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This entry is our analysis of a review or synthesis of research findings added to the Effectiveness Bank and considered particularly relevant to improving outcomes from drug or alcohol interventions in the UK. The original review was not published by Findings; click on the [Title](#) to obtain copies. Free reprints may also be available from the authors – click [prepared e-mail](#) to send a ready-made e-mail message or compose your own message. Links to source documents are in [blue](#). Hover mouse over [orange](#) text for explanatory notes. The Summary is intended to convey the findings and views expressed in the review. Below is a commentary from Drug and Alcohol Findings.

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▶ **Electronic interventions for alcohol misuse and alcohol use disorders: a systematic review.**

**Dedert E.A., McDuffie J.R., Stein R. et al.**  
**Annals of Internal Medicine: 2015, 163(3), p. 205–214.**



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*Computerisation promises to spread the consumption-moderating benefits of alcohol screening and brief advice or treatment across the population, overcoming resource and access limitations to in-person interventions, but small and transient effects may not be enough to mitigate the health and social consequences of drinking.*

**SUMMARY** Electronic interventions (e-interventions) for problem alcohol use may be delivered on a CD-ROM, online, through mobile applications, or through interactive voice response technology which allow a computer to interact with people over the phone using voice and messaging. They address some barriers to treatment, reducing demands on clinician time and clinic space while enabling more people to access treatment more frequently. Potentially e-interventions can help reach problem drinkers who desire anonymity, lack the time or resources for traditional therapy, need help during non-standard hours, or live in rural areas.

The featured review analysed and amalgamated findings from research which assessed the effectiveness of these interventions in reducing drinking and associated problems among adults (aged 18 or over) compared to [control](#) procedures not intended to have these effects – usually just screening and research assessments. To help eliminate differences between participants as a cause of differences in outcomes and to focus on the more methodologically adequate trials, at least 50 participants had to have been allocated at random to intervention versus control procedures.

Studies involving college students versus adults in general were separately analysed on the grounds that drinking contexts are likely to materially differ. Also differentiated were studies including anyone drinking in a risky manner regardless of whether clinically diagnosed as abusing or dependent on alcohol, versus those who were diagnosed. To assess persisting effects, only trials which measured outcomes at least six months after the intervention were included, and the analysis took account of the intensity of each intervention, including the amount and type of in-person (direct communication from another person whether face-to-face, by email, phone or some other medium) support for participants. Studies had to have been published in English and the trials conducted in North America, the European Union, Australia or New Zealand.

The reviewers identified 28 relevant trials, half among college students and half adults in general. The typical intervention was a single session designed to moderate drinking among people who scored positive for risky drinking on a screening questionnaire. Only three trials specifically recruited participants who were at high risk of being or were already abusing or dependent on alcohol as opposed to being identified merely as risky drinkers. No in-person support was on offer in 17 of the trials; all three which offered relatively intensive support were aimed at adults in general rather than college students. Nineteen trials evaluated a one-off intervention, and in the same number interventions included comparing the participant’s alcohol consumption with that of their peer group – so-called normative feedback intended to correct misperceptions about the normality of an individual’s excessive drinking.

**Main findings**

Seven trials recruited general adult samples of risky drinkers without specifying they had to be diagnosed as abusing or dependent on alcohol. Typically participants were drinking 235g of alcohol a week or nearly 30 UK units. Amalgamating results from all relevant trials revealed that six and 12 months after the interventions there was no statistically significant effect on alcohol consumption relative to control groups. However, at six months there was a small, statistically significant reduction of about 17g per week when the analysis was confined to the five trials whose methodologies meant they were least at risk of producing biased results. Four trials reported the proportion of participants who six months later were no longer drinking excessively, finding no statistically significant intervention effect.

Across trials which recruited risky-drinking college students, initially they typically drank 183g of alcohol a week or about 23 UK units. Across 11 trials (all judged not to be at high risk of biased results) e-interventions were associated with a small, statistically significant 12g per week reduction in drinking

**Key points**  
 From summary and commentary

The featured review amalgamated findings from research which assessed the effectiveness of (typically brief) computerised interventions in reducing drinking and associated problems.

Across trials which recruited college students and those which recruited risky-drinking adults in general, there were small reductions in drinking six months after intervention but not 12 months and no significant reductions in associated problems.

Such small and transient effects may not be enough to improve health and mitigate the social consequences of drinking.

interventions were associated with a small, statistically significant 12g per week reduction in drinking six months later. Across the six trials to assess this, there was however no significant reduction a year after intervention. Ten trials assessed the social consequences of drinking. Across these there was no statistically significant intervention effect relative to controls, nor was there on 'binge' drinking in the five trials to report this.

Just three trials recruited non-college samples diagnosed as likely to be abusing or dependent on alcohol, too few to amalgamate the results. All also offered in-person support over the phone. In two there was no statistically significant impact of the intervention. The [third trial](#) concerned patients recently discharged from residential treatment who were given a smart-phone with a substance use application consisting of guided relaxation exercises, self assessment of drinking and relapse risk/indicators, and alerts initiated by a GPS system when participants approached locations which placed them at high risk of relapse. Counsellors could be sent the risk assessments and could intervene by phone when risk was elevated. A year later, participants in the e-intervention group were substantially and significantly more likely to be abstinent from alcohol and to less frequently drink above safer drinking limits.

### The authors' conclusions

Compared with control groups, both among risky-drinking student and non-student adult samples, there was some evidence that e-interventions led to a small reduction in drinking six months later amounting to about one standard US drink (14g alcohol), eroding to non-significance by 12 months. Other measures of drinking and associated problems were not significantly affected. There were few studies of e-interventions among clinically diagnosed problem drinkers. Effects were small or absent possibly because having one's drinking assessed itself had impacts which overshadowed the typically low-intensity interventions.

The interventions may have accomplished the desired aim of achieving small reductions in consumption with very little investment of clinical time, but such small effects may not be enough to improve health and mitigate the social consequences of drinking. There was some indication that more intensive interventions (eg, featuring cognitive-behavioural coping strategies and exercises tailored to the individual) with more supplementary in-person support (such as phone counselling) could improve engagement and effectiveness.

**FINDINGS COMMENTARY** Compared usually to assessment only, in both student and non-student samples computer-aided interventions reduced drinking by [perhaps](#) an extra 7%. Even this small reduction [could be enough](#) for such inexpensive interventions to cost-effectively improve health and prolong life, if effects persist for years rather than months. But in the featured analysis, impacts at 12 months were no longer significant, ranging from near zero relative to controls to about 9g less alcohol per week – about one UK unit – among the two different populations. The authors' scepticism about whether such small and transient reductions could appreciably improve health seem warranted. Also, these reductions were found among drinkers who joined the studies and completed follow-up assessments, possibly not typical of heavy drinkers in general. In research studies commonly they constitute only a small proportion of the intended recipients. Without the incentives often offered by researchers and their efforts to recruit subjects, routine implementations may reach even fewer risky drinkers.

An [illustration](#) comes from Australia, source of one of the student-sample studies which in the featured analysis most tipped the scales in favour of brief interventions. It was conducted at a single university and took the typical form of offering incentives for students to volunteer for the study. Of those whose drinking might have been heavy enough to screen as risky drinkers, [probably only around 36%](#) provided the follow-up data which fed into the featured review's analysis. Among these possibly atypical students, there were consistent and statistically significant reductions in drinking relative to screening only one and six months after intervention, though not in associated problems. The intervention may have been aided by the research follow-up one month later, when the opportunity was taken to offer a booster intervention reminding students how much they were now drinking compared to their initial figures.

Later the same lead researcher [trialed](#) a similar intervention in a similar trial at seven of New Zealand's eight universities, [described](#) as being "as near to a real-world evaluation in a population of university students as is likely to be achieved". This time the impact of a well structured assessment and brief intervention was so small that – given possible biases – in reality it might have been zero. This trial and another even more [real-world trial](#) in Sweden cast considerable doubt on the ability of routine computerised screening and intervention to moderate drinking across the student body.

A [UK trial](#) among university students also offered only weak support for supplementing online alcohol screening with brief intervention based on the results. Only on one of the two measures of drinking at one of the three follow-ups was intervention associated with a greater reduction in drinking than screening and research processes only, and this was at the final follow-up when just a third of students responded. Attempts to compensate for this degree of loss to follow-up by estimating unknown data from known rest on too many assumptions to be convincing.

In finding at best small effects, these trials were typical of trials of computer-based brief interventions. Like the featured review, [another review](#) of such interventions among students and non-students found a smaller reduction in drinking among student populations. It argued that in some studies drinking amounts were so skewed that using the average to characterise them was misleading. After accounting for this the findings changed, and among students there was now no statistically significant reduction in drinking due to the interventions. The findings raise a question over the validity of the featured review's findings, which were based on average drinking amounts.

Though studies are far fewer, stronger findings across non-college adult samples may be because they join studies and access internet alcohol intervention sites in order to control their drinking rather than for incentives or course credits. Drinking on average more heavily than students and having had longer to experience the ill effects, they have more reason and more scope to cut back. In a setting where heavy drinking is an accepted rite of passage and may be seen as a passing phase, it seems likely that students have less incentive to act on information and advice which would lead older and heavier drinkers responsible for families and jobs, and facing the possibility of chronic diseases as they age, to cut back.

See these Effectiveness Bank hot topics for more on [computerised treatment](#) the potential for [brief alcohol interventions](#)

See these Effectiveness Bank hot topics for more on [computerised treatment](#), the potential for [brief alcohol interventions](#) to improve public health, and the [tactic](#) of feeding back to the participant how much their drinking exceeds population norms commonly used in computerised and other brief interventions.

*Thanks for their comments on this entry in draft to review author Eric Dedert of the the Durham Veterans Affairs Medical Center in the USA. Commentators bear no responsibility for the text including the interpretations and any remaining errors.*

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