Additional file

	plane:	HV	ALL MFS	univariate p-values	multivariate p-values	non-dilated MFN	univariate p-values	multivariate p-values
IRF [cm^2/s]	1	-1.77±16.76	9.96±36.47	0.055	NS	-0.56±24.15	0.823	
	2	-0.54±25.21	7.48±38.82	0.239		-5.41±19.77	0.461	
	3	2.32±31.12	1.37±23.80	0.855		-1.84±18.15	0.591	
	4	8.69±33.92	3.22±18.90	0.275		0.38±19.76	0.327	
	5	18.41±35.20	9.50±18.95	0.084	0.025	1.18±13.58	0.044	0.024
	6	23.52±32.91	14.00±20.75	0.063	NS	9.06±18.54	0.080	NS
	7	30.16±33.74	14.21±17.13	0.001	0.007	10.49±16.15	0.019	NS
	8	29.41±36.54	12.73±16.77	0.001	0.048	11.17±11.56	0.038	NS
	9	29.64±34.63	14.69±19.83	0.004	NS	14.84±21.26	0.092	NS
	10	29.99±36.22	16.01±19.00	0.008	NS	17.87±20.44	0.180	NS
	11	28.12±34.28	12.71±17.62	0.002	0.050	13.47±15.49	0.081	NS
	12	25.60±24.10	14.00±15.08	0.002	0.004	15.36±13.66	0.090	NS
	13	28.36±26.78	12.16±16.32	<0.001	0.003	16.07±15.59	0.069	0.034
	14	28.26±27.61	10.43±16.10	<0.001	0.003	14.17±14.56	0.041	NS
	15	23.71±25.84	7.26±18.45	<0.001	0.049	11.32±10.49	0.049	0.050
	16	22.47±21.43	5.20±18.39	<0.001	0.003	8.81±14.29	0.014	0.027
	17	15.50±23.18	-4.08±20.23	<0.001	0.023	0.61±23.53	0.025	0.020
	18	8.16±21.81	-8.18±20.62	<0.001	NS	-0.82±13.19	0.103	0.017
	19	2.43±21.29	-8.83±17.84	0.003	NS	-0.40±14.58	0.603	
	20	-0.17±16.93	-6.35±15.34	0.049	NS	-2.40±13.46	0.616	
SFRR [%]	1	5.92±5.46	9.04±8.69	0.041	NS	4.55±3.94	0.331	
	2	6.68±6.08	9.38±8.36	0.073	NS	5.42±4.26	0.421	
	3	7.37±7.14	8.37±7.39	0.488		5.69±4.12	0.345	
	4	7.03±5.96	7.12±7.93	0.951		4.43±3.52	0.083	NS
	5	6.83±5.35	6.06±7.83	0.574		4.30±3.24	0.062	NS
	6	6.77±5.55	5.83±7.83	0.502		4.26±3.29	0.073	NS
	7	7.13±6.77	6.55±11.73	0.772		4.76±4.40	0.169	
	8	7.50±7.00	6.43±9.33	0.527		5.23±5.01	0.210	
	9	7.87±7.77	7.57±9.64	0.867		6.45±7.94	0.514	
	10	7.59±6.37	7.14±7.24	0.744		6.24±4.94	0.421	
	11	6.86±5.59	6.80±6.50	0.962		6.11±5.57	0.629	
	12	5.35±4.38	5.82±4.97	0.617		4.96±3.51	0.732	
	13	5.34±4.48	6.01±4.91	0.478		4.83±4.37	0.677	
	14	4.93±5.05	4.95±3.64	0.975		4.74±3.08	0.883	
	15	4.35±3.44	4.54±4.19	0.804		4.00±3.06	0.709	

	16	3.76±3.23	4.79±4.03	0.165		3.90±2.86	0.867	
	17	3.92±3.83	5.01±4.20	0.174		3.06±2.20	0.369	
	18	3.26±2.85	4.28±4.34	0.181		2.54±1.47	0.301	
	19	2.94±2.49	3.84±4.35	0.226		2.37±1.48	0.365	
	20	2.61±2.66	3.62±3.96	0.149	NS	2.43±1.75	0.784	

Table S1. In-plane rotational flow (IRF) (top) and systolic flow reversal ratio (SFRR) (bottom) at the 20 analysis planes in healthy volunteers (HV), all Marfan patients (ALL MFS) and non-dilated Marfan patients. NS = non-significant.