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Money over Matter: Can Cash Incentives Keep People Healthy?

Losing weight or quitting smoking might just be a small bonus away
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Think you would stick to a [diet](#) if someone paid you for it? Would you be more likely to [exercise](#) if you were fined each time you bailed on your scheduled workout?

Research in recent years suggests—and a handful of new businesses are betting—that you might. The Web-based company [StickK.com](#) lets users sign commitment contracts to lose weight, exercise or quit smoking—and pay up if they default. Members of the Boston-based start-up [Gym-Pact](#) are charged for every day they pledge to work out but do not.

Financial incentives have made their way into health reform, too. The 2010 Affordable Health Care Act [allows employers to offer rewards](#)—or to exact penalties—worth up to 30 percent of health insurance premiums for employees who meet certain health targets, such as quitting smoking or getting their blood pressure below a certain measure.

But scientists are just beginning to tease out the circumstances in which financial incentives work best—and why. Different health behaviors might call for distinct incentive schemes, as might certain populations. And tacking on social or moral incentives could [add to the impact](#) of monetary incentives.

Depending on whether the incentives are positive (such as payment for good behavior) or negative (fines for bad behavior), they are thought to play on different psychological processes.

Positive reinforcement schemes provide an immediate reward for a behavior whose benefits would not be obvious for months or years, accelerating the rate at which a person adopts that activity, says [Theresa Marteau](#), director of the Center for the Study of Incentives in Health at King's College London.

Financial incentives might also work if they are in the form of a lottery, because the small chance of a large reward is emotionally appealing, according to a 2008 [study](#) in *JAMA, The Journal of the American Medical Association*. On the other hand, pecuniary disincentives might play on [loss aversion](#)— the idea that we value losing something twice as much as gaining the same amount, which means we would have to have a chance of winning \$20 to make up for the risk of losing \$10—a behavioral economic principle that is likely at work, too, the *JAMA* paper notes.

Positive reinforcement schemes encourage one-time, good behaviors, such as showing up for disease screening or vaccination programs, according to a [review](#) Marteau published in 2009 in *BMJ* (the *British Medical Journal*). The reason? You only have to do them once, says [Kevin Volpp](#), director of the Center for Health Incentives at the University of Pennsylvania School of Medicine.

Long-term, the picture is unclear. For those looking for more sustained behavioral change, research suggests that financial incentives work best to help people stop [smoking](#) and exercise more. They also motivate kids to do well in school ([pdf](#)). The results, however, are mixed for weight loss.

Smoking

The prospect of a financial reward for stubbing out those cigarettes proved to be an effective incentive in a 2009 [study](#) Volpp published in *The New England Journal of Medicine*. Nearly 900 cigarette-addicted General Electric employees were divided into two groups: a control arm that received information about local smoking-cessation programs and a treatment arm that got that information plus the promise of payment if they accomplished certain goals during the study period. The treatment group received

\$100 for completing a smoking-cessation program, \$250 if they quit within six months after enrolling in the study, and \$400 if they continued to abstain for another six months. (Tests for cotinine, a nicotine by-product, confirmed whether they had actually quit.)

The windfalls significantly boosted the odds of keeping up with smoking-cessation programs and actually quitting. Nearly 15 percent of those in the incentive group had quit in nine to 12 months, compared with 5 percent of people in the control group. And whereas quit rates slipped to 9.4 percent for the incentive group 15 to 18 months after the study began, they were still significantly higher compared with the control group, 3.6 percent of whom remained smoke-free. Former smokers who remain abstinent for a year [tend to stay off cigarettes](#).

"Part of what we're doing is getting people to more heavily weigh the delayed benefits," Volpp says. "It will be more painful this week to quit than not, and the benefits are so off in the future. In some sense we're trying to combat [procrastination](#)."

In another study people were incentivized to quit smoking by the promise of having their own money returned to them. [Dean Karlan](#), an economist at Yale University and a co-founder of *StickK.com* conducted [research](#) published last October in *American Economic Journal: Applied Economics*. In the study smokers in the Philippines were offered the chance to deposit money into a noninterest-accruing bank account while they tried to quit with the promise they would get it back if they passed a nicotine and cotinine urine test six months later. If they failed, the money would go to charity. Those who were offered this "commitment contract" were about 38 percent more likely to pass a surprise urine test 12 months later than those in a control group, some of whom had received graphic photos of cigarette-damaged body parts to motivate them.

Perhaps not surprisingly, the more money smokers deposited into the accounts, the greater their likelihood of quitting and staying smoke-free for a year. "You're increasing the price of your vice," Karlan says. "When you increase the price, you consume less of it." Tax hikes on cigarettes, for example, have been associated with declines in smoking rates ([pdf](#)) across the country.

Poor study designs of earlier smoking trials may have missed the potential benefits of incentives, according to a [meta-analysis](#) of 17 studies in a 2008 *Cochrane Review* that found no difference in six-month quit rates. And for most smokers in the more recent studies, neither a windfall nor the threat of a loss trumped the promise of a nicotine fix. "The reality is that smoking cessation is really difficult," Volpp says. "Quit rates are 2 to

3 percent a year. We had a tripling of rates, but the rates are overall quite low. It highlights the promise of [this] approach but also how far we have to go."

Exercise

Dangling a financial carrot in front of the treadmill got couch potatoes moving in two [studies](#) published in 2009 in *Econometrica*.

In one study college students were divided into three groups: one that got a handout touting the benefits of exercise and two that received the handout plus \$25 to go to the gym once that week. One of the payment groups received an additional \$100 to work out eight more times over the following month.

In the seven weeks after the study ended, the students who had been paid the most went to the gym more than twice as often as those in the groups that received little or no money, scientists from the University of California, Santa Barbara, and U.C. San Diego found.

In a separate experiment, tying payment to a specified number of workout sessions seemed to make the difference in whether participants kept up their fitness routines after the study ended. Those whose \$100 payment was linked to a requirement to work out eight times over a month had significantly higher gym attendance rates later on than people whose \$100 payment required them to exercise once over that month.

In absolute terms students in both studies went to the gym less than once a week before the experiments started, compared with a little more than once a week after they ended. The payment, the authors wrote, "appears to move some people past the 'threshold' needed to engage in an activity." If incentives get them to stick to a schedule, they add, "perhaps good habits will develop."

Weight loss

Beyond just going to the gym, for those people who want to drop pounds, both positive and negative financial reinforcements were associated with weight loss in a small, 16-week [study](#) published in *JAMA* in 2008. Some 57 obese people were split into three groups: one group received a scale and a one-hour-long, individualized consultation with a dietician. The second group was given the scale and consultation, along with the opportunity to win money in a daily lottery if their weight was at or below their weight-loss goal. The third, "deposit contract" group got the scale, consultation and could

contribute between 1 cent and \$3 a day to an account, all of which was refundable at the end of each month if they met or surpassed their weight-loss target.

Those in the deposit-contract group lost the most weight—6.3 kilograms on average—followed closely by the lottery group (5.9 kilograms). The control group lost an average of 1.8 kilograms over the four months of the study.

But money might not help people stay slim: A 2008 [meta-analysis](#) in *Obesity Reviews* found that incentives (which lasted eight to 18 months) made no difference in the amount of weight people kept off 12 to 18 months after the rewards ended. And in weight maintenance phases of other studies Volpp found that participants regained about the same amount whether they were in the incentive or control arms. Nevertheless, he argues that incentivized weight-loss programs may work better than other methods in which dieters start to plateau or regain weight, even while they're supposed to be losing. In contrast, participants in the incentive studies put on pounds after the rewards or penalties ended.

"If we ran it for longer, we'd have a reasonable chance of achieving good, long-term results," he says. "Part of the reason people regain weight is that they get to a loss nadir and are there a relatively short period of time. They don't really have time to recalibrate, have their bodies readjust, buy new clothes. If you help people keep it off for an extended period of time, they have a much better chance of keeping it off."

Whether incentives work better than negative reinforcement is unknown; no head-to-head trials have been done, Marteau says. But loss-aversion suggests that negative reinforcement might be an even more powerful motivator.

StickK.com offers some supporting, if anecdotal evidence. Just 29 percent of members reach their goals if they have signed a contract without a referee or money on the line. The rate jumps to nearly 73 percent when they put up stakes, and to more than 80 percent when they have pledged their bucks to an "anti-charity"—a cause they do not agree with—says Sam Espinosa, the company's marketing director. (Although the site offers anti-charities on both sides of the political aisle, its most popular is the George W. Bush Presidential Library.)

If negative reinforcement truly works better, it might be because of a selection bias: People who sign up for punishment might be more driven to accomplish their goals than

those who are working toward a reward, Karlan says. (Scientists could not ethically impose fines on research subjects without their permission, Marteau explains.)

Whatever their successes, individualized incentive programs might not be enough to alter epidemic levels of obesity and diabetes linked to cheap and widely available junk food, Marteau says. "There may be a role for incentivizing individuals to change behaviors, but at a population level, it's one small part of the piece," she says. "We need to change our environments."

Adds Karlan: "I think of incentives as a complement, not a substitute for other things. If you're going to lose weight, you need a plan for how to do it—the incentives help you stick to that plan. The trick is: How do you help people figure out what [kind of incentive] will work for them? That's the holy grail."