

Supplementary Table S1. Right heart catheterization during exercise in patients with COPD.

1. Hemodynamic studies in patients at rest and under stress								
Disease	Total number of patients	Patients undergoing stress examination	Controls	Type of investigation	Body position	Rotation	Start Wattage	Time of measurement
COPD	50	38	-	Bicycle	Supine	Not specified	Not specified	Not specified
COPD	85	85	-	Bicycle	Supine	Not specified	33 watts	Not specified
COPD	131	131	-	Bicycle	Supine	Not specified	40 watts	Not specified
COPD	151	151	-	Bicycle	Supine	Not specified	40 watts	Not specified
COPD + silicosis (n = 286)	424	424	286	Bicycle	Sedentary	Not specified	At 1.05 L/min VO ₂	Not specified
COPD	203	203	-	Bicycle	Supine	Not specified	25 watts	After 3 min
COPD	98	98	-	Bicycle	Supine	60 rpm	0 watts (4 min) then 20 watts (4 min)	After 3 min
COPD	139	85	-	Bicycle	Semi-recumbent position	Not specified	60% of maximum capacity	Not specified
COPD	31	31	-	Bicycle	Supine	Not specified	60% of maximum capacity	After 6 min
COPD	26	26	-	Bicycle	Sedentary	Not specified	50% of maximum capacity	After 3 min
COPD	17	17	-	Bicycle	Sedentary	Not specified	25 watts	After 4 min
COPD	10	10	-	Bicycle	Semi-recumbent position	Not specified	5 watts	After 45 sec
COPD	12	12	-	Bicycle	Sedentary	Not specified	50–60% of peak VO ₂	After 5 min
COPD	21	15	-	Bicycle	Supine	Not specified	30 watts	Not specified
COPD + ILD (n = 11)	17	17	11	Bicycle	Supine	Not specified	Not specified	After 2 min
COPD	22	22	-	Bicycle	Supine	Not specified	25 watts or 85% predicted bpm	Not specified
COPD	75	43	-	Bicycle	Supine	Not specified	25 watts	After 3 min
COPD	13	13	-	Bicycle	Supine	Not specified	85% of predicted bpm	After 10 min
COPD	39	39	13	Bicycle	Supine	Not specified	Between 0 and 60 watts	After 3 min
COPD	8	8	-	Bicycle	Sedentary	Not specified	16 watts	After 2 min
COPD	21	21	-	Bicycle	Supine	Not specified	Personalized	After 2 min
COPD	30	30	-	Bicycle	Semi-recumbent position	Not specified	Not specified	After 2 min
COPD	17	17	-	Bicycle	Not specified	Stable	Not specified	After 3 min
COPD	109	109	-	Bicycle	Supine	Not specified	30 watts	After 5 min
COPD	24	9	-	Bicycle	Supine	Not specified	Not specified	Not specified
COPD	21	21	-	Bicycle	Supine	Not specified	60% of maximum capacity	After 6 min
COPD	100	24	-	Bicycle	Semi-recumbent position	Not specified	50% of maximum capacity	Not specified
COPD	30	30	-	Bicycle	Semi-recumbent position	Not specified	25 watts	After 1 min
COPD	10	10	-	Bicycle	Sedentary	50 rpm	25 watts	After 2 min
COPD	16	16	8	Bicycle	Supine	Not specified	40% of maximum capacity	Not specified
COPD with/without PH	44	44	-	Bicycle	Supine	Not specified	25 watts	Not specified
2. Hemodynamic and cardiopulmonary performance studies								
Disease	Total number of patients	Patients undergoing stress examination	Controls	Type of investigation	Body position	Rotation	Start Wattage	Time of measurement
COPD	43	43	-	Bicycle	Supine	Not specified	Variable between 20 and 40 watts	After 5 min
COPD	23	23	-	Bicycle	Supine	Not specified	10–40 watts	Not specified
COPD	8	8	-	Bicycle	Sedentary	Not specified	Different tests	Not specified
COPD	10	10	-	Bicycle	Supine	Not specified	25 watts	After 2 min
COPD	29	29	-	Bicycle	Supine	Not specified	25 watts	After 3 min
COPD + coronary disease (n = 37)	8	8	13	Bicycle	Supine	Not specified	25 watts	After 3 min
3. Interventional hemodynamic studies								
Disease	Total number of patients	Patients undergoing stress examination	Controls	Type of investigation	Body position	Rotation	Start Wattage	Time of measurement
COPD	6	6	-	Bicycle	Not specified	Not specified	25 watts	After 3 min
COPD	20	20	-	Bicycle	Supine	Not specified	25 watts	After 3–4 min
COPD	94	54	-	Bicycle	Supine	Not specified	40 watts	After 6 min
COPD	40	35	-	Bicycle	Supine	Not specified	30 watts	After 10 min
COPD with PH	8	8	-	Bicycle	Supine	Not specified	Not specified	Not specified
COPD	12	12	-	Bicycle	Semi-recumbent position	Not specified	30 watts	After 3 min
COPD	9	9	-	Bicycle	Semi-recumbent position	Not specified	50% of maximum capacity	After 3 min
COPD	8	8	-	Bicycle	Semi-recumbent position	Not specified	50–60% of maximum capacity	After 10 min
COPD	20	14	-	Bicycle	Supine	50 rpm	12.5 watts	Not specified
COPD with PH	15	15	-	Bicycle	Supine	Not specified	25 watts	After 1 min
COPD with PH	20	20	-	Bicycle	Supine	Not specified	25 watts	Not specified
COPD	33	33	-	Bicycle	Sedentary	Not specified	60% of maximum capacity	After 4 min
COPD	11	11	-	Bicycle	Supine	Not specified	25 watts	After 3 min
COPD with PH	10	10	-	Bicycle	Supine	60 rpm	5–10 watts	Not specified
COPD	19	8	-	Bicycle	Sedentary	Not specified	60% of maximum capacity	After 4 min
COPD	39	39	-	Bicycle	Sedentary	Not specified	60% of maximum capacity	After 4 min
COPD	36	36	-	Bicycle	Sedentary	Not specified	60% of maximum capacity	After 4 min
COPD	20	20	-	Bicycle	Not specified	Not specified	50% of maximal watt count	Not specified
COPD	18	18	-	Bicycle	Supine	Not specified	40% of maximum capacity	Not specified
COPD	15	15	-	Bicycle	Supine	Not specified	40% of maximum capacity	Not specified
COPD	8	8	-	Bicycle	Supine	Not specified	25 watts	After 2 min
COPD	12	12	-	Treadmill	Standing position	Not specified	25 watts	After 3 min
COPD	9	9	-	Bicycle	Supine	Not specified	30 watts	Not specified
COPD	8	7	-	Bicycle	Supine	Not specified	25 watts	Not specified
COPD with noninvasive ventilation + others (n = 20)	13	13	20	Bicycle	Supine	Not specified	Variable between 30 and 70 watts	Not specified
COPD with PH	7	7	-	Bicycle	Supine	60 rpm	25 watts	After 1 min
4. Other studies								
Disease	Total number of patients	Patients undergoing stress examination	Controls	Type of investigation	Body position	Rotation	Start Wattage	Time of measurement
COPD	47	47	-	Bicycle	Supine/Semi-recumbent position	Not specified	Variable	After 4 min
COPD	23	23	-	Bicycle	Supine	Not specified	Variable (23–85% VO ₂ max)	Not specified
COPD	64	64	-	Bicycle	Supine	Not specified	33 watts	After 6 min
COPD	23	23	-	Bicycle	Not specified	Not specified	Variable between 0 and 40 watts	Not specified
COPD + others (n = 19)	32	32	12	Bicycle	Sedentary	Not specified	6.25–25 watts/min	After 1 min
COPD + others (n = 96)	5	5	-	Bicycle	Supine	Not specified	10 watts	After 3 min

Load increase	Additional measurements	Source	Reference number in main bibliography
Not specified		Burrows et al., 1972	34
Steady state		Weitzenblum et al., 1979	35
Steady state		Kessler et al., 2001	36
Steady state		Oswald-Mammosser et al., 1991	37
Steady state	CPET	Evers et al., 1992	38
Steady state	Examination after 6 months	Timms et al., 1985	39
10 watts/2 min until exhaustion		Hilde et al., 2013	40
Steady state		Portillo et al., 2015	41
Steady state	RNV	Seibold et al., 1988	47
Steady state	CPET	Fletcher et al., 1989	45
10 watts/5 min until maximum exertion	CPET	Christensen et al., 2004	44
5 watts/min until maximum exertion	CPET	Miki et al., 2008	46
Steady state	RNV + CPET	Mahler et al., 1984	58
Steady state	CPET	Faller et al., 1998	73
Every 2 min until maximum exertion		Yamakami et al., 1997	74
Steady state	Histology	Magge et al., 1988	68
Steady state	Oxygen test	Fujimoto et al., 2002	69
Steady state	Histology + oxygen test	Wright et al., 1983	70
Steady state	CPET	Butler et al., 1988	49
16 watts/3 min until maximum exertion		Albert et al., 1985	51
Every 3 min until maximum exertion		Boerrigter et al., 2012	55
Every 3 min until maximum exertion	CPET	Boerrigter et al., 2014	25
Not specified	Oxygen test	Horsfield et al., 1968	48
Steady state		Chabot et al., 2001	50
Not specified	RNV	Burghuber et al., 1988	56
Steady state	RNV + drug testing (molsidomine)	Seibold et al., 1988	57
Steady state	RNV	Biernacki et al., 1988	59
25 watts/2 min until maximum exertion		Steiner et al., 1999	60
25 watts/3 min until maximum exertion	CPET + RNV	Keller et al., 1995	61
Steady state	MRI	Holverda et al., 2009	62
25 watts/2 min until maximum exertion	RNV	Gassner et al., 1985	63
Load increase	Additional measurements	Source	Reference number in main bibliography
Steady state	CPET	Schrijen et al., 1984	110
Steady state	CPET	Henriquez et al., 1986	66
Different tests		Lonsdorfer-Wolf et al., 2004	67
Steady state	CPET + histology	Kubo et al., 2000	71
Steady state		Wright et al., 1992	72
25 or 50 watts/6 min until maximum exertion		Lehmann et al., 1983	75
Load increase	Additional measurements	Source	Reference number in main bibliography
Steady state	Oxygen test	Hamaoka et al., 2008	78
Steady state	Second examination	Sclinger et al., 1987	79
Steady state		Chaouat et al., 1997	80
Steady state		Levi-Valensi et al., 1992	81
Until maximum exertion	Drug testing (hydralazine)	Lupi-Herrera et al., 1984	82
30 watts/5 min until maximum exertion	Drug testing (urapidil)	Adnot et al., 1988	83
Steady state	CPET + drug testing (NO)	Roger et al., 1997	84
Steady state	Drug testing (CCB) + CPET	Agusti et al., 1990	86
12.5 watts/3 min until maximum exertion	Drug testing (Oxy vs Feno)	Saito et al., 1999	87
25 watts/2 min	Drug testing(CCB) + second examination	Agostoni et al., 1989	88
25 watts/3 min until maximum exertion	Drug testing (CCB)	Franz et al., 2002	89
Steady state	Drug testing (CCB)	Kanazawa et al., 2004	90
Steady state	Second examination	Pison et al., 1991	91
5–10 watts/min until maximum exertion	CPET + drug testing (ACE inhibitor)	Pailt et al., 1989	92
Steady state		Kanazawa et al., 2000	94
Steady state		Kanazawa et al., 2002	95
Steady state	Drug testing (ACE inhibitor)	Kanazawa et al., 2003	93
Steady state	Drug testing (sildenafil)	Blanco et al., 2010	96
Steady state	Drug testing (sildenafil) + CPET	Holverda et al., 2008	97
Steady state	Drug testing (sildenafil) + MRI	Rietema et al., 2008	98
Steady state until exhaustion	Second examination	Kubo et al., 1998	102
Steady state		Mineo et al., 2002	103
Steady state	CPET + second examination	Oswald-Mammosser et al., 1998	105
Steady state until exhaustion	Second examination	Haniuda et al., 2000	104
Steady state	Second examination after 12 months	Schönhofer et al., 2001	107
25 watts/4 min until maximum exertion	CPET + second examination	Borst et al., 1999	108
Load increase	Additional measurements	Source	Reference number in main bibliography
Steady state	CPET	Boerrigter et al., 2012	112
Different tests	CPET	Schrijen et al., 1987	111
Steady state	CPET	Kessler et al., 1999	31
2 load levels		Schrijen et al., 1990	109
Level increase until exhaustion	RNV + CPET	Medoff et al., 1998	113
10 watts/3 min until exhaustion		Keusch et al., 2014	129