Abstract

Past research implies that activity of a special mechanoreceptor, the C-tactile afferent, produces tactile pleasure. However, underlying mechanisms and their robustness to changes in the tactile stimulus (e.g., trajectory) remain unclear. To address these points, we presented gentle brushstrokes with a linear or oval trajectory to two groups of 32 participants respectively. Each group experienced strokes at CT inappropriate (0.5 cm/s, 1 cm/s, and 20 cm/s) and appropriate velocities (3 cm/s, 10 cm/s) in random order. In separate blocks, participants rated stroke pleasantness, humanness, smoothness, and intensity using a 100-point scale. As expected, pleasantness was greater for CT appropriate as compared with inappropriate velocities. Additionally, a comparable pattern emerged for humanness and smoothness. Intensity ratings increased monotonically with velocity. Notably, ratings appeared more aligned with CT relevant processes in the linear as compared with the oval trajectory. Together, these results highlight that mechanisms besides pleasure could be coupled to CT firing and that seemingly arbitrary stimulus properties like trajectory may be relevant.

Keywords: C-tactile afferents, social touch, affective touch, touch trajectory, somatosensation