

Supplementary Text

Supplementary Table I shows the details of the 2 experiments conducted to validate the respiratory rate computations. Experiment A was conducted at Sleep Med in Columbia, SC, from Oct 17, 2019 to Nov 6, 2019. Experiment B was conducted remotely, by shipping equipment to the homes of participants, from March 9, 2020 to May 29, 2020. Participants in Experiment A wore Fitbit devices on both wrists, while participants in Experiment B wore a Fitbit device on one wrist only. We excluded participants with severe sleep apnea (Apnea-Hypopnea Index ≥ 30). The columns are: (i) participant ID, (ii) age, (iii) sex, (iv) experiment (A or B), (v) night of measurement (1,2, or 3), (vi) apnea-hypopnea index, (vii) wrist (left, right, or unknown), (viii) predicted respiratory rate, and (ix) true respiratory rate.

Validation of respiratory rate

ID	Age (yr)	Sex (M/F)	Expt (A/B)	Night (1/2/3)	AHI	Wrist (L/R/-)	Pred. Rate (min^{-1})	True Rate (min^{-1})	ID	Age (yr)	Sex (M/F)	Expt (A/B)	Night (1/2/3)	AHI	Wrist (L/R/-)	Pred. Rate (min^{-1})	True Rate (min^{-1})
1	35-39	F	A	1	9.2	L	16	16.4	13	45-49	F	A	1	1.5	R	14.4	14.9
1	35-39	F	A	1	9.2	R	15.6	16.4	14	35-39	M	A	1	2.7	L	14.4	15.2
2	55-59	F	A	1	17.3	L	15.6	15.9	14	35-39	M	A	1	2.7	R	15	15.2
2	55-59	F	A	1	17.3	R	15.4	15.9	15	45-49	M	B	1	13	-	13.8	13.8
3	50-54	F	A	1	1.6	L	12.4	12.4	15	45-49	M	B	2	13.2	-	14.2	14.6
3	50-54	F	A	1	1.6	R	12.4	12.4	16	50-54	M	B	2	4.2	-	18.2	18.1
4	65-69	F	A	1	5.3	L	13	13.5	17	30-34	F	B	1	25	-	17.8	16.1
4	65-69	F	A	1	5.3	R	12.8	13.5	17	30-34	F	B	2	12.1	-	16.8	16.6
5	55-59	F	A	1	10	L	13.8	14.2	17	30-34	F	B	3	14.6	-	17	17.1
5	55-59	F	A	1	10	R	14	14.2	18	35-39	M	B	1	4.8	-	13.2	13.6
6	55-59	M	A	1	26	L	13.4	13.1	18	35-39	M	B	2	5.6	-	13.4	13.7
6	55-59	M	A	1	26	R	12.8	13.1	19	50-54	M	B	1	7.6	-	17.4	17.5
7	55-59	F	A	1	7.5	L	20.2	20.2	19	50-54	M	B	2	9.8	-	17.4	17.3
7	55-59	F	A	2	26.3	L	17.4	17.6	20	70-74	F	B	1	18.5	-	15.4	15.2
7	55-59	F	A	2	26.3	R	16.6	17.6	21	45-49	M	B	1	20.1	-	16.4	16.9
8	50-54	M	A	1	0.6	L	13	13.6	21	45-49	M	B	2	17.2	-	16.8	16.9
8	50-54	M	A	1	0.6	R	13	13.6	22	50-54	M	B	2	14.4	-	16.2	16.5
9	50-54	F	A	1	16.9	L	17.4	17.8	23	50-54	F	B	1	4.6	-	12.4	13.3
9	50-54	F	A	1	16.9	R	17.4	17.8	23	50-54	F	B	2	5.8	-	12.8	13.3
10	45-49	M	A	1	27.1	L	14.2	14.1	24	35-39	F	B	1	14.2	-	17.8	17.4
10	45-49	M	A	1	27.1	R	14	14.1	24	35-39	F	B	2	12.4	-	18.2	17.7
11	40-44	F	A	1	2.6	L	15.8	16.1	25	40-44	M	B	1	13.8	-	18.2	16.5
11	40-44	F	A	1	2.6	R	16	16.1	26	50-54	F	B	1	12.5	-	15	15
12	40-44	F	A	1	5	L	13.8	15.3	26	50-54	F	B	2	12.6	-	15.6	15.3
12	40-44	F	A	1	5	R	13.8	15.3	27	45-49	M	B	2	19.3	-	12.6	12.8
13	45-49	F	A	1	1.5	L	14.6	14.9	28	65-69	M	B	1	6.3	-	13.8	15.7

Supplementary Table I: Details of experiments A and B. The columns are: participant ID, age, sex, experiment number (A or B), night of observation (1,2, or 3), apnea hypopnea index, wrist (left, right, or unknown), predicted respiratory rate, and true respiratory rate.