

# Effects of Low to Moderate Prenatal Exposure to Alcohol: *A balanced analysis of the evidence*

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## Light to moderate maternal consumption of alcohol during pregnancy ...

- is NOT a significant risk factor for child development
- IS a significant risk factor for child development

?

# Barriers to informed choice re: safe alcohol use and pregnancy

- Representation in medical journalism (Yu, Connelly-Ahern & Shen, 2010)
- Reluctance of healthcare professionals to discuss (Johnson, Robinson, Corey, Dewane et al. 2006).
- Popularity of regular alcohol consumption in high SES women over 40 (Environics, 2006; O'Campo & Johnson, 2005)
- Popularity of binge drinking in women of child-bearing age (Environics, 2006; O'Campo & Johnson, 2005)
- Popular literature misrepresenting controversial findings under the guise of research (Oster, 2013)
- Physician's misinterpretation of research results (Payne et al. 2005)
- Physician's lack of knowledge on FASD (Loop & Nettleman, 2002; Johnson et al., 2010)

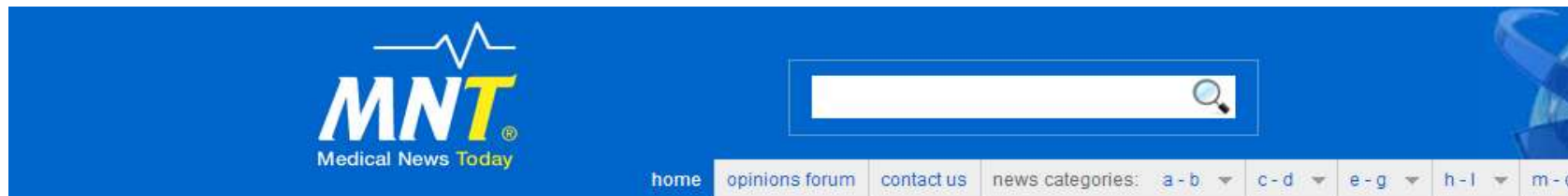
# Light to moderate maternal consumption of alcohol is NOT a significant risk factor for child development?

- **Viability of pregnancy:**
  - Low to moderate prenatal alcohol exposure associated with little to no effects (Makarechian et al. 1998; Henderson et al., 2007)
- **Birthweight & head circumference:**
  - Threshold effect of prenatal alcohol exposure,  $\geq 8-10\text{g/day}$  (Forrest & duFlorey, 1991; O'Callaghan et al., 2003; Jaddoe et al., 2007)
  - J-shaped curve between birthweight & low/moderate alcohol exposure only when also exposed to tobacco (Abel & Hannigan, 1995; O'Callaghan et al., 2003)

# Light to moderate maternal consumption of alcohol is NOT a significant risk factor for child development?

- Birth defects:
  - No increased risk of malformations in first trimester (Polygenis et al., 1998)
- Early childhood outcomes:
  - Typical infant mental and motor development (Streissguth et al., 1980; Forrest et al., 1991)
  - Typical levels of cognitive, attention, behavioral or executive functioning at ages 3, 5 & 7 (Kelly et al., 2008; 2010; Kesmodel et al., 2012; O'Callaghan et al., 2007; O'Connor et al., 2002)
- Adolescent outcomes:
  - No measurable effects on inattention and hyperactivity (Rodrigues, 2009; Robinson, 2010)

# Popular interpretation of this position...



## Moderate Alcohol In Pregnancy Is Safe

★ **Editor's Choice**

★ **Academic Journal**

Main Category: [Pregnancy / Obstetrics](#)

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Article Date: 18 Jun 2013 - 0:00 PDT

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**Drinking a few glasses of wine every week won't harm a pregnant woman's child, according to new research published in *BMJ Open*.**

The study looked at what effects moderate drinking during pregnancy might have on fetal neurodevelopment.

Current ratings for:  
Moderate Alcohol In Pregnancy Is Safe

**Patient / Public:** ★★★★★ 5 (1 votes)  
**Healthcare Prof:** ★★★☆☆ 2 (2 votes)

16

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#### [What To Eat During Pregnancy](#)

A pregnant woman needs to ensure that her diet provides enough nutrients and energy for her baby to develop and grow properly, and also to make sure that her body is healthy enough to deal with the changes that are o



#### [Top Tips To Minimize Morning Sickness](#)

Morning sickness affects over half of all pregnant mothers. Our



# Light to moderate maternal alcohol consumption IS a significant risk factor for child development

- Neuro behavioral/psychological issues
  - Although still within “typical” range, at low end of spectrum , increases with age (Streissguth et al., 1989; Saval, 2007)
  - Children present with increased: mental health, socioemotional, and cognitive deficits (Swedish national institute of public health, 2009); hyperactivity, inattention, externalizing and aggressive behaviors (Sood et al., 2001)
  - Higher IQ associated with increased secondary disabilities (Streissguth et al., 1996).
- Deficits in adaptive behavior (Streissguth et al., 1989); executive function (Rasmussen et al., 2007; Rasmussen & Bisanz, 2005); social skills (Whaley et al., 2001).

# Light to moderate maternal alcohol consumption IS a significant risk factor for child development

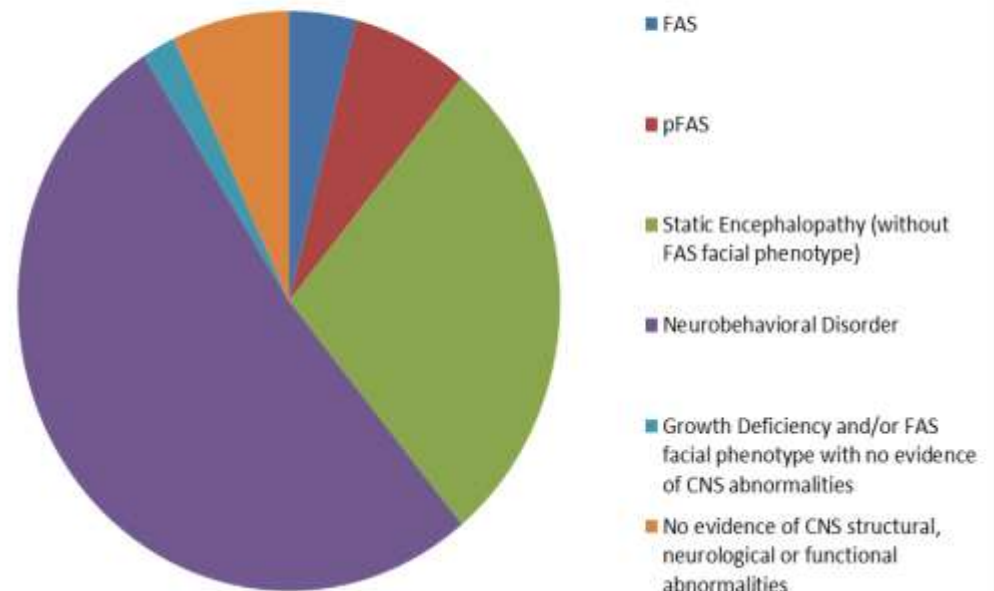
- Lifelong effects
  - Secondary disabilities, even in low doses: Adults report trouble with the law, housing, employment, lower wages, lower education levels, and are more likely to be in receipt of social services (Spohr et al., 2007; Nilson, 2008; Ladue, 1993)
- CNS abnormality
  - Reduced total grey matter volume (Eckstrand et al., 2012)



# Light to moderate maternal alcohol consumption IS a significant risk factor for child development

- Genetic variation (Lewis et al., 2012)
- Individual variation (Astley, 2010).

Profile of the first 1400 patients with confirmed PAE in Washington (Astley, 2010)



# Analysis

- Are these positions congruent?
- Operational definitions of a “standard” drink(CDC, 2012; Fotran et al., 2009; Henderson et al., 2006; ICAP, 2012; Makarechian et al., 1998; Polygenis et al., 1998)
- What does light to moderate alcohol consumption mean?  
(Feldman et al., 2012; Henderson et al., 2006; O’Leary & Bower, 2012).
- Why is “abstinence” associated with higher risks to the fetus?  
(Henderson et al., 2006; Henderson et al., 2007; Makarechian et al., 1998; Robinson, 2010; Abel & Hannigan, 1995)
- What effect do the conflicting reports have on the lay population?

# The mainstream version...

Belfast  
**Telegraph.co.uk**

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## A drink or two may be good for baby

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31 OCTOBER 2008

Light drinking by mothers during pregnancy does not affect children's behaviour or cause mental impairment, and may help them in some ways, according to a new study.

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PREGNANCY

### What to Drink While Expecting: Study Says Moderate Booze OK

By Alexandra Sifferlin @asifferlin | June 19, 2013 | 7 Comments

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By Emily Cook | Comments | 31 Oct 2008 00:00

### A tipple in pregnancy helps kids' behaviour

Children may actually benefit from their mums having a few drinks during pregnancy.

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Children may actually benefit from their mums having a few drinks during pregnancy.

The latest study of three-year-olds has found the boys of mums who drank lightly were 40 per cent less likely to be naughty or hyperactive.

The boys also had better vocabulary and ability to follow instructions. While girls born to light drinkers were no different, they had fewer symptoms and fewer problems compared with

**EXPECTING  
BETTER**

Why the Conventional  
Pregnancy Wisdom  
is Wrong—and  
What You Really  
Need to Know

**EMILY OSTER**

Associate Professor of Economics, University of Chicago

# Recommendations from the Literature

“There is no safe amount or safe time to drink alcohol during pregnancy or when planning to be pregnant”

- *Public Health Agency of Canada, 2013*

**Questions?**

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