



Drinking wine during pregnancy and breast feeding



Introduction

Foetal alcohol spectrum disorders (FASD) are increasingly recognised throughout Australia as preventable disorders that result in lifelong problems with health and learning, mental health, behaviour and substance misuse.

Not drinking wine is the safest option for women who are pregnant or planning a pregnancy, according to the National Health and Medical Research Council's Australian (NHMRC) guidelines to reduce health risks from drinking alcohol (March 2009).

The majority of the literature still does not support the 'no threshold theory', that any amount of alcohol from wine will have a harmful effect on the foetus (Henderson et al. 2007).

But, a 'no-effect' level for you to avoid harming your unborn baby has not been established nationally or internationally.

And, there is convincing evidence that links heavy maternal wine drinking, regularly or irregularly, with adverse effects on the foetus, including FASD (O'Leary 2004, Abel et al. 2009).

Pregnant women should never become intoxicated. The alcohol contained in wine readily crosses from the maternal bloodstream via the placental barrier into the bloodstream of the foetus where it circulates until it is broken down or metabolised by the foetus's albeit undeveloped liver.

The most severe adverse effect from chronic or intermittent heavy maternal wine drinking is foetal alcohol syndrome (FAS).

Other potential but not proven adverse effects include spontaneous abortion (Kesmodel et al. 2002, Henriksen et al. 2004, Maconochie et al. 2007), low birth weight (Covington et al. 2002, O'Callaghan et al. 2003, Mariscal et al. 2005), and attention and learning difficulties (D'Onofrio et al. 2007,



O'Callaghan et al. 2007). Indeed, the vulnerability of the developing central nervous system of the foetus to the alcohol contained in wine has been shown in experimental studies (Guerra et al. 1998, 2002).

Did you know?

- Approximately 34-58% of Australian women drink an alcoholic beverage such as wine while pregnant (Peadar et al. 2011, Burns et al. 2012).
- Of the women who drink, only 1.0-4.3% drink heavy amounts of an alcoholic beverage regularly, that is five or more standard drinks on a typical occasion; this is a risky drinking pattern.

Of the women who drink, 95.7-99% drink lightly and irregularly, at most, one or two standard drinks per week (Colvin et al. 2007, Giglia and Binns 2007, Wallace et al. 2007).

- There are identifiable 'at risk' groups such as women in certain remote indigenous communities where frequent risky drinking patterns predominate (Bower et al. 2000, Harris and Bucens 2003, Elliott et al. 2004, 2006, Elliott 2015).

Foetal alcohol spectrum disorders (FASD) and foetal alcohol syndrome (FAS)

A review of the literature, both recent and past, reveals that FAS is only observed in babies born to women who drink heavy amounts of an alcoholic beverage regularly and continually during pregnancy, approximately five to six standard drinks per day (Elliott et al. 2008). The critical period for exposure to alcohol is the first trimester.

However, the diagnosis of FAS (and that of FASD) is confounded by other factors often common to these women, such as the nutritional status of the mother, her ingestion of drugs including caffeine and nicotine as well as illicit drugs, her age, and her educational, ethnicity, genetic, marital, parity and socio-economic status (Sokol et al. 1986, Michaelis and Michaelis 1994, Abel and Hannigan 1995, Jacobson et al. 1996, Mattson et al. 2002, Elliott et al. 2008).

Binge-like drinking patterns will expose a foetus to high blood alcohol concentrations over relatively short periods of time, and will be particularly harmful, even if the overall amount of wine consumed is less than that of more continuous drinking patterns (Maier and West 2001).

FAS is characterised by three diagnostic criteria—reduced growth, craniofacial and neurological abnormalities, and certain cardiac, central nervous system, limb and urogenital malformations.

FAS has not been observed to occur in babies born to women who drink light amounts of wine during pregnancy, approximately one standard drink per day (Henderson et al. 2007).

Did you know?

- Foetal alcohol spectrum disorders (FASD) describes a full range or spectrum of adverse effects or disabilities that may result from exposure of the foetus to the alcohol contained in wine in pregnancy, such as growth deficiencies, birth defects and neuro-developmental problems (Abel 1998, Sokol et al. 2003).



- The most severe adverse effect is called foetal alcohol syndrome (FAS) (Jones et al. 1973).

Alcohol and breast feeding

For women who are breast feeding, not drinking wine is also considered to be the safest option, especially during the first month after the baby has been born until breast feeding is well established.

The alcohol contained in wine enters breast milk by passive diffusion and within 30 to 60 minutes of ingestion will reflect the maternal blood alcohol concentration.

After the first month, if you chose to drink wine while breast feeding, there are some steps you can take to avoid a high blood and breast milk alcohol concentration - time consumption with a meal; drink no more than two standard drinks per day; and aim to avoid breast feeding for approximately two hours after drinking.

Additional information

If you are concerned about drinking wine during pregnancy and breast feeding, please consult your general practitioner and/or telephone the Australian Government's *Pregnancy, Birth & Baby Helpline* on 1800 882 436.

For additional information on drinking wine during pregnancy and breast feeding please refer to the NHMRC's *Australian guidelines to reduce health risks from drinking alcohol* (March 2009) on <http://www.nhmrc.gov.au/publications/synopses/ds10syn.htm>, and from the Australian Breastfeeding Association on <http://www.breastfeeding.asn.au>

References and further reading

Abel, E.L. 2009. Fetal alcohol syndrome: same old, same old. *Addiction* 104(8): 1274–1275 and 1279–1280.

Abel, E.L. 1998. *Fetal Alcohol Abuse Syndrome*. New York: Plenum Press.

Abel, E.L., Hannigan, J.H. 1995. 'J-shaped' relationship between drinking during pregnancy and birth weight: reanalysis of prospective epidemiological data. *Alcohol Alcoholism*. 30: 345–355.

Colvin, L., Payne, J., Parsons, D., Kurinczuk, J.J., Bower, C. 2007. Alcohol consumption during pregnancy in non-indigenous West Australian women. *Alcoholism: Clinical and Experimental Research*, 31(2): 276–284.

Covington, C.Y., Nordstrom-Klee, B., Ager, J., Sokol, R., Delaney-Black, V. 2002. Birth to age 7 growth of children prenatally exposed to drugs: A prospective cohort study. *Neurotoxicology and Teratology*, 24: 489–496.

D'Onofrio, B.M., Van Hulle, C.A., Waldman, I.D., Rodgers, J.L., Rathouz, P.J., Lahey, B.B. 2007. Causal Inferences Regarding Prenatal Alcohol Exposure and Childhood Externalizing Problems. *Archives Gen. Psychiatry*. 64: 1296–1304.

Bower, C., Silva, D., Henderson, T.R., Ryan, A., Rudy, E. 2000. Ascertainment of birth defects: The effect on completeness of adding a new source of data. *Journal of Paediatrics and Child Health*, 36, 574–576.

Elliott EJ. 2015. Fetal alcohol spectrum disorders in Australia--the future is prevention. *Public Health Res. Practice*. 25(2): e2521516.

Elliott, E.J., Payne, J., Morris, A., Haan, E., Bower, C. 2008. Fetal alcohol syndrome: a



prospective national surveillance study. *Archives Diseases Childhood*. 93(9): 732–737.

Elliott, E.J., Payne, J., Haan, E., Bower, C. 2006. Diagnosis of foetal alcohol syndrome and alcohol use in pregnancy: A survey of paediatricians' knowledge, attitudes and practice. *J. Paed. Child Health*. 42: 698–703.

Elliott, E., Bower, C. 2004. FAS in Australia: Fact or fiction? *J. Paed. Child Health*. 40: 8–10.

Giglia, R.C., Binns, C.W. 2007. Patterns of alcohol intake of pregnant and lactating women in Perth, Australia. *Drug Alcohol Rev*. 26(5): 493–500.

Guerri, C. 2002. Mechanisms involved in central nervous system dysfunctions induced by prenatal ethanol exposure. *Neurotoxicol. Res*. 4(4): 327–335.

Guerri, C. 1998. Neuroanatomical and neurophysiological mechanisms involved in central nervous system dysfunctions induced by prenatal alcohol exposure. *Alcoholism: Clin. Experimental Res*. 22(2): 304–312.

Peadon, E., Payne, J., Henley, N., D'Antoine, H., Bartu, A., O'Leary, C., et al. (2011) Attitudes and behaviour predict women's intention to drink alcohol during pregnancy: the challenge for health professionals. *BMC Publ. Health*. 11(1): 584

Burns, L., Elliott, E., Black, E., Breen, C. 2012. Fetal alcohol spectrum disorders in Australia: an update. Canberra: Intergovernmental committee on drugs working party on fetal alcohol spectrum disorders. June 2012. www.nationaldrugstrategy.gov.au/internet/drugstrategy/publishing.nsf/Content/mono-fasd

Harris, K., Bucens, I. 2003. Prevalence of fetal alcohol syndrome in the Top End of the Northern Territory. *J. Paed. Child Health*. 39: 528–533.

Henderson, J., Gray, R., Brocklehurst, P. 2007. Systematic review of effects of low-moderate prenatal alcohol exposure on pregnancy outcome. *BJOG*: 114(3): 243–252.

Henriksen, T.B., Hjollund, N.H., Jensen, T.K., Bonde, J.P., Andersson, A.-M., Kolstad, H., Ernst, E., Giwercman, A., Skakkebaek, N.E., Olsen, J. 2004. Alcohol consumption at the time of conception and spontaneous abortion. *Am. J. Epidemiol*. 160: 661–667.

Jacobson, J.L., Jacobson, S.W., Sokol, R.J. (1996) Increased vulnerability to alcohol-related birth defects in the offspring of mothers over 30. *Alcoholism: Alcoholism: Clin. Experimental Res*. 20: 359–363.

Jones, K.L., Smith, D.W., Ulleland, C.N., Streissguth, A.P. 1973. Patterns of malformation in offspring of chronic alcoholic mothers. *Lancet*, 1: 1267–1271.

Kesmodel, U., Wisborg, K., Olsen, S.F., Brink Henriksen, T., Jørgen Secher, N. 2002. Moderate alcohol intake in pregnancy and the risk of spontaneous abortion. *Alcohol Alcoholism*. 37: 87–92.

Maier, S.E., West, J.R. 2001. Drinking patterns and alcohol-related birth defects. *Alcohol Res. Health*. 25(3): 168.

Maconochie, N., Doyle, P., Prior, S., Simmons, R. 2007. Risk factors for first trimester miscarriage—results from a UK-population-based case-control study. *BJOG* 114(2):170–186.

Mariscal, M., Palma, S., Llorca, J., Pérez-Iglesias, R., Pardo-Crespo, R., Delgado-Rodríguez, M. 2005. Pattern of alcohol consumption during pregnancy and risk for low birth weight. *Annals Epidemiol*. 105: 543–550.

Mattson, S.N., Calarco, K.E., Chambers, C.D., Jones, KL. 2002. Interaction of maternal



smoking and other in-pregnancy exposures: analytic considerations. *Neurotoxicol. Teratol.* 24(3): 359–367.

Michaelis, E.K., Michaelis, M.L. 1994. Cellular and molecular bases of alcohol's teratogenic effects. *Alcohol Health Res. World.* 18: 17–21.

O'Callaghan, F.V., O'Callaghan, M., Najman, J.M., Williams, G.M., Bor, W. 2007. Prenatal alcohol exposure and attention, learning and intellectual ability at 14 years: A prospective longitudinal study. *Early Human Develop.* 83: 115–123.

O'Callaghan, F.V., O'Callaghan, M., Najman, J.M., Williams, G.M., Bor, W. 2003. Maternal alcohol consumption during pregnancy and physical outcomes up to 5 years of age: a longitudinal study. *Early Human Develop.* 71: 137–148.

O'Leary, C.M. 2004. Fetal alcohol syndrome: diagnosis, epidemiology, and developmental outcomes. *J. Paed. Child Health.* 40(1-2): 2–7.

Sokol, R.J., Delaney-Black, V., Nordstrom, B. 2003. Fetal Alcohol Spectrum Disorder. *Journal Am. Med. Assoc.* 290: 2996-2999.

Sokol, R.J., Ager, J., Martier, S., Debanne, S., Ernhart, C., Kuzma, J., Miller, S.I. 1986. Significant determinants of susceptibility to alcohol teratogenicity. *Annals N.Y. Acad. Sci.* 477: 87–102.

Wallace, C., Burns, L., Gilmour, S., Hutchinson, D. 2007. Substance use, psychological distress and violence among pregnant and breastfeeding Australian women. *Aust. N.Z. J. Publ. Health* 31: 51–56.

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