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Supplementary information

The Flexible Pressure Sensor based on MXene-Textile Network Structure

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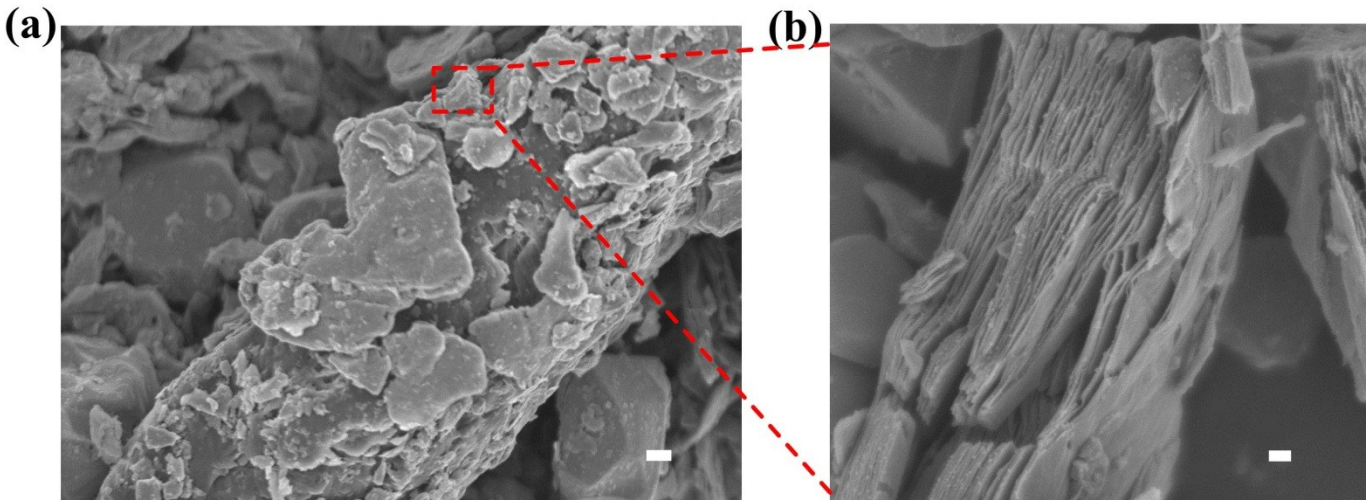

Fig. S1. The MXene uniformly adhered to each individual cotton textile fiber. (scale bar, 1 μm). (b) Mxene (scale bar, 200 nm).

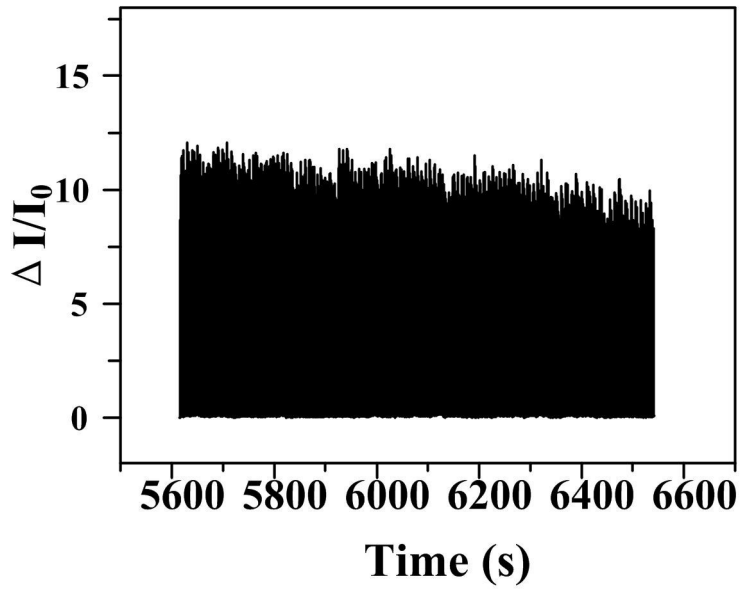

Fig. S2. The ΔI/I0 profiles after repeating 6,500 cycles shows a degradation by 20%

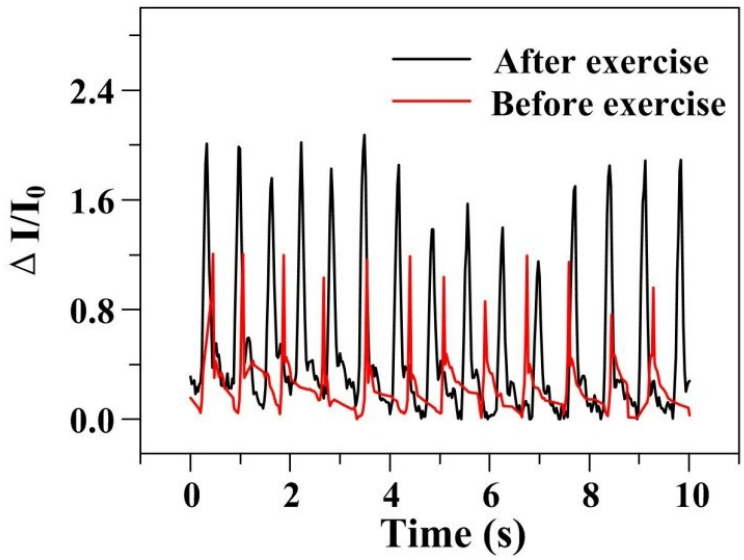

Fig. S3. Real-time monitoring of current changes upon wrist pulses before and after exercise, showing that the tester's pulse rate was 72 times/min and 90 times/min, respectively.

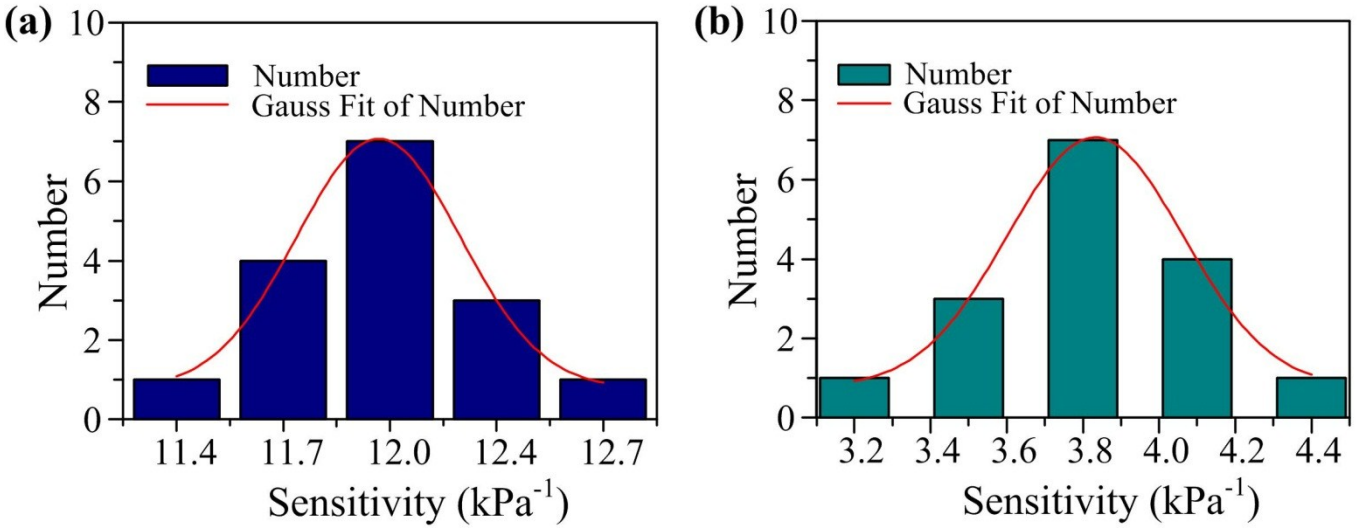

Fig. S4. The statistical sensitivity graph of our pressure sensor. (a) in the pressure region under 29 kPa, (b) in the pressure region of 29–40 kPa.

Table S1 Performance summary of representative flexible pressure sensors

Materials/Structures	**Device type**	**Sensitivity**	**Response time**	**References**
Gaussian random distribution contact surface profile	Piezoresistive	0 - 14 kPa, 13.8 kPa^{-1}	23 ms	1
CNT-cotton textile	Piezoresistive	<3.5kPa, 14.4 kPa^{-1} 3.5 – 15 kPa, 7.8 kPa^{-1}	≈24 ms	2
archical Gr/PDMS	Piezoresistive	0 - 12 kPa, 8.5 kPa^{-1}	≈40 ms	3
Replication from banana leaf	Piezoresistive	<400 Pa, 10 kPa^{-1} 400 – 1000 Pa, 4.3 kPa^{-1}	response time 36 ms relaxation time 30 ms	4
SWNT/tissue paper	Piezoresistive	35–2500 Pa, 2.2 kPa^{-1} 2500 –11 700 Pa, 1.3 kPa^{-1}	35 ms	5
Graphene-silk network structure	Piezoresistive	<140kPa, 0.4 kPa^{-1}	-	6
MXene-Textile Network	**Piezoresistive**	**<29 kPa, 3.844 kPa^{-1}** **29–40 kPa, 12.095 kPa^{-1}**	**response time ≈26 ms** **recovery times ≈50 ms**	This work

References

1. Y. Shu, H. Tian, Y. Yang, C. Li, Y. Cui, W. Mi, Y. Li, Z. Wang, N. Deng and B. Peng, *Nanoscale*, 2015, **7**, 8636.
2. M. Liu, X. Pu, C. Jiang, T. Liu, X. Huang, L. Chen, C. Du, J. Sun, W. Hu and Z. L. Wang, *Adv Mater*, 2017, **29**, 1703700.
3. G. Y. Bae, S. W. Pak, D. Kim, G. Lee, D. H. Kim, Y. Chung and K. Cho, *Adv Mater*, 2016, **28**, 5300.
4. N. Pu, R. Wang, X. Xu, C. Yin, W. Xiao, L. Shi and S. Jing, *Acs Appl Mater Interfaces*, 2017, **9**, 14911-14919.
5. Z. Zhan, R. Lin, V. T. Tran, J. An, Y. Wei, H. Du, T. Tran and W. Lu, *Acs Appl Mater Interfaces*, 2017, **9**, 37921-37928.
6. Y. Liu, L. Q. Tao, D. Y. Wang, T. Y. Zhang, Y. Yang and T. L. Ren, *Appl Phys Lett*, 2017, **110**, 123508.