The Washington Post

HEALTH

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Tuesday, May 10, 2005

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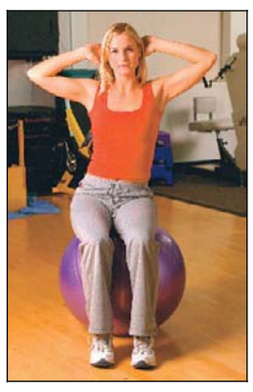
THIS WEEK IN HEALTH

Moving Crew



Get on the Ball! You bought one of those big air-filled fitness balls. Now what do you supposed to do with it? We tell you. F3

Kidlife

Wet blanket Bells and buzzers deter bed-wetters better than drugs. F3

Quick Study

Acupuncture for migraines? Sham treatment may offer just as much benefit. F6

20 Years Ago

2005 marks the 20th anniversary of The Washington Post Health section. A look back:

From May 8, 1985 After being out of favor in the '70s, estrogen replacement therapy was suddenly a medical darling again. A few holdouts voiced concerns . . . America's aerobic workout craze could produce injury, worried a prominent Soviet doctor touring that "seedbed of fitness mania, California."

LEAN PLATE CLUB

Sally Squires

Making the Busiest Life Fit

To most of us mere mortals, elite athletes often seem to eat right and stay in shape with an effortless grace. It's hard to imagine that they ever struggle to work out or are tempted to overeat and add unwanted pounds.

But former Pittsburgh Steeler wide receiver Lynn Swann, a member of the Pro Football Hall of Fame and chairman of the President's Council on Physical Fitness and Sports, is here to set the record straight.

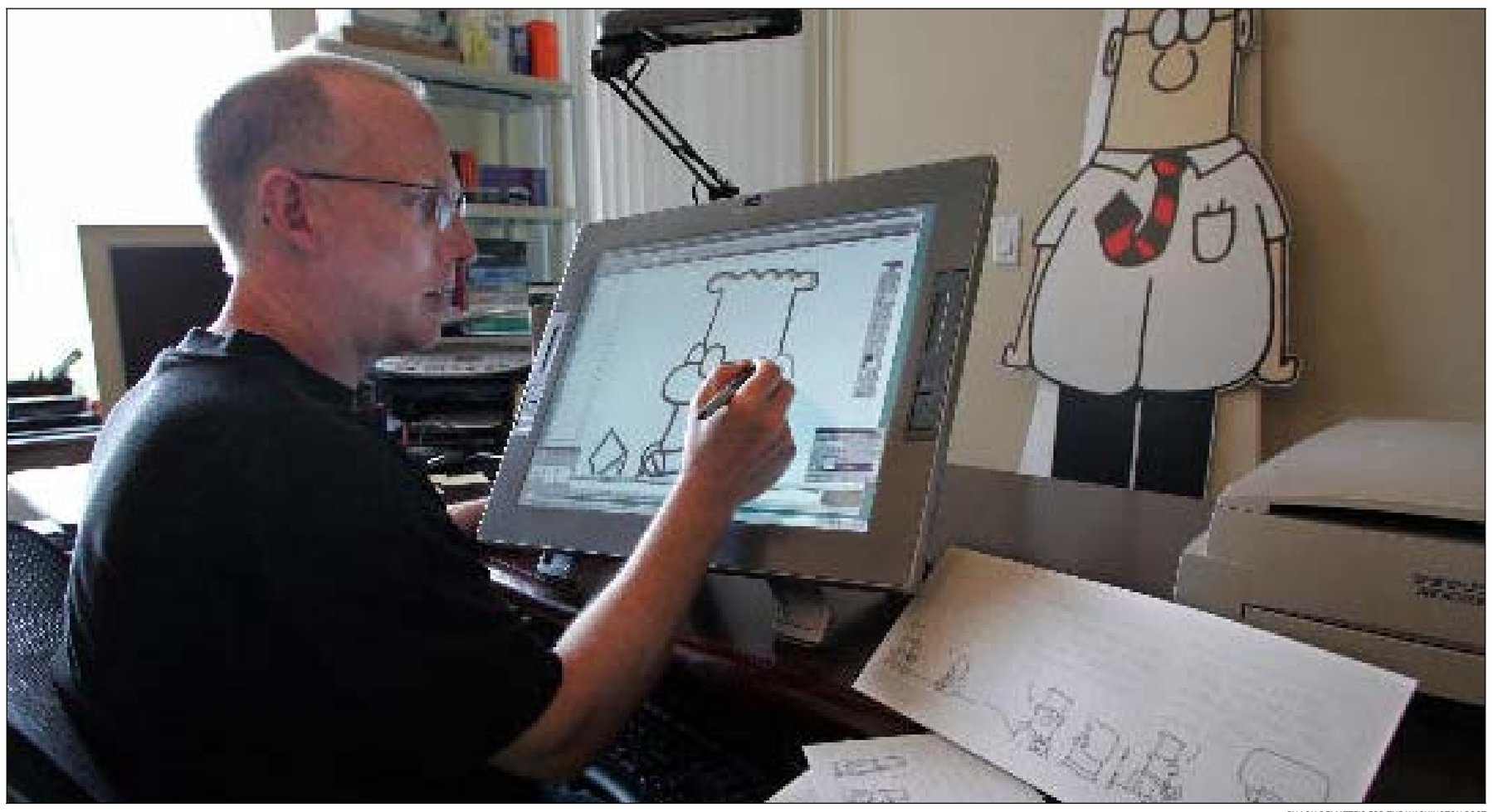
At 53, Swann maintains his playing weight of 185 pounds. These days, he juggles work and family, including two sons, aged 7 and 8. In addition to performing his council duties, a voluntary, presidentially-appointed position, Swann is an on-air college football commentator for ABC, which keeps him traveling six months of the year. It's the kind of routine that often makes healthful eating and regular physical activity difficult to sustain.

Swann's schedule is likely to get even busier: He may run for governor of Pennsylvania as a Republican in 2006.

Swann said in a recent interview that he expects to resign from the President's Council in the next several months. "In mounting a campaign for governor, I would not be able to spend the same amount of time that I need to spend as chairman of the President's Council," he said.

Whether or not he enters politics, physical activity is a mainstay of his daily life. Here's what Swann suggests — and practices himself — to stay fit and to maintain a healthy weight:

See **SWANN**, *Page F8*



BY LOU DEMATTEIS FOR THE WASHINGTON POST

Dilbert cartoonist Scott Adams, at home in Dublin, Calif., uses a pressure-sensitive LCD tablet to foil focal dystonia — a neurological movement disorder affecting his right hand.

Scott Adams, Drawing the Line

Dilbert's Creator Can't Always Make His Hand Follow Directions. But He's Found a Work-Around.

By Samantha Sordyl
Washington Post Staff Writer

For most of his career, nationally syndicated cartoonist Scott Adams has needed just two hours to produce a three-panel episode of "Dilbert," his celebrated comic strip satirizing cubicle life and misguided management. Those two hours take him from initial pencil sketch to the final inking of such beloved miscreants as Dogbert, the evil management consultant, who emerges from the pen in "one unbroken smooth line" that extends from his nose to his tail, Adams said.

But one morning last November, working in his home office in Dublin, Calif., Adams, 47, found that smooth line nearly impossible to execute.

"My pinky started moving again," he said. "Specifically, my pinky flexes. It goes stiff; it goes straight out."

That was a cue that his focal dystonia was flaring up to threaten his career once again. Adams was diagnosed with the condition — a neurological movement disorder, marked by involuntary muscle spasms—back in 1992, around the time he launched "Dilbert." The problem affects his right hand — the one he uses to draw.

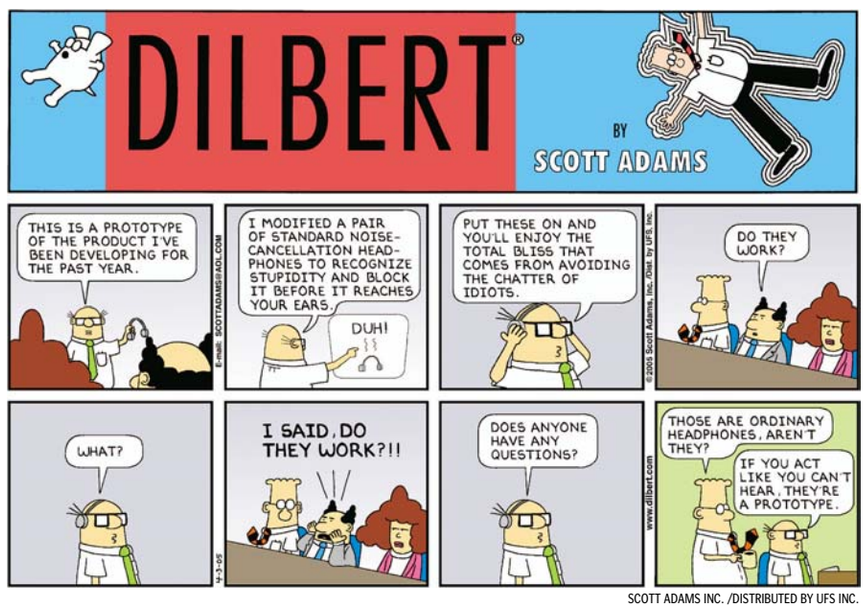
"I would look at [my fingers] and tell them to do one thing, and they would do jagged things instead," Adams recalled. "I'd have full muscle control for everything — except putting a pen to a piece of paper."

The first time around, he'd foiled the condition by drawing left-handed. Meantime, he was doing a conditioning exercise he devised: During the meetings that filled his old day job, he'd hold down a pen tip to paper until he felt a twinge, then pick it up quickly and rest his hand before a spasm would set in. He did this repeatedly, extending his pen-gripping time bit by bit. Eventually, he said, the problem "just went away."

But it was an arduous process he wasn't eager to repeat. "I couldn't go through another year like that," he said.

This time Adams approached the problem like the computer nerd he says he is, and found an answer online. The fact that his comics have continued uninterrupted since he began using a new drawing tool in January speaks to his success. Only his very closest followers may have noticed subtle differ-

See **DILBERT**, *Page F5*



SCOTT ADAMS INC. /DISTRIBUTED BY UFS INC.

A recent strip reveals the effects of Adams's new technique. In the fourth panel, Adams says, Dilbert's nose is too big, his glasses too small. In last panel, his arm is too thin.

Healthy Skepticism | *Part of an occasional series*

Overstating Aspirin's Role In Breast Cancer Prevention

How Medical Research Was Misinterpreted to Suggest Scientists Know More Than They Do

By Lisa M. Schwartz, Steven Woloshin and H. Gilbert Welch
Special to The Washington Post

Medical research often becomes news. But sometimes the news is made to appear more definitive and dramatic than the research warrants. This series dissects health news to highlight some common study interpretation problems we see as physician researchers and show how the research community, medical journals and the media can do better.

Preventing breast cancer is arguably one of the most important priorities for women's health. So when the Journal of the American Medical Association published research a year ago suggesting that aspirin might lower breast cancer risk, it was understandably big news. The story received extensive coverage in top U.S. newspapers, including The Washington Post, the Wall Street Journal, the New York Times and USA Today, and the major television networks. The headlines were compelling: "Aspirin May Avert Breast Cancer" (The Post), "Aspirin Is Seen as Preventing Breast Tumors" (the Times).

In each story, the media highlighted the change in risk associated with aspirin — noting prominently something to the effect that aspirin users had a "20 percent lower risk" compared with nonusers. The implied message in many of the stories was that women should consider taking aspirin to avoid breast cancer.

But the media message probably misled readers about both the size and certainty of the benefit of aspirin in preventing breast cancer. That's because the reporting left key questions unanswered:

See **ASPIRIN**, *Page F4*

More Repellant

CDC Lets In Two New Bug Sprays

By January W. Payne
Washington Post Staff Writer

The Centers for Disease Control and Prevention (CDC) recently recommended two new ingredients as mosquito repellents, picaridin and oil of lemon eucalyptus, marking the first time the agency has suggested anything other than the chemical DEET for mosquito bite prevention.

"We hope by giving people a wider range of options, that some nonusers might become interested in

See **MOSQUITO**, *Page F6*

Cutter Advanced is the first U.S. repellent with picaridin.

COURTESY OF SC JOHNSON

In Aspirin Study, Lots of Meaning in (Lost) Details

ASPIRIN, *From F1*

■ Just how big is the potential benefit of aspirin?
■ Is it big enough to outweigh the known harms?
■ Does aspirin really prevent breast cancer, or is there some other difference between women who take aspirin regularly and those who don't that could account for the difference in cancer rates?

This article offers a look at how the message got distorted, what the findings really signify—and some broader lessons about interpreting medical research.

How Big a Benefit?

Just how big is the potential benefit of aspirin?

The 20 percent reduction in risk certainly sounds impressive. But to really understand what this statistic means, you need to ask, "20 percent lower than what?"

In other words, you need to know the chance of breast cancer for people who do not use aspirin. Unfortunately, this information did not appear in any of the media reports. While it might be tempting to fault journalists for sloppy, incomplete reporting, it is hard to blame them when the information was missing from the journal article itself.

In the study, Columbia University researchers asked approximately 3,000 women with and without breast cancer about their use of aspirin in the past. The typical woman in this study was between the ages of 55 and 64. According to the National Cancer Institute, about 20 out of 1,000 women in this age group will develop breast cancer in the next five years. Therefore, the "20 percent lower chance" would translate into a change in risk from 20 per 1,000 women to 16 per 1,000 — or four fewer breast cancers per 1,000 women over five years.

For people who prefer to look at percentages, this translates as meaning that 2 percent develop breast cancer without aspirin, while 1.6 percent develop it with aspirin, for an absolute risk reduction of 0.4 percent over five years.

Another way to present these results would be to say that a woman's chance of being free from breast cancer over the next five years was 98.4 percent if she used aspirin and 98 percent if she did not. Seeing the actual risks leaves a very different impression than a statement like "aspirin lowers breast cancer risk by 20 percent." (See "Research Basics: How Big Is the Difference?")

Against What Size Harms?

Is the potential benefit of aspirin big enough to outweigh its known harms?

Unfortunately, aspirin, like most drugs, can have side effects. These, according to the U.S. Preventive Services Task Force, include a small risk of serious (and possibly fatal) bleeding in the stomach or intestine, or strokes from bleeding in the brain — harms briefly noted but not quantified in the original study or in most media reports. To decide whether aspirin is worth taking, women need to know how the potential size of aspirin's benefit in reducing breast cancer compares with the drug's potential harms.

Sound medical practice dictates doing the same kind of calculation — of potential benefits against potential harms — anytime you consider taking a drug.

We provide the relevant information in the "Aspirin Study Facts," below. The first column shows the health outcome being considered (e.g., getting breast cancer, having a major bleeding event). The second column shows the chance of the outcome over five years for women *not* taking aspirin. The third column shows the corresponding chance for women taking aspirin. And the fourth column shows the difference — the possible effect of aspirin.

As the table shows, the size of the known risk for stomach bleeding to a woman taking aspirin daily nearly matches the size of the still-hypothetical benefit in terms of breast cancer protection. That kind of comparison might lead some women to conclude that the tradeoff doesn't warrant the risk.

While it may take you some time to become familiar with this table, we think this sort of presentation would be helpful in many situations; for example, whenever people are deciding about taking a new medication or undergoing elective surgery.

Is It Really Aspirin?

Does aspirin really prevent breast cancer, or is there some other difference between women in the study that could account for the difference in cancer rates?

Can we be sure that aspirin was responsible for the "20 percent fewer" breast cancers that the Columbia researchers found among aspirin users compared with nonusers?

To understand why not, it is necessary to know some of the details about how the study was conducted.

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Doctors read an X-ray in a breast cancer clinic: It's too soon to tell if aspirin offers protection.

The researchers collected information from all of the women in New York's Nassau and Suffolk counties on Long Island, who were diagnosed with breast cancer in 1996 and 1997. For comparison, they matched these women with others who did not have breast cancer, but who were about the same age and from the same counties. The researchers asked all the women about their use of aspirin.

They found that aspirin use was more common among the women without breast cancer. While the researchers were careful to report that the use of aspirin was "associated" with reduced risk of breast cancer, the media used stronger language, suggesting aspirin played a role in preventing breast tumors.

Unfortunately, this kind of study — an observational study — cannot prove that it was the aspirin that lowered breast cancer risk. Strictly speaking, the researchers demonstrated only that there is an association between aspirin and breast cancer.

Consider how an association between aspirin and breast cancer could exist even if aspirin has no effect on breast cancer.

It could be that women who use aspirin regularly are already at a lower risk of breast cancer. Imagine, for example, there was a gene that protected against breast cancer but also made people more susceptible to pain. Women who carried this gene would be more apt to use aspirin for pain relief. The lower breast cancer risk in aspirin users might simply reflect the fact that they had this gene. In other words, aspirin might have nothing to do with the findings. To really know if aspirin lowers breast cancer risk would require a different kind of study — a randomized trial. (See "Research Basics: Cause or Association?")

Nonetheless, observational studies are important (and often crucial) in building the case for doing a randomized trial. In this instance, the researchers had a theory for how aspirin might prevent breast cancers. They predicted that it would only be true for certain kinds of cancers (so-called hormone receptor positive cancers which account for about 60 percent of all breast cancers). And that is just what they observed: The association between aspirin and breast cancer was not seen in hormone receptor negative cancers. That the researchers' prediction was correct supports (but does not prove) the idea that aspirin reduces risk. The next logical step would be a randomized trial.

The difference between "cause" and "association" may seem subtle, but it is actually profound. Even so, people — like the headline writers in this case — often go beyond the evidence at hand and assume that an association is causal. Readers should know that many associations do not reflect cause and effect.

The Bottom Line

In a large observational study, researchers found slightly fewer breast cancers among women who took aspirin regularly compared with women who did not. Because aspirin's benefit in reducing breast cancer (assuming it can be proven) was small, it may not outweigh the drug's known harms. While it is possible that aspirin itself reduces the risk of breast cancer, we cannot be sure from this study. It would take a randomized trial to be certain. Fortunately, one has just been completed by researchers at Harvard Medical School, and the results are expected in the very near future. Until then, it is too soon to recommend taking aspirin to prevent breast cancer. ■

Lisa Schwartz, Steven Woloshin and Gilbert Welch are physician researchers in the VA Outcomes Group in White River Junction, Vt., and faculty members at the Dartmouth Medical School. They conduct regular seminars on how to interpret medical studies. (See www.vaoutcomes.org.) The views expressed do not necessarily represent the views of the Department of Veterans Affairs or the United States Government.

Research Basics: Interpreting Change

How Big Is the Difference?

Many medical studies end up concluding that two groups have different health outcomes — death rates, heart attack rates, cholesterol levels and so forth. This difference is typically expressed as a **relative change**, as in the statement: "The treatment group had 50 percent fewer cases of eye cancer than the control group." The problem with this comparison is that it provides no information about how common eye cancer is in either group.

Thinking about relative changes in risk is like deciding when to use a coupon at a store. Imagine you have a coupon that says "50 percent off any one purchase." You go to the store to buy a pack of gum for 50 cents and a large Thanksgiving turkey for $35. Will you use the coupon for the gum or the turkey? Most people would use it for the turkey.

Why? Because paring half the price off $35 reaps a bigger savings —$17.50 —than cutting half off 50 cents — or $0.25.

The analogy in health is that "50 percent fewer cases" is a very different number when applied to eye cancer — a rare problem accounting for about 2,000 new cases in the U.S. each year — than when applied to heart attacks — a common problem accounting for about 800,000 new cases annually.

To really understand how big a difference is, you need to find out the **starting** and **ending points** — sometimes called "**absolute risks**." In the coupon example, the start and end points are the regular and the sales price. In a study about medical treatment, the start and end points are the chances of something happening in the untreated and treated groups.

Presenting the starting and ending point requires a few more words than presenting relative changes. For example, "In a year, two of 100,000 untreated people developed eye cancer; in contrast, one of 100,000 treated people developed eye cancer." For the price of a few more words you gain perspective: The chance of developing eye cancer is small.

Cause or Association?

Many important insights into human health come from **observational studies** — studies in which the researcher simply records what happens to people in different situations, without intervening. Such studies first linked cigarette smoking to lung cancer and high cholesterol to heart disease. But not all observed associations represent cause and effect. And problems can occur when this key point is overlooked.

An example may help make the distinction clear. A man thought his rooster made the sun rise. Why? Because each morning when he woke up while it was still dark, he would hear his rooster crow as the sun rose. He confused association with causation until the day his rooster died, when the sun rose without any help.

A more serious example involves the long-held belief that most women should take estrogen after menopause. That idea, only recently discredited, also came from observational studies. The observation — shown in more than 40 studies involving hundreds of thousands women — was that women who took estrogen supplements also had less heart disease. But it turned out that estrogen was not the reason why this was the case. Instead, women taking estrogen tended to be healthier and wealthier. Their health and wealth — not their estrogen supplements — were responsible for the lower risk of heart disease.

The only way to reliably distinguish a cause from an association is to conduct a true experiment — a **randomized trial**. In this type of study, patients are assigned randomly —that is, by chance— to receive a therapy or not receive it. This study design is the best way to construct two groups that are similar in every way except one — whether they get the therapy being studied. That means any differences observed afterward must be caused by the therapy. In the case of estrogen and heart disease, such a study showed that the long-held beliefs were wrong.

Unfortunately, it is not always possible to do a randomized trial. For example, it is extremely unlikely that we could get people to agree to be randomly assigned to either eating only fast food or only organic food every day for a year (and that they would actually adhere to the diet if they did agree to be randomized). In such cases, scientists have to rely on observational studies. But when new tests or treatments are proposed, randomized trials ought to be conducted prior to their widespread use. Doctors prescribed estrogen to millions of women for many years until the randomized trial showed that intuition and dozens of observational studies were wrong.

— Lisa M. Schwartz, Steven Woloshin and H. Gilbert Welch

Aspirin Study Facts*

What is a 55- to 65- year-old woman's chance of each of the following in the next five years?

Outcomes possibly affected by aspirin	If she does NOT take aspirin	If she takes aspirin	Possible effect of aspirin
Get breast cancer (if the aspirin study is correct)	2.0% (20 in 1,000)	1.6% (16 in 1,000)	Lowers risk (4 fewer per 1,000)
Have a stroke from bleeding in brain	0.15% (1.5 in 1,000)	0.2% (2 in 1,000)	Raises risk (0.5 more per 1,000)
Have major bleeding in stomach or intestine	0.5% (5 in 1,000)	0.8% (8 in 1,000)	Raises risk (3 more per 1,000)

*This table should not influence readers who are taking aspirin for reasons other than prevention of breast cancer. (Aspirin is typically recommended for people with heart disease.) You can look up your own risk of breast cancer using the National Cancer Institute's Breast Cancer Risk Assessment tool, available at http://bcra.nci.nih.gov/brc/

SOURCE: NATIONAL CANCER INSTITUTE, U.S. PREVENTIVE SERVICES TASK FORCE, JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION