



Weighing the Options



School of Medicine Faculty Members Help Fight the Epidemic of Obesity

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Physicians see the results of obesity every day – patients with elevated triglycerides, hip and leg problems, and sleep apnea.

And some of those patients aren't even old enough to drive.

Studies show that obesity is on the rise in this country, and not likely to slow down anytime soon. The latest estimates from 2000 found that 15 percent of kids ages 2-19 are overweight and 15 percent are obese. This problem is likely to get worse as the trend continues into adulthood. Currently, among adults, nearly 65 percent of the population in the United States is overweight, and 30.5 percent is obese.

"This is a huge public health crisis," says Sarah Hampl, M.D., '92, assistant professor of pediatrics, Children's Mercy Hospital. "We know from research that 75 percent of obese children will remain obese teenagers and obese adults. If we can't help them manage their weight, some of them will be dying in their 20s of complications."

Because of this alarming trend, several faculty members at the School of Medicine are devoting their energies to help patients fight obesity. From community education to genetics research, faculty members are looking at what causes obesity and how it can be treated. Many of them are also part of a community-wide initiative, started by the school this year to address the problem of obesity in the metro area.

"We hope that by employing a number of disciplines, we can address this public health issue in our community," says Dr. Hampl. "It's not just one group's problem – this is everyone's responsibility."

Supermarkets vs. Fast Food

Studies show that people who live in poor neighborhoods are more likely to be obese. At the School of Medicine, Carlos Poston, Ph.D., M.P.H., associate professor of psychology and medicine and associate chair of UMKC's Department of Psychology, is conducting an environmental study to find out exactly what makes these neighborhoods less healthy.

This year, he received a \$3 million grant from the National

Institutes of Health to conduct a five-year study comparing the food and physical-activity venues in lower income and higher income environments.

In a pilot study, Dr. Poston surveyed a small group of lower income and higher income neighborhoods in the Kansas City area. He found that poorer neighborhoods had a much

greater frequency of fast-food restaurants, alcohol outlets (bars and liquor stores), and convenience stores – all places that sell food with high calories and low nutritional content. Conversely, he found that these lower income neighborhoods also had fewer supermarkets. He found no difference in the number of parks or recreational facilities, but people in the study reported that they were less likely to use those facilities because of concern with safety. In the five-year study, Dr. Poston and his team of researchers will survey a larger number of neighborhoods throughout the Kansas City area. They will look at various aspects of the environment, including restaurants, stores, supermarkets, recreational areas, streets and sidewalks.

Part of the study will include looking at what food is available. The researchers will get copies of menus from restaurants to analyze the nutritional content. They will also analyze the layout of supermarkets, look for whether the supermarket has certain healthy foods, and compare prices.

“Some research has shown that eating healthy foods like lean meats, fruits, and vegetables may be healthier, but it’s also more expensive,” says Dr. Poston. “On average, it’s often cheaper to eat fast food than it is to eat healthy.”

The study will also look at the opportunities for physical activity in these Kansas City neighborhoods. Researchers will survey the conditions of streets and sidewalks as well as parks and recreational facilities.

After conducting these surveys, the researchers will interview a sample of people in these areas about their exercise and eating habits and check their weight with a portable scale that the researchers will take from house to house.

According to Dr. Poston, he hopes the study will shed light on some of the reasons for the dramatic increases in obesity over the last several decades.

“Environment is the biggest driver of obesity,” he says. “People are eating more than several decades ago. We’re clearly more sedentary. Most of us can go through a whole day without lifting a finger. You don’t even have to manually crank your windows in your car anymore. You can watch TV without having to get up to change the channel. All those things, while they may seem small, rob us of any opportunity to exert any energy at all.”

Along with studying the causes of obesity, Dr. Poston is helping to train physicians to treat obesity. He is part of a team developing a primary-care-based approach for evaluating and treating obesity at Saint Luke’s Hospital. He hopes to eventually work with Truman Medical Center to incorporate the program as well.

“Right now, many primary care and specialty physicians who see obese patients either view obesity as something they shouldn’t be addressing, or one that’s too frustrating and futile for them to get involved with,” he says. “So we’ve developed some training that helps them shift their perception about that. We want them to view obesity as no different from how they manage hypertension or type II diabetes—it’s a chronic disorder that needs to be managed over a long period of time.”

A Holistic Approach

At the Weight Management Center at Truman Medical Center, Shadrach Smith, M.D., clinical associate professor of

internal medicine, is also helping teach physicians how to manage obesity. He is developing a program to train community-based health care providers in the area.

“What’s surprising is that the health care providers who you would think would know more about [obesity] typically know less than their patients,” he says.

Dr. Smith knows this from his own personal experience. His specialty training is in internal medicine. Many of his patients were having problems related to obesity, including diabetes, heart disease, high blood pressure, and arthritis. He knew that the first step in treating these patients would be to help them lose weight.

“Mostly my training focused on prescribing medication, even though their treatment should first involve lifestyle modification,” he says. “And my patients felt the same way – if they could only lose weight, it would be an effective strategy in treating their healthcare problems.”

In 1996, Dr. Smith started the Weight Management Clinic at the University of Kansas. In December 2000, he moved the clinic to Truman Medical Center so he could offer services to people in the inner city and have access to a bariatric surgeon who could perform gastrointestinal surgery.

According to Dr. Smith, the clinic approaches obesity from a medical perspective. Each patient gets a full evaluation to determine the individual causes of obesity, including metabolic, environmental, and motivational issues. Based on their evaluation, the physicians prescribe a treatment plan, which could include medication, a referral to a psychologist, or the most extreme measure, gastrointestinal surgery.

“We take a holistic approach to weight management,” says Dr. Smith. “If the patient’s issue is hunger, we might treat with an appetite suppressant. If the person is eating when they’re stressed, then our approach is targeted toward that.”

Dr. Smith says he hopes to teach other health care providers how to use an individualized approach to treating obesity.

“We really need to treat people based on their uniqueness,” he says. “Some people have metabolic issues, some have environmental issues, and some people have emotional issues. I’d like to be able to teach health care providers how to individualize treatments to provide patients with the best chances of success.”

Genetic Factors

One of the most common reasons for morbid obesity has little to do with behavioral or environmental factors. Merlin Butler, M.D., Ph.D., professor of pediatrics and William R. Brown/Missouri Chair in Medical Genetics and Molecular Medicine at Children’s Mercy Hospital and UMKC, has been studying Prader-Willi syndrome, a genetic condition that causes a chronic feeling of hunger which leads to obesity and even stomach rupturing as a cause of death.

For the past two decades, Dr. Butler has been conducting groundbreaking research to discover the causes of Prader-Willi syndrome. In the early 1980s, Dr. Butler found that the condition was caused by a deletion of genes on the father’s chromosome 15. Recently, Dr. Butler studied the differences in gene activity and outcomes of Prader-Willi patients using a technique called microarray gene expression technology, which allows researchers to determine the activity of the genes and to find out which genes are

not functioning normally. With this technology, he was able to see which genes were missing and to study how these genes may contribute to the patients' symptoms.

Now, in addition to studying the causes of Prader-Willi syndrome, Dr. Butler is researching how to treat it. This year, he received a grant from the biotechnology company Genentech to determine whether growth hormone treatment can be used to effectively manage Prader-Willi syndrome adults.

The hormone treatment works by increasing muscle mass in children with this syndrome, which therefore increases metabolism and decreases fat mass. Because the treatment has been proven to work in children, Dr. Butler proposes that the treatment will have a similar effect on adults.

Participants in the study will receive the hormone injections at Children's Mercy Hospital. Before the patients receive the injections, they will undergo a series of tests to check their metabolism, bone mineral density, and body composition in a laboratory at the University of Kansas. They will undergo testing again after one year of treatment to monitor effects. They will then be retested in six months after treatment to see if they regress.

Dr. Butler says that if the study is successful, growth hormone may have a useful role in treating the obesity that may be life threatening in adults with Prader-Willi syndrome. Gastric bypass surgery, which is an option for many morbidly obese patients, cannot be used on Prader-Willi patients because it increases the likelihood of stomach rupture.

"We are hopeful that this hormone treatment will be an effective option for these patients," he says. "Based on the pediatric studies, we anticipate that participants will experience a 30 to 50 percent reduction in their fat mass in just a few months."

Building a Healthy Future

For obese children who don't have Prader-Willi syndrome, treatment options can range from behavior modification to medication. Recently, Dr. Hampl was involved in a national study to test Xenical, a popular weight management drug, to see if it is a safe treatment for teenagers. She led the trial at Children's Mercy, which provided treatment for 10 kids 12-16 years old. Results of the study were still pending at the time of publication.

Dr. Hampl became interested in obesity after seeing the problems with kids in her practice. She says she was frustrated with the lack of interest many families showed in their children's obesity.

"It's sometimes hard to 'sell' it as a problem to parents. They think it's something that their kids will grow out of," she says.

To help educate kids as well as parents, Dr. Hampl is the assistant medical director of the Body Shop at Children's Mercy Hospital. The Body Shop is a 10-week weight management program that teaches kids age 6 to 16 about nutrition, exercise, and self-esteem. The program also gives parents information about how to support their kids with weight-loss efforts.

Dr. Hampl has also worked with teenage African American girls who are battling obesity. She has conducted a 10-week program to give them educational information about healthy living, including physical fitness and having a healthy body image.

"The teenagers who went through the program were eating fast food and drinking pop everyday. We challenged them

to change their habits, including learning to drink water instead of pop," says Dr. Hampl. "Vending machines are a major contributor to the problem of obesity. Many kids say they have less than 20 minutes to eat lunch, so they have to eat from the vending machines, instead of eating a nutritious lunch."

To help improve these school conditions, Dr. Hampl is volunteering in a coalition formed by the Platte County Health Department. This group is working with school administrators to help create a healthier environment, including the food and physical fitness programs offered.

This summer, Dr. Hampl also worked with the Metropolitan Health Council to create a summer campaign to help encourage kids to be physically active and eat healthy. The council's ad campaign featured billboards with slogans like "Supersize Your Play, Not Your Meal" and "Tell Your Mom to Take a Hike...With You." The group created a calendar that kids could use to choose healthy activities for the week, with prizes awarded for their success.

Dr. Hampl is also part of a community effort started by the School of Medicine. Dr. Hampl, Dr. Poston and Dr. Smith are all members of a community-wide initiative convened by the School of Medicine and UMKC's Center for the City. The Community Coalition to Reduce Obesity in Kansas City was started by Betty Drees, M.D., dean of the School of Medicine, and Richard Derman, M.D., M.P.H., interim associate dean for research, associate dean for women's health, and the Victor and Caroline Schutte Foundation/Missouri Endowed Chair in Women's Health, UMKC/Truman Medical Center. UMKC's Center for the City coordinates the effort, with the goal of bringing together the existing expertise and efforts in the community to seek outside funding and have a greater impact on fighting obesity.

"Establishing this initiative made sense for us as a medical school in order to address the needs of our community," says Dr. Derman. "Our goal is to develop a community-wide response to address the problem of obesity in the area."

The group held its first meeting in April 2003. Currently, they are seeking funding for a metro-wide plan to address the issue of obesity in both children and adults. The group includes members from a number of disciplines, including research and community education.

"By including all of these different groups, we hope to bring this health message to the whole community," says Dr. Hampl. "We need input from everyone to help create a healthy environment."

According to Dr. Poston, this input is necessary to help fight a problem that has long been overlooked in the United States.

"We're well positioned to start addressing this problem," he says. "Sixty-five percent of the population is overweight. We have to do something else before obesity ends up enveloping our whole population." ■

