

Why is a Touch on the Arm so Persuasive?

A gentle touch on the arm can be surprisingly persuasive. Consider these research findings. Library users who are touched while registering, rate the library and its personnel more favourably than the non-touched; diners are more satisfied and give larger tips when waiting staff touch them casually; people touched by a stranger are more willing to perform a mundane favour; and women touched by a man on the arm are more willing to share their phone number or agree to a dance. Why should this be? Up until now research in this area has been exclusively behavioural: these effects have been observed, but we don't really know why. Now a study has made a start at understanding the neuroscience of how touch exerts its psychological effects.

Annett Schirmer and her colleagues used EEG to record the surface electrical activity of the brains of dozens of female participants who were tasked with looking at neutral or negative pictures (e.g. a basket or a gun to the head). Before each picture appeared, the participants were sometimes touched on the arm by a female friend; touched by a mechanical device (a pressure cuff); or they received no touch. The idea was to see whether and how being touched changed the way the brain responded to emotional and neutral pictures.

A further detail is that the mechanical touch was described as either under the friend's control, with the friend located elsewhere, or under computer control. This was to see if physical proximity matters and whether it matters who does the touching. For comparison, a final experiment also tested the effect of an auditory tone, which preceded some pictures but not others.

The most important finding is that a touch on the arm enhanced the brain's response to emotional, as revealed by the size of what's known as the late positive component (LPC) of electrical brain activity. The LPC is thought to be associated with evaluative mental processes and a touch led to a greater LPC for emotional pictures compared with neutral ones.

Touch had this effect regardless of how it was administered and who did the administering (friend or machine). This suggests the reported effects of touch are largely "bottom up" - that is, based mainly on the incoming stimulation - rather than "top down", to do with beliefs about the meaning of the touch. Unlike touch, the auditory tone didn't increase the brain's sensitivity to emotional pictures.

"Emotional information presented concurrently with touch may be more motivating such that more processing resources are allocated to them than to emotional information presented without touch," the researchers said.

One consequence of this, Schirmer's team speculated, could be that the touched person is primed to be more altruistic, consistent with previous behavioural results. "Based on the present findings," they explained, "we propose that such behaviour occurs because the tactile signal alerts its recipient and enhances the processing of concurrent events, particularly if they are emotional. Such enhanced processing may

then, among others, boost empathy and increase the likelihood that the touch recipient acts in favour of the toucher."

Schirmer, A., Teh, K., Wang, S., Vijayakumar, R., Ching, A., Nithianantham, D., Escoffier, N., and Cheok, A. (2011). Squeeze me, but don't tease me: Human and mechanical touch enhance visual attention and emotion discrimination. *Social Neuroscience*, 6 (3), 219-230