

Newborn babies' brain responses to being touched on the face measured for the first time

November 16 2018



Credit: CC0 Public Domain

A newborn baby's brain responds to being touched on the face, according to new research co-led by UCL.



Babies use this <u>sense of touch</u>—facial somatosensation—to find and latch onto their mother's nipple, and should have this ability from birth.

Premature babies often have difficulty feeding, and underdevelopment of their facial sensitivity may be one of the main causes.

Researchers from UCL, Imperial College London, UCLH and Universitá Campus Bio-Medico di Roma developed a new method to study this sense of touch in babies and how their brains reacted using electroencephalography (EEG).

Current methods of evoking <u>brain activity</u> in response to touch aren't suitable for a newborn's face, so academics have developed a device—based on a transducer—worn on the fingertip, covered by a clinical glove.

The baby can be lightly tapped on the cheek, and then brain responses are measured as well as the force of the tapping.

The report, 'A novel sensor design for accurate measurement of facial somatosensation in pre-term infants', is published in the journal *PLOS ONE*.

Dr. Lorenzo Fabrizi (UCL Biosciences) said: "This research provides a way of understanding how pre-term babies process touch information, and could help medical professionals to make informed decisions relating to their development.

"We've proved that we can record the sense of touch from the face. This means that for <u>premature babies</u>, it is possible to study how they process the tactile information that they receive from the face, how this changes as they mature and whether disruption of this process might lead to longer-term feeding problems."



Babies' brains develop quicker than at any other point in life. Facial somatosensation is necessary for breastfeeding; for example if a newborn baby's right cheek is lying on their mother's breast, the baby uses this information to turn its head to the right in order to feed (rooting). Therefore finding a way to measure brain responses to facial touch is important for understanding <u>brain</u> development in newborns.

Professor Etienne Burdet (Imperial College London) said: "We had to develop a stimulating system that was safe to use on the delicate face of the babies and acceptable to their parents. We used an iterative design approach to develop a seamless wearable device that can measure a natural finger tap to the skin.

"After we found that conventional sensors were not practical, we developed a dedicated sensor and packaging using 3-D printing."

The study looked at seven <u>babies</u> who were on average seven days old at UCLH's postnatal and neonatal wards, each one having been born prematurely (before 37 weeks).

The research was supported by the UK Medical Research Council, European Commission grants, and a UK EPSRC MOTION grant. The force transducer was developed at Imperial College London and the trial was carried out at UCL and the UCLH Elizabeth Garrett Anderson wing. Ethical approval was obtained from the NHS Research Ethics Committee along with informed parental consent for each baby.

Provided by University College London

Citation: Newborn babies' brain responses to being touched on the face measured for the first time (2018, November 16) retrieved 28 April 2024 from <u>https://medicalxpress.com/news/2018-11-newborn-babies-brain-responses.html</u>



This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.