Support information

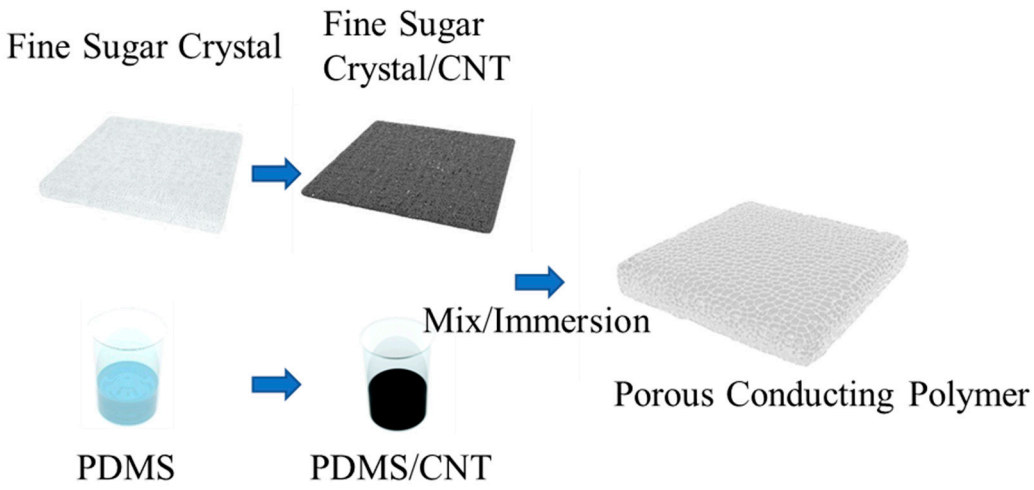


Figure S1. Sensor preparation process.

Figure S2. Arm skin temperature was 30.6℃ before the material was placed, 30.7℃ after the porous structure strain sensor was placed for 3 hours, 31.0℃ after the PDMS was placed for 3 hours, and 30.8℃ after the Band-aid was placed for 3 hours.

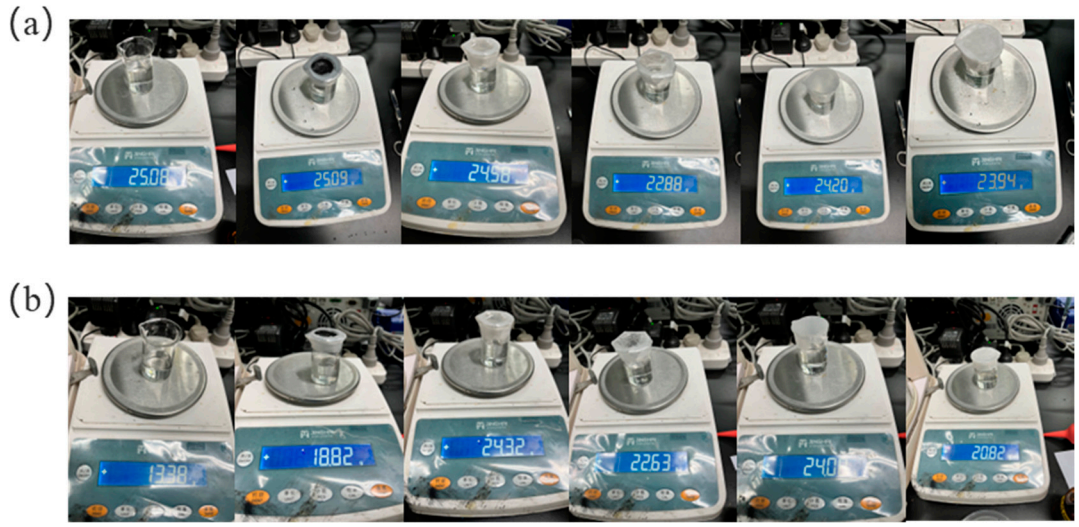


Figure S3. The air permeability test used six sets of materials sealed with water beakers placed at room temperature to record water evaporation from (a) day 0 to (b) day 15.

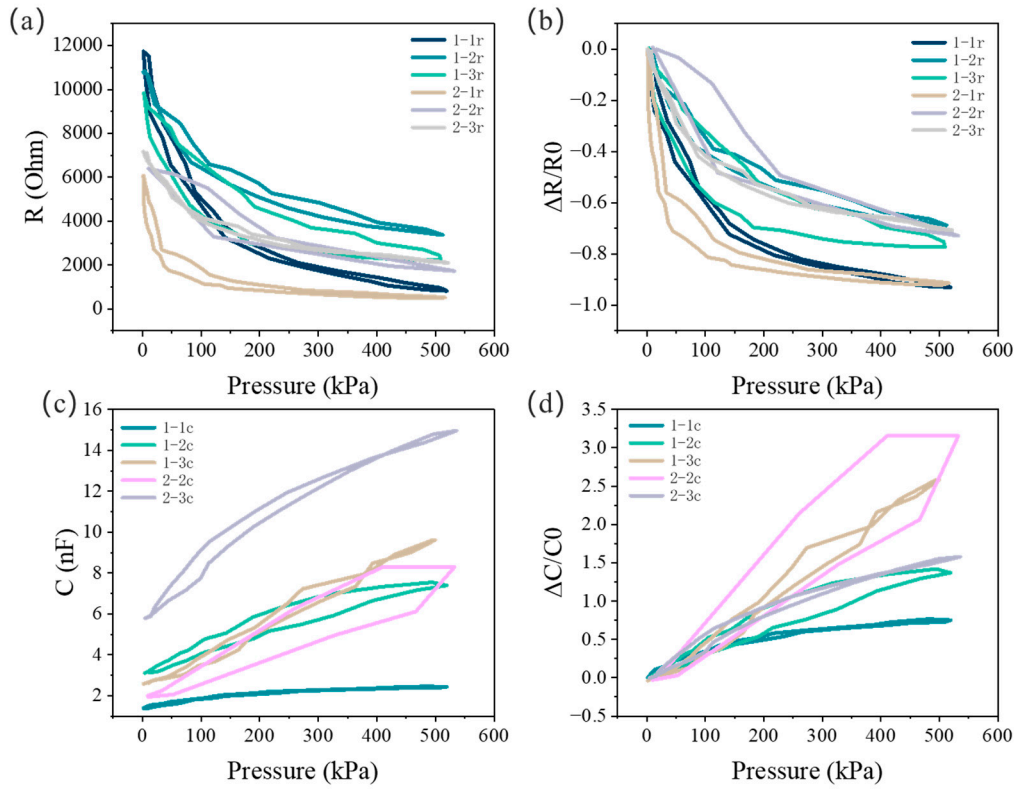


Figure S4. The (a) resistance, (b) resistance sensitivity, (c) capacitance and (d) capacitance sensitivity of the sensor under pressure cycling were tested when the mass ratio of MWCNTs in the PDMS matrix was different from that on the surface of the porous structure.

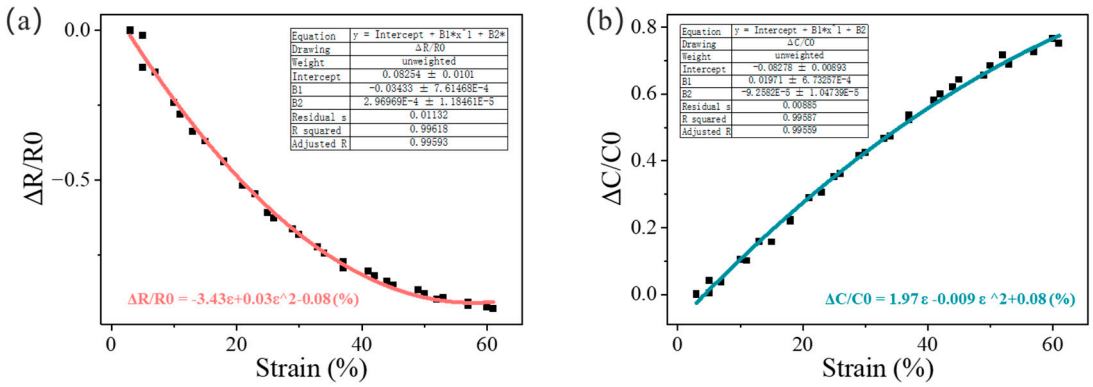


Figure S5. Equation fitting of (a) ΔR/R0 and (b) ΔC/C0 properties of sensors

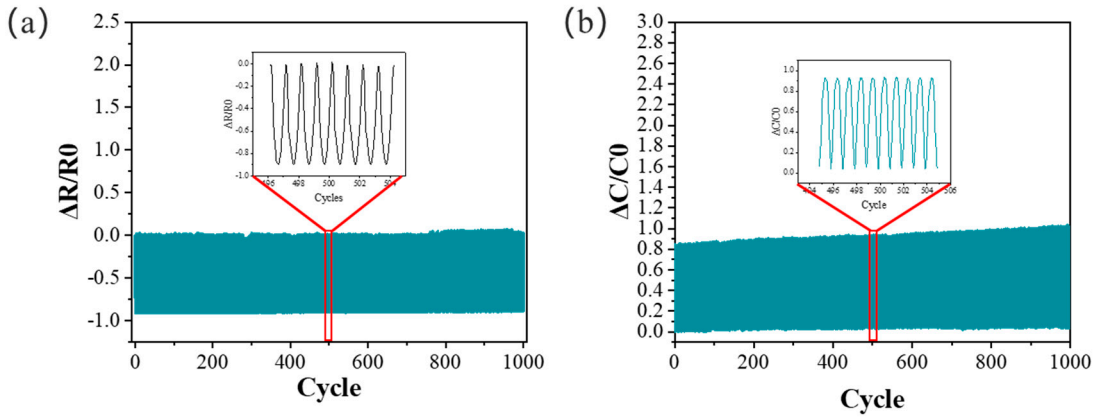
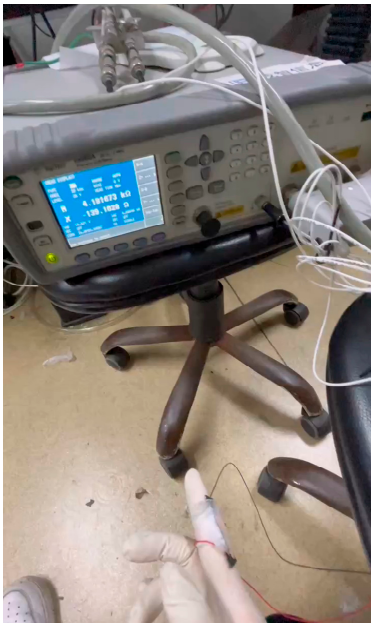


Figure S6. The response curve of sensor (a) resistance and (b) capacitance under 1000 compression cycles and its local magnification diagram.

Table S1. Summary of the performance of the porous stress sensors.

Materials	Sensing mechanism	Detection range	Sensitivity	Cycles	Reference
CNTs/TPU	Piezoresistive	0.7 Pa-160 kPa	1.02 kPa^{-1}	6000	[55]
CNT/TPU	Piezoresistive	0-200 kPa	0.032 kPa^{-1}	-	[56]
MWCNTs-rGO@PU	Piezoresistive	0-50 kPa	0.088 kPa^{-1}	5000	[57]
hierarchically porous PDMS	Capacitive	0-400 kPa	0.18 kPa^{-1}	10000	[58]
PDMS@CNCs	Piezoresistive	0-450 kPa	0.0082 kPa^{-1}	2000	[59]
ZnO/PDMS	Capacitive	0-50 kPa	0.717 kPa^{-1}	4000	[60]
CB/PDMS	Piezoresistive	0-500 kPa	0.0048 kPa^{-1}	500	[61]
PDMS/CNT	Piezoresistive	6 Pa-50 kPa	0.9 kPa^{-1}	255	[62]

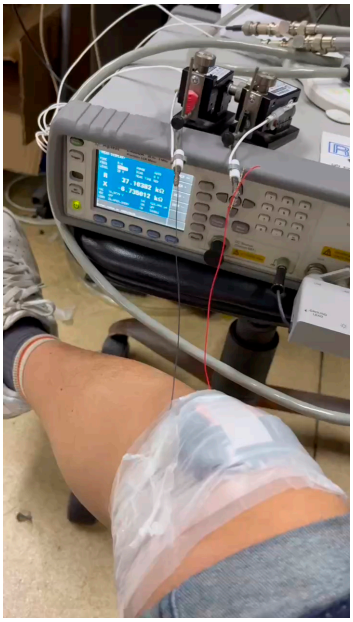
PDMS/MWCNTs/NaCl	Piezoresistive	1 Pa-100 kPa	10.805 kPa^{-1}	1000	[63]
CNT-PDMS	Piezoresistive Capacitive	1 kPa-520 kPa	1.2 kPa^{-1} 0.38 kPa^{-1}	1000	Our work



Movie S1. Finger motion detection

Movie S2. Speech detection

Movie S3. Arm motion detection



Movie S4. Leg motion detection

Movie S5. Foot motion detection

Reference

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