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► [Are effects from a brief multiple behavior intervention for college students sustained over time?](#)

Werch C.E., Moore M.J., Bian H. et al.
Preventive Medicine: 2010, 50, p. 30–34.

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At a US university students at first cut back their drinking and cannabis use in response to a brief face-to-face fitness consultation, but the gains were no longer apparent a year after intervention. Yet still at that time they had at least experienced more positive trends in how they felt than students who had just read a fitness brochure.

Summary The Behavior-Image Model approach to health promotion is based on the principle that portrayals of people attractive to the participant and their own improved possible future selves can integrate and motivate change in a range of activities which result in better health. Change is motivated by providing feedback on the participant's current health-related activities and their self-images, highlighting the discrepancy between them to foster commitment to setting goals to narrow this gap.

An [initial study](#) evaluated three brief face-to-face, image-based interventions for college students conducted by fitness specialists. Over the following month several health-related activity domains and health-related quality of life significantly improved.

The featured article reports outcomes 12 months later from a second such study which [at three months](#) found that a brief image-based intervention had led to reductions in various measures of drinking and cannabis use, improved exercise and sleep patterns, and enhanced spiritual and social health-related quality of life.

For the study 18–21-year-old students at a public US university were recruited by adverts and announcements and paid for their participation. Of the 303 who volunteered, nearly all (299, of whom 60% were women) completed baseline questionnaires and were randomly assigned to then immediately participate in the image-based intervention or join a [control](#) group asked by a fitness specialist to read a standard brochure on fitness in a private office.

The same office was used for the 25-minute image-based intervention by the same specialists. This delivered scripted messages which illustrated how health-promoting behaviours support positive social and self-images attractive to the student, while health risk behaviours do the opposite. Content was tailored to the individual's current health behaviours and which images were attractive to them ► box for examples. At the end they were given a brief written 'goal plan' and asked to select at least one goal from each of **four domains** to make progress towards over the following week.

Main findings

In calculating the outcomes the available data was used to estimate what the responses would have been of the 23% of students who did not complete the 12-month follow-up, though results were similar when this was not done. 'Heavy' use of alcohol was defined as five or more drinks in a row for men or four or more for women, while heavy use of cannabis was "getting really high or stoned". Students were usually asked to report on their behaviour and health over the past month.

The general pattern was that post-intervention relative improvements seen at three months had decayed by 12 months to the point where they were no longer statistically significant, partly due to the control students 'catching up'. Though several had been significantly affected at three months, on none of the measures of alcohol or cannabis consumption had intervention students sustained improvements to a statistically significant degree. However, the increase in the number of days on which the student had driven after drinking seen among control students was not seen in intervention students, resulting in a statistically significant difference. There were also sustained, consistent and usually significant relative gains in how well the students felt reflected in measures of health-related quality of life. One of the five measures of physical exercise (moderate exercise over the past month) had been significantly improved at three months and this had been sustained, but improvement in sleep patterns had not.

Given these findings it was decided to assess how closely the quality of life measures were related to actual health-related behaviour. The relationships were all weak, suggesting that how well the students felt did not simply reflect how 'well' in health terms they behaved.

The authors' conclusions

Initial improvements three months after a brief image-based intervention among college

Sample messages

I see that you engage in at least 30 minutes of moderate physical activity on most days of the week.
Congratulations, you are physically active!

Young adults who engage in regular physical activity tend to feel energetic, sleep better, and look more attractive, slim and physically fit. Regular physical activity can reduce your stress level making you more relaxed, happy and unworried.

Meanwhile, using too much alcohol and smoking cigarettes interferes with creating a physically active lifestyle. Alcohol misuse can get in the way of your fitness goals by decreasing your energy level, and directly harming your fitness level and compromising your goals of being in-shape, looking good and feeling strong.

Regularly engaging in moderate physical activity, while avoiding too much alcohol and cigarettes, will help you continue to be a physically active young adult, and reach your fitness goals of keeping slim and trim.

students were partially sustained at 12 months – in particular, there were generally small gains in health-related quality of life, moderate exercise, and drink-driving. However, relative reductions in alcohol and cannabis use and sleep patterns were not sustained (a pattern in respect of the drugs also seen with school pupils after a similar intervention), suggesting that it is worth investigating booster re-interventions. Regardless of changes in behaviour, improvement in health-related quality of life is an important goal in itself.

FINDINGS

Though not statistically significant, on four of the eight measures of alcohol or cannabis consumption, students who had participated in the image-based intervention had moved in the 'wrong' direction relative to students just given a fitness brochure to read. Three of these four measures related to cannabis, a drug not targeted in the standard messages included in the intervention. Smoking tobacco was targeted, but there were no significant effects at three months and presumably none at 12 months. This pattern effectively amounts to no reliable reductions in substance use over the year of the follow-up. In contrast, after three months, six of 14 measures of substance use or problems had been significantly curbed by the intervention, including heavy (or 'binge') drinking and becoming intoxicated on cannabis. At three months omnibus tests of impacts on drinking and cannabis use indicated a significant impact but not in respect of smoking. At this time point too nearly all the students were reassessed.

These findings suggest that the short-term effects on substance use were real but could not be sustained. In respect of drinking, the findings support the conclusion [commonly reached](#) by policy analysts that interventions based on education and persuasion have a minor place in the prevention armoury compared to the much greater role of interventions which directly affect the availability of drink through restricting outlets and/or increasing price.

A similar intervention [has been trialled](#) among US secondary school pupils, with generally no significant effects at the three-month follow-up, though there were indications that the minority of pupils already using substances at the start of the study had cut back in response to the intervention.

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