

FLOUR POWER

Paul Stitt has been a longtime pioneer in getting Americans to eat healthier foods, but when it comes to school lunches, his impact can only be described as super-sized.

By Niki Denison



In 1998, Wisconsin's Appleton Central Alternative High School was dealing with worrisome discipline problems in the classrooms. Students were caught with drugs and weapons. They were hostile to each other and to their teachers, and behavior was out of control.

Did the school turn to a psychologist, a consultant, or an education specialist? No — they contacted Paul Stitt MS'69, the owner and founder of Natural Ovens Bakery.

"When the Appleton school system came to us and said could you help us, we said we'd love to," Stitt says. "And we said, 'Certainly, we know how to correct the situation. Throw out the vending machines with all the high-sugar, high-fat foods; throw out the pop machines loaded with sugar; put in water coolers; and start educating kids about what they need to do to be good to their bodies.'"



PASKUS STUDIO (3)

“The human brain needs nutrients to function,” says Paul Stitt (above, surrounded by students). “Any biochemist can tell you that, without proper neurotransmitters in the brain cells, nothing is going to happen, no matter what teaching method you use on kids.”

Stitt and his spouse, Barbara, underwrote a program that allowed the school to start serving a menu emphasizing fresh fruits and vegetables, whole-grain products, entrees free of chemicals and additives, and energy drinks.

The results were dramatic. Truancy rates took a nose dive. Grades shot up. Vandalism and littering went down. The alternative school went five years with

no expulsions, no dropouts, no drugs on campus, no weapons, and no suicides. It was the only school in Appleton that had a perfect record during that period.

Although the food costs were higher, the school saved money because it no longer had to pay for a full-time police officer, and with better discipline, it was able to increase class size from eight to fifteen students.

Seeing this success, the entire Appleton school district is now phasing in a healthier lunch program for its fifteen thousand students. The first year, they removed the soda and candy machines from the schools (and even from the staff lounges). Now they’re working with a private hot-lunch contractor to improve food choices and quality. Even PTA meetings and bake sales now feature trail

mix and carrot sticks instead of cupcakes, says Assistant Superintendent Lee Allinger. Since the district started paying more attention to what its students are eating, he adds, “our teachers feel the kids are more focused in the classroom.”

Nationwide, what we eat has become a hot topic, as obesity rates have grown to epidemic proportions in the last twenty years. According to the Centers for Disease Control and Prevention, more than 60 percent of American adults are overweight or obese, and 13 percent

ests. Stitt’s team synthesized a protein from methanol, and they felt it had great potential as an inexpensive way to feed malnourished millions. Despite the team’s success, however, the project was inexplicably canceled. Stitt, baffled and frustrated, moved on to Quaker Oats.

There he was in for more disappointment. Stitt claims that what he calls the corporate food giants, in the interest of increasing profits, have deliberately set out to get consumers to overeat. He learned that they put appetite stimulants

ing healthy, whole-grain breads, which were hard to come by at that time. Like many new businesses, the bakery got off to a rocky start. But Stitt persisted, expanding his distribution throughout the Midwest and by mail order. He augmented his product line with bagels, muffins, and other items, and fortified his products with flax and vitamins. Although Stitt relies solely on word-of-mouth advertising, the company’s 2004 sales came in at \$26 million, and it has experienced steady growth, averaging nearly 15 percent per year.

He maintains that his is the only company in the United States with an original mission to make foods so filling and satisfying that people could not overeat. “The wisdom within the food industry is that you always have to make foods so that people can’t stop eating, or you’ll never sell enough to stay in business. And we say that’s hogwash.” If you make foods that don’t cause people to overeat, he says, word will spread, “and you’ll be gaining new customers all the time.”

Natural Ovens’ success has allowed Stitt to get involved in community efforts like the Appleton school initiative. Through his nonprofit Nutritional Resource Foundation, he and Barbara started the Peak Performance Program to provide the company’s energy mix and Brainy Bagels (which include flaxseed to optimize brain function) to the Appleton Alternative School and more than thirty other Wisconsin classrooms for breakfast. That later grew into the lunch program.

According to Ken Zeichner, assistant dean in the UW-Madison School of Education, public schools are hamstrung by the need to provide subsidized lunch programs. “The government gives support in the form of surplus food, things they need to get rid of that they dump on the schools that is of questionable nutritional value,” he says.

Zeichner believes that this type of fare can distract students from learning. “A lot of kids in the public schools are drugged with Ritalin and other things because they’re supposedly hyperactive,” he says, “and kids are being defined as



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of children aged six to eleven are overweight — almost double the figure of two decades ago.

Experts agree that a big part of the solution must focus on instilling healthier eating habits in children. Many school districts are removing junk-food machines or replacing their offerings with healthier choices, such as juices, energy bars, or baked snacks instead of fried. Others, spurred by parental concern and overweight kids, are starting to revamp their lunch menus. Even McDonald’s restaurants are starting to offer fruit and other healthy selections.

And Paul Stitt couldn’t be happier. These are changes that he and Barbara have been advocating for years. In fact, Stitt has made it a lifelong mission to get people to eat more healthfully — a mission born of his disillusionment with the corporate approach to feeding America.

Stitt got his graduate degree in biochemistry, and after graduation, filled with visions of helping to solve the problem of world hunger, he signed on for a special project with Tenneco, a multinational corporation with petroleum inter-

in snack food to encourage consumers to eat more. For instance, in his book *Beating the Food Giants*, Stitt claims that Oreo cookies have “twenty-three different appetite stimulants,” along with eleven artificial colors. The primary purpose of artificial sweeteners, he claims, is not to make foods sweeter, but to get people to eat more of them. Sugar consumption has increased since artificial sweeteners came on the market, he says. The average person has consumed seventeen pounds more sugar per year since 1980.

Further, he maintains, most food processing strips nutrients from food, leaving the body unsatisfied and causing us to eat more.

When Stitt brought up these issues with his former employers, he was branded as a troublemaker. After moving him to Manitowoc, Wisconsin, Quaker fired him, and Stitt says he was black-balled and couldn’t get another job interview in the food industry. He decided he could do better on his own.

In 1976, he started Natural Ovens of Manitowoc Bakery (now just known as Natural Ovens) with the intent of mak-



Why You Can't Eat Just One

Some of the most weighty research on food cravings has come from Ann Kelley, a UW-Madison professor of psychiatry. Kelley and her research team are studying the chemical systems in the brain that regulate our response to food — specifically, high-fat and high-sugar foods.

If you hear the cheesecake in the refrigerator calling to you, you can thank your opioid system. This neurotransmitter system in the brain seems to be important in the pleasurable and emotional response to food.

Kelley found that if she overstimulates the opioid receptors in rats, “they pig out. They will eat three to four times as much fat as they usually do.” Rats enjoy sweetened fat, and over the course of three hours they might typically eat five to seven grams, she says. “But the rats that we treat with this compound [that activates the opioid system] can eat up to twenty-five grams in three hours.” Conversely, Kelley found that when she blocked the opioid receptors, the rats ate a lot less.

Scientists agree that a built-in attraction for high-fat foods was beneficial in evolutionary development for ensuring the consumption of relatively scarce, high-energy food sources. But in modern times, Kelley says, this mechanism is highly maladaptive. In the Western world, “we are surrounded with unlimited supplies of high-fat, salty, sweet, and calorically dense foods. These foods are everywhere we go — convenience stores, schools, check-out lines — and often come in the form of huge portion sizes.” This scenario, combined with a sedentary lifestyle, has led to an epidemic of obesity.

Kelley has also discovered another ingredient in our makeup that leads us to pack on the pounds. She found that a habitual diet of rich foods causes long-term alterations in brain chemistry. In one study, she gave rats a diet of chocolate Ensure (a nutritional supplement drink) for several weeks, and she learned that it induced a change in gene expression in their brains. The rats had a decrease in the amount of a gene that helped to regulate their reactions to food.

“Interestingly, this pattern is similar to what happens if rats are given morphine or heroin for several weeks,” Kelley says. “In other words, rich, calorically-dense foods can have marked, long-lasting effects on brain neurochemistry, and perhaps overindulgence in these foods primes the system to want more and more, in a manner similar to addiction.”

These findings have implications for developing weight-loss drugs that act on the opioid system. However, there are also other systems in the brain involved in processing information about food. The amygdala, which is involved in emotional processing and learning, is one of them. “If we block the amygdala in rats,” says Kelley, “they don’t binge-eat anymore.” Consequently, “weight-loss drugs are going to need to target multiple chemical systems in the brain.” Humans are wired with such a powerful system to get us to eat that it’s really hard to turn it off, she says. This complexity tempers her optimism about developing effective drugs.

It’s much more important, she says, to begin early in life to change eating habits, reduce food intake, and increase exercise. “In terms of policy and government and education, I would really focus on young people,” she says. “Because once the setpoint [the point at which the brain gauges how much fat is stored] changes and keeps creeping upward, it’s harder and harder to push that down. The idea is to really stabilize early in teenage years or young adulthood.”

— N.D.

emotionally disturbed. There’s no question in my mind that at least some of it — I’m not saying all of it — has to do with the quality of nutrition. Parents are busy at all income levels; they’re not necessarily making sure that their kids get access to good-quality food.

“To see an independent businessperson doing [what Stitt is doing] is wonderful,” Zeichner says. “I can’t say enough positive things about him.”

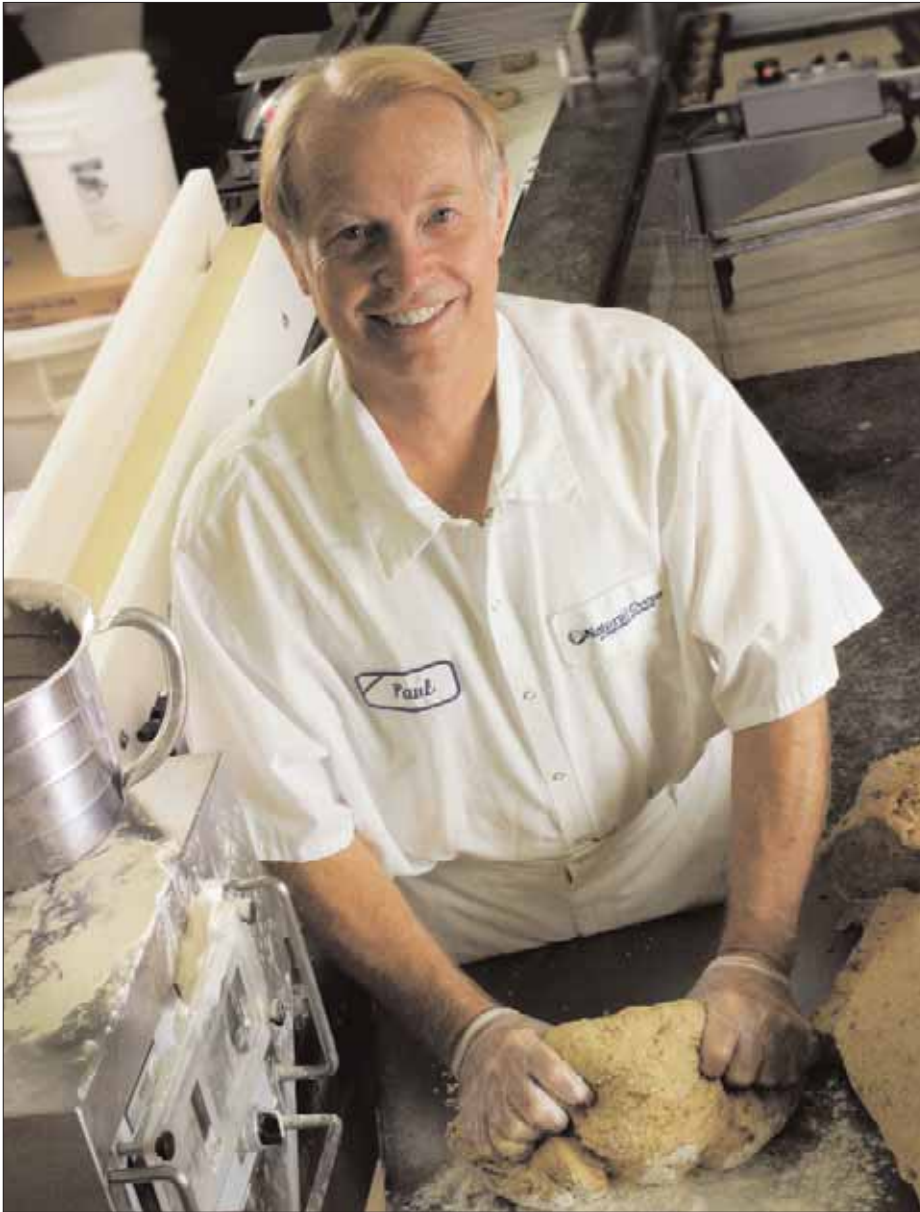
The Appleton program was originally inspired by Barbara Stitt’s work as a probation officer. She realized that a lot of her probationers were junk food junkies who lived on soda, caffeine, and sugar,

and not much else. When she showed them how to follow a healthy diet, those who stayed on it were amazed at how different they felt, and their improved attitudes and behaviors helped them to stay out of jail. She figured that if it worked for them, it would work in the classroom.

The lunch program caught the eye of filmmaker Morgan Spurlock, who made the movie *Super Size Me* based on what he felt like when he ate all his meals at McDonald’s restaurants for thirty days in a row. The previously fit and healthy Spurlock gained twenty-five pounds, and his cholesterol and liver profiles became

so unhealthy that his doctors begged him to stop the experiment.

Spurlock included a segment on the Appleton school lunch program in the movie, contrasting it with a typical lunch program at an Illinois school that centered around pizza and French fries. Spurlock and Stitt are now working on creating a version of *Super Size Me* that is suitable for showing in schools. It’s obvious that the two are kindred spirits. Stitt says that Spurlock is “very high energy — he’s just the neatest guy to work with. He’s full of laughs all the time, and he’s having a ball with this concept. The food industry just doesn’t know how to take it.”



Since Stitt started Natural Ovens of Manitowoc Bakery in 1976, it has grown to a \$26 million-a-year business. Food industry wisdom, he says, dictates that “you always have to make food so that people can’t stop eating, or you’ll never stay in business. We say that’s hogwash.”

Spurlock, for his part, maintains that Stitt “has been leading the charge for healthy school lunches for many years. He is setting an example that districts nationwide should follow.”

Stitt is also helping to fund a research project with the University of Minnesota duplicating Spurlock’s diet with college students. (“I wish it were being done at UW-Madison instead,” Stitt says.) If science can demonstrate that others experience the same negative effects as

Spurlock, Stitt observes, “the fast food industry could be in serious hot water.”

Meanwhile, the Appleton lunch program has been featured on *Good Morning America*, Stitt has gone on the speaking circuit, and the school’s story has been written up in a number of newspapers. “Hundreds of school systems have contacted us for information on how to do [a program] like Appleton did — we get up to ten requests a day,” he says. Since last October, his staff has sent out 1,400

packets with seventy-five pages of information about how schools can make similar changes, along with a short DVD telling the story of Appleton Alternative.

“The human brain needs nutrients to function,” Stitt says. “Any biochemist can tell you that, without proper neurotransmitters in the brain cells, nothing is going to happen, no matter what teaching method you use.” Older teachers maintain, he says, that today’s students “are much less able to think and remember than they could forty years ago.”

To what does he attribute this astounding claim? “My theory is, it’s just plain old lack of nutrients in the food — that the children’s food providers are abusing them in not providing them with adequate nutrients,” he says. Before the advent of fast foods, children weren’t eating so many empty calories. “If you look at the ingredients in Chicken McNuggets,” he says, “it’s a chemical conglomeration with a little chicken added. When I was a kid, when my mother served me chicken, it was all chicken.”

In some cases, he says, kids are going to school without breakfast. “They just kind of run on empty until lunch time. We found that these kids are not too fussy about how the food tastes, as long as there’s enough of it. They’ll eat anything that’s loose.”

One technique that Stitt says was especially effective with the Appleton students was an agreement that if the kids would eat healthy foods for a month, then they would get a junk food day. But after one day of eating all the snacks, desserts, and soda they wanted, he says, “they were so shocked and dismayed at their awful behavior and the terrible way they felt that some of the teenagers actually begged us never to require another junk food day. They couldn’t believe they could go from feeling so good to just becoming an animal. No one ever imagined that a simple thing like vitamins and minerals and so forth could make such a huge difference. They thought it was a lack of religion or training or home life or something else.”

Mary Bruyette, an English teacher at the school, concurs. "Students told me how awful they felt after junk food day, and they said they never wanted to feel that way again." It was a lesson for a lifetime, Stitt says. "And whenever they're tempted to eat junk food, they can think about how they felt last time."

This past school year, the Stitts started a similar lunch program with Chicago's Perspectives Charter School, which includes grades six through twelve. Eighty-six percent of the students come from low-income backgrounds, and they are accepted for the school via a lottery.

According to Dianne Campbell, director of external affairs, the new food program is "off to a roaring start. It's a

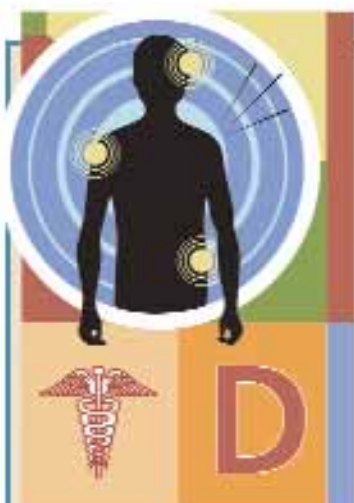
huge adjustment from eating food that we get from one of our public school vendors to healthy — lots of green vegetables, lots of great stuff." It's not easy to switch courses, she says, especially because Perspectives has been constructing a new building and doubling the size of the student body at the same time. "So it was a time of great growth for Perspectives, and there were times when we thought, 'I don't know if we can really do this.'" But the fact that Stitt kept encouraging them helped a lot, she says.

"The other thing about Paul, in addition to being visionary, is that he's just a person with great heart," she says. "At every turn, we're inspired by the fact that he cares so much. He's a remarkable man with a tremendous

commitment to young people and to the link between good nutrition and performance."

Thanks to Natural Ovens Bakery, she says, the school has been able to hire an outstanding chef, and some of their students are interning in the kitchen. The school food policy is modeled in part after Appleton's. Perspectives is also working with teachers to build information about healthy lifestyles into the curriculum and to integrate the message throughout the school. "There are huge benefits for the faculty and staff as well," says Campbell. "We're all eating together and we're loving it." Those benefits will soon extend to some five thousand students, since the school board

Continued on page 61



Easing Pain with Vitamin D

Now that Paul Stitt is semi-retired from Natural Ovens Bakery, he has turned his attention to researching nutritional products that help relieve pain. "My mission is to help people get free of pain one person at a time," he says. "I've discovered that [a lot of] pain is caused by deficiencies, specifically vitamin D and C and calcium and magnesium."

There are currently about one hundred people following a dietary pain-relief program overseen by Stitt's Nutritional Research Foundation. "We find that within six weeks, two-thirds of the people are almost pain-free," he says. Those who try his program include people with everything from chronic back pain to fibromyalgia.

Many experts believe that the recommended daily allowance for vitamin D, currently set at four hundred international units per day, is too low. (That's why Stitt supplements most of his bakery products with the vitamin.) When vitamin D was discovered, the RDA was based on how much it took to prevent the bone disease rickets. "Now this whole subject needs to be revisited," Stitt says. "Especially in the last seven years, research around the world has shown that vitamin D deficiency is involved in all types of cancer — it's involved in diabetes, arthritis, osteoporosis — a lot of things besides rickets."

He cites a 2003 Mayo Clinic report on a University of Minnesota finding that vitamin D deficiency is a major cause of

chronic back pain. "They've demonstrated that by giving people adequate levels of vitamin D, that you can reverse chronic back pain," he says. "This was wholly unexpected. I think that's research that needs to be expanded on, because it could have huge ramifications for the cost of medical care."

Stitt has devised a product called Chocolate Sunshine Almond Clusters that contain 2,000 units of vitamin D per piece. They're being used in a Manitowoc nursing home to determine if eating the chocolates on a regular basis can help to reduce falls. Treatment of broken bones from falls represents a major expense in the nursing home industry.

Professor of Biochemistry Hector DeLuca MS'53, PhD'55, a UW-Madison vitamin D expert, cautions that too much vitamin D can be toxic, with a risk of hypercalcemia and destruction of organs such as the kidneys, heart, and aorta. "It's not something you play around with," he says. "I'd say that about 5,000 units a day would probably be just about where 99.9 percent of the population would be totally safe. I do think the RDA ought to be increased to 1,000 or maybe to 2,000 units," he says, but "the true safe level has never been totally determined. That's the problem."

Recent studies show that vitamin D3 is several times more valuable than the more commonly used vitamin D2, Stitt says. "When you stop to think about all the money that is spent on osteoporosis, and all the pain, it's a real crime, when three cents a day of vitamin D would prevent that problem if we only knew how much to take." Many researchers, he claims, are more interested in doing studies that lead to biotechnology or other patents, whereas vitamin D is not patentable. "[Determining the new RDA] is something that's desperately needed by humanity, but that is not necessarily going to make any company rich." — N.D.

Flour Power

Continued from page 39

recently voted to expand the Perspectives model, including the lunch program, to seven additional schools in the coming years.

For the first year, Perspectives has focused simply on getting the program up and running, so it's too soon to gauge its effects. Getting kids to eat healthful foods, which is no small feat, has been a bigger adjustment for the older students, Campbell says. But stay tuned for results — NBC is planning to monitor the program for the next four years and report on how it goes.

Stitt insists that university education departments should instruct future teachers about the impact of nutrition on learning and behavior. Ken Zeichner says that the UW-Madison School of Education requires elementary ed students to take a health course that includes a nutrition segment. But secondary teachers don't take the course, he says, and it's true that most teachers don't get that information.

"Our company from the get-go has been on a mission," says Stitt. "It just happens to be we make bread. But the real mission was to help mankind and to make food that's truly good for people." In *Beating the Food Giants*, Stitt attributes his altruistic leanings to his family and his upbringing on a farm in Illinois. In graduate school, his role model was UW Professor Karl Paul Link '22, MS'23, PhD'25, who developed the blood thinner dicumarol and its rat-poison counterpart, Warfarin.

"K.P. Link was just an extraordinary professor — probably the greatest oddball on earth," says Stitt. "He was a nonconformist, and he taught me not to accept conventional thinking." During the Vietnam War, he says, when the university wanted to prosecute student demonstrators, "Link gave the university money to give to the students to defend themselves from the university. He wouldn't do it in the typical way — he wouldn't give it to the students," he laughs.

UW-Madison's "sifting and winnowing" statement also resonated with the

idealistic graduate student. "That's the most important thing to learn to do — to separate the truth from the chaff," he says. "That's a mission I've been on all my life."

Sifting the wheat from the chaff might seem a fitting occupation for a baker, and indeed, Stitt sifted out the truth about another grain when he masterminded the acceptance of flax in the American diet. The seed had been eaten for thousands of years in Europe and Russia, but Stitt says that flawed U.S. studies led to the belief that it was toxic.

The key, he says, is not to cook the flax at a high temperature, as the researchers did, because high heat generates harmful substances. Stitt devised a process that included adding zinc to the seed, so that he could stabilize it and use it in his breads and other products.

"My feeling is that no one has a right to entice people to eat food that's bad for them."

"We got the FDA to do dozens of studies, and they published ten papers showing that flaxseed is safe and beneficial," he says. Since then, thousands of articles have touted flax as a source of valuable Omega-3 oils, which help to combat inflammation and disease and are hard to come by in the typical American diet. "It contains the very nutrients that people are most deficient in," Stitt says. "A lot of people ridiculed me at the beginning for promoting flaxseed," he says, "but now I feel totally vindicated to see all these hundreds of products using it."

Stitt believes that the obesity epidemic is "a far bigger problem than tobacco," given that only 25 percent of the adult population identifies themselves as smokers, and obesity is "killing two-thirds of the population." Government agencies agree that obesity is a factor in heart disease, diabetes, cancer, and other serious diseases, and the CDC estimates that the

economic cost of obesity in the United States was about \$117 billion in 2000.

"I think it should be like the Manhattan Project during World War II," says Stitt. "[We need to] put those kind of resources into finding out how to solve the problem and how to prevent it."

Stitt's next book will feature accounts from individuals who have been successful at keeping weight off. "They have found that the most effective method of keeping weight off is for each person to work out their own method of doing it," he says. "Prescribed methods, from what I've read in the literature, have been pretty much gross failures. People get tired of following the book, but if it's their own idea of how to do it, then they tend to stick with it."

In February, Stitt went into semi-retirement from Natural Ovens. "But I don't want to slow down one bit," he emphasizes. He'll focus on researching nutritional pain-relief products (see sidebar on page 39), and on the school lunch program. Stitt has some strong words for Americans when it comes to eating habits, but what he is advocating basically constitutes a paradigm shift in the way our culture approaches food.

"My feeling is that no one has a right to entice people to eat food that's bad for them," he says. "It really is kind of immoral to put out these enticing desserts that people absolutely can't resist." Even after having a good, healthy meal, he says, "you destroy the nutritional benefits by eating one of those big, gooey desserts. The sugar totally overwhelms the system, and you have this huge blood-sugar spike with insulin and all the harm that it does."

Parents love to coddle their children by bribing them with food that's harmful to them, he says. "This is what parents do in our society." Instead of rewarding children with a candy bar, he'd recommend a game of catch or some other much-needed physical activity.

There's a lot at stake, he says. "I think there's nothing more important in the whole world than the next generation."

Niki Denison is co-editor of *On Wisconsin* Magazine.