

# Is School Performance Impaired in children with CHD?

**School Performance is impaired in children Congenital Heart Disease and exposure to preeclampsia worsens the performance**

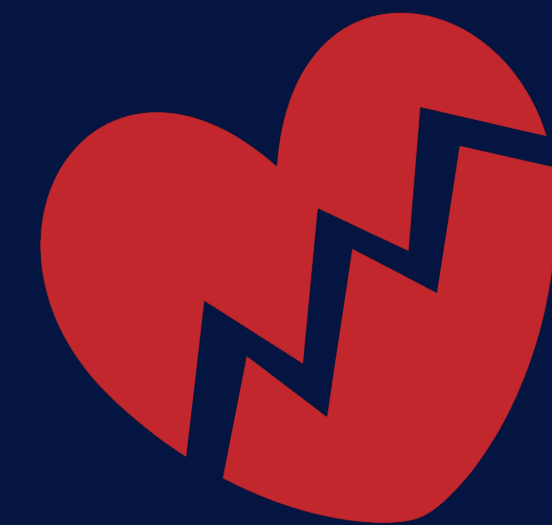
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## Background

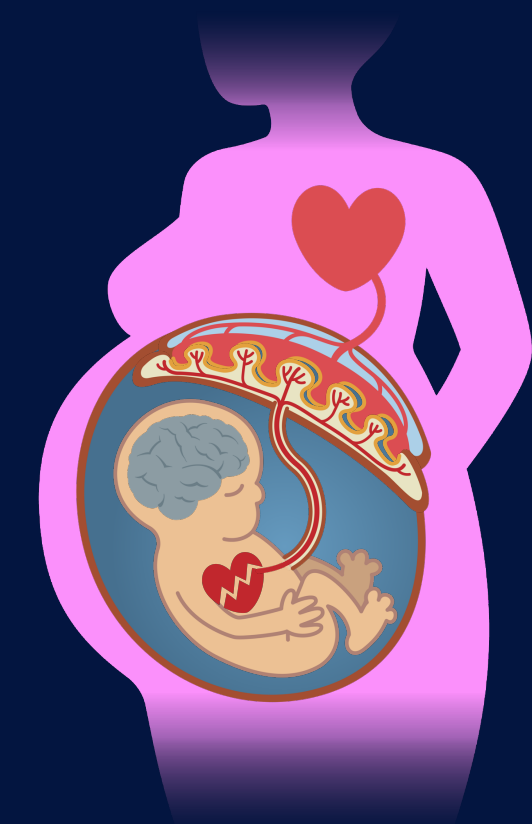
Children born with a congenital heart disease (CHD) have an increased risk of neurodevelopmental difficulties later in life. We do not know if children born with a simple or uncorrected CHD have school performance issues and an increased need for special education compared to healthy peers.

## Methods

- Nationwide population-based register study
- All Danish Children with CHD 1994-2012
- 1:10 age- and gender matched controls
- Non-singletons excluded
- Children with Chromosomal Syndromes excluded
- Exposure: CHD
- Outcome: need for special education (primary and lower secondary school)
- Mediator: Preeclampsia



CHD



Preeclampsia



School Performance?

## Odds ratio (OR) of receiving special education

	OR (95% CI)	P
- CHD vs. No CHD <sup>a</sup>	2.14 (2.00-2.28)	<0.001
- CHD vs. No CHD <sup>b</sup>	2.04 (1.91-2.18)	<0.001
- Minor CHD vs. No CHD <sup>a</sup>	1.99 (1.86-2.14)	<0.001
- CHD without procedure vs. No CHD <sup>a</sup>	1.83 (1.69-1.98)	<0.001
- Major CHD vs. Minor CHD <sup>a</sup>	1.46 (1.26-1.70)	<0.001

<sup>a</sup>Adjusted for Socioeconomic Status <sup>b</sup>Adjusted for Socioeconomic Status and Preterm Birth

**YES!**

**- and preeclampsia worsens the performance!**

## Results

Total population consisted of 7,559 children with CHD; 6,290 with simple- & 1,269 with complex CHD. A total of 77,046 non-CHD controls.

CHD children had a higher need for special education compared to non-CHD children, OR: 2.14 (95%CI: 2.00;2.28),  $p < 0.001$ .

The odds ratio was also increased when comparing children with a minor CHD to non-CHD children, OR: 1.99 (95%CI: 1.86;2.14),  $p < 0.001$ .

CHD children exposed to preeclampsia had a higher risk of receiving special education than CHD children unexposed to preeclampsia, OR: 1.40 (95%CI: 1.07;1.84),  $p = 0.014$ .

## Conclusion

**School performance is impaired in children with CHD and preeclampsia worsens the performance.**



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