

1975-1976

FROM WATSONVILLE, CALIFORNIA

An Entire Town is CONQUERING America's No.1 Killer

BY EDWIN KIESTER JR.

Watsonville, California, is one of those pleasant, *American Graffiti*-type West Coast communities that sits with its shoulders in the Santa Cruz Mountains and its feet in the Pacific surf. The business district is tidily arranged around a balconied, palm-fringed central plaza dating from Spanish colonial days. Apple and berry orchards march up the hillside, and lettuce and tomato fields fill the flatlands. The 14,000 residents of Watsonville are a polyglot of Mexicans who came to work the farms; Portuguese and Italians who man the fishing boats; old Yankees; and descendants of Spaniards, Filipinos, Japanese and Samoans. Until recently all of them lived very ordinary lives—and died very ordinary deaths.

But now life and death in Watsonville have been lifted out of the ordinary—in a way that could have important implications for all of us. For here, 100 miles south of San Francisco, a major experiment is being conducted to see if an entire community can learn to change its daily living habits to save its lives.

For the past three years, all the sophisticated techniques of mass persuasion have been used to urge Watsonville residents to eat less, exercise more, stop smoking and revamp their diets to reduce the risks of heart attack.

The codirector of the campaign, Nathan Maccoby, PhD, of the Stanford University Institute of Communications Research, cautions that "the final payoff is ten or twenty years away." But there is reason for optimism. According to fellow investigator John W. Farquhar, MD, "If the present gains can be maintained, heart attacks and strokes should fall by one-quarter in



Watsonville." Projected across the United States, these figures mean that nearly 200,000 lives could be saved every year if we follow the good examples being set in Watsonville.

Dr. Farquhar recently reported to the American Heart Association on some of the changes the experiment has produced in Watsonville's life-style. Since the program began in 1973, for example, smoking has dropped 44 percent. Blood pressure, another key risk factor in heart attack, has declined 6 to 9 percent. Levels of fat—cholesterol and triglycerides—in the blood have gone down 5 percent. According to local grocers, sales of eggs—an important source of dietary cholesterol—have tumbled 25 percent in three years.

And individual results are even more impressive. When the campaign started, for instance, Jack Snow, a construction worker, seemed like a sure candidate for heart attack. He was 42 years old, weighed 210 pounds, smoked two packs of cigarettes a day, and had a recorded blood pressure of 194/80—some 30 percent higher than normal for his age and weight. Snow started his day with a fat-rich breakfast of eggs, bacon, buttered toast, and coffee with cream and sugar. Every evening he had a dinner of meat, potatoes and "gravy over everything." Snow said he ate a lot because his job was very strenuous, but in fact it was not: He spent most of the day sitting in the cab of a crane.

After three years of instruction, per-

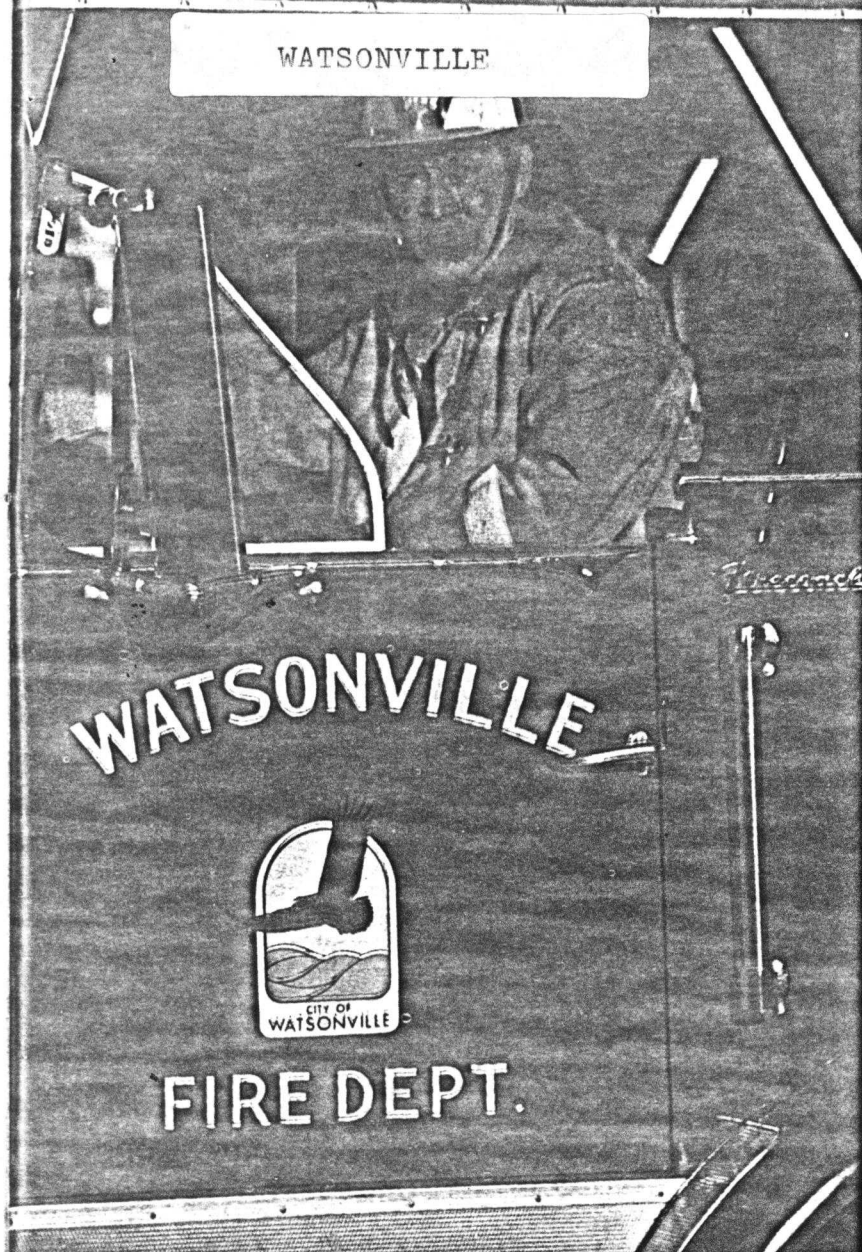
suation and face-to-face assistance in changing his way of life, Jack Snow is a lean, trim 164 pounds ("less than I weighed in high school"). His blood pressure reading is 160/80, still higher than normal but an improvement over the earlier reading, and he takes a brisk 25-minute walk each night after work. His 1976 diet is heavily laced with fruits and vegetables, and recently he confided, "All those years, I didn't know what I was missing."

Then there is the transformation of Jane Maitoza. In 1973, the high school teacher weighed 295 pounds and, at 52, had already suffered one coronary attack. Her blood pressure and cholesterol and triglyceride levels were seriously elevated. During the first summer of the "save your heart" campaign, Ms. Maitoza lost 50 pounds and has shed another 25 since.

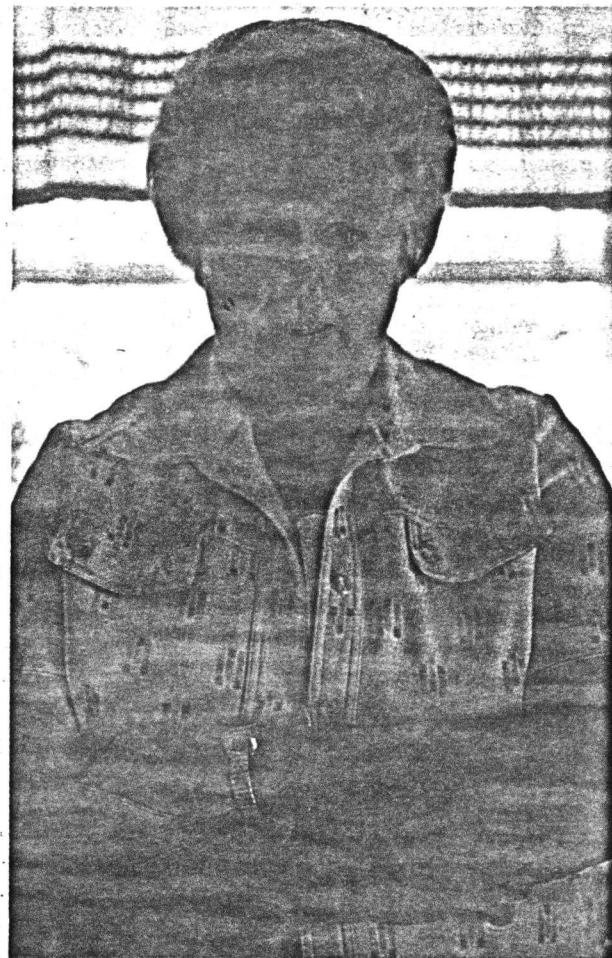
Today, exercise is an important part of Ms. Maitoza's life. She starts each day with the People's Republic of China exercises, a four-minute calisthenic program. Though she is still an inveterate snacker, her eating habits have changed—the potato chips and cookies of old giving way to cucumbers, carrots and fruit. "And I never felt better in my life," she says.

The Watsonville experiment—officially, the Stanford Heart Disease Prevention Program (SHDPP)—represents a new concept in human health care. In the past, mankind's big killers were infectious diseases, caused by exposure to a single virulent germ. But as medicine has overcome the classic scourges, a new and more intractable set of maladies has supplanted them—diseases deeply embedded in the very fabric of urban industrial society. Cancer, heart disease, stroke, diabetes and cirrhosis are not the products of individual contaminants but of the interaction of he-

Edwin Kiester's articles have appeared in many national magazines.



PHOTOGRAPHS BY CHARLES OREAR



When a team of health experts moved into Watsonville, California to help teach local residents how to save their hearts from the stresses of modern living, things began to change rapidly. Some people quit smoking, others worked on lowering their blood pressure readings. Jack Snow, an overweight construction worker, started taking regular 25-minute walks (left); teacher Jane Maitoza (above, right) established a routine of calisthenics and proper eating that helped her lose 50 pounds the first summer of the program; and fireman Al Bastien (above, left) learned to bake bread using a specially formulated butter-free and egg-free recipe.

redity, environment and lifelong habits. To cure or prevent them doesn't mean stamping out a disease, but making changes in the victim himself.

Over the past several decades, studies by the National Heart and Lung Institute (NHLI) have identified the "risk factors" that seem to mark a person for heart attack. The most susceptible are those who are heavy smokers, have elevated blood pressure, show abnormally high cholesterol and triglyceride levels, are prone to diabetes, get little exercise and are overweight. Heredity, age and sex also play important roles. Although a number of advertising and mass-media campaigns have been launched to divert Americans from their gluttonous, slothful and lethal ways, these mass drives have been less than successful. The Watsonville experiment is the first attempt to generate change on a personal level—"to help us," as one local resident said, "not just holler at us."

The Stanford Heart Disease Prevention Program came about through a chance conference between Dr. Nathan Maccoby, a short, stocky psychologist, and Dr. John Farquhar, a Lincnesque cardiologist who is passionately interested in getting scientists involved with public issues. Dr. Farquhar had long been agitated about the way Americans were eating and smoking themselves into early graves. He came to Stanford's communications experts to find out what kind of public-relations program might persuade people to change their habits. Dr. Maccoby dropped in, listened for a few minutes, then suggested an approach used to sell war bonds during World War II. A sociologist named Dorwin Cartwright had studied the various methods used to persuade people to buy bonds and found that personal contact was the most successful technique. Why not, Dr. Maccoby suggested, design a personalized anti-heart disease campaign that would try to teach change on a face-to-face basis?

In the best scientific method, the Stanford group, with NHLI support, selected three look-alike communities in Northern California where they would test the idea. Like Watsonville, Tracy and Gilroy were farming towns of about 14,000 population—about 30 to 50 miles from Stanford, but geographically cut off from one another. Tracy, in the rich San Joaquin Valley, was chosen as the "control" town in which no change would be attempted. Gilroy was selected for a mass-persuasion media blitz. Watsonville got the media blitz, too, plus what one group called "intensive instruction."

In the first phase of the program, a multidisciplinary team of physicians, psychologists, opinion samplers, film makers, dietitians and writers set out to learn how the residents of the three towns shaped up—and to determine what these laymen knew about heart disease and its causes. In each of the communities, they selected a carefully weighted sample of 500 to 600 persons who fell in the heart-disease risk group, of ages 35 to 59. Each person received a complete physical examination with electrocardiogram, blood-pressure reading, skinfold test for obesity, sero-

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logical blood sampling and weight reading. In those with elevated blood-fat levels, a stress test was used to record heart rhythm during exercise.

Next, each person was asked nearly 400 questions about attitude and behavior. In this test an interviewer sat down privately with each subject to learn his or her dietary, exercise and smoking habits and to probe how much each knew about heart disease and its causes. The test was carefully designed to obtain a precise picture of each participant. Recognizing a human tendency to underestimate smoking and eating and to overestimate exercise activities, the interviewers did not satisfy themselves with simple answers but probed deeply into personal habits.

"Do you have a package of cigarettes with you?" they would ask. "When did you buy it? When did you open it? How many cigarettes are left?" Thus the interviewers could estimate for themselves how much the subjects smoked. To gauge eating habits, sample portions of food, such as meat, were used. "Do you eat this size hamburger patty? This larger size?"

The interviewers quickly showed that SHDPP had its work cut out for it. There were gaping holes in people's knowledge about the role of diet in

heart disease, plus some deeply rooted attitudes that might be difficult to change. For example, 35 percent of those questioned agreed with the statement, "Breakfast just doesn't seem right without eggs," and more than 50 percent with the statement, "Sometimes, no matter what a person does, he gains weight." The message about the dangers of smoking had gotten through—"Probably more people knew that than could identify the President of the United States," one physician commented—but people were badly confused about the effects of cholesterol. Triglycerides was a whole new word.

Many of the misconceptions dated from childhood. "People learn when they are young that liver is good for them," Dr. Farquhar says, "but they never realize that it is high in cholesterol. They are taught that pork is fat and hard to digest, so they never learn it has less cholesterol than steak." Although Watsonville is a coastal community, residents were also unaware of the cholesterol content of shellfish. In one question, participants were asked to rank liver, shrimp, steak and pork in order of cholesterol content. Only a handful could get the sequence right—it's steak with the most cholesterol, then liver, shrimp and pork.

Armed with this profile, the medical and media experts began a preliminary campaign to fill in the knowledge gaps and overturn the entrenched attitudes. In January 1973, they kicked off an eight-month saturation information blitz directed at Gilroy and Watsonville. Seven radio stations contributed short radio plugs and four local television stations broadcast 28 English-language and 12 Spanish-language television spots, crammed with health information. Dr. Farquhar wrote 32 weekly newspaper columns, which appeared in local dailies, along with heart-saver recipes developed by the dietetic staff from Stanford. The SHDPP staff distributed 2,700 English and 1,800 Spanish copies of a fact book, *The Heart of the Matter*, and issued a 78-page low-cholesterol cookbook. They even sent out "Save Your Heart" Christmas cards and distributed free to area residents 45-rpm records of a specially written song, "Give Your Heart A Lift."

Throughout the campaign, the media messages were directed to hit home. One 60-second television spot, for example, featured what SHDPP researchers came to call "the Watsonville breakfast." The picture zeroed in on a man sitting down before a plate of eggs, bacon and toast and heavily sprinkling

salt over it. The plate then suddenly disappeared.

"The great American breakfast really sets you up for heart disease," the narrator said. "Egg yolks are high in cholesterol. So are fatty meats, whole milk and butter. Too much sugar adds more risk of heart trouble. So try a few replacements: Substitute fresh fruits, low-fat milk and soft margarine. You'll live—that's the heart of the matter."

A 30-second spot was directed at Mexican-American viewers. Two men were shown arm-wrestling at a picnic, one with a cigarette firmly clamped in his mouth. After a short combat, the smoker's arm was pinned to the table. "*Fumando perde*," said the narrator. "Smokers lose."

But the most intensive phase of the campaign was reserved for Watsonville. From the original town sample of 600 persons, the SHDPP team identified 100 "high risk" subjects—persons whose profiles showed danger in more than one risk area. In the summer of 1973, these persons, like heavy-smoking, hypertensive Jack Snow, or overweight, sedentary Jane Maitoza, were invited to nine weeks of "intensive instruction" to help them change their ways. Led by Stanford research assistant Tony Meyer, a cheerful, energetic doctoral student in psychology, they and their spouses met in groups of 20 couples for weekly sessions that were part pep rally, part revival meeting, part church social and part health-and-hygiene class.

The group that met at All Saints Episcopal Church was typical. Besides Jack Snow and Jane Maitoza, it included Al Bastien, a town fireman; Doris Johnson, wife of the high school football coach; Phyllis Moreno, a homemaker, and her husband Norman, a local gas dealer; Manny Rapoza, who owned a camera shop; and Roberto Martinez, a service station operator. They were soon to become friends, reinforcing and bolstering each other's resolve.

On a typical evening, the group members arrived at 6:30 PM, greeted by Meyer and a "Hello There" nametag. Each of the 20 subjects was privately weighed and interviewed about changes in diet, smoking habits and exercise since the week before. "We tried never to embarrass anybody by publicly disclosing their weight," Meyer says. "We always tried to emphasize that it was a group effort and to let them draw strength from each other." After the weigh-in, the group sat down to a dinner especially designed to prove that sparing your heart

didn't mean food had to be unappetizing. That night, the menu included carrot and pineapple salad, beef and mushrooms in wine sauce with noodles, frozen peas in margarine, fresh fruit, and claret and rose wines.

After dinner Meyer began what he called the "cheerleading." Standing before a chart board with a black marking pencil, he called out the week's results.

"Seven persons lost one pound or more this week," he began. "That's 25 points a person—175 points!" With a great flourish, he wrote "175" on the

Nine intensive weekly sessions—part pep rally, part revival meeting, part church social and part health-and-hygiene class—were reserved for 100 high-risk people whose profiles registered danger in more than one crucial area.

blackboard while the crowd applauded.

"Ten people brought in menu plans for next week. That's 250 more points!" Another burst of applause.

"We have one person who set a quit-smoking date—100 points! Another person who set his date and kept it—400 points! Three more persons who started physical-activity programs—50 points each!"

With each new figure scrawled on the board, there was another round of self-congratulatory clapping. Finally, Meyer announced that he was awarding bonus points "for people who pledged to lose one pound and who lost two," putting the group over its goal for the week. And there was a burst of applause and a peal of delighted laughter. "We tried to keep them thinking positively and reinforced with success every week," Meyer says. "That way even those who didn't do so well could take heart from the success of the others."

After the cheerleading, the spirit-lifting routine, it was time to get down to the business at hand—learning how to change eating and smoking habits. In both instances, simple behavior-modification techniques were used. For each of the smokers—there were 35, some of whom consumed up to

three packs a day—antismoking lecturer Al McAllister brought along a small sheet of paper, a "log" to be tucked into a cigarette pack. Whenever a cigarette was removed, the smoker was to record the time of day, circumstances (such as after meals), mood and companions. Later he could look back at the check sheet and find his "trouble spots"—the times he was most likely to light up—and then try to work around them. McAllister also taught the smokers how to select a "quit" day ("not a holiday, the start of a vacation or any unusual date") and how to stick to it. "You learned the smoking habit," he told the group. "Now you can also learn the non-smoking habit."

The diet sessions also employed a log technique. At the first meeting, group members were instructed that for the next seven days they were to record everything they ate, including snacks as well as full meals. Merely making the list, they were told, would make them conscious of how much they were eating and stimulate them to cut down. The next week the lists were examined for trouble areas and a menu for the following week planned with an eye toward reducing calories and fat content. One evening the group was given a videotaped "supermarket tour" in which they were told, brand by brand, which foods were high in cholesterol and triglycerides.

After each diet session, a question-and-answer period was held. "How can I make Chinese food taste right with a low amount of salt?" Doris Johnson wanted to know one night. "Does yogurt have high cholesterol?" another woman asked. Aided by SHDPP dietitians, the group exchanged information on margarines, cooking fats and low-calorie foods. One night, Al Bastien, whose hobby was baking bread, asked for a butter-free, egg-free recipe. The next week dietitian Judy Potter produced one.

One evening a Stanford psychologist, William Haskell, PhD, discussed the value of exercise. He asked each member to inventory his weekly physical activity, then showed ways it could be improved. He issued a "physical activity manual," which listed conditioning activities, daily living-habit activities and recreation. Exercise for a healthy heart need not be a chore, Dr. Haskell noted. He suggested 15 minutes' jogging, bicycling or swimming plus vigorous recreation. "Walk upstairs instead of using the elevator," he said. "Park in the place farthest from instead of closest to the supermarket entrance. Do your own lawn-

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mowing, gardening and car-washing."

After six meetings, Tony Meyer announced that the group was ready to go on a maintenance routine. Like reformed cigarette smokers who must eventually give up their candy-mint "crutch," they would now have to carry on without the program's support. Three more meetings would be held, but these would be primarily social occasions to answer questions

and to give each other moral support. Later there would be a final follow-up to see how each had done.

In the fall of 1973, the townspeople of Watsonville, Gilroy and Tracy were retested for changes in knowledge, attitudes, habits and physiology. Residents in all three communities, including the control town that received no instruction, showed a significant increase in information about the links among diet, smoking and heart disease. But physical examinations put a different light on the picture. Since the start of the program, levels of cholesterol, triglycerides and blood

pressure had increased in both Gilroy and Tracy. In Watsonville, however, the average cholesterol level was down 2.5 percent, triglycerides 4.9 percent and blood pressure 1.6 percent. Also, smoking among Watsonville citizens had dropped 31 percent, compared to 9 percent in Gilroy and 4 percent in Tracy.

But the greatest gains were chalked up by the 100-member intensive-instruction group—80 of whom successfully stayed with the program all the way. Of the 35 smokers, 12 had succeeded in giving up cigarettes; blood pressure was down an average of 16 points; members had lost an average of 6 pounds.

And the totals masked some striking individual achievements. Jane Maitoza took the lead with her 50-pound summer loss, but other members of the group had shed up to 46 pounds. Phyllis Moreno, who found herself 20 pounds lighter and "matching my husband who was always slim," was now working on trimming down her four children. Manny Rapoza had brought his blood pressure down to normal, mostly by eliminating salt and cutting down his portions. "I always ate a balanced diet," he reported. "I just didn't get away from the table fast enough."

More important, group leader Tony Meyer found that the intensive-instruction group had spread the heart-saving gospel to others in Watsonville. Each of the 80 persons who had completed the program discussed it with 8 others, and each of these had passed along the word to 3 more. The total number of Watsonville residents who had gained some information about heart disease from the intensive-instruction group alone thus numbered close to 2,000.

But, as Dr. Farquhar comments, overnight change is less important than long-term gains. Although it is never too late for improvement, to stop smoking for a few months has little effect on coronary risk. "We're talking in terms of ten years," he says. Accordingly, one year later, in the fall of 1974, the Stanford team came back to bolster the group's resolve to continue its new habits.

Gathering in the assembly room of the Watsonville Chamber of Commerce, Al Bastien, Jack Snow, Manny Rapoza, Jane Maitoza and the others in the intensive-instruction group heard W. Stewart Agras, MD, a Stanford psychiatrist who specializes in the be-

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havior-modification approach to dieting, explain that "Successful dieting is easy. All of us have done it a half-dozen times." To be in the successful 10 percent of dieters who lose weight and keep it off, he said, it was necessary to "change the eating environment as well as the diet."

"For instance," he said, "don't keep food in sight to stimulate your appetite. That sounds so simple you can't believe it works, but it does. It's difficult for housewives who prepare food three times a day, but it can help them to take out a single ingredient at a time, then replace it before taking out another."

"Give yourself immediate feedback. Weigh yourself every day. Plot your loss on graph paper, but draw a five-pound chart so that every loss of a few ounces seems like a large drop. Make your goals attainable. Strive to lose five pounds in one month instead of thirty pounds in six months."

"Give yourself small rewards for each loss. It takes a tremendous loss to make yourself look and feel better—the ultimate reward—so keep up your spirit in the meantime. Make the reducing campaign a family project—get everyone pulling for you to reduce."

"Finally, control the stimuli. Keep a record of where you eat. Fat people eat everywhere—the whole house is a food cue. Make it a rule to eat in only one place and strive to keep eating from being automatic and unconscious. Instead of eating while watching television or standing in the kitchen, eat only in the dining room, sitting at the table, setting a formal place with knife, fork and placemat to remind you of what you're doing. How many of you eat in only one place?"

Months after that, the Stanford team came back to see if the gains had been maintained—and found that they had been improved upon. Two years after the campaign started, smoking in Watsonville had been almost cut in half and many of the residents did almost well enough on their questionnaires to pass a medical-school course in heart disease. (Dr. Farquhar acknowledged that those who had the most information hadn't necessarily scored the greatest changes in habits.) Bicycles lined the plaza, indicating that exercise had become the "in thing" in Watsonville.

It hadn't been easy, those in the intensive-instruction course agreed. Jack

Snow was still fighting a losing battle between stopping smoking and trying to stay slim. Manny Rapoza admitted that "Blue cheese dressing keeps creeping back onto my salad, and I have to start all over again."

The Stanford team has expressed itself as pleased with the results so far. Another round of examinations in the fall of 1975 indicated that gains were being maintained or even bettered. "Most people gain a few pounds a year," Dr. Farquhar says, "and blood pressure, cholesterol and triglycerides sneak up about 1 percent a year, so even those who have remained the

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same will benefit in heart-attack risk reduction. But of course, for all of us, it will be many years before we really know what has been achieved." In the meantime, however, plans are being drawn to attempt the same kind of promising personalized health education on a larger scale.

Dr. Farquhar concludes, "The real questions in Watsonville are, 'Can people steer their own lives? Can they control their health rather than allow their environment to control them?'"

So far, the answer from Watsonville seems to be an invigorating Yes—to life! ■