

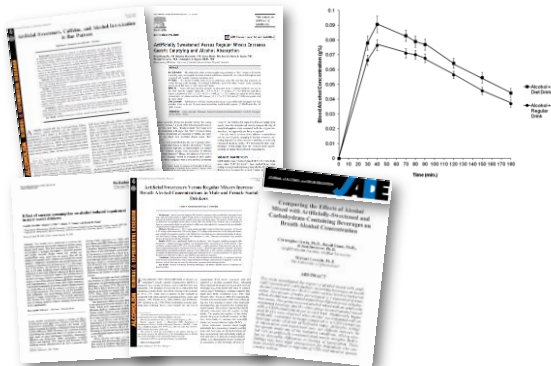
## The Influence of Alcohol Combined With Carbohydrate or Artificial Sweeteners on Alcohol Pharmacokinetics

Cassie Smith, Peter Herzig, Andrew Davey, Ben Desbrow, Chris Irwin  
 Menzies Health Institute Queensland  
 School of Allied Health Sciences, Griffith University  
[cassie.smith2@griffithuni.edu.au](mailto:cassie.smith2@griffithuni.edu.au)

### 'Eating is Cheating'

Common for young women to skip meals prior to binge drinking as a way of compensating for increased calorie intake from alcohol.

Avoiding extra calories through beverage choice - drinking alcohol with diet mixers.



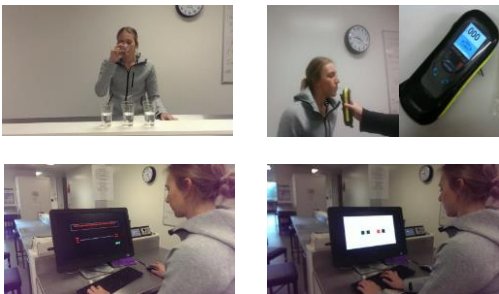
### Aim and Hypothesis

**Aim:** Investigate the impact of an alcoholic beverage containing AS or different doses of CHO on BrAC, pharmacokinetic responses, subjective intoxication and cognitive function in females.

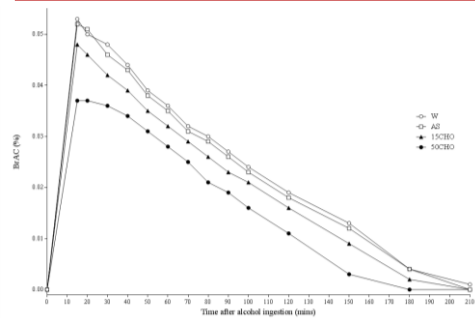
**Hypothesis:**

OH + ↑ doses CHO = ↓ peak BrAC  
 ↓ subjective intoxication  
 less ↓ cognitive function

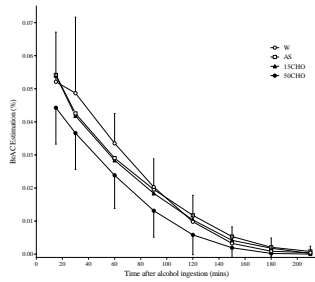
### Method



### Results: Breath Alcohol Response



Results: Breath Alcohol Estimations



Results: Pharmacokinetic Analysis

Trial	C <sub>max</sub> (g/dL)	T <sub>max</sub> (min)
Water	0.057 ± 0.002	20.76 ± 9.97
AS	0.054 ± 0.002	20.76 ± 10.17
15g CHO	0.050 ± 0.002	17.88 ± 4.93
50g CHO	0.040 ± 0.001	23.08 ± 10.68

CHO = Carbohydrate; AS = Artificial Sweetener; C<sub>max</sub> = peak BrAC, T<sub>max</sub> = time to reach peak BrAC

Implications

- Regardless of the mixer (regular or diet), willingness to drive is unchanged.
- Individuals consuming alcohol with diet mixers may underestimate impairment.

References

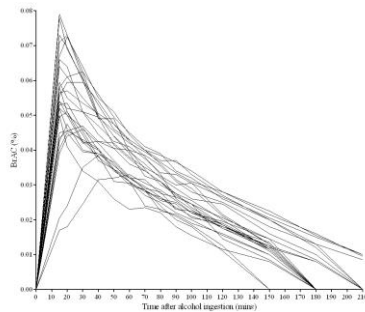
Irwin, C., Schum, D., Desbrow, B., & Leveritt, M. (2014). Comparing the effects of alcohol mixed with artificially-sweetened and carbohydrate containing beverages on breath alcohol concentration.

Marczinski, C., & Stamat, A. (2012). Artificial sweeteners versus regular mixers increase breath alcohol concentrations in male and female social drinkers. *Alcoholism: Clinical and Experimental Research*, 1-7.

Rosshelm, M., & Thoms, D. (2011). Artificial sweeteners, caffeine, and alcohol intoxication in bar patrons. *Alcoholism: Clinical and Experimental Research*, 35(10), 1891-1896.

Zacchia, C., Pihl, R., Young, S., & Ervin, F. (1991). Effect of sucrose consumption on alcohol-induced impairment in male social drinkers. *Psychopharmacology*, 105, 49-56.

Individual Variability



Future Research

**Do the attenuating effects sugar have on alcohol absorption exist at different doses of alcohol?**