

Why babies with Down syndrome experience heart and lung problems

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A study from RCSI University of Medicine and Health Sciences has gained new insights into changes in heart function and blood pressure in the lungs of babies born with Down syndrome.

Heart and lung conditions are common in babies born with Down syndrome and can contribute to the requirement for intensive care and longer hospital admissions for babies with Down syndrome compared to babies without Down syndrome. The findings of this work will help clinicians to better assess one in 600 babies who are born with Down syndrome in Ireland every year.

Published in the *Journal of the American Society of Echocardiography*, the study is the first of its kind to follow babies with Down syndrome over the first two years of age to investigate [heart function](#) and increased blood pressure in the [blood vessels](#) in their lungs. Seventy babies with Down syndrome were followed in this study through collaboration between three neonatal [intensive care](#) units in Dublin, Ireland.

This research found that the babies with Down syndrome have impaired changes in heart function and blood pressure in the lungs over the first two years of age. Importantly, there were no differences in heart function between those babies with Down syndrome who had congenital heart disease compared to those without over the study period. This is a significant finding and indicates that all babies with Down syndrome should have their heart function and blood pressure in their lungs monitored during childhood.

Professor Afif EL-Khuffash, Clinical Professor of Pediatrics at RCSI and Consultant Neonatologist, at The Rotunda Hospital says that "until this point, there has been a dearth of evidence to explain why babies with Down syndrome experience these issues. The results of this study show us that babies with Down syndrome experience changes in the heart function that leads to increased [blood pressure](#) in the lungs."

First author on the study, Dr. Aisling Smith, a Neonatology Specialist Registrar who carried out the research as part of her Ph.D. at RCSI commented that "this study will help clinicians to better understand the

mechanisms causing these problems and highlights the importance of monitoring heart function in babies with Down syndrome over time."

Approximately half of babies born with Down syndrome also have congenital heart disease. In this study, 48 babies with Down syndrome had [congenital heart disease](#) and 22 did not. The results from the babies with Down syndrome were compared to 60 babies without Down syndrome (controls). All [babies](#) enrolled in the study underwent a heart scan (echocardiogram) to assess heart function at six months, one year and two years of age.

More information: Aisling Smith et al, Serial Assessment of Cardiac Function and Pulmonary Hemodynamics in Infants with Down Syndrome, *Journal of the American Society of Echocardiography* (2022). [DOI: 10.1016/j.echo.2022.07.012](https://doi.org/10.1016/j.echo.2022.07.012)

Provided by RCSI University of Medicine and Health Sciences

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