)	2 (1-6)	0.054
aPTT (s)			
Pre-ECMO	30 (29-45)	32 (29-53)	0.174
24h after ECMO-initiation	33 (29-40)	41 (31-52)	0.036*
Pre-Explantation	41 (29-50)	39 (31-52)	0.767
INR (ratio)			
Pre-ECMO	1.3 (1.2-1.4)	1.1 (1-1.2)	0.899
24h after ECMO-initiation	1.2 (1.1-1.4)	1.2 (1.1-1.2)	0.334
Pre-Explantation	1.3 (1.2-1.7)	1.2 (1.1-1.4)	0.253
Fibrinogen (mg/dL)			
Pre-ECMO	493 (454-704)	364 (276-490)	0.000*
24h after ECMO-initiation	455 (322-470)	369 (308-475)	0.324
Pre-Explantation	268 (223-414)	329 (256-386)	0.564
D-dimer (µg/dL)			
Pre-ECMO	4345 (1810-11806)	2400 (1782-7030)	0.253
24h after ECMO-initiation	7591 (3878-15030)	3754 (2200-10000)	0.065
Pre-Explantation	24689 (8306-62398)	3860 (2041-9658)	0.011*
ATIII (%)			
Pre-ECMO	70 (57-78)	58 (40-75)	0.155
24h after ECMO-initiation	53 (45-66)	64 (48-77)	0.074
Pre-Explantation	79 (66-89)	67 (56-90)	0.280
pfHb (mg/L)			
Pre-ECMO	36 (22-50)	48 (30-72)	0.162
24h after ECMO-initiation	45 (35-70)	68 (44-138)	0.041*

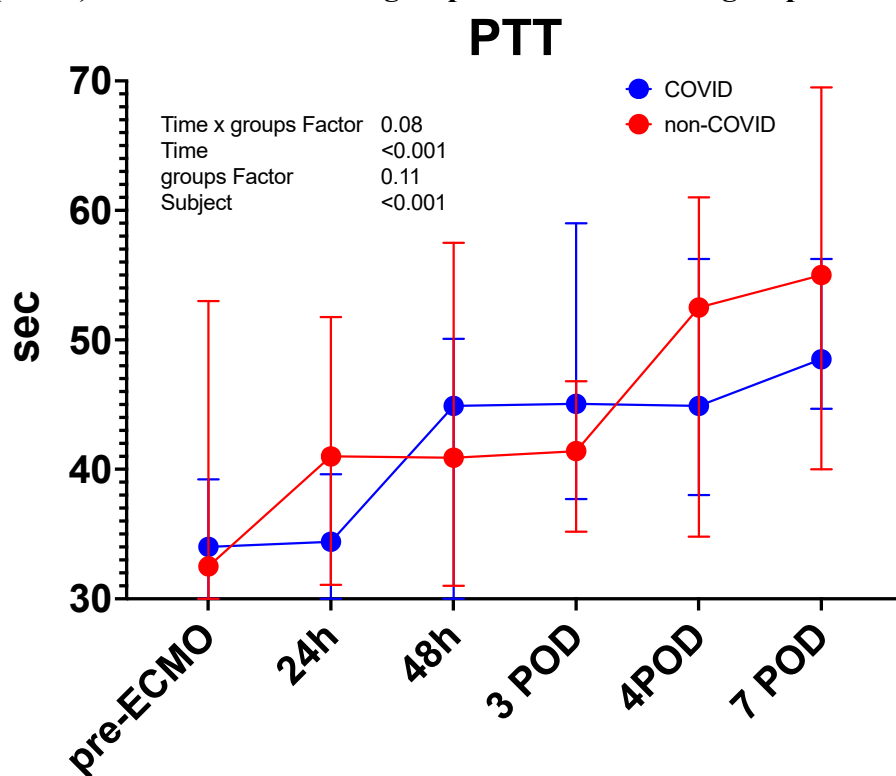|	80 (62-122)	120 (36-305)	0.775
LDH (U/L)			
Pre-ECMO	403 (312-578)	466 (318-644)	0.589
24h after ECMO-initiation	480 (405-560)	515 (321-765)	0.937
Pre-Explantation	513 (432-756)	518 (344-1032)	0.578
AST (U/L)			
Pre-ECMO	66 (38-140)	62 (32-164)	0.967
24h after ECMO-initiation	65 (48-142)	59 (29-196)	0.900
Pre-Explantation	86 (46-165)	88 (42-242)	0.831

All variables are presented as median and interquartile range (IQR). *p values under 0.05 are significant and tagged with asterisks. Abbreviations: AST—aspartate transaminase; aPTT—partial thromboplastin time; ECMO—extracorporeal membrane oxygenation; fHb—free-plasma hemoglobin; Hb—hemoglobin; LDH—lactate dehydrogenase; LOS—length of stay; NCOVID—non-COVID; PCT—procalcitonin.

Figure S1. Standardized absolute bias difference pre and post matching.

ALT—alanine aminotransferase U/L; AST—aspartate aminotransferase U/L; BMI—body mass index Kg/m².

Figure S2. Comparison of the time course of activated partial thromboplastin time (aPTT) between the COVID group and the NCOVID group.

Comparison was performed with two way-ANOVA with adjusted *p*-values for repeated measurements. aPTT did not differ significantly between the two groups.