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# Fall of skin impedance and bone and joint pain

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**Abstract**

Pain is a complex neurophysiological and psychological process associated with various electrodermal phenomena, including Galvanic skin response, a fall of resistance to Galvanic current. Because skin impedance, an alternative current counterpart of direct current resistance, is readily measured and is probably more sensitive and stable in reflecting the state of the skin, the relationship between changes in pain and skin impedance was evaluated in the present study. Baseline skin impedance was stable and reproducible within a short time of less than 1 h and on consecutive days with a coefficient of variation of 1%-4%, but it may vary more widely over a longer period of 1 year. Baseline skin impedance gradually rose with advancing age, and females tended to show higher values than males. A highly significant correlation was noted between the percentage fall in skin impedance in response to strain on the joint, such as standing, bending, squatting, walking on a flat floor, and ascending and descending stairs, and pain scores obtained by a visual rating scale according to the Spearman's rank correlation coefficient test. Measurement of the fall in skin impedance may be a useful index of pain-associated somatic changes for a better understanding of the overall manifestations of pain as a step toward to an objective evaluation of pain.

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