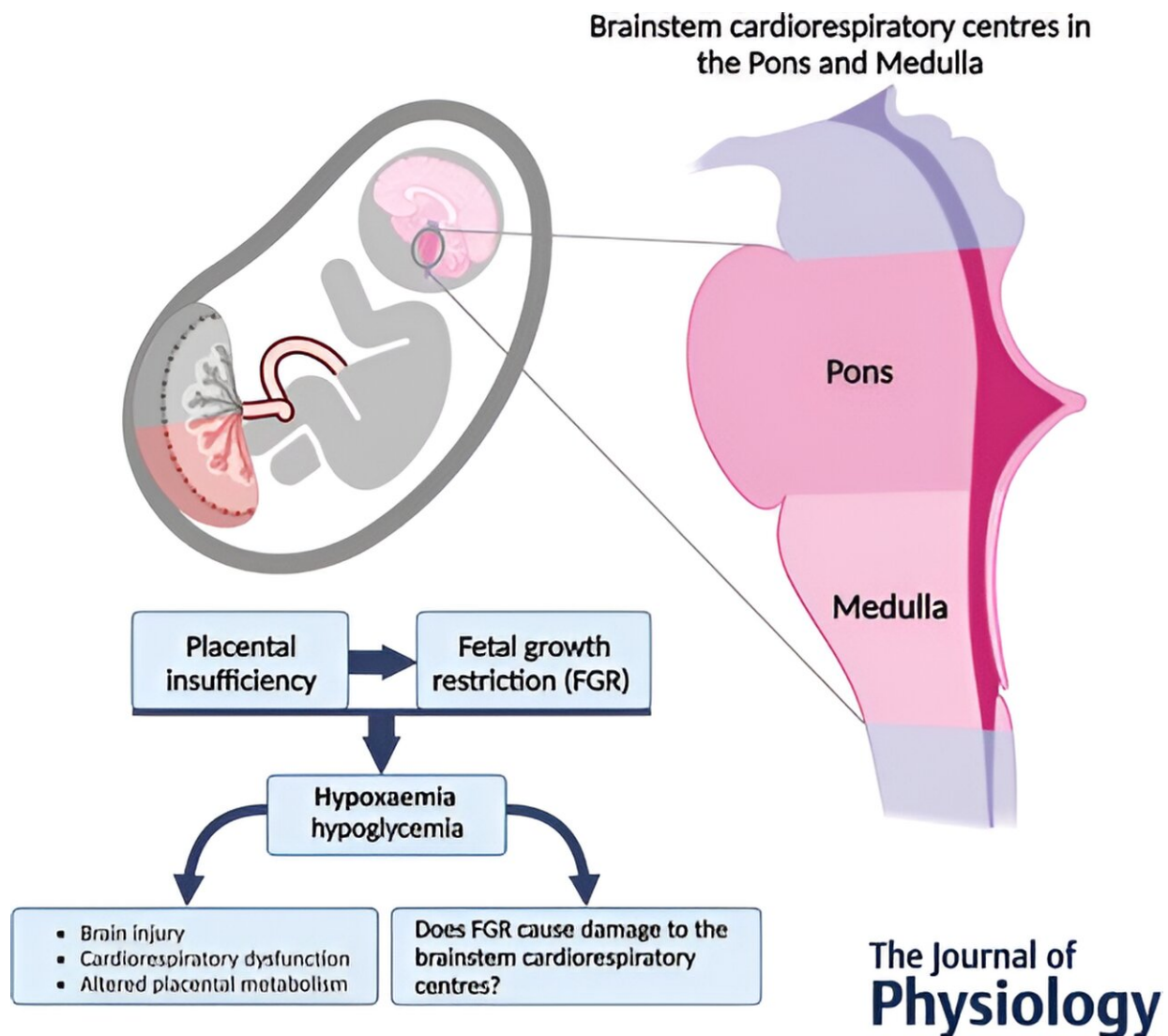


Fetal growth restriction found to harm the heart and lungs via the brainstem

February 28 2024



Credit: *The Journal of Physiology* (2023). DOI: 10.1113/JP284191

Babies affected by fetal growth restriction (FGR) have poor cardiorespiratory control; now Hudson Institute researchers have become the first to show persistent injury in the brainstem of growth-restricted fetuses as the likely cause.

This is a crucial discovery, as identifying this new potential pathway for damage means that for the first time they may be able to develop therapies to improve outcomes for these babies.

Dr. Beth Allison is a vascular physiologist with a strong interest in the developmental programming of health and disease. Her latest research, [published](#) in the *Journal of Physiology* could make a big difference to the lives of children born growth-restricted.

FGR damages the brain's cardiovascular and respiratory control center

The [preclinical study](#), conducted with colleagues in Australia and Sweden, found that babies who have restricted [blood flow](#) through the placenta throughout pregnancy have significant damage to the key part of the brain controlling their cardiovascular and respiratory system.

It is this damage that could explain why these infants often have heart and lung issues after birth.

"The changes we have seen in the brainstem are like a control panel that we have now found has damaged buttons" Dr. Allison said.

Brainstem key to FGR

"The brainstem is a vital control center for the cardiovascular and respiratory system.

"Previous studies have suggested that brainstem function is preserved—but we are the first to intensively investigate neuropathology in the [brainstem](#) and we are able to show significant damage."

Dr. Allison and the team believe that this work highlights a new avenue for neuroprotection and therapies for those babies exposed to [fetal growth restriction](#).

More information: Elham Ahmadzadeh et al, Does fetal growth restriction induce neuropathology within the developing brainstem?, *The Journal of Physiology* (2023). [DOI: 10.1113/JP284191](https://doi.org/10.1113/JP284191)

Provided by Hudson Institute of Medical Research

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