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HEALTH

Asia's War With HEART DISEASE

Across the region, the death toll from cardiovascular disease is soaring. But the latest science shows how you can stay healthy

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FEW PEOPLE SHOULD HAVE A HEALTHIER HEART THAN Yoshifusa Miyagi. The 57-year-old politician has spent his entire life on Okinawa, a Japanese island once envied for being home to the longest-lived population on earth, thanks, it was believed, to a diet consisting mainly of fish, vegetables, rice and other foods low in saturated fat. But over the years, the American military presence on the island has produced a profound shift in local eating habits, introducing artery-clogging quantities of beef and deep-fried snacks. Among other fast-food outlets, Okinawa boasts 44 McDonald's, including Japan's first branch, opened in 1976. Since 2000, Okinawans have been taking in as much fat as a percentage of their overall diet as Americans. By 1990, Okinawa had fallen to 26th among Japan's 47 prefectures in terms of life expectancy among men; 47% of Okinawan men aged 20–60 are now considered obese. "We've been eating an American diet for 27 years longer than the rest of Japan," says Miyagi. "For someone in my generation, that's what we grew up on."

And increasingly, Okinawans are dying of the cardiovascular disease (CVD) that such eating habits often herald. Feeling pain in his shoulder and chest, Miyagi last August checked himself into a local hospital, where a nurse gave him an electrocardiogram (ECG) to test for possible heart problems. "When she tore the paper from the ECG machine and ran off," he says, "I knew something was wrong." Miyagi had suffered a massive heart attack that would require three balloon angioplasties and hospitalize him for more than three months. Since his recovery he's changed his lifestyle, exercising regularly and eating more healthily—but he's setting an example that too few are following. "For every 100 patients I tell to lose weight, maybe one of them will be successful," says Dr. Kiyoshi Takashiba, Miyagi's cardiologist. "I tell them about the possible risks to their health, about diabetes and heart disease, but it seems so far off. They don't see it as something that relates to them."

That's been the attitude of most Asians toward heart disease: it's a problem for rich Westerners supersizing themselves to death. Asia's health worries were the age-old problems of infectious disease, famine and malnutrition. But on the road to modernization, a large proportion of Asians—not just Okinawans—are trading healthy traditional diets for fattier foods, physical jobs for deskbound sloth, the relative calm of the countryside for the stressful city. Heart-attack victims like Miyagi are just the first wave of a swelling population of Asians with heart problems.

If you're not convinced, here are a few statistics to make your ticker skip a beat: while deaths from heart attacks have declined more than 50% since the 1960s in many industrialized countries, 80% of global CVD-related deaths now occur in low and middle-income nations—which covers most countries in Asia. In India in the past five decades, rates of coronary disease among urban populations have risen from 4% to 11%. In urban China, the death rate from coronary disease rose by 53.4% from 1988 to 1996. A report released last week by the Earth Institute at Columbia University warned that without sustained effort on individual and national levels, the coming heart-disease epidemic will exact a devastating price on the region's physical and economic health. "I think we're going to see a huge increase in heart disease and stroke, and that will lead to all sorts of problems," says Professor Philip Poole–Wilson, president of the World Heart Federation. "We're trying to warn people sufficiently early so that they can do something about it, but this isn't a disease you can cure by turning on an electric switch."

The good news is that risk can be greatly reduced with a mix of lifestyle modifications and medical treatment. Most of us are aware that eating a lighter, more balanced diet, quitting tobacco and exercising regularly are enough to head off most cases of heart disease before they ever happen. For those who can afford it, better treatments and medicines are also increasingly effective in curbing the high blood pressure and elevated cholesterol levels that lead directly to cardiovascular disease. These advances are turning what was once an eventual death sentence into a manageable condition. But in much of Asia, the best that medical science has to offer is either unavailable or is too expensive for most people. That makes education and prevention programs all the more urgent. "Prevention can be done, it should be done, and this is the right moment to put every effort into it," says Dr. T.F. Tse, a leading Hong Kong cardiologist. "Otherwise, the result would be unthinkable."

ESCORTS HEART INSTITUTE IN NEW DELHI IS one of the busiest cardiac-care centers in the world. The hospital handles more than 350 heart-disease cases a day in its outpatient clinics; each year its

doctors perform 3,000 angioplasties, more than 4,000 heart surgeries and 12,000 angiograms. And if the current trends continue, Escorts will only become busier. So vulnerable is the subcontinent to cardiovascular ailments that the World Health Organization (WHO) estimates that 60% of the world's cardiac patients will be Indian by 2010. "Of all Asians, South Asians have by far the worst problems" when it comes to heart disease, says Dr. Timothy Gill, an Asia–Pacific specialist with the International Obesity Task Force, a medical NGO that coordinates with the WHO on obesity issues.

Equally troubling, it is not just the elderly who are being hit by cardiovascular disease. In India, nearly 50% of CVD-related deaths occur below the age of 70, compared with just 22% in the West. That trend is particularly alarming because of its potential impact on one of the region's fastest-growing economies. In 2000, for example, the country lost more than five times as many years of economically productive life to CVD than did the U.S., where most of those killed by heart disease are above retirement age. "That's why the impact heart disease will have on India down the road is going to be much greater than in America," predicts Dr. Uday Saxena, chief scientific officer of a leading Indian pharmaceutical company, Dr. Reddy's Laboratories. "It'll have huge economic consequences."

The unusual susceptibility of South Asians to heart disease can be traced to lifestyle issues, diet, rapid urbanization and possible underlying genetic causes. Dr. Naresh Trehan, executive director and chief surgeon of Escorts, says the common denominator is an increasingly sedentary lifestyle. "No matter what our diets were before, the physical demands on our life were high," says Trehan. "Now, the pendulum has swung in the opposite direction, and we refuse to do anything. If we Indians could drive to the bathroom, then we would do that. People simply refuse to move." And, just as happened decades ago in North America and Western Europe, India is undergoing a demographic shift in cardiovascular disease from the wealthy to the lower classes, thanks in part to the wider availability of rich food and the advent of mass transit. "Heart disease in this country has gone mainstream," says Professor K. Srinath Reddy, head of the cardiology department at the All India Institute of Medical Sciences.

Many scientists argue that changes in diet and exercise do not fully explain India's coronary calamity—that there must also be a genetic cause. "We Indians have genes that make us predisposed to heart disease," asserts Saxena of Dr. Reddy's Laboratories. Studies published in medical journals, including one in the *Lancet* in 2000, indicate that South Asians have elevated levels of artery-clogging blood chemicals, including LDL cholesterol and triglycerides, while also suffering from a deficiency in HDL cholesterol, which helps clear fatty buildups from blood vessels. In addition, South Asians tend to gain weight in the abdominal region; people who carry fat around their waists are at greater risk of heart disease, researchers say. There may be an environmental factor at work, too, according to Reddy. Indian babies are often born underweight, due to their mothers' poor diet during pregnancy. That "also predisposes Indians to increased risk of diabetes and heart attacks in adulthood," Reddy says.

Statistics alone suggest that South Asians seem more naturally vulnerable to heart disease than other ethnic groups—the 2000 *Lancet* study showed that, even after adjusting for all known risk factors, South Asians in Canada appeared to have a higher rate of heart disease than Europeans or Chinese living there. Some doctors think that this vulnerability can be explained by the "thrifty-gene" theory, which holds that South Asians adapted over many generations to the region's frequent famines. "People were eating half meals or a meal a day and there was not enough richness in the food, so the body adapted itself to get maximum mileage out of what it got," says Escorts' Trehan. Now that many South Asians are faced with a very recent overabundance of food, their bodies are having difficulty making a metabolic U-turn. The result is high insulin intolerance, with accompanying raised levels of diabetes and obesity. "The gene is still acting in the old way and conserving," Trehan says. "It may take a generation or two for the gene to adapt to the surplus food state."

By one estimate, 60% of **the world's cardiac patients** will be Indian by 2010

But the thrifty-gene theory remains hypothetical, as Dr. Salim Yusuf of McMaster University in Canada points out, not least because the culprit gene itself has yet to be identified in our DNA. One of the world's foremost epidemiologists of cardiovascular disease, Yusuf once championed the idea that ethnicity was a significant determinant of heart disease, but his recent research has convinced him otherwise. "By and large, the differences in heart-disease rates are because of different lifestyles," he says. "About 80% of the risk can be accounted for by known risk factors like smoking or obesity or blood pressure and the way we live and eat, which leaves very little room for genetic risk factors." Even the common idea that family history is a decisive risk factor, Yusuf says, overlooks the fact that families tend to have similar lifestyles and are exposed to the same environment. Studies have shown that when Japanese emigrate from Japan, where their rates of heart disease are very low, and move to the West, those rates quickly rise to the Western norm. South Asians, moreover, are hardly alone in coping with centuries of famine, as the Chinese can attest. "It's not as if South Asians have more of a thrifty gene, and Chinese don't," says Yusuf. "Mankind's genes as a whole evolved across all ethnic groups similarly." He adds that his theory means no one is doomed by uncontrollable factors—and that it's feasible to protect yourself by modifying your lifestyle.

THAT'S AN OVERDUE LESSON FOR CITIZENS OF Asia's most populous country. In absolute numbers, China's total deaths due to cardiovascular disease, including stroke, have already caught up with America's. According to Dr. Gu Dongfeng, a top cardiologist at Beijing's Fu Wai Hospital, the force behind China's rising epidemic is a rash of unhealthy habits connected to the country's rapid economic development. "Ten years ago our hospital had four cars" assigned to it, he says. "That was it. Everyone rode bikes. You only need to look at our parking lot to understand what's happening." Indeed, the lot is so jammed with cars that it takes more than half an hour to enter the hospital's gates.

Americans may be among the fattest people on the planet, but mainlanders are losing their right to be smug. The incidence of overweight Chinese men and women rose 137% and 95%, respectively, from the early 1980s to the late 1990s, according to a survey conducted by a national task force. If this trend continues, by 2025 37% of men and 40% of women could be overweight. Most dangerous of all, however, is China's atrocious smoking rate, which hovers above 60% in men. Smoking is widely accepted as the No. 1 risk factor for heart disease. Nicotine raises blood pressure, damages blood vessels and multiplies the effect of cholesterol, worsening the fatty buildups that lead directly to heart attacks. "Just one cigarette can have a measurable effect on your artery walls," says Professor John Sanderson, head of cardiology at the Chinese University of Hong Kong.

Unless there are wholesale changes, Dr. Wan Feng will be a very busy man in the years ahead. One of China's leading heart surgeons and chairman of the department of cardiac surgery at Beijing's People's University, Wan is a pioneer in so-called "beating-heart" bypass surgery, a technique that allows doctors to operate on a patient's heart without shutting it down. (In normal bypass surgery, the patient is hooked up to a heart–lung machine.) Beating-heart surgery is less invasive and can reduce the risk of complications, including stroke, that can occur with bypass surgery. It also removes the need for expensive heart–lung machines and reduces costly follow-up care, making it an attractive approach for China's many financially strapped hospitals, which often lack the resources to diagnose and treat even standard medical problems.

After observing the procedure at a U.S. medical conference in 1996, Wan decided to try it back home in China. "The procedure would not only be cheaper, it would be easier to do," Wan recalls thinking. Short on equipment, he used a fork sheathed in rubber tubing to keep his first patient's heart still during the operation. The surgery was a success, prompting Wan to begin traveling around the country in his spare time, offering the procedure (minus the fork) on a private basis as a way to help reduce China's enormous shortfall in cardiac surgery. Wan estimates that the 70,000 open-heart surgeries performed every year in China represent just 1–2% of the total currently needed. The fees he receives for his traveling surgery exceed his regular salary of $362 a month, but Wan says his real motivation is to let people around China, not just those living in Beijing or Shanghai, "understand that they have options if they get sick." The surgeon laughs as he remembers a consultation he once did for a middle-aged engineer from the city of Shijiazhuang in Hebei province. "The man sent me a letter," Wan recalls. "He said, 'Can we really do bypass surgery in China? I've seen on television that Russia's President had a bypass operation, but do we really have that technology here?' "

FOR THOSE WHO CAN AFFORD IT, TREATment options are expanding, not just in China but worldwide. If drugs are given early enough and in large-enough doses, heart disease might even be nipped in the bud. A landmark study released in March by pharmaceutical company Bristol-Myers Squibb suggests that using drugs called statins to reduce cholesterol well below currently recommended levels could substantially reduce the risk of a heart attack. Likewise, at an Asian–Pacific Society of Cardiology conference in January, doctors repeatedly emphasized the importance of prescribing drugs, such as ACE inhibitors and ARBs, to control high blood pressure, which seems to strike many Asians to an unusual degree and which is directly linked to the region's high rate of stroke.

Some of the most promising research of this kind is being done in Asia. Scientists at the University of Hong Kong (HKU), for example, are currently working on a potentially groundbreaking treatment for heart patients who can't be helped by conventional drugs and who are too ill for surgery. Led by Dr. Tse Hung-fat, the HKU team is using stem cells harvested from a patient's own bone marrow to help restore diseased heart tissue. Clogged or damaged vessels that supply the heart with blood can't repair themselves, which is why bypass surgery is usually the best chance for many patients. But the HKU researchers have found that when the stem cells are injected into the heart muscle via a catheter, patients can develop new blood vessels to replace those that have been blocked or damaged by heart disease.

These are still early days, but some of the results have been remarkable. Before he was enrolled in HKU's stem-cell study, septuagenarian stroke victim Ho Kwong had to take 20 pills a week for his heart disease and couldn't walk more than a few steps without tiring. After undergoing stem-cell therapy, he says, "I'm able to continue my life as it was before. I can go outside with my friends, and I can sing karaoke." The cure isn't complete, because the therapy can't yet regenerate heart muscle, says Tse, but the treatment "means a lot for these kinds of patients. It's important for them in terms of quality of life."

Still, the vast majority of Asians don't have access to such cutting-edge medicine. Closer to the norm is Kaneez Fatima, a frail 45-year-old woman whose defective heart valve has meant repeated visits to the run-down rooms of Nishtar Hospital in Multan, Pakistan. Doctors there say that if Fatima doesn't receive a replacement valve soon, she will die. Her husband, Haji Mohammad Akram, who works in a local textile mill and makes $600 a year, has already sold their house to pay for his wife's medical bills. Three times he's traveled the 400 kilometers to Lahore to try to arrange an operation for his wife at a government hospital, at a cost of one month's salary for each trip, but the waiting list is too long and the red tape has proven exasperating. The procedure would cost $7,000 at a private hospital, which Akram says he can't afford: "There is no money."

That lament is familiar in hospital wards throughout Asia. With health-care resources so scarce, some experts argue that countries like India and China should focus on the persistent threat of infectious diseases, such as tuberculosis, before combating heart disease. But doctors like the World Heart Federation's Poole-Wilson say the high cost of treating people after they become CVD victims and the "double burden" of continued infectious disease is no reason to ignore the problem—it only makes it more important to focus resources on education and prevention.

Many Asians simply don't realize how dangerous heart disease can be for them. "They may be aware in a very piecemeal fashion," says Dr. Sania Nishtar, founder of Pakistan's pioneering medical NGO Heartfile, "but the concerted awareness level, the point that can make a difference, is extremely low." Gill of the International Obesity Task Force tells the story of a driver he hired during a visit to India, who said his health-care strategy was to save his money now so that he could afford the best bypass surgeon around when he had his inevitable heart attack. "I don't think it ever struck him that he could do something about it or change what could happen," Gill says.

That's the kind of skewed thinking that Nishtar is determined to change. An expert in preventative cardiology, Nishtar founded Heartfile in 1998 to promote CVD prevention among Pakistan's most vulnerable populations. In remote villages like Basti Jhandhawala near Lodhran in southern Punjab, Nishtar and her team of doctors spread basic information about cardiovascular disease to locals who quite literally wouldn't know a heart attack if it hit them.

Heartfile has already trained nearly 2,000 health workers and volunteers. It also feeds information on heart disease to the media, and it has worked with Pakistan's Ministry of Health and the WHO to form a national plan on disease prevention. The impact of these grassroots efforts can be dramatic. After a visit by Heartfile workers, farmer

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Salim Kahn of Basti Jhandhawala probably saved his 60-year-old father's life last year when the older man woke up with severe pain in his chest and left arm, and Kahn was able to recognize the symptoms as those of a heart attack. "I gave aspirin to my father to thin the blood and immediately rushed him to the hospital," says Kahn, who is now himself a Heartfile activist. His father survived the attack and is doing well.

Too often, however, brutal economics trump the best of intentions. In Basti Jhandhawala, Heartfile workers have urged villagers to abandon fattening vegetable ghee in favor of healthier cooking oil. But cooking oil costs 52¢ more per kilogram than ghee—a considerable difference in a village where the average income is about $600 a year. "When we ask families to change their diet and have their blood pressure regularly checked, they complain they don't have enough money," says Jamila Perween, a Heartfile-trained health worker. "They listen carefully, but then they say they can't afford it."

Fortunately, most people can at least afford to take a few heart-healthy steps: eat more fruits and vegetables and fewer processed foods and less saturated fat; cut out cigarettes; and exercise more (ideally, 30 minutes of moderate effort a day). Yusuf of McMaster University points to a study of the Amish in North America, who display very low CVD rates despite a diet that appears excessively rich in dairy fat. Research found that the average Amish man took some 18,000 steps a day, compared with 3,000 to 5,000 for the average American. "We have to make sure we find opportunities to expend energy, instead of opportunities not to expend energy," says Yusuf. "If this is done, we can dampen this potential epidemic by half."

They won't be churning butter anytime soon, but perhaps the Okinawans are turning a little bit Amish. Signs posted between every elevator at the Okinawa Prefectural Office read: "Use the stairs, too. Health. Save energy. 10,000 steps a day." Yoshifusa Miyagi doesn't quite make it to 10,000 steps every day, but since his heart attack, he has lost eight kilograms by cutting back on oily foods and fatty beef, reducing his intake of whiskey and Okinawan spirits by 80%, and walking whenever he can. "I tell my friends not to eat junk food or French fries or hamburgers," Miyagi says. "I don't want the same thing to happen to them." Across the region, a consensus is growing that Asia cannot afford to follow the West by allowing its own heart-disease epidemic to spiral out of control. The problem has to be fought here and now—one step at a time. ***—With reporting by Aravind Adiga and Sara Rajan/New Dehli, Ghulam Hasnain/Lodhran, Susan Jakes/Beijing and Hanna Kite/Tokyo***