

# HEART RISK

## BREAKTHROUGHS

Drawing upon new research, South Beach Diet cardiologist **ARTHUR AGATSTON** suggests we can detect and prevent heart disease earlier than ever.

Our reporter investigates

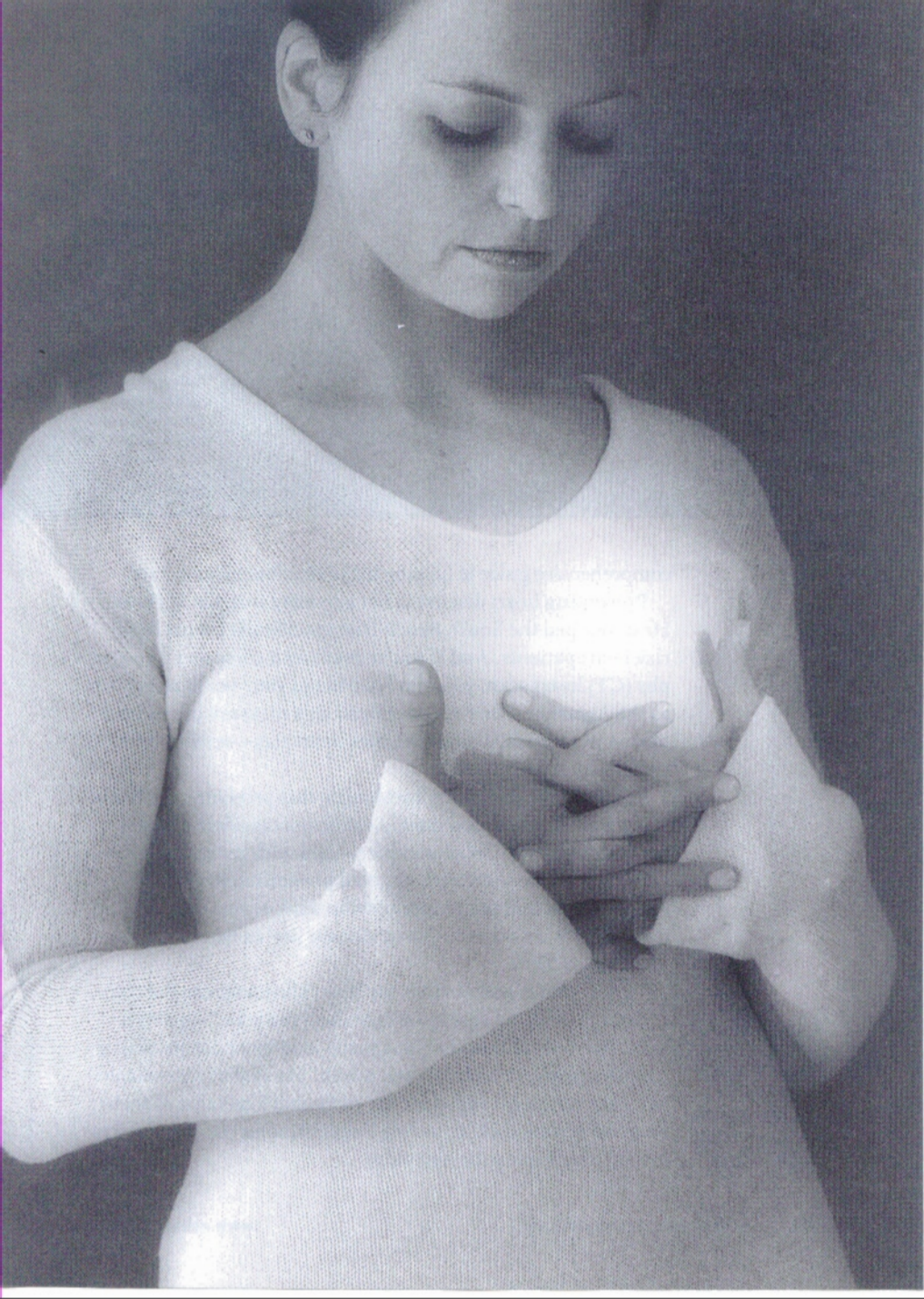
**H**earth disease is the biggest killer of women, period. Despite our fears of breast cancer, terrorism, violent crime, and flying, heart problems snuff out some 349,000 women each year—more than the next five causes of death combined. Even worse, 64% of women who die suddenly of heart attack or stroke have no previous symptoms.

It doesn't have to be that way, says preventive cardiologist Arthur Agatston, MD, who developed the widely known South Beach Diet. He believes we have the tools in hand right now to stem this epidemic.

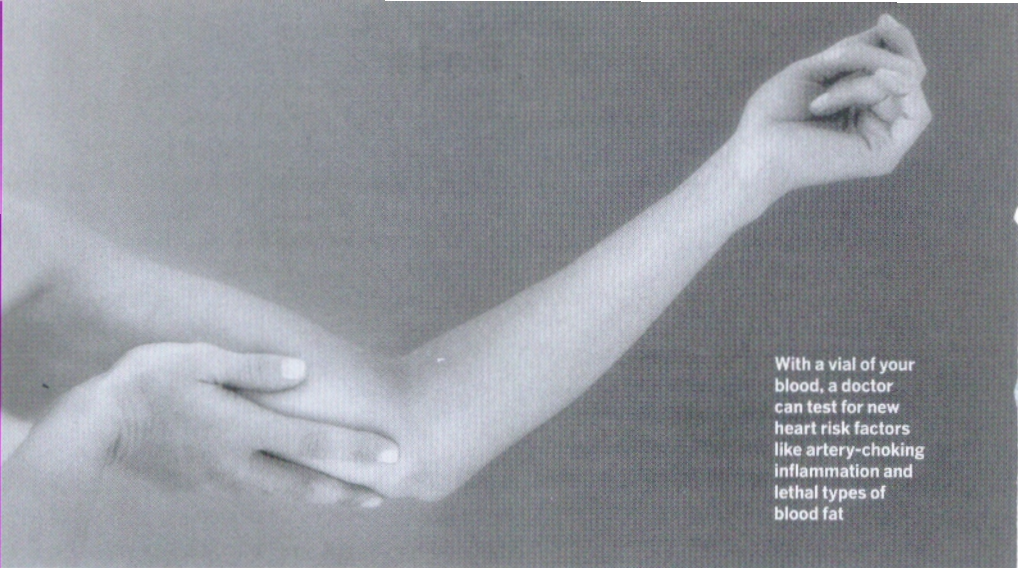
"You don't have to have a heart attack," Agatston insists, and his new book, *The South Beach Heart Program*, is his

BY KATHLEEN MCCAULIFFE ■ PHOTOGRAPHS BY SALLY GALL









With a vial of your blood, a doctor can test for new heart risk factors like artery-choking inflammation and lethal types of blood fat

comprehensive guide to helping make sure Americans don't.

Preventing heart disease is not a recent cause for Agatston. He developed the South Beach Diet specifically for his high-risk heart patients. And if you've ever had a computer tomography (CT) heart scan, you may have heard your result referred to as the Agatston score: He developed this measure of calcified plaque in arteries, which indicates heart risk—testimony to his contribution to the field.

Agatston argues that by combining this screening test with other sophisticated new ones, Americans can identify their heart risk years or decades earlier—and with more precision—than ever before. And with targeted prevention involving special drugs and the proper combination of smart eating and exercise, we can wipe out heart disease just as we eradicated polio and rickets.

"At our clinic, and at other top heart clinics across the country, our patients almost never have heart attacks," Agatston says. "We only see one or two a year—and those are primarily in patients who don't take their meds." He makes a persuasive case, but not all cardiologists are on board: The value of these heart-screening tools in saving lives is among the most controversial issues in cardiology today.

## What's Your Risk?

Check out our self-assessment questionnaire and what the real signs of a heart attack are at [www.prevention.com/heartrisk](http://www.prevention.com/heartrisk)

STYLING BY LISA SACCIO

I decide the best way to learn about Agatston's aggressive, proactive approach is to offer myself as a guinea pig. I also bring along a friend, Stacey Berkley Devine, a Miami-based harpist and yoga instructor who knows firsthand the toll of heart disease. Her father died of a heart attack at 49; Stacey recently turned 50.

## DAY ONE

### A Mammogram for the Heart

On a bright October morning, we arrive at the waiting room of Agatston's plush new clinic in the heart of South Beach feeling cranky and on edge. Since midnight the day before, we have had to forego food *and* coffee for our first screen—a blood test to gauge our fasting levels of glucose, various types of cholesterol, and other markers.

Fortunately for everyone, we are soon ushered in to meet Agatston. He's a thin, youthful-looking man of 59 with only a sprinkling of gray in his hair. His skin has the rosy glow of someone who exercises regularly.

He greets Stacey and me with a smile: "My aim is to make sure you're as healthy as you appear to be," he says. The standard blood panel and physical miss too many people with significant cardiovascular disease, explains Agatston. "I'm trying to get a more complete picture of your risk. If you have hidden heart disease, I want to know now, because we can stop further damage to your cardiovascular system."

We fill out questionnaires about our health, fitness, and family history of disease and then offer up our forearms for the blood sample. Then Agatston lays out a plan for how we will proceed—and it quickly becomes clear how his approach differs from almost all other cardiologists. At minimum, he says, he wants us to get a treadmill stress test and ultrasound of the carotid arteries in the neck, which provide the main supply of blood to the brain. Most doctors wouldn't screen at-risk patients for this, let alone apparently healthy women like Stacey and me. Then, depending on the results of our blood work, he might recommend a 64-slice CT scan of the heart.

"What would that tell me?" I ask.

Agatston shows us CT pictures on a large flat-panel screen

With special drugs and the proper combination of smart eating and exercise, we can wipe out heart disease just as we eradicated polio and rickets



**"After menopause, women lose the protective effect of hormones like estrogen, and risk of heart disease climbs steeply"**

mounted on the wall next to his desk. With his pointer, he targets blockages in the major artery of the patient's heart that even our untrained eyes can readily spot.

Better yet, the scan distinguishes between hard plaque—the calcified patches where cholesterol lining the arteries had ruptured and healed over—and more dangerous soft plaque, the source of new, potentially lethal ruptures. "It can catch problems way ahead of any symptoms," he says. "I call this test a mammogram for the heart."

Agatston runs his pointer over the inside wall of an artery. "See this bump that looks like a pimple? It's called soft plaque. It used to be impossible to see, but now we have this new technology that uses a dye to highlight it. When soft plaque ruptures, if the blood clot that forms around the lesion is large enough, it can impede blood flow, starving the heart of oxygen. That's what triggers a heart attack."

But then he tells me that, at 51, I'm not yet menopausal, and therefore my risk isn't high enough to warrant the scan. Of course, now I want one.

"I generally don't recommend a CT scan for women unless they have risk factors and they're postmenopausal," the doctor explains. "That's when women lose the protective effect of hormones like estrogen, and risk of heart disease climbs steeply."

## **DAY TWO**


### **Stress on the Treadmill**

We return wearing gym clothes for the treadmill stress test. "How difficult do you think it's going to be?" Stacey whispers to me in the waiting room beforehand.

"You're a yoga instructor," I reassure her. "It'll be a walk in the park." Stacey gallantly goes first—and returns dripping in sweat. "That was not a walk in the park," she says, still panting.

Moments later, it's my turn. A technician lifts my shirt and begins pressing electrode leads—flat disks backed with adhesive—all over my chest (I'm allowed to keep my bra and shirt on throughout the test).

Then the treadmill is switched on and my heartbeat appears as a peak-shaped tracing—or electrocardiogram (EKG)—on



An ultrasound  
of the arteries  
in your neck  
can reveal  
a dangerous  
build-up of  
plaque

an adjacent computer screen. As I begin striding—and while I still have the breath—I ask Agatston what this test will tell him about my cardiovascular risk.

“The heart requires anywhere from two to five times more blood flow when you’re exercising than when you’re at rest,” he says. “So when you’re exerting yourself, we’re more likely to detect compromised blood flow, which shows up as changes in the EKG reading.”

Every few minutes, the speed of the treadmill is increased and the ramp elevated. Soon, I’m too breathless to talk. Because I



do 40-minute stints on an elliptical trainer a few times a week, I have little trouble completing the 20-minute test. But like Stacey, I'm glad when it's over.

## DAY THREE

### A Peek inside Our Arteries

Using an ultrasound scanner, Agatston plans to check our carotid arteries, located on either side of the neck. Unlike the coronary arteries, which are buried deep beneath the chest wall, the carotids are close to the surface, making them easy to visualize with ultrasound.

This time I go first. At the start of the test, a technician squirts gel on my neck. He then moves a device called a transducer up and down along my carotid artery—first on the left side of my neck, then on the right. I'm riveted by the ultrasound images displayed next to me on a screen. Thanks to computer enhancement, I can see blood coursing through the artery and blood moving away from the brain through an adjacent vein.

Then the technician turns on a switch and I can hear a sound indicating blood swooshing through the artery. "That's a nice low pitch," he says. "If there's any blockage, the sound is more high pitched."

### The Tale of the Tape

At last it's time to sit down with Agatston to go over our exam results. He begins by reviewing our medical histories. The biggest risk factor for a heart attack, he tells us, is having already had a heart attack. Fortunately, neither of us fits that profile. Equally fortunate, neither of us has ever experienced the telltale symptoms of advanced coronary disease: a general weakness; faintness or breathlessness during physical exertion; or pain or a squeezing sensation in the chest, upper abdomen, or back that lasts for more than a few minutes at a time.

Next on his list of concerns is a family history of the disease. He focuses on the death of Stacey's father from heart disease at age 49.

"Early onset heart disease in your family is one of the single biggest risk factors," he says. "That's especially true if heart disease killed your father or a brother before age 55, or your

Remind your doctor to check your heart: Only 8% know that more women than men die of heart disease each year

## Pricing Out the New Tests

Preventive cardiologist Arthur Agatston, MD, recommends these tests to people with one or more of the following risk factors: having diabetes, high blood pressure, or a family history of heart disease; or being overweight or postmenopausal. Most doctors can set up the screenings for you. Just remember—these are brand-new tests, not part of a regular blood test, and your insurance may not cover some of them. —KM

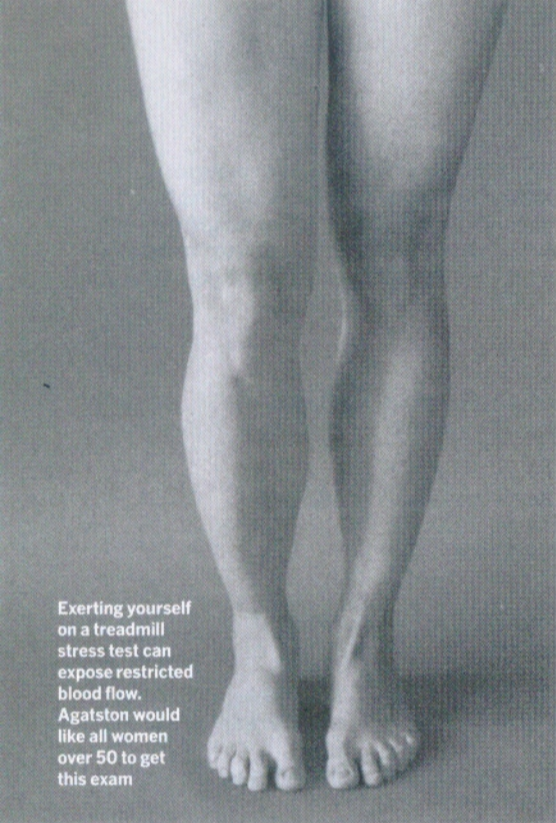
Test	Cost	What It Screens For	High Risk Result
C-reactive protein	\$45	Marker of inflammation that may promote the rupture of plaque	>3.0 mg/dl
Homocysteine	\$75	Amino acid that increases risk of vascular disease and amplifies bad effects of other risk factors	>10 mg/dl
Lipoprotein(a)	\$95	Independent risk factor for plaque build-up	>30 mg/dl
Ultrasound of carotid artery	\$400	Thickening of the artery and presence of plaque	Arterial lining >0.8 mm and large amount of plaque
Plain treadmill stress test	\$250	Blockages in coronary arteries and overall fitness	Abnormal EKG
CT scan with dye	\$1,100	Detects hard plaque, associated with old ruptures, and soft plaque, the source of potential future ruptures	More calcified plaque than expected for your age

mother or a sister before age 65. It's a big red flag."

"But my father was sedentary, overweight, and a heavy smoker," protests Stacey. "I'm much healthier." Without a doubt, Agatston agrees, but adds that genetics are tough to overcome. He checks our blood pressure numbers. Stacey's are an enviable 97/59. My reading is a tad higher, 112/66, but still way below what is defined as high blood pressure—a systolic (upper) number of 140 or greater and a diastolic (lower) number of 90 or more. "No problem there," Agatston says.

Both of our EKGs look perfectly normal. Agatston points to a





Exerting yourself on a treadmill stress test can expose restricted blood flow. Agatston would like all women over 50 to get this exam

dip—or valley—in the tracings of our heartbeats. “Sometimes we see a deeper drop, or trough, there. It’s called the ST depression and can signal a blockage.”

Stacey and I also passed the ultrasound of our carotid arteries with flying colors. Neither of us has any visible plaque, and the inner lining of our arteries is smooth and shows no signs of thickening—indications that we have healthy vessels and are at low risk of heart attack or stroke. Stacey beams with happiness. “I guess all that yoga has paid off,” she says.

Finally, he looks at the results of our blood tests. Agatston had ordered the standard blood panel we’d get with any doctor: screens for LDL (“bad” cholesterol), HDL (“good” cholesterol), triglycerides, and blood glucose

levels, a test for diabetes (the disease drives up heart risk).

But that’s where the similarities end. Agatston had also requested advanced blood testing for three other factors: *homocysteine*, an amino acid that at high levels raises your heart disease risk as much as smoking and interacts with other risk factors to hike your odds skyward; *lipoprotein(a)*, or Lp(a), a particularly dangerous type of LDL that Agatston refers to as the “widow maker” because of its propensity for clogging arteries; and *C-reactive protein* (CRP), a marker of inflammation—in large amounts it’s thought to promote the rupture of plaque.

A large 2002 study in the *New England Journal of Medicine* found CRP to be a stronger predictor of heart problems in women than the standard marker, LDL cholesterol.

Agatston is happy to see that all our numbers look good. Both of us have high levels of HDL—in excess of 74 mg/dl.

"That's particularly protective," he says. A recent study shows that raising HDL by just 5 mg/dl cuts cardiovascular risk by 10%. "You get a lot of bang for your buck as your HDL level climbs," says Agatston.

"What about lipoprotein(a)?" I ask. "How did we do on that measure?" In his book, he describes this particle as a major villain that could sometimes "explain plaque build-up seen in heart scans of patients who have seemingly normal cholesterol levels." Humoring me, he double-checks the numbers and reassures us our levels are low.

Stacey and I are beginning to look like twins—very healthy twins. Despite similar results, however, Agatston ranks my risk at less than 10% (meaning 90% of people my age are more likely to get heart disease) and Stacey's at 20%—low, but double mine.

"It's because she has a family history of the disease and you don't," he says. For that reason, he recommends that Stacey come back for further testing after she hits menopause. As for me, he says, "Unless you develop high blood pressure or other risk factors, I won't need to see you again."

Good news all around, but what if we hadn't aced all those

*continued on p. 202*

## Your Best Heart Attack Prevention Plan

Agatston stresses lifestyle changes to all his patients, beginning with exercising regularly and maintaining a healthy weight. Although he developed the South Beach Diet—a meal plan that is rich in heart-healthy foods—to help his patients slim down and control cholesterol, he's open to any weight loss plan so long as it follows these principles:

- 1 Load up on good carbs** (whole grains and a variety of fruits and vegetables) instead of bad carbs (white bread, pretzels, cakes, and other highly processed foods that have been stripped of fiber and nutrients).
- 2 Eat primarily unsaturated fats, low-fat dairy, and lean sources of protein.**
- 3 Get an even bigger heart boost by eating at least two weekly servings of fatty fish** such as tuna, salmon, or mackerel.
- 4 Add these especially heart-healthy foods:** apples, oat bran, legumes, and, in moderation, red wine, nuts, and monounsaturated fats such as olive and canola oils.



## Heart Risk Breakthroughs

*continued from p. 159*

tests, I want to know. Then what?

The first challenge for patients is to improve their diet and begin exercising, says Agatston. (See "Your Best Heart Attack Prevention Plan," p. 159, for more information.) But, he warns, "you can only get so far with diet and exercise—genes count, too." That's why he argues that anyone with risk factors should have all the tests he performed on Stacey and me done by age 50—or even earlier if there's familial heart disease at a young age.

"If the results from those exams raise any further concerns, I may also order a heart scan," he says. "Then I sit down with the patient and recommend a series of interventions tailored to his or her specific needs."

For patients with high LDL or CRP scores, statins drugs can work well, he reports. "They're usually very well tolerated and can virtually stop atherosclerosis in its tracks," he tells us. "I just saw a 65-year-old woman whose cholesterol levels and other risk factors have been tightly controlled over the past 10 years. A recent heart scan shows no new plaque above the level recorded at the time of her first scan 7 years ago."

Other powerful interventions include prescription-strength niacin pills, for raising low HDL levels; aspirin, for countering inflammation and thinning the blood; a prescription

fish-oil supplement, for improving the overall health of the vessels and stabilizing irregular heartbeats; and a variety of medications for controlling high blood pressure and diabetes.

## The Skeptics' View

By the end of our consultation with Agatston, Stacey and I can't help being swayed by his perspective. But not all cardiologists agree that the research is far enough along to justify the extra expense of all the testing he proposes.

"There's no question the health system is reactive rather than proactive toward heart disease when it comes to identifying and treating people at moderate risk," says cardiologist Clyde W. Yancy, MD, medical director of Baylor Heart and Vascular Institute in Dallas and a spokesperson for the American Heart Association. He respects what Agatston is doing but thinks it's too soon to be making blanket recommendations about screening tests. In his opinion, that kind of judgment call has to be made case by case, based on individual risk factors.

Yancy also cautions that preventive health care is still in its infancy. "We need to fund much more research aimed at clarifying our understanding and treatment of the new risk factors—things like homocysteine and C-reactive protein," he says.

At the Women's Heart Clinic at the Mayo Clinic in Rochester, MN, director Sharonne Hayes, MD, agrees with Yancy. "Testing for Lp(a), homocysteine,

and CRP has not yet been shown to improve a patient's chances of living longer," she says. "They can help us understand what sort of risks someone is facing. I use the same tests in my practice every day. But until we have definitive proof, I think we have to be much more selective about who gets these tests. If we screened everybody, we'd break the bank."

Hayes isn't kidding: The total bill for all six tests Agatston recommends runs about \$2,000. Right now, insurance would cover only a small portion of that bill, though Agatston expects that to change as more research findings prove the tests' value.

Nonetheless, Jay N. Cohn, MD, director of the Rasmussen Center for Cardiovascular Disease Prevention at the University of Minnesota, is more aligned with Agatston's stance. Although he acknowledges the controversy about the best screening methods, he believes "there's agreement that we need to be doing a much better job at identifying people in need of early intervention." Echoing Agatston's words, he

adds, "With good preventive care, heart attacks can be virtually eliminated."

Agatston has heard his peers' concerns—and he agrees. Many of the screens are for those with already established risks of heart disease. That's why Stacey and I didn't get the CT scan, no matter how much we may have wanted it. He also agrees that research should continue on things like homocysteine and Lp(a), so that doctors can further refine diagnosis and treatment. But he feels strongly that it's time we start spending our health care dollars more wisely.

"As a society, we're investing the bulk of our money in bypass surgery, angioplasty, and other expensive, aggressive late-stage treatments for heart disease," he says. Wouldn't it be better to spend that money on making sure people never have a heart attack in the first place?

"The tests aren't cheap," he concedes, "but if you think of them as an investment in our future, they're a bargain."

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