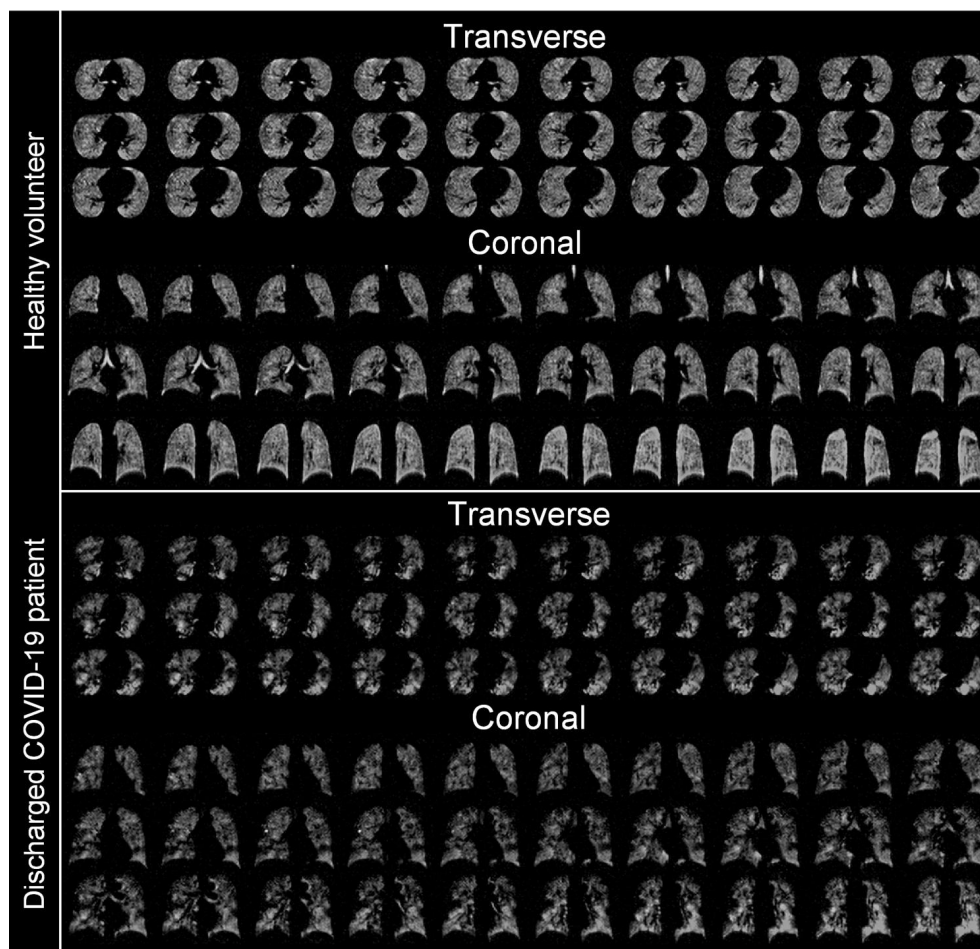
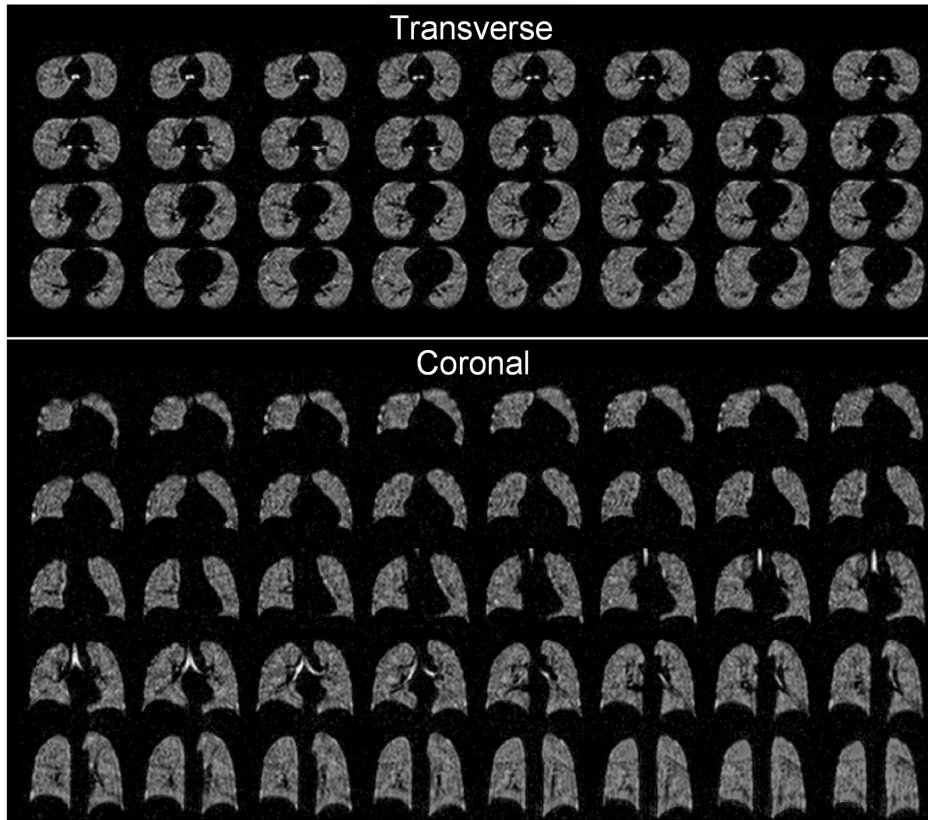


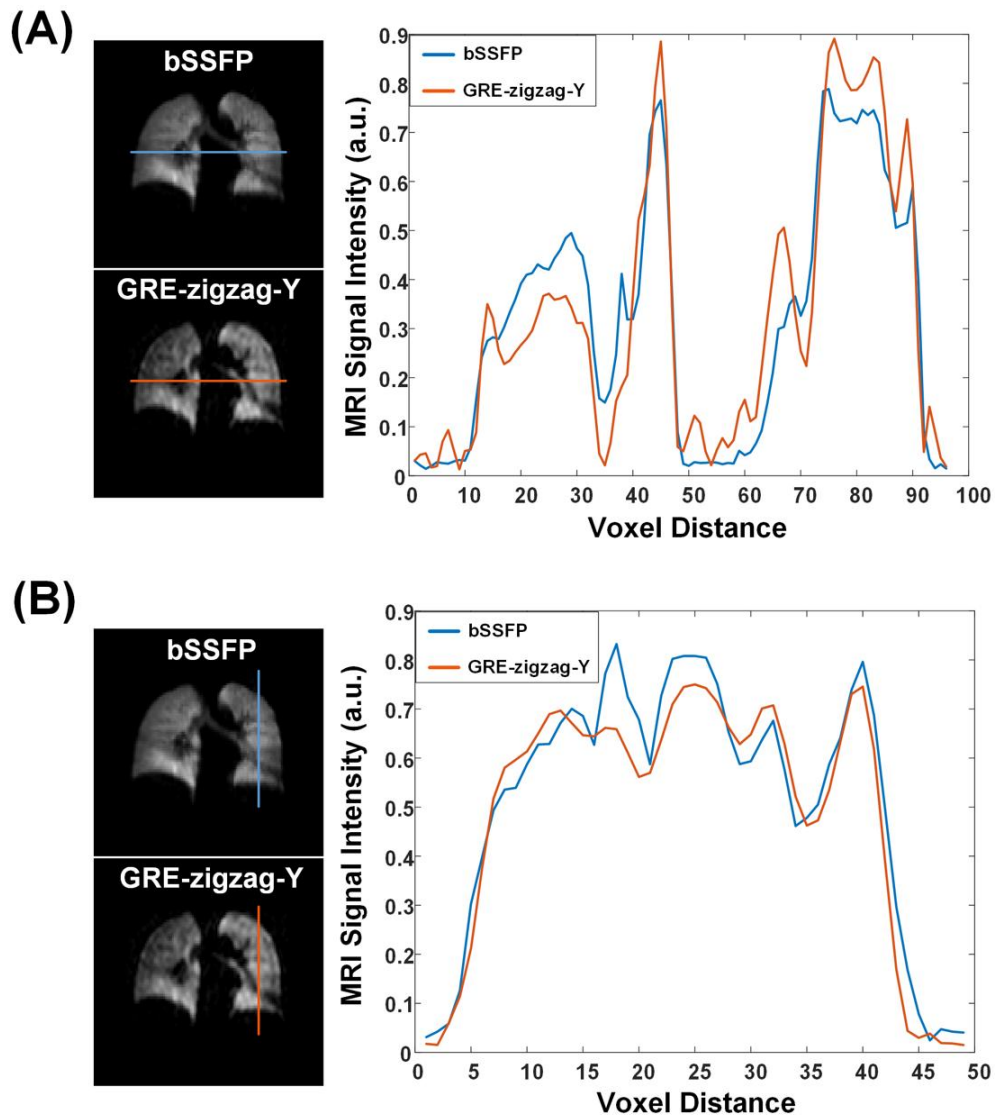
## Supplementary Material



**Figure S1.** Typical high-spatial-resolution ventilation images acquired from a healthy volunteer and a discharged patient with COVID-19. The isotropic images were acquired from a healthy volunteer (29 y/o male) and a discharged COVID-19 patient (68 y/o female) within 5.5 seconds, and the spatial resolution is  $2.5 \times 2.5 \times 2.5 \text{ mm}^3$ . The measured SNRn were  $2.28 \text{ ml}^{-2}$  and  $1.57 \text{ ml}^{-2}$  and the measured VDP were 0.73% and 7.12%, for the healthy volunteer and the discharged COVID-19 patient, respectively.



**Figure S2.** Typical ventilation images acquired from a healthy volunteer with an isotropic spatial resolution of  $3 \times 3 \times 3 \text{ mm}^3$  and acquisition time of 3.5 seconds. Sequence acquisition: TR = 2.9 ms, TE = 1.4 ms, matrix =  $160 \times 160 \times 120$ , effective excitations = 1200, resolution =  $3 \times 3 \times 3 \text{ mm}^3$ , flip angle =  $\sim 3^\circ$ , dwell time =  $5 \mu\text{s}$ , and the scan time = 3.5 s.



**Figure S3.** The transverse (A) and longitudinal (B) cross-sectional line profiles of ventilation images using bSSFP and GRE-zigzag-Y sequences.

**Table S1.** Demographics, pulmonary function tests (PFTs), and ventilation analysis results for healthy volunteers and discharged patients with COVID-19.

<b>Parameters</b>	<b>Healthy Volunteers (n=8)</b>	<b>Discharged COVID-19 Patients (n=9)</b>	<b><i>p</i> -Value</b>
Age (years)	30.6 ± 2.5	63.2 ± 7.1	-
Sex (M/F)	8/0	3/6	-
FEV1/FVC (%)	80.51 ± 2.18	78.34 ± 3.08	0.118 <sup>a</sup>
<b>bSSFP</b>			
SNRn (ml <sup>-2</sup> )	3.02±1.01	3.07±0.97	0.484 <sup>b</sup>
VDP (%)	1.27 ± 0.58	6.93 ± 2.72	< 0.0001 <sup>a</sup>
<b>GRE-zigzag-YZ</b>			
SNRn (ml <sup>-2</sup> )	3.21±0.86	3.05±2.92	0.515 <sup>b</sup>
VDP (%)	1.24 ± 0.55	7.06 ± 2.85	< 0.0001 <sup>a</sup>

a: independent samples t-test. b: Wilcoxon rank-sum test