

**CLUSTER ANALYSIS OF OBJECTIVELY MEASURED PHYSICAL ACTIVITY IN CHRONIC
OBSTRUCTIVE PULMONARY DISEASE: A MULTICENTRIC CROSS-SECTIONAL STUDY**

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METHODS

Some data used in the current study was part of previous publication, with no overlapping analysis though. (REFERENCES TO BE INCLUDED)

The absolute and relative frequency relative of participants according to country of recruitment can be found in Table E1.

Table E2 presents the 180 features used for cluster analysis and generated after stratification of energy expenditure (EE) and metabolic equivalents of task (MET) according to intensity (i.e., very light, light or moderate-to-vigorous intensity), duration (e.g., bouts of activity), period of the day (e.g., before or after midday), frequency (e.g., number of bouts per day); and presentation (e.g., absolute numbers or percentage of total).

Table E1: Country of recruitment.

Country	n (%)
The United Kingdom (UK)	240 (24)
Ireland	37 (4)
The Netherlands	97 (10)
Germany	187 (19)
Switzerland	124 (12)
Italy	23 (2)
Spain	93 (9)
The United States of America (USA)	65 (6)
Brazil	27 (3)
Australia	108 (11)

Comment: N (%) of wjat? Patients? Studies??

Table E2: Features used for cluster analysis.

Order	Feature	Order	Feature
1	Daily time in moderate-to-vigorous intensity before midday (min·day ⁻¹)	91	Daily average duration of before midday (min·bout ⁻¹)
2	Daily time in moderate-to-vigorous intensity after midday (min·day ⁻¹)	92	Daily average duration of after midday (min·bout ⁻¹)
3	Daily time in moderate-to-vigorous intensity (min·day ⁻¹)	93	Daily average duration of (min·bout ⁻¹)
4	Daily time in moderate-to-vigorous intensity before midday (% of total assessment time)	94	Daily time in 10-min bouts (min·day ⁻¹)
5	Daily time in moderate-to-vigorous intensity after midday (% of total assessment time)	95	Daily time in 10-min bouts (min·day ⁻¹)
6	Daily time in moderate-to-vigorous intensity (% of total assessment time)	96	Daily time in 10-min bouts
7	Daily average intensity in moderate-to-vigorous intensity before midday (METs)	97	Daily time in 10-min bouts (% of total assessment time)
8	Daily average intensity in moderate-to-vigorous intensity after midday (METs)	98	Daily time in 10-min bouts (% of total assessment time)
9	Daily average intensity in moderate-to-vigorous intensity (METs)	99	Daily time in 10-min bouts assessment time)
10	Daily EE in moderate-to-vigorous intensity before midday (METs·min·day ⁻¹)	100	Daily average intensity of before midday (METs)
11	Daily EE in moderate-to-vigorous intensity after midday (METs·min·day ⁻¹)	101	Daily average intensity of after midday (METs)
12	Daily EE in moderate-to-vigorous intensity (METs·min·day ⁻¹)	102	Daily average intensity of (METs)
13	Daily EE in moderate-to-vigorous intensity before midday (%)	103	Daily EE of 10-min bouts of

	of total EE)		(METs·min·day ⁻¹)
14	Daily EE in moderate-to-vigorous intensity after midday (% of total EE)	104	Daily EE of 10-min bouts o (METs·min·day ⁻¹)
15	Daily EE in moderate-to-vigorous intensity (% of total EE)	105	Daily EE of 10-min bouts o ¹)
16	Daily time in 2-min bouts of moderate-to-vigorous intensity before midday (min·day ⁻¹)	106	Daily EE of 10-min bouts o (% of total EE)
17	Daily time in 2-min bouts of moderate-to-vigorous intensity after midday (min·day ⁻¹)	107	Daily EE of 10-min bouts o of total EE)
18	Daily time in 2-min bouts of moderate-to-vigorous intensity (min·day ⁻¹)	108	Daily EE of 10-min bouts o
19	Daily time in 2-min bouts of moderate-to-vigorous intensity before midday (% of total assessment time)	109	Daily frequency of 10-min midday (bouts·day ⁻¹)
20	Daily time in 2-min bouts of moderate-to-vigorous intensity after midday (% of total assessment time)	110	Daily frequency of 10-min midday (bouts·day ⁻¹)
21	Daily time in 2-min bouts of moderate-to-vigorous intensity (% of total assessment time)	111	Daily frequency of 10-min (bouts·day ⁻¹)
22	Daily average intensity of 2-min bouts of moderate-to-vigorous intensity before midday (METs)	112	Daily average duration of before midday (min·bout ⁻¹)
23	Daily average intensity of 2-min bouts of moderate-to-vigorous intensity after midday (METs)	113	Daily average duration of after midday (min·bout ⁻¹)
24	Daily average intensity of 2-min bouts of moderate-to-vigorous intensity (METs)	114	Daily average duration of (min·bout ⁻¹)
25	Daily EE of 2-min bouts of moderate-to-vigorous intensity before midday (METs·min·day ⁻¹)	115	Daily time in very light inte
26	Daily EE of 2-min bouts of moderate-to-vigorous intensity after midday (METs·min·day ⁻¹)	116	Daily time in very light inte
27	Daily EE of 2-min bouts of moderate-to-vigorous intensity	117	Daily time in very light inte

	(METs·min·day ⁻¹)		
28	Daily EE of 2-min bouts of moderate-to-vigorous intensity before midday (% of total EE)	118	Daily time in very light intensity assessment time)
29	Daily EE of 2-min bouts of moderate-to-vigorous intensity after midday (% of total EE)	119	Daily time in very light intensity assessment time)
30	Daily EE of 2-min bouts of moderate-to-vigorous intensity (% of total EE)	120	Daily time in very light intensity time)
31	Daily frequency of 2-min bouts of moderate-to-vigorous intensity before midday (bouts·day ⁻¹)	121	Daily average intensity in midday (METs)
32	Daily frequency of 2-min bouts of moderate-to-vigorous intensity after midday (bouts·day ⁻¹)	122	Daily average intensity in (METs)
33	Daily frequency of 2-min bouts of moderate-to-vigorous intensity (bouts·day ⁻¹)	123	Daily average intensity in
34	Daily average duration of 2-min bouts of moderate-to-vigorous intensity before midday (min·bout ⁻¹)	124	Daily EE in very light intensity min·day ⁻¹)
35	Daily average duration of 2-min bouts of moderate-to-vigorous intensity after midday (min·bout ⁻¹)	125	Daily EE in very light intensity min·day ⁻¹)
36	Daily average duration of 2-min bouts of moderate-to-vigorous intensity (min·bout ⁻¹)	126	Daily EE in very light intensity
37	Daily time in 10-min bouts of moderate-to-vigorous intensity before midday (min·day ⁻¹)	127	Daily EE in very light intensity EE)
38	Daily time in 10-min bouts of moderate-to-vigorous intensity after midday (min·day ⁻¹)	128	Daily EE in very light intensity
39	Daily time in 10-min bouts of moderate-to-vigorous intensity (min·day ⁻¹)	129	Daily EE in very light intensity
40	Daily time in 10-min bouts of moderate-to-vigorous intensity before midday (% of total assessment time)	130	Daily time in 2-min bouts of moderate-to-vigorous intensity before midday (min·day ⁻¹)
41	Daily time in 10-min bouts of moderate-to-vigorous intensity	131	Daily time in 2-min bouts of moderate-to-vigorous intensity

	after midday (% of total assessment time)		midday (min·day ⁻¹)
42	Daily time in 10-min bouts of moderate-to-vigorous intensity (% of total assessment time)	132	Daily time in 2-min bouts c
43	Daily average intensity of 10-min bouts of moderate-to-vigorous intensity before midday (METs)	133	Daily time in 2-min bouts c
44	Daily average intensity of 10-min bouts of moderate-to-vigorous intensity after midday (METs)	134	midday (% of total assessn
45	Daily average intensity of 10-min bouts of moderate-to-vigorous intensity (METs)	135	Daily time in 2-min bouts c
46	Daily EE of 10-min bouts of moderate-to-vigorous intensity before midday (METs·min·day ⁻¹)	136	assessment time)
47	Daily EE of 10-min bouts of moderate-to-vigorous intensity after midday (METs·min·day ⁻¹)	137	Daily average intensity of
48	Daily EE of 10-min bouts of moderate-to-vigorous intensity (METs·min·day ⁻¹)	138	intensity before midday (I
49	Daily EE of 10-min bouts of moderate-to-vigorous intensity before midday (% of total EE)	139	Daily average intensity of
50	Daily EE of 10-min bouts of moderate-to-vigorous intensity after midday (% of total EE)	140	intensity after midday (MI
51	Daily EE of 10-min bouts of moderate-to-vigorous intensity (% of total EE)	141	Daily average intensity of
52	Daily frequency of 10-min bouts of moderate-to-vigorous intensity before midday (bouts·day ⁻¹)	142	intensity (METs)
53	Daily frequency of 10-min bouts of moderate-to-vigorous intensity after midday (bouts·day ⁻¹)	143	Daily EE of 2-min bouts of
54	Daily frequency of 10-min bouts of moderate-to-vigorous intensity (bouts·day ⁻¹)	144	midday (METs·min·day ⁻¹)
55	Daily average duration of 10-min bouts of moderate-to-	145	Daily EE of 2-min bouts of
			midday (METs·min·day ⁻¹)
			Daily EE of 2-min bouts of
			midday (% of total EE)
			Daily EE of 2-min bouts of
			midday (% of total EE)
			Daily EE of 2-min bouts of
			EE)
			Daily frequency of 2-min b

	vigorous intensity before midday (min·bout ⁻¹)		before midday (bouts·day
56	Daily average duration of 10-min bouts of moderate-to-vigorous intensity after midday (min·bout ⁻¹)	146	Daily frequency of 2-min b midday (bouts·day ⁻¹)
57	Daily average duration of 10-min bouts of moderate-to-vigorous intensity (min·bout ⁻¹)	147	Daily frequency of 2-min b (bouts·day ⁻¹)
58	Daily time in light intensity before midday (min·day ⁻¹)	148	Daily average duration of intensity before midday (r
59	Daily time in light intensity after midday (min·day ⁻¹)	149	Daily average duration of intensity after midday (mi
60	Daily time in light intensity (min·day ⁻¹)	150	Daily average duration of intensity (min·bout ⁻¹)
61	Daily time in light intensity before midday (% total assessment time)	151	Daily time in 10-min bouts midday (min·day ⁻¹)
62	Daily time in light intensity after midday (% total assessment time)	152	Daily time in 10-min bouts midday (min·day ⁻¹)
63	Daily time in light intensity (% total assessment time)	153	Daily time in 10-min bouts ' ¹)
64	Daily average intensity in light intensity before midday (METs)	154	Daily time in 10-min bouts midday (% of total assessn
65	Daily average intensity in light intensity after midday (METs)	155	Daily time in 10-min bouts midday (% of total assessn
66	Daily average intensity in light intensity (METs)	156	Daily time in 10-min bouts total assessment time)
67	Daily EE in light intensity before midday (METs·min·day ⁻¹)	157	Daily average intensity of intensity before midday (l
68	Daily EE in light intensity after midday (METs·min·day ⁻¹)	158	Daily average intensity of intensity after midday (MI
69	Daily EE in light intensity (METs·min·day ⁻¹)	159	Daily average intensity of

			intensity (METs)
70	Daily EE in light intensity before midday (% of total EE)	160	Daily EE of 10-min bouts o midday (METs·min·day ⁻¹)
71	Daily EE in light intensity after midday (% of total EE)	161	Daily EE of 10-min bouts o midday (METs·min·day ⁻¹)
72	Daily EE in light intensity (% of total EE)	162	Daily EE of 10-min bouts o min·day ⁻¹)
73	Daily time in 2-min bouts of light intensity before midday (min·day ⁻¹)	163	Daily EE of 10-min bouts o midday (% of total EE)
74	Daily time in 2-min bouts of light intensity after midday (min·day ⁻¹)	164	Daily EE of 10-min bouts o midday (% of total EE)
75	Daily time in 2-min bouts of light intensity (min·day ⁻¹)	165	Daily EE of 10-min bouts o EE)
76	Daily time in 2-min bouts of light intensity before midday (% total assessment time)	166	Daily frequency of 10-min before midday (bouts·day ⁻¹)
77	Daily time in 2-min bouts of light intensity after midday (% total assessment time)	167	Daily frequency of 10-min after midday (bouts·day ⁻¹)
78	Daily time in 2-min bouts of light intensity (% total assessment time)	168	Daily frequency of 10-min (bouts·day ⁻¹)
79	Daily average intensity of 2-min bouts of light intensity before midday (METs)	169	Daily average duration of intensity before midday (r
80	Daily average intensity of 2-min bouts of light intensity after midday (METs)	170	Daily average duration of intensity after midday (mi
81	Daily average intensity of 2-min bouts of light intensity (METs)	171	Daily average duration of intensity (min·bout ⁻¹)
82	Daily EE of 2-min bouts of light intensity before midday (METs·min·day ⁻¹)	172	Daily average intensity of before midday (METs)
83	Daily EE of 2-min bouts of light intensity after midday (METs·	173	Daily average intensity of

	min·day ⁻¹)		after midday (METs)
84	Daily EE of 2-min bouts of light intensity (METs·min·day ⁻¹)	174	Daily average intensity of (METs)
85	Daily EE of 2-min bouts of light intensity before midday (% of total EE)	175	Daily frequency of breaks midday (breaks·day ⁻¹)
86	Daily EE of 2-min bouts of light intensity after midday (% of total EE)	176	Daily frequency of breaks midday (breaks·day ⁻¹)
87	Daily EE of 2-min bouts of light intensity (% of total EE)	177	Daily frequency of breaks (breaks·day ⁻¹)
88	Daily frequency of 2-min bouts of light intensity before midday (bouts·day ⁻¹)	178	Daily average duration of before midday (min·break
89	Daily frequency of 2-min bouts of light intensity after midday (bouts·day ⁻¹)	179	Daily average duration of after midday (min·break ⁻¹)
90	Daily frequency of 2-min bouts of light intensity (bouts·day ⁻¹)	180	Daily average duration of (min·break ⁻¹)

See Table 2 for definition of abbreviations.

RESULTS

Physical activity daily levels

Daily physical activity levels after stratification for possible confounders can be found in Tables E3 to E10.

Table E11 presents the daily physical activity levels in very light and light intensities in healthy subjects and matched patients with COPD.

Table E3: Daily physical activity levels after stratification for age groups.

Features	< median (67 yrs)	≥ median (67 yrs)	P-value
N	495	504	
Physical activity levels in very light intensity			
Time, min·day ⁻¹	792 (697 – 891)	813 (730 – 908)	0.01
EE, METs·min·day ⁻¹	1020 (807 – 1341)	1040 (832 – 1308)	0.53
Time in ≥2-min bouts, min·day ⁻¹	771 (671 – 870)	794 (706 – 896)	0.006
Time in ≥10-min bouts, min·day ⁻¹	636 (507 – 772)	678 (564 – 798)	<0.0001
Frequency of ≥2-min bouts, bouts·day ⁻¹	51 (41 – 61)	46 (37 – 54)	<0.0001
Frequency of ≥10-min bouts, bouts·day ⁻¹	19 (16 – 21)	18 (15 – 21)	0.001
Average duration of ≥2-min bouts, min·bout ⁻¹	14 (11 – 20)	17 (14 – 23)	<0.0001
Average duration of ≥10-min bouts, min·bout ⁻¹	32 (26 – 40)	36 (30 – 46)	<0.0001
EE in ≥2-min bouts, METs·min·day ⁻¹	981 (772 – 1310)	1013 (802 – 1286)	0.40
EE in ≥10-min bouts, METs·min·day ⁻¹	801 (601 – 1163)	877 (658 – 1177)	0.03
Physical activity levels in light intensity			
Time, min·day ⁻¹	148 (97 – 203)	137 (87 – 184)	0.003
EE, METs·min·day ⁻¹	457 (311 – 689)	417 (264 – 621)	0.03
Time in ≥2-min bouts, min·day ⁻¹	109 (68 – 161)	104 (61 – 149)	0.04
Time in ≥10-min bouts, min·day ⁻¹	7 (2 – 22)	8 (0 – 23)	0.62
Frequency of ≥2-min bouts, bouts·day ⁻¹	32 (22 – 44)	30 (19 – 39)	0.001
Frequency of ≥10-min bouts, bouts·day ⁻¹	1 (0 – 2)	1 (0 – 2)	0.24
Average duration of ≥2-min bouts, min·bout ⁻¹	3 (3 – 4)	4 (3 – 4)	0.009
Average duration of ≥10-min bouts, min·bout ⁻¹	12 (10 – 13)	12 (0 – 14)	0.57
EE in ≥2-min bouts, METs·min·day ⁻¹	352 (215 – 546)	323 (192 – 495)	0.15
EE in ≥10-min bouts, METs·min·day ⁻¹	25 (4 – 74)	26 (0 – 83)	0.48
Physical activity levels in moderate-to-vigorous intensity	58 (32 – 121)	45 (23 – 81)	<0.0001

Time, min·day ⁻¹			
EE, METs·min·day ⁻¹	308 (153 – 638)	241 (114 – 448)	<0.0001
Time in ≥2-min bouts, min·day ⁻¹	43 (20 – 99)	32 (15 – 64)	<0.0001
Time in ≥10-min bouts, min·day ⁻¹	7 (0 – 30)	6 (0 – 19)	0.04
Frequency of ≥2-min bouts, bouts·day ⁻¹	11 (6 – 20)	9 (4 – 15)	<0.0001
Frequency of ≥10-min bouts, bouts·day ⁻¹	1 (0 – 2)	1 (0 – 1)	0.03
Average duration of ≥2-min bouts, min·bout ⁻¹	4 (3 – 5)	4 (3 – 5)	0.22
Average duration of ≥10-min bouts, min·bout ⁻¹	13 (0 – 16)	12 (0 – 16)	0.42
EE in ≥2-min bouts, METs·min·day ⁻¹	225 (99 – 554)	176 (74 – 365)	<0.0001
EE in ≥10-min bouts, METs·min·day ⁻¹	40 (0 – 166)	32 (0 – 107)	0.04

Data expressed as median (interquartile range). See Table 2 for definition of abbreviations.

Table E4: Daily physical activity levels after stratification for gender.

Features	Male	Female	P-value
N	654	347	
Physical activity levels in very light intensity			
Time, min·day ⁻¹	807 (711 – 911)	790 (706 – 879)	0.09
EE, METs·min·day ⁻¹	1091 (877 – 1358)	875 (737 – 1258)	<0.0001
Time in ≥2-min bouts, min·day ⁻¹	789 (684 – 896)	771 (683 – 863)	0.09
Time in ≥10-min bouts, min·day ⁻¹	666 (547 – 789)	646 (527 – 770)	0.07
Frequency of ≥2-min bouts, bouts·day ⁻¹	48 (38 – 57)	49 (39 – 58)	0.57
Frequency of ≥10-min bouts, bouts·day ⁻¹	18 (16 – 21)	18 (16 – 21)	0.60
Average duration of ≥2-min bouts, min·bout ⁻¹	16 (13 – 22)	15 (12 – 21)	0.14
Average duration of ≥10-min bouts, min·bout ⁻¹	35 (28 – 43)	33 (28 – 41)	0.08
EE in ≥2-min bouts, METs·min·day ⁻¹	1052 (840 – 1342)	851 (705 – 1229)	<0.0001
EE in ≥10-min bouts, METs·min·day ⁻¹	894 (676 – 1200)	734 (554 – 1128)	<0.0001
Physical activity levels in light intensity			
Time, min·day ⁻¹	137 (89 – 185)	155 (102 – 205)	0.002
EE, METs·min·day ⁻¹	443 (294 – 652)	420 (276 – 663)	0.36
Time in ≥2-min bouts, min·day ⁻¹	102 (62 – 147)	119 (73 – 167)	0.001
Time in ≥10-min bouts, min·day ⁻¹	6 (0 – 18)	13 (3 – 29)	<0.0001
Frequency of ≥2-min bouts, bouts·day ⁻¹	30 (19 – 40)	33 (22 – 43)	0.02
Frequency of ≥10-min bouts, bouts·day ⁻¹	1 (0 – 1)	1 (0 – 2)	<0.0001
Average duration of ≥2-min bouts, min·bout ⁻¹	3 (3 – 4)	4 (3 – 4)	<0.0001
Average duration of ≥10-min bouts, min·bout ⁻¹	12 (0 – 13)	12 (10 – 14)	0.004
EE in ≥2-min bouts, METs·min·day ⁻¹	340 (205 – 515)	338 (203 – 540)	0.80
EE in ≥10-min bouts, METs·min·day ⁻¹	21 (0 – 65)	35 (6 – 96)	0.001
Physical activity levels in moderate-to-vigorous intensity	53 (27 – 106)	48 (23 – 87)	0.07

Time, min·day ⁻¹			
EE, METs·min·day ⁻¹	297 (147 – 600)	235 (100 – 448)	<0.0001
Time in ≥2-min bouts, min·day ⁻¹	40 (19 – 86)	35 (14 – 71)	0.02
Time in ≥10-min bouts, min·day ⁻¹	8 (0 – 26)	5 (0 – 19)	0.004
Frequency of ≥2-min bouts, bouts·day ⁻¹	10 (5 – 18)	9 (4 – 16)	0.07
Frequency of ≥10-min bouts, bouts·day ⁻¹	1 (0 – 2)	0 (0 – 1)	0.004
Average duration of ≥2-min bouts, min·bout ⁻¹	4 (3 – 5)	4 (3 – 5)	0.03
Average duration of ≥10-min bouts, min·bout ⁻¹	13 (0 – 16)	12 (0 – 15)	0.007
EE in ≥2-min bouts, METs·min·day ⁻¹	225 (98 – 495)	172 (68 – 344)	<0.0001
EE in ≥10-min bouts, METs·min·day ⁻¹	42 (0 – 149)	22 (0 – 91)	<0.0001

Data expressed as median (interquartile range). See Table 2 for definition of abbreviations.

Table E5: Daily physical activity levels after stratification for body mass index classification.

Features	Underweight	Normal weight	Pre-obese	P-value
N	68	366	342	
Physical activity levels in very light intensity				
Time, min·day ⁻¹	739 (668 – 816)	769 (688 – 863)	789 (704 – 881)*	<0.0001
EE, METs·min·day ⁻¹	716 (616 – 806)	857 (736 – 1036)*	1057 (904 – 1256)*,†	<0.0001
Time in ≥2-min bouts, min·day ⁻¹	710 (635 – 788)	745 (662 – 839)	771 (682 – 863)*	<0.0001
Time in ≥10-min bouts, min·day ⁻¹	535 (413 – 631)	605 (502 – 712)*	657 (552 – 768)*,†	<0.0001
Frequency of ≥2-min bouts, bouts·day ⁻¹	64 (54 – 72)	53 (45 – 62)*	47 (39 – 54)*,†	<0.0001
Frequency of ≥10-min bouts, bouts·day ⁻¹	20 (17 – 22)	19 (16 – 22)	18 (16 – 20)*,†	<0.0001
Average duration of ≥2-min bouts, min·bout ⁻¹	11 (9 – 14)	14 (11 – 18)*	17 (14 – 21)*,†	<0.0001
Average duration of ≥10-min bouts, min·bout ⁻¹	26 (22 – 31)	31 (26 – 37)*	35 (30 – 42)*,†	<0.0001
EE in ≥2-min bouts, METs·min·day ⁻¹	682 (583 – 766)	827 (702 – 1008)*	1030 (871 – 1227)*,†	<0.0001
EE in ≥10-min bouts, METs·min·day ⁻¹	509 (420 – 645)	676 (550 – 875)*	880 (710 – 1090)*,†	<0.0001
Physical activity levels in light intensity				
Time, min·day ⁻¹	159 (110 – 183)	166 (116 – 212)	147 (105 – 200)†	<0.0001
EE, METs·min·day ⁻¹	440 (230 – 441)	444 (310 – 615)*	489 (334 – 714)*	<0.0001
Time in ≥2-min bouts, min·day ⁻¹	107 (72 – 135)	127 (85 – 170)	113 (76 – 163)	<0.0001
Time in ≥10-min bouts, min·day ⁻¹	3 (0 – 9)	11 (3 – 28)*	11 (4 – 27)*	<0.0001
Frequency of ≥2-min bouts, bouts·day ⁻¹	36 (25 – 41)	35 (26 – 46)	32 (23 – 41)†	<0.0001
Frequency of ≥10-min bouts, bouts·day ⁻¹	0 (0 – 1)	1 (0 – 2)*	1 (0 – 2)*	<0.0001
Average duration of ≥2-min bouts, min·bout ⁻¹	3 (3 – 3)	4 (3 – 4)*	4 (3 – 4)*	<0.0001
Average duration of ≥10-min bouts, min·bout ⁻¹	10 (0 – 12)	12 (10 – 14)*	12 (11 – 14)*	<0.0001
EE in ≥2-min bouts, METs·min·day ⁻¹	241 (168 – 340)	351 (230 – 514)*	385 (247 – 585)*	<0.0001
EE in ≥10-min bouts, METs·min·day ⁻¹	5 (0 – 19)	30 (7 – 82)*	39 (11 – 99)	<0.0001
Physical activity levels in moderate-to-vigorous intensity	123 (54 – 183)	63 (30 – 119)*	53 (31 – 88)*	<0.0001

Time, min·day ⁻¹				
EE, METs·min·day ⁻¹	379 (151 – 675)	258 (121 – 534)	277 (155 – 556)	0.02
Time in ≥2-min bouts, min·day ⁻¹	92 (40 – 159)	49 (20 – 100) [*]	39 (20 – 70) [*]	<0.0001
Time in ≥10-min bouts, min·day ⁻¹	22 (4 – 65)	11 (0 – 35)	6 (0 – 18) ^{*,†}	<0.0001
Frequency of ≥2-min bouts, bouts·day ⁻¹	22 (11 – 30)	11 (5 – 19) [*]	10 (6 – 16) [*]	<0.0001
Frequency of ≥10-min bouts, bouts·day ⁻¹	2 (0 – 4)	1 (0 – 2) [*]	1 (0 – 1) ^{*,†}	<0.0001
Average duration of ≥2-min bouts, min·bout ⁻¹	4 (3 – 6)	4 (3 – 5)	4 (3 – 5) [†]	<0.0001
Average duration of ≥10-min bouts, min·bout ⁻¹	14 (10 – 17)	13 (0 – 17)	12 (0 – 16)	<0.0001
EE in ≥2-min bouts, METs·min·day ⁻¹	310 (115 – 612)	207 (85 – 443)	211 (105 – 436)	0.004
EE in ≥10-min bouts, METs·min·day ⁻¹	75 (10 – 223)	42 (0 – 167)	39 (0 – 114)	<0.0001

Data expressed as median (interquartile range). See Table 2 for definition of abbreviations. ^{*} P<0.05 vs Underweight; [†] P<0.05 vs Pre-obese.

Table E6: Daily physical activity levels after stratification for modified Medical Research Council (mMRC) grade

Features	0	1	2		4	P-value
N	137	268	221		61	
Physical activity levels in very light intensity						
Time, min·day ⁻¹	743 (675 – 853)	804 (714 – 895) [†]	819 (718 – 886) [†]	84	884 (756 – 1001) ^{†,‡,§}	<0.0001
EE, METs·min·day ⁻¹	1027 (829 – 1325)	1045 (822 – 1349)	1028 (822 – 1464)	10	1092 (777 – 1268)	0.49
Time in ≥2-min bouts, min·day ⁻¹	719 (645 – 836)	780 (686 – 877) [†]	799 (691 – 866) [†]	83	852 (725 – 982) ^{†,‡,§}	<0.0001
Time in ≥10-min bouts, min·day ⁻¹	588 (507 – 714)	662 (548 – 780) [†]	669 (548 – 776) [†]	7	748 (575 – 896) ^{†,‡}	<0.0001
Frequency of ≥2-min bouts, bouts·day ⁻¹	49 (41 – 57)	47 (37 – 55)	49 (39 – 58)		49 (38 – 60)	0.48
Frequency of ≥10-min bouts, bouts·day ⁻¹	18 (16 – 20)	18 (15 – 21)	18 (16 – 21)		20 (17 – 22)	0.06
Average duration of ≥2-min bouts, min·bout ⁻¹	15 (11 – 19)	16 (13 – 22) [†]	16 (12 – 21)		18 (13 – 25) [†]	0.006
Average duration of ≥10-min bouts, min·bout ⁻¹	32 (27 – 40)	35 (28 – 45)	34 (28 – 42)		36 (30 – 46)	0.03
EE in ≥2-min bouts, METs·min·day ⁻¹	992 (785 – 1293)	1018 (778 – 1327)	1004 (787 – 1450)	10	1073 (746 – 1243)	0.46
EE in ≥10-min bouts, METs·min·day ⁻¹	843 (626 – 1093)	889 (627 – 1201)	851 (640 – 1278)	8	940 (557 – 1159)	0.38
Physical activity levels in light intensity						
Time, min·day ⁻¹	167 (124 – 211)	141 (94 – 199) [†]	138 (92 – 188) [†]	1	104 (62 – 170) ^{†,‡}	<0.0001
EE, METs·min·day ⁻¹	549 (394 – 762)	478 (307 – 691)	410 (272 – 676) [†]	37	275 (163 – 391) ^{†,‡,§,}	<0.0001
Time in ≥2-min bouts, min·day ⁻¹	134 (93 – 170)	108 (69 – 164) [†]	105 (63 – 149) [†]	5	76 (40 – 121) ^{†,‡,§}	<0.0001
Time in ≥10-min bouts, min·day ⁻¹	13 (3 – 31)	11 (3 – 26)	7 (0 – 22) [†]		3 (0 – 8) ^{†,‡,§}	<0.0001
Frequency of ≥2-min bouts, bouts·day ⁻¹	37 (28 – 45)	30 (20 – 41) [†]	30 (20 – 40) [†]		23 (13 – 37) ^{†,‡}	<0.0001
Frequency of ≥10-min bouts, bouts·day ⁻¹	1 (0 – 2)	1 (0 – 2)	1 (0 – 2) [†]		0 (0 – 1) ^{†,‡}	<0.0001
Average duration of ≥2-min bouts, min·bout ⁻¹	4 (3 – 4)	4 (3 – 4)	3 (3 – 4)		3 (3 – 4) ^{†,‡}	<0.0001
Average duration of ≥10-min bouts, min·bout ⁻¹	12 (11 – 14)	12 (10 – 14)	12 (0 – 14)		10 (0 – 12) ^{†,‡}	<0.0001
EE in ≥2-min bouts, METs·min·day ⁻¹	443 (296 – 648)	381 (227 – 568)	314 (202 – 537) [†]	2	191 (102 – 314) ^{†,‡,§,}	<0.0001
EE in ≥10-min bouts, METs·min·day ⁻¹	49 (12 – 115)	32 (10 – 93)	22 (0 – 66) [†]		7 (0 – 23) ^{†,‡,§}	<0.0001
Physical activity levels in moderate-to-vigorous intensity						
	74 (43 – 134)	53 (31 – 93) [†]	45 (26 – 82) [†]		21 (11 – 72) ^{†,‡}	<0.0001

Time, min·day ⁻¹						
EE, METs·min·day ⁻¹	374 (211 – 751)	293 (165 – 542) [†]	224 (122 – 478) [†]	21	108 (47 – 317) ^{†,‡,§}	<0.0001
Time in ≥2-min bouts, min·day ⁻¹	56 (29 – 112)	39 (21 – 72) [†]	33 (15 – 68) [†]		14 (5 – 58) ^{†,‡,§}	<0.0001
Time in ≥10-min bouts, min·day ⁻¹	13 (3 – 43)	7 (0 – 19) [†]	5 (0 – 19) [†]		0 (0 – 12) ^{†,‡}	<0.0001
Frequency of ≥2-min bouts, bouts·day ⁻¹	13 (8 – 23)	10 (6 – 16) [†]	9 (4 – 16) [†]		5 (2 – 14) ^{†,‡}	<0.0001
Frequency of ≥10-min bouts, bouts·day ⁻¹	1 (0 – 2)	1 (0 – 1) [†]	0 (0 – 1) [†]		0 (0 – 1) [†]	<0.0001
Average duration of ≥2-min bouts, min·bout ⁻¹	4 (4 – 6)	4 (3 – 5)	4 (3 – 5) [†]		3 (3 – 5) ^{†,‡}	<0.0001
Average duration of ≥10-min bouts, min·bout ⁻¹	14 (11 – 18)	13 (0 – 16)	12 (0 – 15) [†]		0 (0 – 13) ^{†,‡,§}	<0.0001
EE in ≥2-min bouts, METs·min·day ⁻¹	299 (150 – 641)	215 (107 – 431) [†]	164 (73 – 381) [†]	1.	70 (24 – 264) ^{†,‡,§,¶}	<0.0001
EE in ≥10-min bouts, METs·min·day ⁻¹	70 (14 – 269)	38 (0 – 123) [†]	21 (0 – 105) [†]		0 (0 – 53) ^{†,‡,§}	<0.0001

Data expressed as median (interquartile range). See Table 2 for definition of abbreviations. *Data missing for

mMRC0; [†]P<0.05 vs mMRC1; [‡]P<0.05 vs mMRC2; [§]P<0.05 vs mMRC3.

Table E7: Daily physical activity levels after stratification for long-term oxygen therapy use*.

Features	Yes	No	P-value
N	67	640	
Physical activity levels in very light intensity			
Time, min·day ⁻¹	836 (749 – 925)	804 (711 – 896)	0.04
EE, METs·min·day ⁻¹	1082 (845 – 1308)	1051 (836 – 1434)	0.65
Time in ≥2-min bouts, min·day ⁻¹	819 (728 – 907)	781 (684 – 879)	0.04
Time in ≥10-min bouts, min·day ⁻¹	709 (581 – 837)	662 (550 – 774)	0.08
Frequency of ≥2-min bouts, bouts·day ⁻¹	47 (36 – 61)	47 (38 – 56)	0.86
Frequency of ≥10-min bouts, bouts·day ⁻¹	18 (16 – 21)	18 (16 – 21)	0.65
Average duration of ≥2-min bouts, min·bout ⁻¹	17 (13 – 26)	16 (12 – 21)	0.35
Average duration of ≥10-min bouts, min·bout ⁻¹	39 (28 – 51)	35 (29 – 44)	0.15
EE in ≥2-min bouts, METs·min·day ⁻¹	1068 (827 – 1302)	1017 (802 – 1396)	0.64
EE in ≥10-min bouts, METs·min·day ⁻¹	948 (667 – 1244)	878 (647 – 1239)	0.67
Physical activity levels in light intensity			
Time, min·day ⁻¹	113 (65 – 171)	141 (93 – 196)	0.01
EE, METs·min·day ⁻¹	341 (196 – 605)	453 (299 – 699)	0.02
Time in ≥2-min bouts, min·day ⁻¹	81 (44 – 131)	108 (65 – 156)	0.006
Time in ≥10-min bouts, min·day ⁻¹	3 (0 – 8)	8 (2 – 23)	<0.0001
Frequency of ≥2-min bouts, bouts·day ⁻¹	25 (15 – 37)	31 (20 – 41)	0.02
Frequency of ≥10-min bouts, bouts·day ⁻¹	0 (0 – 1)	1 (0 – 2)	<0.0001
Average duration of ≥2-min bouts, min·bout ⁻¹	3 (3 – 4)	3 (3 – 4)	0.005
Average duration of ≥10-min bouts, min·bout ⁻¹	11 (0 – 13)	12 (10 – 14)	0.04
EE in ≥2-min bouts, METs·min·day ⁻¹	261 (129 – 491)	357 (210 – 566)	0.02
EE in ≥10-min bouts, METs·min·day ⁻¹	10 (0 – 51)	29 (5 – 84)	<0.0001
Physical activity levels in moderate-to-vigorous intensity	37 (17 – 68)	53 (28 – 95)	0.005

Time, min·day ⁻¹			
EE, METs·min·day ⁻¹	176 (79 – 400)	298 (149 – 577)	0.004
Time in ≥2-min bouts, min·day ⁻¹	24 (11 – 56)	38 (19 – 76)	0.003
Time in ≥10-min bouts, min·day ⁻¹	2 (0 – 9)	7 (0 – 22)	<0.0001
Frequency of ≥2-min bouts, bouts·day ⁻¹	6 (3 – 13)	10 (5 – 17)	0.02
Frequency of ≥10-min bouts, bouts·day ⁻¹	0 (0 – 1)	1 (0 – 2)	0.003
Average duration of ≥2-min bouts, min·bout ⁻¹	4 (3 – 4)	4 (3 – 5)	0.005
Average duration of ≥10-min bouts, min·bout ⁻¹	10 (0 – 13)	13 (0 – 16)	<0.0001
EE in ≥2-min bouts, METs·min·day ⁻¹	113 (48 – 292)	219 (99 – 461)	0.003
EE in ≥10-min bouts, METs·min·day ⁻¹	5 (0 – 59)	40 (0 – 146)	0.001

Data expressed as median (interquartile range). See Table 2 for definition of abbreviations. *Data missing for

Table E8: Daily physical activity levels after stratification for walking aid use*.

Features	Yes	No	P-value
N	19	686	
Physical activity levels in very light intensity			
Time, min·day ⁻¹	862 (675 – 951)	807 (716 – 898)	0.34
EE, METs·min·day ⁻¹	1186 (832 – 1911)	1054 (841 – 1439)	0.74
Time in ≥2-min bouts, min·day ⁻¹	846 (655 – 937)	787 (687 – 880)	0.31
Time in ≥10-min bouts, min·day ⁻¹	767 (520 – 897)	664 (553 – 776)	0.28
Frequency of ≥2-min bouts, bouts·day ⁻¹	48 (28 – 60)	47 (38 – 56)	0.58
Frequency of ≥10-min bouts, bouts·day ⁻¹	17 (14 – 19)	18 (16 – 21)	0.09
Average duration of ≥2-min bouts, min·bout ⁻¹	21 (12 – 32)	16 (13 – 22)	0.34
Average duration of ≥10-min bouts, min·bout ⁻¹	43 (27 – 58)	35 (29 – 44)	0.17
EE in ≥2-min bouts, METs·min·day ⁻¹	1151 (779 – 1900)	1022 (805 – 1408)	0.71
EE in ≥10-min bouts, METs·min·day ⁻¹	1006 (558 – 1769)	883 (652 – 1247)	0.60
Physical activity levels in light intensity			
Time, min·day ⁻¹	111 (35 – 169)	140 (91 – 192)	0.07
EE, METs·min·day ⁻¹	275 (146 – 535)	448 (291 – 700)	0.04
Time in ≥2-min bouts, min·day ⁻¹	81 (16 – 132)	108 (64 – 154)	0.07
Time in ≥10-min bouts, min·day ⁻¹	4 (0 – 13)	8 (0 – 3)	0.07
Frequency of ≥2-min bouts, bouts·day ⁻¹	25 (7 – 38)	31 (20 – 41)	0.09
Frequency of ≥10-min bouts, bouts·day ⁻¹	0 (0 – 1)	1 (0 – 2)	0.02
Average duration of ≥2-min bouts, min·bout ⁻¹	3 (3 – 4)	3 (3 – 4)	0.07
Average duration of ≥10-min bouts, min·bout ⁻¹	11 (0 – 13)	12 (0 – 14)	0.27
EE in ≥2-min bouts, METs·min·day ⁻¹	200 (81 – 414)	351 (206 – 567)	0.04
EE in ≥10-min bouts, METs·min·day ⁻¹	8 (0 – 60)	27 (0 – 83)	0.13
Physical activity levels in moderate-to-vigorous intensity	20 (8 – 105)	51 (26 – 92)	0.04

Time, min·day ⁻¹			
EE, METs·min·day ⁻¹	98 (35 – 426)	291 (141 – 572)	0.03
Time in ≥2-min bouts, min·day ⁻¹	12 (4 – 78)	38 (19 – 74)	0.02
Time in ≥10-min bouts, min·day ⁻¹	0 (0 – 9)	6 (0 – 22)	0.01
Frequency of ≥2-min bouts, bouts·day ⁻¹	4 (1 – 20)	10 (5 – 16)	0.04
Frequency of ≥10-min bouts, bouts·day ⁻¹	0 (0 – 1)	1 (0 – 2)	0.04
Average duration of ≥2-min bouts, min·bout ⁻¹	3 (3 – 5)	4 (3 – 5)	0.03
Average duration of ≥10-min bouts, min·bout ⁻¹	0 (0 – 12)	13 (0 – 16)	0.01
EE in ≥2-min bouts, METs·min·day ⁻¹	53 (15 – 269)	212 (93 – 456)	0.02
EE in ≥10-min bouts, METs·min·day ⁻¹	0 (0 – 65)	37 (0 – 139)	0.03

Data expressed as median (interquartile range). See Table 2 for definition of abbreviations. *Data missing for

Table E9: Daily physical activity levels after stratification for diffusion capacity of the lung for carbon monoxide

Features	< median (51 % predicted)	≥ median (51 % predicted)	P-value
N	241	264	
Physical activity levels in very light intensity			
Time, min·day ⁻¹	819 (735 – 919)	802 (708 – 886)	0.05
EE, METs·min·day ⁻¹	944 (788 – 1198)	1112 (902 – 1455)	<0.0001
Time in ≥2-min bouts, min·day ⁻¹	798 (704 – 900)	781 (683 – 863)	0.08
Time in ≥10-min bouts, min·day ⁻¹	666 (552 – 790)	663 (556 – 768)	0.52
Frequency of ≥2-min bouts, bouts·day ⁻¹	49 (41 – 59)	45 (37 – 54)	0.002
Frequency of ≥10-min bouts, bouts·day ⁻¹	19 (16 – 21)	18 (15 – 20)	0.002
Average duration of ≥2-min bouts, min·bout ⁻¹	15 (12 – 21)	17 (13 – 22)	0.15
Average duration of ≥10-min bouts, min·bout ⁻¹	34 (29 – 42)	36 (29 – 45)	0.12
EE in ≥2-min bouts, METs·min·day ⁻¹	922 (742 – 1155)	1082 (858 – 1411)	<0.0001
EE in ≥10-min bouts, METs·min·day ⁻¹	767 (567 – 1058)	928 (698 – 1227)	<0.0001
Physical activity levels in light intensity			
Time, min·day ⁻¹	139 (88 – 187)	146 (94 – 197)	0.34
EE, METs·min·day ⁻¹	390 (260 – 540)	512 (342 – 712)	<0.0001
Time in ≥2-min bouts, min·day ⁻¹	104 (63 – 149)	113 (68 – 160)	0.25
Time in ≥10-min bouts, min·day ⁻¹	7 (0 – 20)	11 (3 – 27)	0.004
Frequency of ≥2-min bouts, bouts·day ⁻¹	31 (20 – 40)	31 (20 – 41)	0.59
Frequency of ≥10-min bouts, bouts·day ⁻¹	1 (0 – 2)	1 (0 – 2)	0.03
Average duration of ≥2-min bouts, min·bout ⁻¹	3 (3 – 4)	4 (3 – 4)	0.08
Average duration of ≥10-min bouts, min·bout ⁻¹	12 (0 – 13)	12 (11 – 14)	0.003
EE in ≥2-min bouts, METs·min·day ⁻¹	298 (186 – 438)	394 (251 – 581)	<0.0001
EE in ≥10-min bouts, METs·min·day ⁻¹	21 (0 – 62)	35 (11 – 104)	<0.0001
Physical activity levels in moderate-to-vigorous intensity			
	42 (23 – 81)	59 (35 – 98)	<0.0001

Time, min·day ⁻¹			
EE, METs·min·day ⁻¹	196 (93 – 395)	347 (212 – 601)	<0.0001
Time in ≥2-min bouts, min·day ⁻¹	30 (15 – 67)	45 (23 – 82)	<0.0001
Time in ≥10-min bouts, min·day ⁻¹	4 (0 – 19)	9 (2 – 24)	0.002
Frequency of ≥2-min bouts, bouts·day ⁻¹	8 (4 – 15)	11 (6 – 17)	0.001
Frequency of ≥10-min bouts, bouts·day ⁻¹	0 (0 – 1)	1 (0 – 2)	0.001
Average duration of ≥2-min bouts, min·bout ⁻¹	4 (3 – 5)	4 (3 – 5)	0.02
Average duration of ≥10-min bouts, min·bout ⁻¹	12 (0 – 15)	13 (10 – 16)	0.006
EE in ≥2-min bouts, METs·min·day ⁻¹	147 (60 – 319)	268 (145 – 495)	<0.0001
EE in ≥10-min bouts, METs·min·day ⁻¹	18 (0 – 93)	55 (9 – 169)	<0.0001

Data expressed as median (interquartile range). See Table 2 for definition of abbreviations. *Data missing for

Table E10: Daily physical activity levels after stratification for Global Initiative for Chronic Obstructive Lung D

Features	GOLD 1	GOLD 2	GOLD 3	P-value
N	91	395	340	
Physical activity levels in very light intensity				
Time, min·day ⁻¹	751 (680 – 846)	791 (706 – 882)	817 (731 – 922)*	0.0004
EE, METs·min·day ⁻¹	1019 (800 – 1405)	1079 (845 – 1409)	1027 (824 – 1308)	0.008
Time in ≥2-min bouts, min·day ⁻¹	734 (656 – 828)	773 (682 – 866)	798 (703 – 908)*	0.0008
Time in ≥10-min bouts, min·day ⁻¹	625 (511 – 720)	653 (543 – 769)	677 (548 – 805)*	0.04
Frequency of ≥2-min bouts, bouts·day ⁻¹	48 (39 – 53)	47 (38 – 54)	49 (37 – 58)	<0.0001
Frequency of ≥10-min bouts, bouts·day ⁻¹	17 (15 – 20)	18 (15 – 21)	18 (16 – 21)	0.0001
Average duration of ≥2-min bouts, min·bout ⁻¹	15 (13 – 21)	16 (13 – 22)	16 (12 – 23)	0.01
Average duration of ≥10-min bouts, min·bout ⁻¹	33 (28 – 44)	35 (29 – 42)	35 (28 – 44)	0.03
EE in ≥2-min bouts, METs·min·day ⁻¹	979 (776 – 1355)	1047 (803 – 1386)	991 (796 – 1279)	0.01
EE in ≥10-min bouts, METs·min·day ⁻¹	820 (625 – 1152)	878 (652 – 1246)	849 (653 – 1178)	0.006
Physical activity levels in light intensity				
Time, min·day ⁻¹	181 (117 – 230)	147 (105 – 198)*	132 (80 – 182)*,†	<0.0001
EE, METs·min·day ⁻¹	578 (416 – 843)	505 (328 – 727)	389 (253 – 564)*,†	<0.0001
Time in ≥2-min bouts, min·day ⁻¹	142 (86 – 194)	113 (77 – 161)*	98 (54 – 143)*,†	<0.0001
Time in ≥10-min bouts, min·day ⁻¹	20 (6 – 41)	10 (3 – 27)*	6 (0 – 17)*,†	<0.0001
Frequency of ≥2-min bouts, bouts·day ⁻¹	37 (25 – 47)	31 (23 – 41)	28 (18 – 38)*	0.0005
Frequency of ≥10-min bouts, bouts·day ⁻¹	2 (1 – 3)	1 (0 – 2)*	1 (0 – 1)*,†	<0.0001
Average duration of ≥2-min bouts, min·bout ⁻¹	4 (3 – 4)	4 (3 – 4)	3 (3 – 4)*,†	<0.0001
Average duration of ≥10-min bouts, min·bout ⁻¹	12 (11 – 14)	12 (11 – 14)	12 (0 – 13)*,†	<0.0001
EE in ≥2-min bouts, METs·min·day ⁻¹	475 (315 – 660)	384 (247 – 603)	296 (183 – 450)*,†	<0.0001
EE in ≥10-min bouts, METs·min·day ⁻¹	71 (21 – 141)	35 (10 – 103)*	19 (0 – 57)*,†	<0.0001
Physical activity levels in moderate-to-vigorous intensity				
	75 (44 – 117)	59 (33 – 108)	44 (21 – 78)*,†	<0.0001

Time, min·day ⁻¹				
EE, METs·min·day ⁻¹	364 (225 – 684)	328 (183 – 644)	209 (89 – 450) ^{*,†}	<0.0001
Time in ≥2-min bouts, min·day ⁻¹	57 (33 – 98)	45 (23 – 88)	31 (14 – 62) ^{*,†}	<0.0001
Time in ≥10-min bouts, min·day ⁻¹	12 (3 – 31)	11 (3 – 28)	4 (0 – 17) ^{*,†}	<0.0001
Frequency of ≥2-min bouts, bouts·day ⁻¹	13 (8 – 19)	11 (6 – 18)	8 (4 – 15) ^{*,†}	<0.0001
Frequency of ≥10-min bouts, bouts·day ⁻¹	1 (0 – 2)	1 (0 – 2)	0 (0 – 1) ^{*,†}	<0.0001
Average duration of ≥2-min bouts, min·bout ⁻¹	4 (4 – 5)	4 (3 – 5)	4 (3 – 5) ^{*,†}	<0.0001
Average duration of ≥10-min bouts, min·bout ⁻¹	13 (11 – 17)	13 (10 – 17)	11 (0 – 15) ^{*,†}	<0.0001
EE in ≥2-min bouts, METs·min·day ⁻¹	293 (171 – 549)	253 (128 – 532)	152 (63 – 362) ^{*,†}	<0.0001
EE in ≥10-min bouts, METs·min·day ⁻¹	71 (14 – 165)	64 (13 – 171)	20 (0 – 93) ^{*,†}	<0.0001

Data expressed as median (interquartile range). See Table 2 for definition of abbreviations. * P<0.05 vs GOL

GOLD3.

Table E11: Daily physical activity levels in very light and light intensities in healthy subjects and matched patients

Features	Healthy subjects	Matched patients with COPD	P-value
Physical activity levels in very light intensity			
Time, min·day ⁻¹	736 (640 – 816)	798 (670 – 884)	0.03
EE, METs·min·day ⁻¹	879 (703 – 1113)	932 (734 – 1236)	0.07
Time in ≥2-min bouts, min·day ⁻¹	708 (607 – 797)	777 (642 – 863)	0.03
Time in ≥10-min bouts, min·day ⁻¹	595 (464 – 685)	674 (479 – 759)	0.08
Frequency of ≥2-min bouts, bouts·day ⁻¹	48 (42 – 56)	51 (39 – 60)	0.66
Frequency of ≥10-min bouts, bouts·day ⁻¹	17 (15 – 20)	18 (16 – 20)	0.54
Average duration of ≥2-min bouts, min·bout ⁻¹	14 (11 – 18)	16 (11 – 21)	0.43
Average duration of ≥10-min bouts, min·bout ⁻¹	31 (27 – 40)	34 (27 – 44)	0.50
EE in ≥2-min bouts, METs·min·day ⁻¹	843 (674 – 1060)	900 (698 – 1209)	0.07
EE in ≥10-min bouts, METs·min·day ⁻¹	695 (508 – 852)	777 (518 – 1112)	0.07
Physical activity levels in light intensity			
Time, min·day ⁻¹	173 (113 – 230)	152 (82 – 217)	0.13
EE, METs·min·day ⁻¹	484 (376 – 628)	436 (262 – 612)	0.18
Time in ≥2-min bouts, min·day ⁻¹	131 (84 – 191)	116 (58 – 166)	0.12
Time in ≥10-min bouts, min·day ⁻¹	16 (6 – 38)	8 (3 – 26)	0.07
Frequency of ≥2-min bouts, bouts·day ⁻¹	37 (25 – 47)	33 (18 – 47)	0.19
Frequency of ≥10-min bouts, bouts·day ⁻¹	1 (1 – 3)	1 (0 – 2)	0.06
Average duration of ≥2-min bouts, min·bout ⁻¹	4 (3 – 4)	4 (3 – 4)	0.27
Average duration of ≥10-min bouts, min·bout ⁻¹	13 (11 – 15)	12 (11 – 14)	0.06
EE in ≥2-min bouts, METs·min·day ⁻¹	371 (280 – 534)	309 (186 – 497)	0.21
EE in ≥10-min bouts, METs·min·day ⁻¹	41 (20 – 90)	31 (10 – 73)	0.13

Data expressed as median (interquartile range). See Table 2 for definition of abbreviations.

Cluster analysis of daily physical activity levels

Comment:
Please provide the results of factor analysis to see the contribution of each variable to each factor and the amount of variance not explained by factors – if any

A detailed analysis of the relationship between the 3 components identified by the PCA and the 5 clusters identified from these components is provided in the following paragraphs.

The first component was clearly able to discriminate clusters 1 and 2 (the most inactive clusters) from the three other clusters (clusters 3, 4 and 5) (Figures 5B and 5C). The second component was not really useful to identify more inactive patients (clusters 1 and 2), but was able to discriminate the most active cluster (cluster 5) from the rest (Figures 5B and 5D). For discriminating the somewhat inactive and active clusters (clusters 3 and 4, respectively) from the others, it is important to consider the combination of the three components. Indeed, if only the first component was considered, for instance, these clusters would be added to the very active cluster (i.e., cluster 5) (Figures 5B and 5C). On the other hand, if only the second component was considered these clusters would be added to the inactive clusters (i.e., clusters 1 and 2) (Figure 5B).

Having a closer look at the most relevant features of each component we can notice that the first component is related to the time spent in bouts of very light intensity, while the second component is related to the total daily EE in activities of moderate-to-vigorous intensity, mostly in bouts of PA. Therefore, it can be suggested that the time in bouts of moderate-to-vigorous intensity can be a useful marker to discriminate patients who are very active from the others.

Table E12 presents the daily physical activity levels of the clusters in very light and light intensities.

Table E12: Daily physical activity levels in very light and light intensities in clusters of patients with COPD.

Features	Cluster 1	Cluster 2	Cluster 3	Cluster 5	P-value
Physical activity levels in very light intensity					
Time, min·day ⁻¹	955 (904 – 1042)	823 (768 – 879)*	706 (641 – 769)*,†	516 (456 – 621)*,†,‡	<0.0001
EE, METs·min·day ⁻¹	1356 (1165 – 1730)	1022 (854 – 1222)*	855 (729 – 1118)*,†	853 (661 – 1884)*	<0.0001
Time in ≥2-min bouts, min·day ⁻¹	946 (894 – 1033)	802 (746 – 858)*	682 (611 – 744)*,†	480 (428 – 591)*,†,‡	<0.0001
Time in ≥10-min bouts, min·day ⁻¹	890 (815 – 968)	680 (622 – 745)*	534 (452 – 601)*,†	340 (254 – 444)*,†,‡	<0.0001
Frequency of ≥2-min bouts, bouts·day ⁻¹	33 (26 – 39)	50 (42 – 57)*	54 (48 – 61)*,†	46 (43 – 59)*	<0.0001
Frequency of ≥10-min bouts, bouts·day ⁻¹	17 (14 – 20)	20 (17 – 22)*	18 (16 – 20)*,†	12 (11 – 16)*,†,‡	<0.0001
Average duration of ≥2-min bouts, min·bout ⁻¹	29 (23 – 36)	16 (14 – 19)*	12 (10 – 15)*,†	10 (8 – 13)*,†	<0.0001
Average duration of ≥10-min bouts, min·bout ⁻¹	53 (43 – 65)	35 (30 – 41)*	29 (25 – 34)*,†	26 (22 – 32)*,†	<0.0001
EE in ≥2-min bouts, METs·min·day ⁻¹	1344 (1145 – 1709)	988 (827 – 1186)*	810 (687 – 1074)*,†	832 (606 – 1730)*	<0.0001
EE in ≥10-min bouts, METs·min·day ⁻¹	1257 (1068 – 1632)	836 (693 – 1050)*	628 (516 – 862)*,†	704 (420 – 1185)*	<0.0001
Physical activity levels in light intensity					
Time, min·day ⁻¹	57 (35 – 79)	139 (113 – 167)*	245 (208 – 282)*,†	121 (87 – 163)*,†,‡	<0.0001
EE, METs·min·day ⁻¹	196 (121 – 305)	408 (320 – 517)*	725 (591 – 958)*,†	416 (227 – 1093)*,†	<0.0001
Time in ≥2-min bouts, min·day ⁻¹	38 (19 – 56)	105 (85 – 130)*	205 (175 – 244)*,†	79 (50 – 120)*,†,‡	<0.0001
Time in ≥10-min bouts, min·day ⁻¹	0 (0 – 3)	8 (3 – 16)*	46 (32 – 65)*,†	0 (0 – 4)*,†,‡	<0.0001
Frequency of ≥2-min bouts, bouts·day ⁻¹	13 (7 – 17)	30 (24 – 36)*	49 (40 – 56)*,†	28 (20 – 37)*,†,‡	<0.0001
Frequency of ≥10-min bouts, bouts·day ⁻¹	0 (0 – 0)	1 (0 – 1)*	3 (2 – 5)*,†	0 (0 – 0)*,†	<0.0001
Average duration of ≥2-min bouts, min·bout ⁻¹	3 (3 – 3)	3 (3 – 4)*	4 (4 – 5)*,†	3 (3 – 3)*,†,‡	<0.0001
Average duration of ≥10-min bouts, min·bout ⁻¹	0 (0 – 11)	12 (11 – 13)*	14 (13 – 15)*,†	0 (0 – 11)*,†,‡	<0.0001
EE in ≥2-min bouts, METs·min·day ⁻¹	131 (68 – 215)	317 (241 – 408)*	620 (510 – 801)*,†	307 (159 – 748)*,†	<0.0001
EE in ≥10-min bouts, METs·min·day ⁻¹	0 (0 – 12)	26 (10 – 54)*	155 (99 – 240)*,†	0 (0 – 19)*,†,‡	<0.0001

Data expressed as median (interquartile range). See Table 2 for definition of abbreviations. *P<0.05 vs Clust

†P<0.05 vs Cluster 3; ‡P<0.05 vs Cluster 4.

REFERENCES