Electronic Supplementary Material (ESI) for RSC Advances.

Electronic Supplementary Information

Highly Precise Nanofiber Web-based Dry Electrodes for Vital Signal Monitoring

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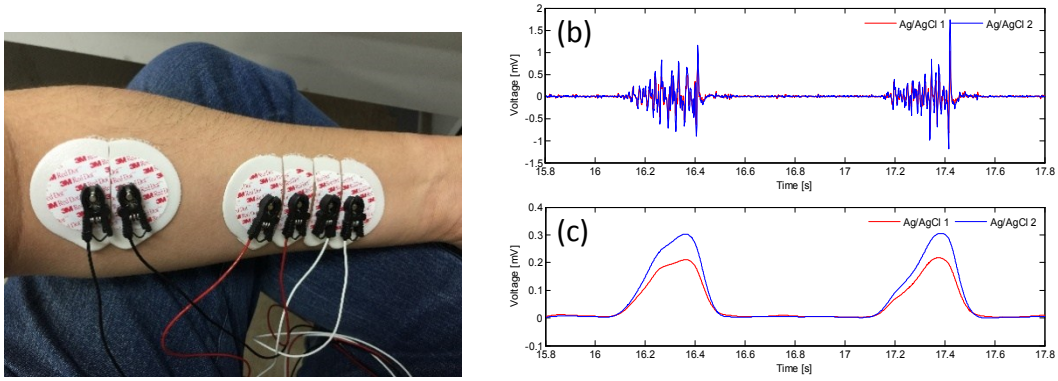
(a) (b)

Fig. S1 (a) Silver plating equipment and (b) silver plating box; silver containing TPU nanofiber web (yellow web) is clipped inside the box. The silver plating box is made of a highly hydrophobic material, e.g., polyethylene.



(a)

Fig. S2 (a) Electrode setup for EMG measurements. (b) A comparison of EMG raw data recorded using two identical Ag/AgCl gel electrodes sets, the correlation value is 0.93. (c) A comparison of the linear envelope of EMG signals where the correlation

value is 0.99.

1. Calculation of the surface-to-volume value of the metal coated fiber

Given that there is a radius of "r" and a length of "h" of the metal coated fiber as shown in **Fig. 3S**, the surface area, *S*, is $2\pi r * h$, and the volume, V, is $\pi r^2 * h$.

Therefore the surface-to-volume value is $\frac{2\pi r * h}{\pi r^2 * h} = \frac{2}{r}$.

This means that smaller fiber diameters have higher surface-to-volume value.

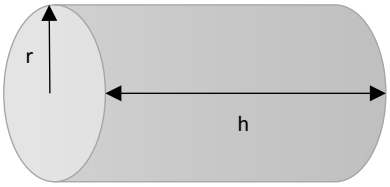


Fig. S3 A metal coated fiber with a radius of "*r*" and a length of "*h*".

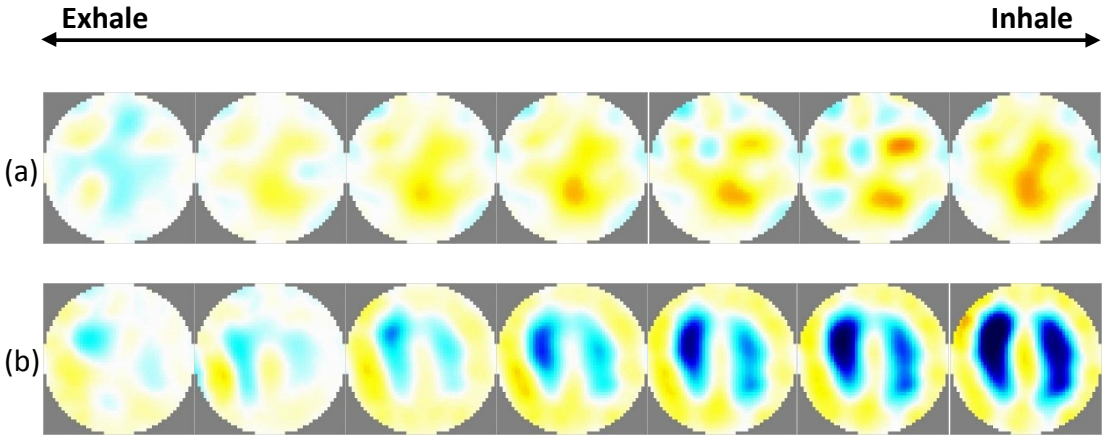


Fig. S4 Series of time-difference pulmonary images representing air filling during inspiration recorded at a frequency of 10 kHz by (a) TPU-AgNFw dry electrodes, (b) Ag/AgCl gel electrodes.

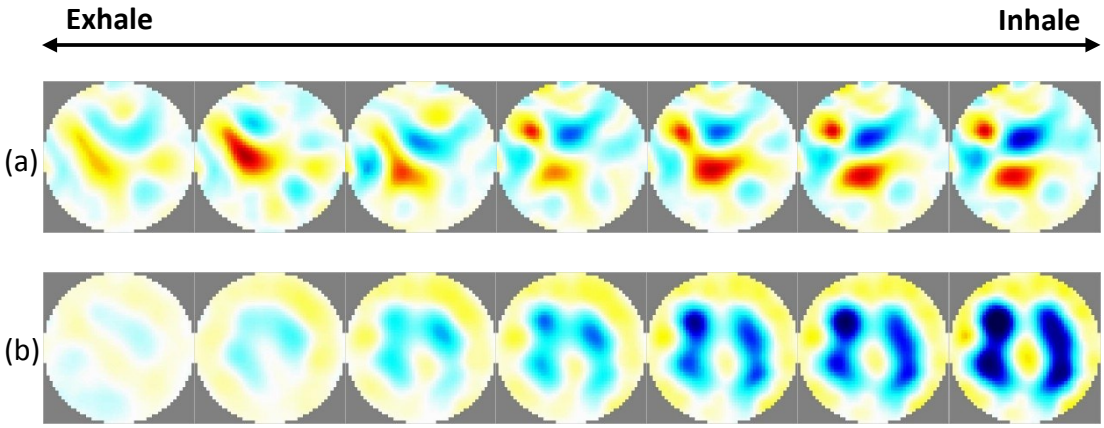


Fig. S5 Series of time-difference pulmonary images representing air filling during inspiration recorded at a frequency of 50 kHz by (a) TPU-AgNFw dry electrodes, (b) Ag/AgCl gel electrodes.