

Lederman, S.J. & Klatzky, R.L. (1999). *Sensing and displaying spatially distributed fingertip forces in haptic interfaces for teleoperator and virtual environment systems*. Presence: Teleoperators and Virtual Environments, 8(1), 86-103.

Abstract

This article reports a variety of sensory and perceptual consequences of eliminating, via a rigid fingertip sheath, the spatially distributed fingertip force information that is normally available during tactile and haptic sensing. Sensory measures included tactile spatial acuity, tactile force, and vibrotactile thresholds.

Suprathreshold tasks included perception of roughness, perception of 2-D edge orientation, and detection of a simulated 3-D mass in simulated tissue via fingertip palpation. Of these performance measures, only vibrotactile thresholds and texture perception failed to show substantial impairment. The results are discussed in terms of their implications for the future design of haptic interfaces for teleoperator and virtual environment systems.