

Supplementary Information

Continuous biosignal acquisition beyond the limit of epidermal turnover

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Interface Interruption	Strap-based Wearables	Adhesive-based Wearables
Motion Artifacts	Moderate–high due to relative skin strap movement, especially during activity.	Lower due to conformal contact but increases as adhesive degrades.
Interface Frustration	Slippage, or misalignment; frequent adjustment.	Skin irritation, adhesive failure through epidermal turnover and sweat. Pain during removal especially with hair.
Epidermal Turnover	Minimal impact	Affected by skin renewal; limits signal quality and wear duration.
Battery Recharge	Removal, contact charging or wireless recharge, size limitations for wireless energy transfer solutions .	Typically, larger surface area for energy transfer, limitations in removal for contact or near field charging solutions.

Table S1: Comparison of common limitations in strap-based versus adhesive-based wearable systems.