Table 1. General characteristics.

	DS (n=28)	Control (n=28)	p value
Sex: Male/Female	19/9	19/9	
Age (months)	58.5 [23.8;94]	51 [32.5;74.5]	0.97
Weight (Z-score)	-1 [-1.5;0]	1 [-0.5;2]	**0.0003**
Height (Z-score)	-1.5 [-0.9;2]	1 [0;2]	**< 0.0001**
BMI (Z-score)	1 [-1;2]	0 [-1;2]	0.73
Cardiopathy (n, %)	13 (46)		
Ventricular septal defect (n)	3		
Atrial septal defect (n)	3		
Ventricular atrial communication (n)	5		

Data are presented as median [IQR]. DS: Down syndrome; BMI: body mass index.

Table 2. Sleep study and gas exchange during the night.

	DS	Control	p value
OAHI	5 [3;10.2]	4.8 [2.3;11.5]	0.17
Mean SpO_2 (%)	96 [94.5;97]	96.5 [96;97]	**0.002**
Minimum SpO_2 (%)	91 [86.5;92.5]	90 [86.8;91.3]	0.60
Desaturation index	4.7 [2.1;9.4]	2.5 [0.6;4.6]	**0.03**
% TST with a SpO_2 < 90%	0 (0;71)	0 (0;4)	0.09
Mean $PtcO_2$	77 [72;80.5]	82 [80;84.8]	**0.003**
Minimum $PtcO_2$	66.5 [62;69.3]	75 [70.5;78.5]	**0.007**
Maximum $PtcO_2$	84 [78;90.3]	89 [85.3;93]	**0.02**
Mean $PtcCO_2$	44 [43;46.5]	42 [41;44]	**0.001**
Minimum $PtcCO_2$	41 [39;44]	40 [37;41]	**0.02**
Maximum $PtcCO_2$	48 [46;50]	46 [44;47]	**0.006**
% of TST with a $PtcCO_2$ > 50 mmHg	0 (0;65)	0 (0;28)	**0.02**
Subjects with hypoventilation (n, %)	5 (21%)	1 (4%)	

Data are presented as median [IQR] or (range). DS: Down syndrome; OAHI: obstructive apnea hypopnea index; SpO_2: pulse oximetry; TST: total sleep time; $PtcO_2$: transcutaneous partial pressure of oxygen (data available for 24 DS and 28 matching control); $PtcCO_2$: transcutaneous partial pressure of carbon dioxide (data available for 27 DS and 28 matching control).

Table 3. Detailed information on the subjects with nocturnal hypoventilation

	Age (years)	BMI (kg/m^2)	AHI	mean $PtcCO_2$ (mmHg)	% TST with $PtcCO_2$ > 50 mmHg	Cardiopathy (Yes/No)	Comorbidities	Treatment
DS (n=5)								
1	5.9	15.7	9	47	25	N		Methylphenidate
2	2.2	16.8	28	50	58	Y	Hypothyroidism asthma	L-Thyroxin
3	13	23	3.6	50	65	N	Turbinate hypertrophy	
4	3.4	16.8	3.4	49	59	N	Tonsillar hypertrophy Hypothyroidism	L-Thyroxin
5	8.1	20	26.6	49	45	N	Hirschprung disease tonsillar hypertrophy	
Control (n=1)								
	8.4	13.9	32	48	28	N	Adeno-tonsillar hypertrophy	

BMI: Body mass index; $PtcCO_2$: transcutaneous partial pressure of carbon dioxide; TST: total sleep time. Patient number two initially presented with a ventricular atrial communication surgically treated, with normal echocardiography and no pulmonary hypertension.

Table 4. Awake daytime gas exchange.

	DS (n=19)	control (n=15)	p value
SpO_2 (%, n=27)	98 [97;98]	98 [98;99]	0.17
Mean $PtcO_2$	85 [80.5;91.5]	89 [83.5;93]	0.15
Minimum $PtcO_2$	83 [77;89.5]	88 [82;91.5]	0.11
Maximum $PtcO_2$	89 [84.5;93.5]	90 [85.5;94]	0.37
Mean $PtcCO_2$	39 [35.8;40]	35 [32;37]	**0.0006**
Minimum $PtcCO_2$	37 [35;39.3]	34 [31;36]	**0.0002**
Maximum $PtcCO_2$	40 [36;40.3]	35 [32.5;38]	**< 0.0001**

Data are presented as median [IQR]. DS: Down syndrome; SpO_2: pulse oximetry; $PtcO_2$: transcutaneous partial pressure of oxygen; $PtcCO_2$: transcutaneous partial pressure of carbon dioxide.