

Bodysuit or sleep sack?

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Sketches of the two clothing options. Left: baby dressed in a bodysuit and light wrapping. Right: baby wearing pyjamas and a cardigan and placed in a sleep-sack. Credit: Vanessa André/EthoS

Scientists at the Laboratoire Éthologie Animale et Humaine,, working in collaboration with a neonatologist from Brest University Hospital, observed the effect of preterm babies' clothing on their behavior. Newborns placed in a sleep sack were less active and touched parts of their bodies less frequently than those dressed in a simple bodysuit. The scientists suppose that the former may have been more stressed for two reasons: their movements were hampered, so that comforting self-touching was less frequent. This study is published on 17 March 2015 in *Scientific Reports*.

It is well known, particularly from studies in animals, that early experiences of life can have a long-term impact on the emotional and social development of individuals. Thus scientists in the Laboratoire Éthologie Animale et Humaine were able to show that the wrapping and manipulation of foals in certain stud farms just after birth had long-term behavioral effects. However, in human newborns, the possible immediate or longer-term impacts of routine practices remain a matter of debate. This is particularly true for preterm newborns, whose behavioral expression may be less visible.

In a new study carried out in collaboration with the Neonatal Medicine Department at Brest University Hospital, the research team looked at the impact of clothing on the behavior of preterm newborns. Premature infants (born before 38 weeks of pregnancy) move from a closed incubator to an open incubator under a radiant warmer. Then, when they start to be able to regulate their temperature, the warmer is switched off and they are then clothed in pyjamas and a cardigan and placed in a sleep-sack (attached over the shoulders) instead of a simple bodysuit. Thanks to video recordings, the scientists were able to study for several hours (spread over two to four days) the behavior of 18 preterm newborns aged 34 to 37 weeks post-conception. Nine of them, still under the radiant warmer, were dressed in a bodysuit (allowing them freedom of movement), while the other half were wearing the pyjamas, cardigan

and sleep-sack.

The newborns in bodysuits proved to be more active than those in the sleep-sack; their arms were more frequently bent and their hands more often in contact with their environment or head (the only accessible part of the body). The newborns in sleep-sacks tended to have their arms extended and hands closed, and touched nothing. Raising the arms in all these items of clothing appeared to require too much physical effort for these babies weighing less than 2 kg.

But self-touching is acknowledged to be a means employed by infants to reduce their stress levels. In hospitalized preterm newborns, without any frequent tactile contact with a parent, self-touching could even constitute a crucial compensation mode. Furthermore, feeling their movements hampered increases the levels of stress in individuals, giving them a feeling of impotence. By preventing this contact and imposing a physical constraint, the pyjama-cardigan-sleep-sack combination could therefore have a dual impact not only in terms of immediate discomfort but also perhaps emotional and motor development. To test this hypothesis, the research team is now planning to explore the longer term behavioral impact of sleep-sacks in a larger group of preterm newborns. The present study nevertheless underlines the importance of paying more attention to routine practices, even if they appear harmless, during the perinatal period.

More information: "Unexpected behavioural consequences of preterm newborns' clothing," Virginie Durier, Séverine Henry, Emmanuelle Martin, Nicolas Dollion, Martine Hausberger, Jacques Sizun. *Scientific Reports*, 17 March 2015. [DOI: 10.1038/srep09177](https://doi.org/10.1038/srep09177)

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