**Electronic Supplementary Information**

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


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**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.

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**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 $2\pi r \times h$, and the volume, $V$, is $\pi r^2 \times h$.

\[
\frac{2\pi r \times h}{\pi r^2 \times h} = \frac{2}{r}.
\]

Therefore the surface-to-volume value is $\frac{2}{r}$.

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.