

## Oxytocin and Sensorimotor Synchronization in Pairs of Strangers

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**Abstract :** The ability to act in concert with others, the so-called sensorimotor synchronisation, is a fundamental human ability that underlies successful interpersonal coordination. The manifestation of accuracy and plasticity in synchronisation is an adaptive aspect of interaction with the environment, as well as the ability to predict upcoming actions and behaviour of others. The ability to temporarily coordinate one's actions with a predictable external event is manifested in such types of social behaviour as a synchronised group dance to music played live by an orchestra, group sports (rowing, swimming, etc.), synchronised actions of surgeons during an operation, applause from an admiring audience, walking rhythms, etc. Both our body and mind are involved in achieving the synchronisation during social interactions. However, it has not yet been well described how the brain determine the external rhythm and what neuropeptides coordinate and synchronise actions. Over the past few decades, there has been an increased interest among neuroscientists and neurophysiologists regarding the neuropeptide oxytocin in the context of its complex, diverse and sometimes polar effects manifested in the emotional and social aspects of behaviour (attachment, trust, empathy, emotion recognition, stress response, anxiety and depression, etc.). Presumable, oxytocin might also be involved in social synchronisation processes. The aim of our study is to test the hypothesis that oxytocin is linked to interpersonal synchronisation in a pair of strangers.

**Keywords :** behavior, movement, oxytocin, synchronization

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