

## Rancang bangun alat ukur tingkat nyeri akut berbasis respon kulit galvanik = Design of pain level measuring instrument based on galvanic skin response

Farrel Mahardhika Fajar, author

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### Abstrak

Manusia selalu dipaparkan dengan rangsangan eksternal, baik fisik (langsung) maupun emosional (tidak langsung). Sekresi keringat yang terjadi pada sistem syaraf manusia dapat terjadi sebagai sistem respon. Keberadaan keringat mengubah konduktivitas kulit. Pada skripsi ini sebuah alat dibuat untuk aktivitas konduktivitas kulit ketika rangsangan fisik dan emosional diberikan. Rangsangan fisik merupakan pukulan sedang ke dada, dan ransangan emosional berupa penontonan video kejutan. Pengukuran diberikan waktu diam selama 10 detik agar tubuh beristirahat sebelum menerima rangsangan fisik, dan setelah sepuluh detik selanjutnya, rangsangan emosional diberikan. Jangka waktu percobaan selama 45 detik. Analisis dilakukan untuk membandingkan perubahan konduktivitas pada kulit kering dan kulit basah. Hasil pengukuran memberikan perubahan pada konduktivitas kulit kering lebih terlihat dibandingkan perubahan pada kulit yang berkeringat. Percobaan ini juga menunjukkan adanya jeda waktu 3,05 sampai 5 detik antara rangsangan fisik dan responnya, tetapi pada rangsangan emosional jeda waktu ini tidak ada.

.....Humans are continually exposed to external impulses, both physical (direct) and emotional (indirect). Sweat can be secreted by the nervous system as a response system. The presence of sweat changes skin conductivity. For this study a device was developed to measure skin conductivity and its activity when physical and emotional impulses were introduced. The physical impulse was a mild punch to the arm, and the emotional impulse was prompted by watching a video that contained an element of surprise. Measurement was delayed by 10 seconds to let the body rest before receiving the physical impulse, and after another 10 seconds, the emotional impulse was introduced. Total time taken for the measurement was 45 seconds. An analysis was conducted to compare the change in dry skin conductivity with the change in conductivity in skin that was already sweating. Measurement results revealed that changes in dry skin conductivity are more pronounced than changes in sweating skin conductivity. The study also demonstrated that a delay of 3.05 to 5 seconds exists between physical impulse and response, but no delay is present between emotional impulse and response.