wise, Morris says the activities that provided protection from heart attacks to the men in his study were those typically done for a sustained time, such as swimming, bicycling, or playing a sport. "Our men just didn't [break up their exercise]," Morris points out. "By the time a middle-aged man swims on the way to his office or on his way home, for the sake of his health, he swims for a reasonable time."

But there is also nonepidemiological evidence that exercise can be broken up, says Pate. The consensus reports cite two small studies in which subjects were assigned to exercise for 30 minutes a day—either in one stretch, or in two or three bouts of 15 or 10 minutes—for a period of 8 to 10 weeks. Both studies showed improvements in fitness, as determined by treadmill or equivalent tests. But they did not demonstrate that the improved fitness paid off in improved cardiac risk factors. And, as Williams notes, neither was a true test of moderate exercise: One specified running; the other included jogging. "You seem to get the same effects [on fitness] with smaller bouts as with a single bout," says Williams, "but that doesn't imply the same will be true for intermittent bouts of moderate activity affecting risk of heart disease." Paffenbarger, who was an author of the CDC/ACSM guidelines, agrees with Williams. "There are no data to indicate that three short bouts of activity are equivalent to one large bout in terms of reducing disease risk, disease incidence, or mortality," he says. "That is a guess that is built into the CDC guidelines."

Supporters of the guidelines say that acting on a few such guesses is justified, given the public health stakes. They note that the Surgeon General's report is more carefully stacked with caveats than the earlier CDC/ACSM report was. It points out repeatedly, for example, that additional benefits can be gained by more activity, and it soft-pedals the issue of breaking up exercise with the statement that "strictly speaking, the health benefits of such intermittent activity have not yet been demonstrated."

To remove some of the guesswork from future recommendations, Thompson and others advocate balancing the epidemiological studies with more trials in which subjects are placed on specific exercise regimens, to answer questions about intensity, duration, and amounts of exercise necessary to produce specific results. While we wait for these results, Pate pleads that we "not obscure the big conclusion here, which is that we are paying an enormous public health cost for our sedentary lifestyle in this country. We have an awful lot of very inactive people. I don't hear anybody saying [that we should] just leave them where they are while we settle this."

–Marcia Barinaga

ASTHMA GENETICS

A Scientific Result Without the Science

In the old days—say, 2 or 3 years ago—breakthroughs in basic research were almost always announced at scientific meetings or published in peer-reviewed journals. No longer. Last week, Sequana Therapeutics Inc., in San Diego, issued a press release declaring that the company had "discovered a gene responsible for asthma." The three-page release contained little data of use to other researchers—such as where the gene is located, what it might do, or how many sufferers might carry it. Nor is anyone likely to find the answers in journals or at meetings anytime soon. Sequana and its collaborators are in "the very early stages" of preparing a manuscript describing the finding, says geneticist Mary K. McCormick, head of Sequana's asthma division. She says it might be published "within a year."

The reason Sequana preempted the traditional scientific publication process has little to do with science. The announcement alerted investors that the discovery will earn the company a $2 million "milestone payment" from Sequana's collaborator, pharmaceutical giant Boehringer Ingelheim. Indeed, Sequana's stock rose from $13⅛ to $14 the day after the announcement. And if the company had kept the news to itself, its employees and collaborators would risk insider-trading charges if they bought or sold Sequana stock, says company CEO Kevin Kinsella. At the same time, Sequana does not want to disclose details until it has filed for a patent and given Boehringer Ingelheim "some lead time" to develop treatments based on the gene, says Sequana's chief scientist, Tim Harris.

Sequana isn't the only biotechnology company to announce a major basic research finding by press release. Last November, Cambridge, Massachusetts–based Millennium Pharmaceuticals claimed that it had found a diabetes gene, and in January, Salt Lake City–based Myriad Genetics announced that its researchers had bagged a gene linked to a type of brain cancer—both without scientific specifics (*Science*, 28 March, p. 1876). And these surely won't be the last such announcements: "I'm not a fan of genetics by press release," says Harris, "but it's an inevitable part of life at a biotech company that finds genes for a living."


SEQUANA

Genetics by press release. Kevin Kinsella, with Sequana logo.

It's becoming a part of life in academic genetics, as well. Untangling the complicated genetics of diseases such as diabetes or asthma "is very expensive research," says geneticist William Cookson of Oxford University. "It is difficult to imagine all the loci being identified without some commercial funding." One of Sequana's academic collaborators, pulmonologist Arthur Slutsky of the University of Toronto, agrees. Boehringer Ingelheim and Sequana have spent more than $10 million to find this gene—more than the Canadian government has spent on the entire human genome project in the last 2 years, he says. But the price for that support is the secrecy imposed by for-profit funding sources, says Cookson.

Sequana's results have been eagerly anticipated. The Toronto group, including Slutsky and Noe Zamel, published a paper last June in the *American Journal of Respiratory and Critical Care Medicine* describing their work with the residents of the South Atlantic island of Tristan da Cunha. Most of the nearly 300 residents are descendants of 15 settlers from the early 1800s, and 57% have at least partial evidence of asthma. The researchers later said that they had found two chromosomal linkages, and that one was narrowed to a few hundred thousand base pairs. "A few weeks ago," the team was confident enough of their data to say they had a gene, says Slutsky.

The press release quotes pediatrician Richard O'Connor of the University of California, San Diego, as saying the discovery is "this century's most important finding in the etiology of asthma." But other researchers are less exuberant. "It is unlikely that this is the major genetic effect in asthma," says Cookson, who, with others, has found several chromosomal linkages to allergy and asthma. "It's definitely an impressive piece of science," he says, but until a more traditional scientific announcement is made "its overall value is impossible to judge." That judgment is months away. Don't hold your breath.

–Gretchen Vogel