

## FEATURES

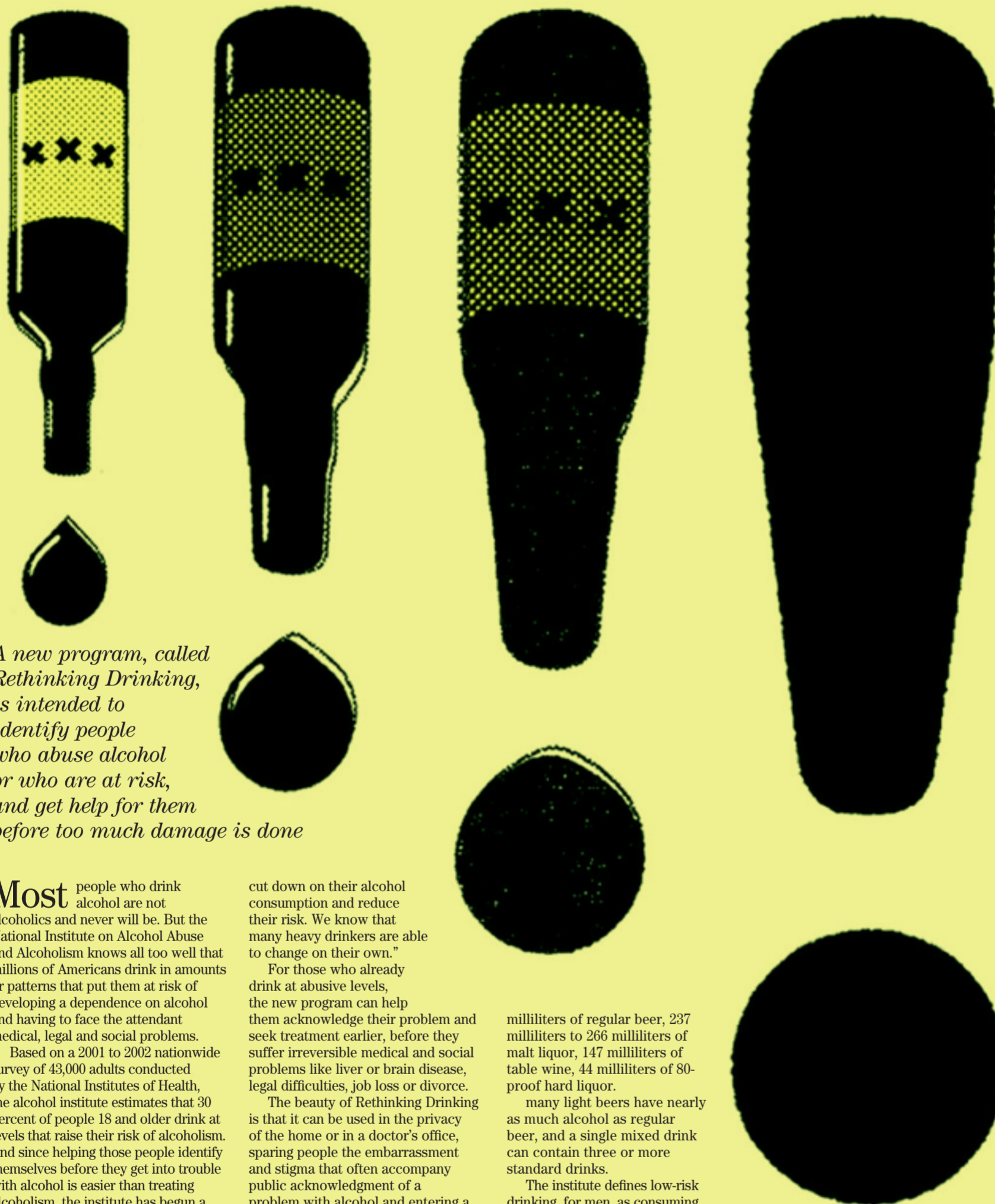
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[ HEALTH ]

## Can problem drinkers be identified before problems start?

BY JANE E. BRODY  
NY TIMES NEWS SERVICE, NEW YORK



*A new program, called Rethinking Drinking, is intended to identify people who abuse alcohol or who are at risk, and get help for them before too much damage is done*

**Most** people who drink alcohol are not alcoholics and never will be. But the National Institute on Alcohol Abuse and Alcoholism knows all too well that millions of Americans drink in amounts or patterns that put them at risk of developing a dependence on alcohol and having to face the attendant medical, legal and social problems.

Based on a 2001 to 2002 nationwide survey of 43,000 adults conducted by the National Institutes of Health, the alcohol institute estimates that 30 percent of people 18 and older drink at levels that raise their risk of alcoholism. And since helping those people identify themselves before they get into trouble with alcohol is easier than treating alcoholism, the institute has begun a groundbreaking preventive program called Rethinking Drinking.

The program includes a 16-page booklet for the public (*Rethinking Drinking: Alcohol and Your Health*), a product set for clinicians with a 34-page booklet (*Helping Patients Who Drink Too Much: A Clinician's Guide*) and an interactive Web site for people who drink, RethinkingDrinking.niaaa.nih.gov, complete with quizzes, calculators and other tools.

The materials can be downloaded from the Web site. Together, they represent a sea change in the approach to alcohol abuse: identify and treat risky drinking patterns before anything bad happens.

### MAKING ADJUSTMENTS

"This is a wellness project, patterned on the risk-reduction concept used to prevent other chronic diseases like heart disease and diabetes," Mark Willenbring, the main architect (with Maureen Gardner) of the program, said in an interview. "As with lowering cholesterol or high blood pressure to prevent heart disease, the idea is early identification of risky drinking patterns and early intervention instead of waiting until the person is chronically ill."

Willenbring, who directs the institute's Division of Treatment and Recovery Research, added: "Once they know who they are, most people at risk of becoming alcohol abusers can

cut down on their alcohol consumption and reduce their risk. We know that many heavy drinkers are able to change on their own."

For those who already drink at abusive levels, the new program can help them acknowledge their problem and seek treatment earlier, before they suffer irreversible medical and social problems like liver or brain disease, legal difficulties, job loss or divorce.

The beauty of Rethinking Drinking is that it can be used in the privacy of the home or in a doctor's office, sparing people the embarrassment and stigma that often accompany public acknowledgment of a problem with alcohol and entering a treatment program.

"A single session with a physician — just five minutes of advice — can have lasting effects on reducing a person's drinking," Willenbring said. Yet many primary care doctors don't know how to identify a potential drinking problem in their patients or what to do if they suspect a problem may develop.

"More than 90 percent of alcohol treatment programs offer group counseling or Alcoholics Anonymous," Willenbring noted. "This is not a medical model. Doctors are not involved."

The Rethinking Drinking materials can also be used in other settings, like college campuses, workplaces and churches, and in the criminal justice system. A student who repeatedly wakes up hung over without knowing what he did the night before might consult the program and modify his behavior. Someone who is cited for driving while intoxicated might be referred to the program and prompted to take better control of his or her drinking before a disaster occurs.

### HELPFUL GUIDELINES

Many drinkers have mistaken notions of what constitutes "a drink" and are often unaware of just how much alcohol they consume at any one time, Willenbring said.

Rethinking Drinking provides these equivalents of one drink: 355

milliliters of regular beer, 237 milliliters to 266 milliliters of malt liquor, 147 milliliters of table wine, 44 milliliters of 80-proof hard liquor.

many light beers have nearly as much alcohol as regular beer, and a single mixed drink can contain three or more standard drinks.

The institute defines low-risk drinking, for men, as consuming no more than 4 drinks on any day and no more than 14 drinks a week. For women, the limit is three drinks on any day and no more than seven drinks a week. Drinking more than these amounts in a day or during a week is considered at-risk or heavy drinking.

Even within these limits, some people can have problems with alcohol, especially those with health problems and people over 65. Older men and women are advised to consume no more than three drinks a day and seven a week.

"Even moderate levels of drinking (up to two drinks per day for men or one for women) can be too much in some circumstances," the program states. And people in these circumstances should avoid alcohol altogether:

- Women who are pregnant or trying to become pregnant (a safe level of alcohol for the developing fetus has not been established).
- People planning to drive or operate dangerous machinery.
- Those taking medications that interact with alcohol.
- People with health problems made worse by alcohol.

The institute emphasizes that people who believe they have "a high tolerance" for alcohol — that is, they can drink a lot without acting or feeling inebriated — are not protected from developing alcoholism and

alcohol-induced health problems. Quite the contrary.

The new program helps drinkers determine whether they are ready to change their drinking habits, identify personal benefits of making a change and recognize possible roadblocks and ways around them. It also provides nine strategies for cutting down on drinking, including learning how to pace yourself and keep track of how much you are drinking.

Willenbring listed five early symptoms that indicate a drinker already is an alcohol abuser or at risk:

1. Repeatedly drinking more than self-set limits.
2. Having a persistent desire to quit or cut down.
3. Drinking and driving.
4. Spending too much time drinking.
5. Having hangovers or a sleep disorder.

"Alcoholism isn't what it used to be," Willenbring said. "What we used to know about it came from studying the very severe end of the spectrum — those with a chronic illness who reach rock bottom."

It is now known that many people have limited episodes of alcohol dependence, and if these are recognized and dealt with early on, many alcohol-related problems can be avoided.



Katherine Aull researches her genes using a makeshift lab in her Cambridge, Massachusetts, apartment. PHOTO: NY TIMES NEWS SERVICE

## DIY sleuthing

*Despite ethical concerns, discovering your genetic makeup could become as routine as having a blood-pressure test*

BY CAROLYN Y. JOHNSON  
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**I**n her humble first-floor apartment, Katherine Aull is searching for a killer that has stalked her family for generations. But this is no manhunt. Aull is scouring her own genes in pursuit of a potentially lethal mutation that she may have inherited from her parents — and she has transformed her bedroom closet into a makeshift scientific laboratory to conduct the hunt.

The 23-year-old MIT graduate uses tools that fit neatly next to her shoe rack. There is a vintage thermal cycler she uses to alternately heat and cool snippets of DNA, a high-voltage power supply scored on eBay, and chemicals stored in the freezer in a box that had once held vegan "bacon" strips.

Aull is on a quirky journey of self-discovery for the genetics age, seeking the footprint of a disease that can be fatal but is easily treated if identified. But her quest also raises a broader question: If hobbyists working on computers in their garages can create companies such as Apple, could genetics follow suit?

"We have a long way to go," Aull said. "But certainly in the short term, I'd like to show people how to do this, how to do it safely, and that you can do this."

Aull, a former research associate at the now-defunct biotech company Codon Devices, doesn't expect everyone to approach genetics with her same attitude. But with startup companies already gambling that knowing your genes could become as routine as a blood-pressure test, she figures, why not test the theory?

She has the attention of George Church, a Harvard Medical School genetics professor who was a pioneer of the Human Genome Project and a co-founder of Codon Devices, and who is now leading an effort to sequence the DNA of 100,000 people. Aull is one of his former students.

"Can genetics map onto electronics — is it ready to go into the garage shop in a hobbyist sense?" said Church. "That's the question she's asking, and I think that's a very big, profound question ... There seems to be a very deep and growing curiosity about genetics that might dwarf electronics. No matter how much we love our gadgets, we're totally fascinated by our ancestry and health."

Aull's quest began with her father, Ken Aull, who began to get sick a few years ago, when he was 58. His blood pressure spiked, and he had back pain and signs of liver problems.

The elder Aull, an engineer, went through a battery of tests, including a genetic test that revealed he had hemochromatosis, in which iron builds up in the body. He turned to his daughter, a biologist in training, for more insight.

Katherine Aull sifted through the data and saw that her father had mutations on each copy of one of his genes. Together, they gave him hemochromatosis, a potentially fatal disease with a simple treatment: have blood drawn regularly.

Today, with treatment, her father is fine, but she has been left wondering about herself. Each person inherits two copies of each gene: one from their mother and one from their father. Aull knows she must have inherited one mutant gene from her father. But it takes two mutant genes to cause hemochromatosis. The question is whether she inherited another from her mother.

Instead of going to a doctor to do the test, she recently prepared her samples by swabbing her cheek with a Q-tip and scraping the cells into a tube. Then, she dangled the tube in a pot of boiling water on her kitchen stove.

"For so many people, biology is something scary that takes place in a lab," Aull said. "This shows people it's understandable, and part of your life ... You can do it with basic kitchen equipment."

To the tube, Aull added compounds that are specifically designed to isolate the fragments of DNA that could hold either normal genes or mutations. Then, she loaded the stovetop samples into her thermal cycler, a piece of lab equipment that noisily and rapidly ramps the temperature up and down, to create many copies of bits of DNA that could carry the mutation.

When her samples were ready, Aull loaded them into a gel in a plastic box and hooked it up to a high-voltage power supply. The DNA moved across the gel. Later, in the glow of an intense blue light, she watched bands of DNA light up, revealing which mutations lie within her genes.

So far, Aull's initial experiment indicates that she carries two mutant genes. She is repeating the experiment to check her results and eventually plans to get a professional test.

Beyond getting the experiment to work, the big questions hanging over home biology experiments right now include safety and determining how such amateur efforts will coexist with professional science, said Mackenzie Cowell, who is working to foster a biology community called DIYbio — for do-it-yourself biology — in Boston.

Keith Robison, a computational biologist who worked at Codon Devices, urges caution to amateurs who may not understand the nuances of their self-experiments without the assistance of genetic counselors.

He took an example from his own life to describe the undue anxiety that can come from pursuing one's own genetic information. When he found out that someone in his wife's family was color-blind, he became "semi-obsessed" with calculating the probability his son might also be color-blind. Unlike color-blindness, many diseases are caused by a mix of factors, only one of which is genetics. So what kind of confusion could occur, Robison wonders, if people begin sifting through their genome and find a gene that "raises the risk [for a disease] in some complicated way we don't know how to understand?"

Even when scientists have pinpointed the genetic mutations that cause a disease, as they have done with hemochromatosis, some people who carry both mutant genes may develop no symptoms of the disease.

Patients should not take action without medical advice, said Cheryl Garrison, executive director of the Iron Disorders Institute, a nonprofit group that raises awareness about hemochromatosis.

"It's imperative they maintain a relationship with their doctor," Garrison said. "Before you take action on the results, make sure you get a medical partner."

TIMES SQUARE PHOTO BY MICHAEL O'NEILL