


CORRECTION

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Correction: Stretchable and durable HD-sEMG electrodes for accurate recognition of swallowing activities on complex epidermal surfaces

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After the publication of this article¹, it was brought to our attention that two references need to be added in the article, the necessary changes are as follows:

Correction 1:

The below description of “In order to collect sEMG signals from the suprahyoid and infrahyoid muscles, Makoto et al. used a flexible PCB (printed circuit board) multichannel sEMG array. Based on temporal and spatial data, they examined the muscular synergism during swallowing motions and presented a machine learning method to categorize swallowing patterns^{24,25}.” will be added between the sentences of “Moreover, it enables accurate, comprehensive, and objective evaluation of the synergistic effects of different muscles during muscle activity.” and “Kim et al. presented a reusable, multichannel sEMG sensor array that covered multiple muscles over relatively large areas.” on page 2.

Correction 2:

- A published work by “Suzuki, M. et al. Swallowing pattern classification method using multichannel surface EMG signals of suprahyoid and infrahyoid muscles. *Adv. Biomed. Eng.* **9**, 10–20 (2020).” was included as the new citation No. 24.
- The original reference No. 42 of “Murakami, C., Sasaki, M., Shimoda, S. & Tamada, Y. Quantification of the swallowing mechanism through muscle synergy analysis. *Dysphagia* **38**, 1–17 (2022).” became the updated reference No. 25.

- Overall, the citations from No. 24 to No. 46 were updated as follows:

24. Suzuki, M. et al. Swallowing pattern classification method using multichannel surface EMG signals of suprahyoid and infrahyoid muscles. *Adv. Biomed. Eng.* **9**, 10–20 (2020).
25. Murakami, C., Sasaki, M., Shimoda, S. & Tamada, Y. Quantification of the swallowing mechanism through muscle synergy analysis. *Dysphagia* **38**, 1–17 (2022).
26. Yang, G. et al. Adhesive and hydrophobic bilayer hydrogel enabled on-skin biosensors for high-fidelity classification of human emotion. *Adv. Funct. Mater.* **32**, 2200457 (2022).
27. Han, Q. et al. Hydrogel nanoarchitectonics of a flexible and self-adhesive electrode for long-term wireless electroencephalogram recording and high-accuracy sustained attention evaluation. *Adv. Mater.* **35**, 2209606 (2023).
28. Pan, L. et al. A compliant ionic adhesive electrode with ultralow bioelectronic impedance. *Adv. Mater.* **32**, e2003723 (2020).
29. Roy, C. K. et al. Self-adjustable adhesion of polyampholyte hydrogels. *Adv. Mater.* **27**, 7344–7348 (2015).
30. Yuk, H. et al. 3D printing of conducting polymers. *Nat. Commun.* **11**, 1604 (2020).
31. Han, L. et al. Mussel-inspired adhesive and conductive hydrogel with long-lasting moisture and extreme temperature tolerance. *Adv. Funct. Mater.* **28**, 1704195 (2018).
32. Tang, H. et al. In situ forming epidermal bioelectronics for daily monitoring and comprehensive exercise. *ACS Nano* **16**, 17931–17947 (2022).
33. Cheng, S. et al. Ultrathin hydrogel films toward breathable skin-integrated electronics. *Adv. Mater.* **35**, e2206793 (2023).

34. Hsieh, J. C. et al. A highly stable electrode with low electrode-skin impedance for wearable brain-computer interface. *Biosens. Bioelectron.* **218**, 114756 (2022).
35. Zavanelli, N. & Yeo, W. H. Advances in screen printing of conductive nanomaterials for stretchable electronics. *ACS Omega* **6**, 9344–9351 (2021).
36. Jain, V., Ochoa, M., Jiang, H., Rahimi, R. & Ziaie, B. A mass-customizable dermal patch with discrete colorimetric indicators for personalized sweat rate quantification. *Microsyst. Nanoeng.* **5**, 29 (2019).
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38. Wu, L., Li, L., Qu, M., Wang, H. & Bin, Y. Mussel-inspired self-adhesive, antidrying, and antifreezing poly(acrylic acid)/bentonite/polydopamine hybrid glycerol-hydrogel and the sensing application. *ACS Appl. Polym. Mater.* **2**, 3094–3106 (2020).
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40. Heikenfeld, J. et al. Wearable sensors: modalities, challenges, and prospects. *Lab Chip* **18**, 217–248 (2018).
41. He, S., Cheng, Q., Liu, Y., Rong, Q. & Liu, M. Intrinsically anti-freezing and anti-dehydration hydrogel for multifunctional wearable sensors. *Sci. China Mater.* **65**, 1980–1986 (2022).
42. Edition, A. C. I. et al. Polyzwitterionic hydrogels for efficient atmospheric water harvesting. *Angew. Chem. Int. Ed.* **61**, e202200271 (2022).
43. Lee, Y. et al. Soft electronics enabled ergonomic human-computer interaction for swallowing training. *Sci. Rep.* **7**, 46697 (2017).
44. Farina, D., Merletti, R., Indino, B., Nazzaro, M. & Pozzo, M. Surface EMG crosstalk between knee extensor muscles: experimental and model results. *Muscle Nerve* **26**, 681–695 (2002).
45. Srinivasu, P. N. et al. Classification of skin disease using deep learning neural networks with MobileNet V2 and LSTM. *Sensors* **21**, 2852 (2021).
46. Zhu, M. et al. Evaluation of normal swallowing functions by using dynamic high-density surface electromyography maps. *Biomed. Eng. Online* **16**, 133 (2017).

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Reference

1. Zhang, D. et al. *Microsyst. Nanoeng.* **9**, 115 <https://doi.org/10.1038/s41378-023-00591-3> (2023).