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Normal Reference Values of Graphesthesia among Healthy Young Adults

Jagriti Mishra, BPT Student, Department of Physiotherapy, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.
Roushan Kumar Singh, BPT Student, Department of Physiotherapy, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.
Mandeep Kumar Jangra, Assistant Professor, Department of Physiotherapy, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.
Akanksha Saxena, Assistant Professor, Department of Physiotherapy, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.

NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:

Akanksha Saxena,

Assistant Professor, Department of Physiotherapy, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.

E-mail: akankshasaxena623@mmumullana.org

Introduction: Graphesthesia, the ability to recognise letters or numbers written on the skin through tactile sensation, is a critical somatosensory skill used in neurological assessments. Despite its clinical relevance, limited data exists on normative reference values for graphesthesia among healthy young adults. Establishing these reference values is essential for distinguishing normal sensory processing from pathological conditions and aiding in the early detection of neurological impairments.

Aim: The aim of this study was to determine the normative reference values for graphesthesia among healthy young adults aged 15–24 years.

Materials and Methods: This cross-sectional observational study recruited 50 participants from local colleges and universities who had no history of neurological or dermatological disorders. After obtaining due informed consent, graphesthesia was checked by utilising standardised shape and numbers on the participants' palms using a blunt stylus, in a direction towards the patient and towards the therapist. Response time, and lateral dominance (hand preference) were recorded.

Results: Normal reference values for graphesthesia were determined in healthy young adults with an average age of 20.88±1.35 years and an average body mass index of 20.72±2.79. When stimuli were drawn towards the patient, the average graphesthesia scores (in seconds) for shapes and numbers were 1.91±0.47 and 1.67±0.38 on the palm, 1.91±0.36 and 1.72±0.45 on the palmar aspect of the forearm, and 1.84±0.43 and 1.76±0.43 on the dorsal aspect of the forearm. In contrast, when stimuli were drawn towards the therapist, the scores for shapes and numbers were 1.66±0.40 and 1.68±0.43 on the palm, 1.70±0.38 and 1.73±0.38 on the palmar aspect of the forearm, and 1.66±0.37 and 1.63±0.37 on the dorsal aspect of the forearm.

Conclusion: This study successfully establishes normative reference values for graphesthesia in healthy young adults. Future studies may build upon these findings to explore graphesthesia in diverse populations with large sample size.

Keywords: Hand dominance, Neurological evaluation, Normative reference values, Somatosensory assessment, Tactile sensation.