Supplementary Table 1 Details of activPAL data collection and processing

Item	Details
Monitor version	activPAL3 micro
Method and location of monitor attachment	Device was waterproofed by covering in nitrile fingercot and wrapped fully in one piece of waterproof dressing (Hypafix transparent), then attached by research staff (SC) to the anterior aspect of the mid-thigh anterior using one piece of Tegaderm dressing. Additional dressings were supplied for reattachment during the wear period.
Wear period and number of days	24 hours/day for 7 consecutive days
activPAL software version	Version 7.2.38
Settings used:	All defaults. Selected information below:
Sampling Frequency	10Hz (default)
Minimum sitting period	10 seconds (default)
Minimum upright period	10 seconds (default)
Minimum /maximum cadence	20 / 240 steps per minute (default)
Stride Average	10 strides
Energy Expenditure	METs = 1.25 (sitting) and 1.4 (standing) and MET-hrs (stepping) = $(1.4 \text{ x } \mathbf{d}) + (4 - 1.4) \text{ x } (\mathbf{c} / 120) \text{ x } \mathbf{d}$, where \mathbf{d} is duration in hrs and \mathbf{c} is cadence in steps per minute
Diary data collected	Time woke up, sleep during the day, time got into bed, time went to sleep, and any removal times each day
Type of file used for data processing	Events file
Method for estimating sleep/wake times	Unreported sleep/wake times were estimated from the activPAL events files by research staff (SC). Whole bouts of activity were classed as awake/not and removed/not.
Quality control checks	All included and excluded data were checked visually (via heatmaps) to identify any instances where it seemed movement during wake was more consistent with sleep or removal and vice versa, or if the monitor appeared to have been worn upside down. Problems were rectified individually based on best consistency between the monitor data and the diary (if available). Data deemed invalid (removal and sleep periods, all time on invalid days, selected days that failed the quality control checks) were excluded from analysis.
Criteria to define a valid day of observation	Worn for ≥10 waking hours
Number and type of days required to be included in final analytic sample	At least four valid days of data
Data processing package used and methods used to generate key summary variables	activPAL software version 7.2.38 to create events files.

A SAS 9.4 program was used to perform quality checks and determine valid data.	
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	Outcome measure	Definition
Total sedentary	Waking wear time, min/day	Device wear time during waking hours.
behaviour	Sedentary time, min/day	Time spent in SB expressed in absolute minutes.
	Sedentary time as % waking wear time, %	Time spent in SB expressed as a proportion of waking wear time.
	Prolonged sedentary time, min/day	Time spent in SB accumulated in bouts of ≥ 30 minutes.
	Prolonged sedentary time as % waking wear time, %	Time spent in prolonged SB expressed as a proportion of waking wear time.
Patterns of sedentary	Usual bout duration, min	Duration of the sedentary bout corresponding to 50% of daily accumulated sedentary time.
behaviour		Higher values indicate a tendency to accumulate SB in more prolonged bouts.
accumulation	Longest sedentary bout duration, min	Duration of the longest sedentary bout.
	Sedentary bouts, n/day	Frequency of sedentary bouts per day.
	Prolonged sedentary bouts, n/day	Frequency of sedentary bouts of ≥ 30 minutes per day.
	Sedentary breaks, n/day	Frequency of transitions from a seated to upright posture.
	Alpha	A unitless measure that characterises the frequency distribution of sedentary bout durations. Higher values indicate a tendency to accumulate SB in shorter bouts.
	Fragmentation index, bouts/hour	Number of sedentary bouts divided by time spent in SB. Higher values indicate an increased number of sedentary breaks relative to total sedentary time (i.e., more fragmented accumulation of SB).
Physical activity	Standing time, min/day	Time spent standing expressed in absolute minutes.
	Stepping time, min/day	Time spent stepping expressed in absolute minutes.
	Time spent in purposeful stepping, min/day	Time spent continuously stepping in bouts of ≥ 1 min.
	Step count, steps/day	Number of steps per day.
	Time spent in light activities, min/day	Time spent standing plus time spent stepping at <3 METs.
	Time spent in light activities excluding standing,	Time spent stepping at <3 METs.
	min/day	Time spent stepping at \geq 3 METs.
	Time spent in MVPA, min/day	Participants who engaged in \geq 30 minutes/day of MVPA.
	Proportion who are physically active, %	

Supplementary Table 2 Assessment of sedentary behaviour and physical activity variables

Characteristic	Activity phenotypes							
-	All	"Couch potatoes"	"Light movers"	"Sedentary exercisers"	"Busy bees"			
	(n = 69)	(n = 24)	(n = 4)	(n = 15)	(n = 26)			
Age, years	74 (9)	76 (9)	79 (8)	70 (10)	73 (9)			
Sex, n males (%)	33 (48)	14 (58)	1 (25)	6 (40)	12 (46)			
Employment status, n (%)								
Retired	56 (81)	19 (79)	3 (75)	14 (93)	20 (77)			
Part-time	10 (15)	5 (21)	1 (25)	0	4 (15)			
Full-time	3 (4)	0	0	1 (7)	2 (8)			
Lung function								
FEV ₁ , L	1.39 (0.55)	1.27 (0.53)	0.84 (0.19)	1.58 (0.65)	1.48 (0.49)			
FVC, L	2.66 (0.77)	2.55 (0.74)	2.47 (1.06)	2.81 (0.79)	2.70 (0.76)			
FEV ₁ % predicted	55 (19)	53 (21)	41 (12)	57 (14)	59 (20)			
GOLD stage, n (%)								
I and II	35 (51)	11 (46)	1 (25)	10 (67)	13 (50)			
III and IV	34 (49)	13 (54)	3 (75)	5 (33)	13 (50)			
BMI, kg/m ²	28.3 (7.5)	26.6 (8.1)	30.0 (10.0)	29.1 (8.8)	29.3 (5.9)			
Smoking status, n (%)								
Current	9 (13)	4 (17)	0	2 (13)	3 (11)			
Former	60 (87)	20 (83)	4 (100)	13 (87)	23 (89)			
Smoking history, pack-years	41 (24)	51 (28)	41 (25)	34 (16)	36 (23)			
≥ 1 self-reported COPD hospital admission in	38 (55)	12 (50)	2 (50)	9 (60)	15 (58)			
last six months, n (%)								

Supplementary Table 3 Baseline characteristics of activity phenotypes (n=69)

last six months, n (%)

Comorbidities, n (%)

Cardiometabolic	55 (80)	20 (83)	3 (75)	11 (73)	21 (81)
Other respiratory	30 (44)	11 (46)	2 (50)	6 (40)	11 (42)
Musculoskeletal	49 (71)	18 (75)	4 (100)	9 (60)	18 (69)
Mental health	20 (29)	7 (29)	0	6 (40)	7 (27)
6MWD, m	358 (100)	312 (87)	274 (70)	392 (115)	395 (85)
6MWD % predicted	61 (15)	54 (16)	51 (10)	63 (13)	67 (12)
6MWD <80% predicted, n (%)	62 (90)	23 (96)	4 (100)	13 (87)	22 (85)
Mobilises with walking aid, n (%)	11 (16)	5 (21)	1 (25)	1 (7)	4 (15)
Exercise-induced oxygen desaturation ¹ , n (%)	31 (45)	16 (70)	4 (100)	4 (29)	7 (27)
Previous pulmonary rehabilitation ² , n (%)	19 (28)	7 (29)	2 (50)	3 (20)	7 (27)

Participants were classified as "couch potatoes" if sedentary time accounted for \geq 70% of waking wear time and they undertook <30 min/day of MVPA; "light movers" if sedentary time accounted for <70% of waking wear time and they undertook <30 min/day of MVPA; "sedentary exercisers; if sedentary time accounted for \geq 70% of waking wear time and they undertook \geq 30 min/day of MVPA; and "busy bees" if sedentary time accounted for <70% of waking wear time and they undertook \geq 30 min/day of MVPA; and "busy bees" if sedentary time accounted for <70% of waking wear time and they undertook \geq 30 min/day of MVPA; and "busy bees" if sedentary time accounted for <70% of waking wear time and they undertook \geq 30 min/day of MVPA. One participant did not have a sufficient number of valid wear days and was excluded from the analysis.

¹Defined as desaturation to <90% during a six-minute walk test. Two participants (one classified as a "couch potato" and the other as a "sedentary exerciser") received long-term oxygen therapy and were excluded from the analysis.

²Self-reported attendance to a pulmonary rehabilitation program. Participants who undertook formal exercise training in the last six months were excluded from the study.

Characteristic			Participants		
	All	"Couch potatoes"	"Light movers"	"Sedentary exercisers"	"Busy bees"
	(n = 69)	(n = 24)	(n = 4)	(n = 15)	(n = 26)
Sedentary time					
Waking wear time, min/day	904 (78)	879 (105)	916 (25)	911 (65)	921 (55)
Sedentary time, min/day	643 (105)	704 (98)	599 (43)	697 (62)	561 (79)
Sedentary time as % waking wear time, %	71 (11)	80 (6)	65 (4)	76 (4)	61 (7)
Prolonged sedentary time ¹ , min/day	374 (142)	474 (138)	356 (87)	403 (138)	268 (60)
Prolonged sedentary time as % waking wear time, %	41 (15)	54 (13)	39 (10)	44 (14)	29 (6)
Pattern of sedentary time accumulation					
Usual bout duration ² , min	39 (19)	50 (24)	42 (22)	38 (15)	28 (7)
Longest sedentary bout duration, min	165 (67)	194 (82)	191 (73)	161 (51)	136 (45)
Sedentary bouts, n/day	47 (17)	41 (11)	44 (13)	50 (24)	51 (15)
Prolonged sedentary bouts ³ , n/day	6 (2)	7 (2)	5 (1)	7 (2)	5 (1)
Sedentary breaks ⁴ , n/day	47 (17)	41 (11)	44 (13)	50 (24)	51 (15)
Alpha ⁵	1.30 (0.03)	1.29 (0.03)	1.31 (0.01)	1.30 (0.03)	1.32 (0.03)
Fragmentation Index ⁶ , bouts/hour	4.48 (1.67)	3.54 (1.17)	4.42 (1.17)	4.36 (2.25)	5.43 (1.25)
Physical activity					
Standing time, min/day	197 (80)	140 (43)	282 (37)	145 (35)	267 (62)
Stepping time, min/day	64 (33)	34 (11)	35 (12)	70 (24)	92 (24)
Time spent in purposeful stepping ⁷ , min/day	15 (14)	5 (4)	4 (3)	22 (18)	21 (13)
Step count, steps/day	4733 (2642)	2415 (861)	2120 (652)	5551 (2364)	6802 (2004
Time spent in light activities ⁸ , min/day	223 (87)	157 (45)	305 (30)	168 (38)	304 (63)

Supplementary Table 4 Variations in patterns of sedentary behaviour accumulation and physical activity by activity phenotypes (n=69)

Time spent in light activities excluding standing,	26 (12)	16 (5)	23 (9)	24 (9)	37 (10)
min/day					
Time spent in MVPA ⁹ , min/day	38 (23)	18 (7)	12 (4)	46 (20)	55 (17)

Participants were classified as "couch potatoes" if sedentary time accounted for \geq 70% of waking wear time and they undertook <30 min/day of MVPA; "light movers" if sedentary time accounted for <70% of waking wear time and they undertook <30 min/day of MVPA; "sedentary exercisers; if sedentary time accounted for \geq 70% of waking wear time and they undertook <30 min/day of MVPA; "sedentary exercisers; if sedentary time accounted for \geq 70% of waking wear time and they undertook \geq 30 min/day of MVPA; and "busy bees" if sedentary time accounted for <70% of waking wear time and they undertook \geq 30 min/day of MVPA; of waking wear time accounted for <70% of waking wear time and they undertook \geq 30 min/day of MVPA. One participant did not have a sufficient number of valid wear days and was excluded from the analysis.

¹ Time spent in SB accumulated in bouts of \geq 30 minutes.

² Duration of the sedentary bout corresponding to 50% of daily accumulated sedentary time. Higher values indicate a tendency to accumulate SB in more prolonged bouts.

³ Frequency of sedentary bouts of \geq 30 minutes per day.

⁴ Frequency of transitions from a seated to upright posture.

⁵ A unitless measure that characterises the frequency distribution of sedentary bout durations. Higher values indicate a tendency to accumulate SB in shorter bouts.

⁶ Number of sedentary bouts divided by time spent in SB. Higher values indicate an increased number of sedentary breaks relative to total sedentary time (i.e., more fragmented accumulation of SB).

⁷ Time spent continuously stepping in bouts of ≥ 1 min.

⁸ Time spent standing plus time spent stepping at <3 METs.

⁹ Time spent stepping at \geq 3 METs.

¹⁰ Participants were regarded as physically active if they engaged in \geq 30 minutes/day of MVPA.

Characteristic	Partic	ipants	
-	EID	Non-EID	<i>p</i> -value
	(n = 31)	(n = 36)	
Age, years	76 (8)	72 (10)	0.04*
Sex, n males (%)	19 (61)	14 (39)	0.07
Employment status, n (%)			0.09
Retired	24 (77)	30 (84)	
Part-time	7 (23)	3 (8)	
Full-time	0	3 (8)	
Lung function			
FEV_1, L	1.27 (0.50)	1.51 (0.59)	0.08
FVC, L	2.83 (0.70)	2.57 (0.78)	0.17
FEV1 % predicted	50 (19)	60 (19)	0.03*
GOLD stage, n (%)			0.10
I and II	12 (39)	22 (61)	
III and IV	19 (61)	14 (39)	
BMI, kg/m ²	27.8 (8.5)	28.4 (6.5)	0.77
Smoking status, n (%)			0.40
Current	3 (10)	6 (17)	
Former	28 (90)	30 (83)	
Smoking history, pack-years	47 (26)	36 (22)	0.06
≥1 self-reported COPD hospital admission	17 (55)	20 (56)	0.95
in last six months, n (%)			
Comorbidities, n (%)			
Cardiometabolic	27 (87)	26 (72)	0.14
Other respiratory	15 (48)	14 (39)	0.43
Musculoskeletal	24 (77)	24 (67)	0.33
Mental health	8 (26)	10 (28)	0.86
6MWD, m	331 (98)	387 (96)	0.02*
6MWD % predicted	57 (16)	65 (14)	0.03*
6MWD <80% predicted, n (%)	28 (90)	32 (89)	0.85
Mobilises with walking aid, n (%)	4 (13)	5 (14)	0.91
Previous pulmonary rehabilitation ¹ , n (%)	12 (39)	6 (17)	0.04*

Supplementary Table 5 Baseline characteristics of participants with and without exercise-induced oxygen desaturation (n=67)

Values are presented as mean (SD) unless otherwise stated.

Participants were classified as EID if they desaturated to <90% during a six-minute walk test, and non-EID if they maintained saturations $\ge90\%$ during a six-minute walk test. One participant did not have a sufficient

number of valid wear days and was excluded from the analysis. Two participants received long-term oxygen therapy and were excluded from the analysis.

* p<0.05 was considered significant.

¹ Self-reported attendance to a pulmonary rehabilitation program. Participants who undertook formal exercise training in the last six months were excluded from the study.

Partic	ipants	Difference between groups	
EID	Non-EID	EID minus Non-EID	<i>p</i> -value
(n = 31)	(n = 36)		
887 (87)	922 (66)	-35 (-72 to 2)	0.06
652 (104)	637 (109)	15 (-37 to 67)	0.57
74 (10)	69 (10)	5 (-0.3 to 10)	0.06
394 (124)	352 (157)	42 (-28 to 112)	0.24
45 (14)	38 (16)	7 (-1 to 14)	0.07
40 (15)	37 (23)	3 (-7 to 12)	0.56
169 (65)	157 (67)	12 (-20 to 44)	0.46
44 (12)	50 (20)	-6 (-14 to 2)	0.12
6 (2)	6 (2)	0 (-0.3 to 1.4)	0.19
44 (12)	50 (20)	-6 (-14 to 2)	0.13
1.30 (0.03)	1.31 (0.04)	-0.01 (-0.03 to 0.01)	0.23
4.04 (1.17)	4.78 (2.01)	-0.74 (-1.54 to 0.04)	0.06
188 (86)	207 (76)	-19 (-59 to 21)	0.34
47 (25)	78 (32)	-31 (-45 to -17)	< 0.001*
9 (8)	19 (17)	-10 (-16 to -4)	0.002*
3377 (1869)	5915 (2723)	-2538 (-3667 to -1410)	< 0.001*
209 (93)	237 (83)	-28 (-71 to 15)	0.20
	$\begin{array}{r} \text{EID} \\ (n = 31) \\ \\ \\ 887 (87) \\ 652 (104) \\ 74 (10) \\ 394 (124) \\ 45 (14) \\ \\ \\ 40 (15) \\ 169 (65) \\ 44 (12) \\ 6 (2) \\ 44 (12) \\ 1.30 (0.03) \\ 4.04 (1.17) \\ \\ \\ \\ \\ 188 (86) \\ 47 (25) \\ 9 (8) \\ 3377 (1869) \\ \end{array}$	$\begin{array}{c c} (n = 31) & (n = 36) \\ \hline \\ 887 (87) & 922 (66) \\ 652 (104) & 637 (109) \\ 74 (10) & 69 (10) \\ 394 (124) & 352 (157) \\ 45 (14) & 38 (16) \\ \hline \\ 40 (15) & 37 (23) \\ 169 (65) & 157 (67) \\ 44 (12) & 50 (20) \\ 6 (2) & 6 (2) \\ 44 (12) & 50 (20) \\ 1.30 (0.03) & 1.31 (0.04) \\ 4.04 (1.17) & 4.78 (2.01) \\ \hline \\ 188 (86) & 207 (76) \\ 47 (25) & 78 (32) \\ 9 (8) & 19 (17) \\ 3377 (1869) & 5915 (2723) \\ \hline \end{array}$	EIDNon-EIDEID minus Non-EID $(n = 31)$ $(n = 36)$ EID minus Non-EID $887 (87)$ 922 (66) $-35 (-72 \text{ to } 2)$ $652 (104)$ $637 (109)$ $15 (-37 \text{ to } 67)$ $74 (10)$ $69 (10)$ $5 (-0.3 \text{ to } 10)$ $394 (124)$ $352 (157)$ $42 (-28 \text{ to } 112)$ $45 (14)$ $38 (16)$ $7 (-1 \text{ to } 14)$ $40 (15)$ $37 (23)$ $3 (-7 \text{ to } 12)$ $169 (65)$ $157 (67)$ $12 (-20 \text{ to } 44)$ $44 (12)$ $50 (20)$ $-6 (-14 \text{ to } 2)$ $6 (2)$ $6 (2)$ $0 (-0.3 \text{ to } 1.4)$ $44 (12)$ $50 (20)$ $-6 (-14 \text{ to } 2)$ $1.30 (0.03)$ $1.31 (0.04)$ $-0.01 (-0.03 \text{ to } 0.01)$ $4.04 (1.17)$ $4.78 (2.01)$ $-0.74 (-1.54 \text{ to } 0.04)$ $188 (86)$ $207 (76)$ $-19 (-59 \text{ to } 21)$ $47 (25)$ $78 (32)$ $-31 (-45 \text{ to } -17)$ $9 (8)$ $19 (17)$ $-10 (-16 \text{ to } -4)$ $3377 (1869)$ $5915 (2723)$ $-2538 (-3667 \text{ to } -1410)$

Supplementary Table 6 Variations in patterns of sedentary behaviour accumulation and physical activity by exercise-induced oxygen desaturation (n=67)

Time spent in light activities excluding standing,	21 (10)	30 (13)	-9 (-14 to -3)	0.003*
min/day				
Time spent in MVPA ⁹ , min/day	26 (16)	48 (23)	-22 (-32 to -13)	< 0.001*
Physically active ¹⁰ , n (%)	10 (26)	28 (74)	-	<0.001*

Participants were classified as EID if they desaturated to <90% during a six-minute walk test, and non-EID if they maintained saturations $\ge90\%$ during a six-minute walk test. One participant did not have a sufficient number of valid wear days and was excluded from the analysis. Two participants received long-term oxygen therapy and were excluded from the analysis.

* p<0.05 was considered significant.

¹ Time spent in SB accumulated in bouts of \geq 30 minutes.

² Duration of the sedentary bout corresponding to 50% of daily accumulated sedentary time. Higher values indicate a tendency to accumulate SB in more prolonged bouts.

³ Frequency of sedentary bouts of \geq 30 minutes per day.

⁴ Frequency of transitions from a seated to upright posture.

⁵ A unitless measure that characterises the frequency distribution of sedentary bout durations. Higher values indicate a tendency to accumulate SB in shorter bouts.

⁶ Number of sedentary bouts divided by time spent in SB. Higher values indicate an increased number of sedentary breaks relative to total sedentary time (i.e., more

fragmented accumulation of SB).

⁷ Time spent continuously stepping in bouts of ≥ 1 min.

⁸ Time spent standing plus time spent stepping at <3 METs.

¹⁰ Participants were regarded as physically active if they engaged in \geq 30 minutes/day of MVPA.

⁹ Time spent stepping at \geq 3 METs.

Characteristic	Participants					
-	All	Winter	Spring	Summer	Autumn	<i>p</i> -value
	(n = 69)	(n = 17)	(n = 9)	(n = 21)	(n = 22)	
Age, years	74 (9)	72 (10)	78 (8)	76 (9)	71 (9)	0.17
Sex, n males (%)	33 (48)	8 (47)	4 (44)	11 (52)	10 (46)	0.97
Employment status, n (%)						0.73
Retired	56 (81)	13 (76)	7 (78)	18 (86)	18 (82)	
Part-time	10 (15)	3 (18)	2 (22)	3 (14)	2 (9)	
Full-time	3 (4)	1 (6)	0	0	2 (9)	
Lung function						
FEV ₁ , L	1.39 (0.55)	1.48 (0.50)	1.26 (0.42)	1.40 (0.47)	1.38 (0.72)	0.81
FVC, L	2.66 (0.77)	2.79 (0.68)	2.42 (0.77)	2.59 (0.71)	2.73 (0.90)	0.65
FEV ₁ % predicted	55 (19)	58 (17)	58 (28)	57 (17)	51 (20)	0.63
GOLD stage, n (%)						0.44
I and II	35 (51)	11 (65)	5 (56)	11 (52)	8 (36)	
III and IV	34 (49)	6 (35)	4 (44)	10 (48)	14 (64)	
BMI, kg/m ²	28.3 (7.5)	29.3 (8.8)	30.2 (8.4)	27.6 (6.7)	27.6 (7.2)	0.75
Smoking status, n (%)						0.19
Current	9 (13)	4 (23)	0	1 (5)	4 (18)	
Former	60 (87)	13 (77)	9 (100)	20 (95)	18 (82)	
Smoking history, pack-years	41 (24)	44 (17)	42 (32)	44 (28)	36 (22)	0.69
≥1 self-reported COPD hospital admission in	38 (55)	9 (53)	6 (67)	13 (62)	10 (46)	0.63
last six months, n (%)						

Supplementary Table 7 Baseline characteristics of participants recruited in different seasons (n=69)

last six months, n (%)

Comorbidities, n (%)

Cardiometabolic	55 (80)	15 (88)	8 (89)	17 (81)	15 (68)	0.38
Other respiratory	30 (44)	6 (35)	2 (22)	11 (52)	11 (50)	0.37
Musculoskeletal	49 (71)	15 (88)	7 (78)	16 (76)	11 (50)	0.05
Mental health	20 (29)	7 (41)	2 (22)	6 (29)	5 (23)	0.61
6MWD, m	358 (100)	365 (78)	316 (100)	344 (74)	385 (131)	0.31
6MWD % predicted	61 (15)	61 (10)	58 (20)	60 (12)	63 (19)	0.83
6MWD <80% predicted, n (%)	62 (90)	17 (100)	8 (89)	20 (95)	17 (77)	0.09
Mobilises with walking aid, n (%)	11 (16)	0	5 (56)	3 (14)	3 (14)	0.003*
Exercise-induced oxygen desaturation ¹ , n (%)	31 (45)	7 (41)	4 (50)	9 (45)	11 (50)	0.95
Previous pulmonary rehabilitation ² , n (%)	19 (28)	5 (29)	3 (33)	7 (33)	4 (18)	0.68

Participants were recruited in winter between 1 June and 31 August; in spring between 1 September and 30 November; in summer between 1 December and 28 February; and in autumn between 1 March and 31 May. One participant did not have a sufficient number of valid wear days and was excluded from the analysis.

* p<0.05 was considered significant.

¹Defined as desaturation to <90% during a six-minute walk test. Two participants (one recruited in spring and the other in summer) received long-term oxygen therapy and were excluded from the analysis.

²Self-reported attendance to a pulmonary rehabilitation program. Participants who undertook formal exercise training in the last six months were excluded from the study.

Characteristic	Participants					
	All	Winter	Spring	Summer	Autumn	<i>p</i> -value
	(n = 69)	(n = 17)	(n = 9)	(n = 21)	(n = 22)	
Sedentary time						
Waking wear time, min/day	904 (78)	888 (68)	881 (86)	925 (70)	905 (87)	0.40
Sedentary time, min/day	643 (105)	623 (127)	658 (109)	661 (89)	634 (103)	0.67
Sedentary time as % waking wear time, %	71 (11)	70 (13)	75 (9)	72 (8)	70 (12)	0.75
Prolonged sedentary time ¹ , min/day	374 (142)	371 (175)	446 (119)	361 (134)	358 (128)	0.44
Prolonged sedentary time as % waking wear time, %	41 (15)	42 (18)	50 (12)	39 (13)	40 (15)	0.26
Pattern of sedentary time accumulation						
Usual bout duration ² , min	39 (19)	42 (28)	52 (22)	34 (13)	35 (13)	0.08
Longest sedentary bout duration, min	165 (67)	159 (57)	215 (80)	175 (73)	139 (50)	0.03*
Sedentary bouts, n/day	47 (17)	44 (16)	37 (9)	51 (14)	49 (20)	0.15
Prolonged sedentary bouts ³ , n/day	6 (2)	6 (2)	6 (1)	6 (2)	6 (2)	0.81
Sedentary breaks ⁴ , n/day	47 (17)	44 (16)	37 (9)	50 (14)	49 (20)	0.14
Alpha ⁵	1.30 (0.03)	1.31 (0.03)	1.29 (0.03)	1.31 (0.03)	1.31 (0.03)	0.61
Fragmentation Index ⁶ , bouts/hour	4.48 (1.67)	4.45 (1.78)	3.38 (0.72)	4.72 (1.55)	4.73 (1.87)	0.18
Physical activity						
Standing time, min/day	197 (80)	202 (87)	180 (66)	198 (66)	201 (95)	0.93
Stepping time, min/day	64 (33)	63 (32)	42 (24)	66 (30)	71 (36)	0.17
Time spent in purposeful stepping ⁷ , min/day	15 (14)	13 (9)	10 (10)	15 (18)	17 (14)	0.58
Step count, steps/day	4733 (2642)	4658 (2295)	3046 (1800)	4884 (2680)	5337 (2980)	0.18
Time spent in light activities ⁸ , min/day	223 (87)	227 (97)	198 (70)	225 (69)	230 (103)	0.83

Supplementary Table 8 Variations in patterns of sedentary behaviour accumulation and physical activity by season of the year (n=69)

Time spent in light activities excluding standing,	26 (12)	25 (15)	18 (7)	27 (10)	29 (13)	0.13
min/day						
Time spent in MVPA ⁹ , min/day	38 (23)	38 (19)	25 (18)	39 (24)	42 (25)	0.29
Physically active ¹⁰ , n (%)	41 (59)	12 (71)	3 (33)	11 (52)	15 (68)	0.21

Participants were recruited in winter between 1 June and 31 August; in spring between 1 September and 30 November; in summer between 1 December and 28 February; and in autumn between 1 March and 31 May. One participant did not have a sufficient number of valid wear days and was excluded from the analysis.

* p<0.05 was considered significant.

¹ Time spent in SB accumulated in bouts of \geq 30 minutes.

² Duration of the sedentary bout corresponding to 50% of daily accumulated sedentary time. Higher values indicate a tendency to accumulate SB in more prolonged bouts.

³ Frequency of sedentary bouts of \geq 30 minutes per day.

⁴ Frequency of transitions from a seated to upright posture.

⁵ A unitless measure that characterises the frequency distribution of sedentary bout durations. Higher values indicate a tendency to accumulate SB in shorter bouts.

⁶ Number of sedentary bouts divided by time spent in SB. Higher values indicate an increased number of sedentary breaks relative to total sedentary time (i.e., more

fragmented accumulation of SB).

⁷ Time spent continuously stepping in bouts of ≥ 1 min.

⁸ Time spent standing plus time spent stepping at <3 METs.

⁹ Time spent stepping at \geq 3 METs.

¹⁰ Participants were regarded as physically active if they engaged in \geq 30 minutes/day of MVPA.