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Binge Drinking and Type 2 Diabetes

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Introduction

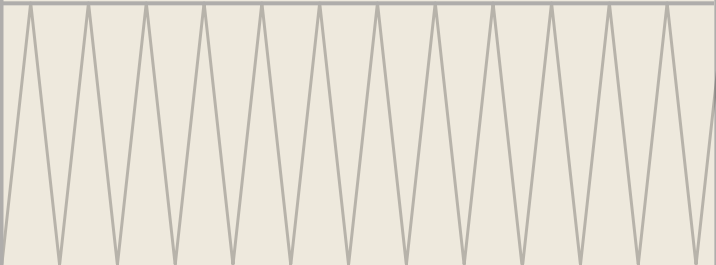
Type 2 Diabetes (T2D) is a long-term metabolic condition known as insulin resistance. In the UK, T2D represents approximately 90% of all diabetes cases, with prevalence rates continuing to rise across all age groups

Objective

To assessed whether the frequency of binge drinking influences diabetes risk and sought to provide evidence to inform public health strategies for older adults aged 37–75 years.

Ethical Considerations

All data used were extracted from previously published studies available in the public domain: no human participants or collection of primary data.



Methodology

A systematic search was conducted in PubMed/MEDLINE to identify studies examining the association between binge drinking and the incidence of type 2 diabetes among older adults in the UK

- **Websites**
- **Comparison studies**

References examples:

- Wannamethee, S. G., Shaper, A. G., Perry, I. J., & Alberti, K. G. M. M. (2002). Alcohol consumption and the incidence of type II diabetes. *Journal of Epidemiology & Community Health*, 56(7), 542-548
- Diabetes UK. How many people in the UK have diabetes? Diabetes UK; 2024.
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Results/Findings

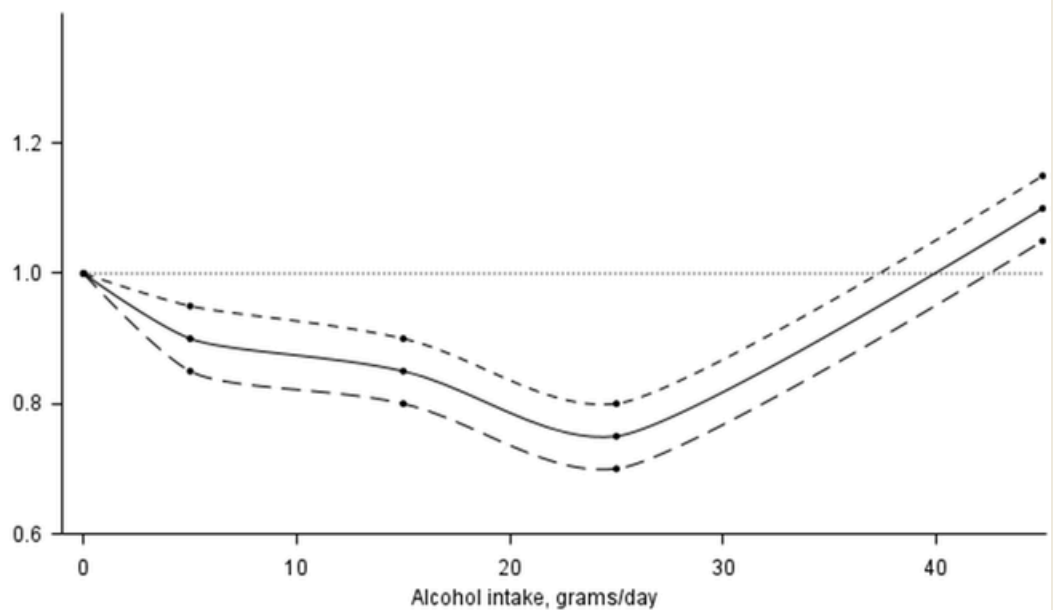
In a cohort of British men, Wannamethee et al. (2002) found that moderate drinkers had a significantly lower incidence of T2D compared to lifelong abstainers (approximately 34% reduced risk).

Moreover, a more recent UK Biobank study by Ma et al. (2022) offered a more detailed perspective on these findings by showing that moderate drinking, especially wine with meals, was associated with a 12% lower risk of developing T2D relative to drinking outside of mealtimes.

Similarly, Lu et al. (2023) found that the heaviest drinkers in the UK Biobank cohort experienced a modest increase in diabetes risk (HR ~1.09) relative to those drinking at lower levels.

Analysis

Five eligible studies were included in the meta-analysis and one of the studies (Beulens et al. 2012) reported hazard ratios for males and females separately regarding the different physiological and behavioural responses to alcohol consumption. Furthermore, the potential dose-response relationship between alcohol intake and the risk of type 2 diabetes was explored through a dose-response curve plotted in Google Sheets using the midpoint values of alcohol consumption (grams per day) for each category: none (0 g/day), occasional (5 g/day), light (15 g/day), moderate (30 g/day), and heavy (60 g/day), against their corresponding relative risks (RRs) and 95% confidence intervals (CIs) derived from the included studies.

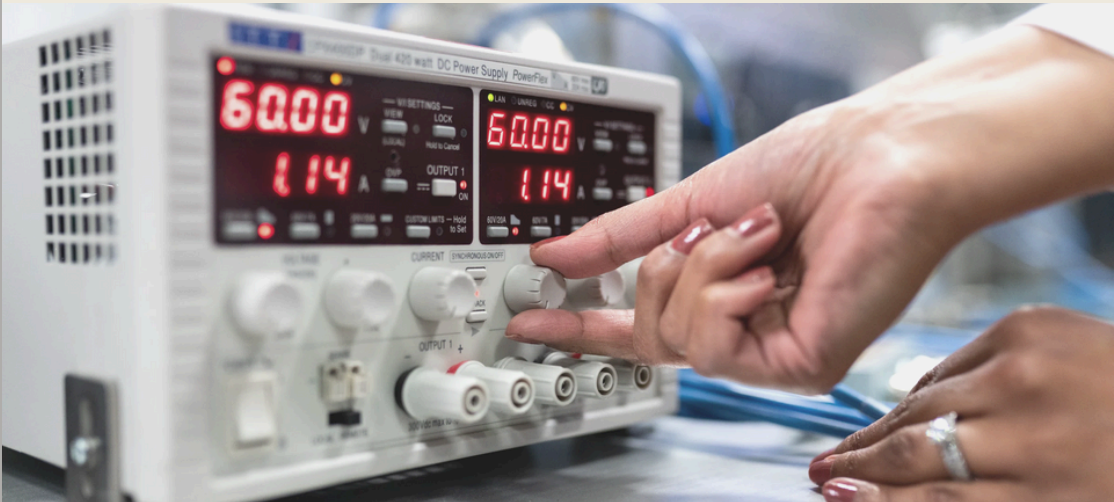


Dose-response relationship between alcohol intake and type 2 diabetes risk



Conclusion

Heavy or binge drinking, in contrast, was consistently associated with elevated risk, reinforcing its role as a harmful pattern of consumption. The findings highlight that the relationship between alcohol and metabolic health is complex and influenced by culture, lifestyle, and individual behaviours.



References

- Beulens JW, van der Schouw YT, Bergmann MM, Rohrmann S, Schulze MB, Buijsse B, Grobbee DE, Arriola L, Cauchi S, Tormo MJ, Allen NE. Alcohol consumption and risk of type 2 diabetes in European men and women: influence of beverage type and body sizeThe EPIC–InterAct study. Journal of internal medicine. 2012 Oct;272(4):358-70.
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- Llamosas-Falcón L, Rehm J, Bright S, Buckley C, Carr T, Kilian C, Lasserre AM, Lemp JM, Zhu Y, Probst C. The relationship between alcohol consumption, BMI, and type 2 diabetes: a systematic review and dose-response meta-analysis. Diabetes Care. 2023 Nov 1;46(11):2076-83.
- Ma H, Wang X, Li X, Heianza Y, Qi L. Moderate alcohol drinking with meals is related to lower incidence of type 2 diabetes. The American journal of clinical nutrition. 2022 Dec 1;116(6):1507-14
- Wannamethee, S. G., Shaper, A. G., Perry, I. J., & Alberti, K. G. M. M. (2002). Alcohol consumption and the incidence of type II diabetes. Journal of Epidemiology & Community Health, 56(7), 542-548