

## New research reinforces danger of drinking alcohol while pregnant

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(Medical Xpress)—Women who drink alcohol at moderate or heavy levels in the early stages of their pregnancy might damage the growth and function of their placenta – the organ responsible for supplying everything that a developing infant needs until birth - research at The University of Manchester shows.

Placentas studied in a laboratory environment showed that <u>drinking</u> <u>alcohol</u> at moderate (2/3 standard drinks) to high (4-6 standard drinks) rates reduced the cell growth in a woman's <u>placenta</u>.

The research, published in the journal PLoS One and funded by the



British Medical Association, investigated the effect of <u>alcohol</u> and its major toxic breakdown product, <u>acetaldehyde</u>, had on the placenta in the first few weeks – a period essential for normal development where three primary germ cell layers in the very early infant develop into internal organs. While placental cell growth was reduced at mid and heavy drinking levels, the cells that ensure the placenta attaches to the mother were unaffected. Alcohol at very low concentrations (1-2units, equal to half or one standard drink) did not have any effect on growth or function.

Scientists also found alcohol at moderate to heavy levels reduced the transport of an important amino acid – known as taurine - from mother to baby via the placenta. Taurine is vital for brain and physiological development. However, acetaldehyde did not have any effect on the transportation of taurine suggesting alcohol is the main culprit. Reduced taurine has been shown to have negative effects on behaviour and physical development, so this might explain why some neurological symptoms are seen in children of alcoholic mothers, the researchers conclude.

Sylvia Lui, from the Tommy's Maternal and Fetal Health Research Centre based at The University of Manchester who carried out the research, said: "Alcohol and acetaldehyde are known to be toxic at high levels, but these results clearly show that levels easily achieved in a normal population have specific effects in the placenta.

"Placental growth is reduced in comparison to non-exposed placentas, suggesting that in the long-term, there could be consequences to how much support the infant receives from the placenta during the rest of the pregnancy after this exposure."

Dr Clare Tower, consultant obstetrician at Saint Mary's Hospital part of Central Manchester University Hospitals NHS Foundation Trust, said:



"Though low levels of alcohol did not have a harmful effect, moderate to high levels were damaging. The safest clinical advice would be to agree with the current Royal College of Obstetrics and Gynaecology guidelines and abstain. This is because UK studies show that there is still a lot of confusion in the perception of what alcohol 'units' are, as well as a lack of accurate self-monitoring of drinking levels.

Professor John Aplin, Professor of Reproductive Biomedicine in the Tommy's Maternal and Fetal Health Research Centre at the University, said "This research also suggests that women who are trying to conceive should not drink as the damage caused by alcohol can happen very early on in pregnancy – perhaps before a woman knows she is pregnant."

Jane Brewin, Chief Executive of baby charity Tommy's, said: "It can often be a few weeks before a woman discovers she's pregnant, and this research shows that moderate drinking during those vital first weeks can have a big impact on the development of the baby.

"Many pregnancies are unplanned, but for those actively planning a family this research raises questions about whether women should consider their alcohol intake even before they fall pregnant."

**More information:** "Detrimental effects of ethanol and its metabolite, acetaldehyde, on first trimester human placental cell turnover and function." S. Lui, R.L. Jones, N.J. Robinson, S.L. Greenwood, J.D. Aplin, C.L. Tower is published on 4 February in *PLoS One*.

## Provided by University of Manchester

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