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

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‘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

- Time after alcohol ingestion (mins)
- BrAC Estimation (%)

Results: Pharmacokinetic Analysis

<table>
<thead>
<tr>
<th>Trial</th>
<th>$C_{\text{max}}$ (g/dL)</th>
<th>$T_{\text{max}}$ (min)</th>
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</thead>
<tbody>
<tr>
<td>Water</td>
<td>0.057±0.002</td>
<td>20.76±9.97</td>
</tr>
<tr>
<td>AS</td>
<td>0.054±0.002</td>
<td>20.76±10.17</td>
</tr>
<tr>
<td>15g CHO</td>
<td>0.050±0.002</td>
<td>17.88±4.93</td>
</tr>
<tr>
<td>50g CHO</td>
<td>0.040±0.001</td>
<td>23.08±10.68</td>
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</tbody>
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CHO = Carbohydrate; AS = Artificial Sweetener; $C_{\text{max}}$ = peak BrAC; $T_{\text{max}}$ = 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


Individual Variability

Future Research

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