

# THE FAT AMERICAN

Inflation is hitting our waistlines  
as well as our wallets.  
Researchers are learning about  
how people become obese and  
why many stay that way.

BY JOEL GREENBERG

James A. Carroll of Green Creek, N.J., is a man who recognizes when there's too much of a good thing. "As an avid girl-watcher for 40 years or better," Carroll wrote recently to *SCIENCE NEWS*, "there appears to be [a] striking physical difference between today's young women and the willowy flowers of the '30s and '40s."

Carroll was responding to the somewhat inflated average weights of Americans (*SN*: 1/14/78, p. 22). The major cause of bloated figures, he observes, may be the overavailability of food in our convenience-minded society. "Today, one can turn in any direction, spit and hit a machine that is shoving food or drink in their faces," notes Carroll. "Not too long ago, if one desired a snack, one had to scrounge about the countryside for deposit bottles. The calories consumed in the snack were quickly burned off scrounging about for more bottles."

As a field of scientific study, obesity has been growing as fast as the waistlines of many Americans. Indeed, combatting fatness has become a \$10 billion a year industry. Research over the past decade has pointed to a number of possible biological, emotional and environmental causes of overeating. And it would come as no surprise to James A. Carroll that the proliferation of food outlets seems to be a key factor in obesity.

But it is more than just the availability of food that is responsible for 30 million overweight and 15 million obese Americans. It is a complex set of individual and societal circumstances that Yale University psychologist Judith Rodin labels the "biopsychosocial model." Rodin has studied more than a thousand overweight and normal weight individuals in the past 10 years and recently completed a review of some 100 other studies on the psychology and physiology of eating. She presented a major paper on the subject at the 1977 American Psychological Association annual meeting, and authored an article in the February *HUMAN NATURE*.

The bulk of the research thus far suggests — in contrast to some previously held opinions — that "there is no single kind of obesity and no one obese personality type," Rodin says. In fact, it appears in many cases that obesity itself can trigger

psychopathology, rather than vice versa. Rodin first examines the consequences of being fat and how the obesity syndrome perpetuates itself:

- Fat breeds more fat. Enlarged fat cells induce greater fat making and storage capacity. In one study at a Vermont state prison, normal weight men purposely overate for several months and gained an average of 26 percent above their initial weight. In most cases, the increased mass of fatty tissue led to endocrine and metabolic changes. This indicates, Rodin says, that most overweight people have normal metabolism to begin with, and it is overeating that disrupts the system.

- More fat triggers greater insulin production, which in turn enhances a person's hunger and eating capacity, as found in the Vermont study and other research.

- Obesity can contribute to physical inactivity, as well as to unhealthy metabolism. In a follow-up of 100 obesity patients for a year after they had lost weight, Rodin found that more than 70 percent became more active and energetic. In another study, researchers attached pedometers to pairs of fat and thin people matched by occupation and found that the obese walk significantly less distance than most other people. When combined with her own results, Rodin concludes that such research indicates that laziness does not always breed fatness, "but actually it may be the other way around."

- Unhappiness perpetuates fatness. In many instances it may be more a case of obesity *causing* emotional problems than vice versa, Rodin says, and it is obvious that society has stigmatized plumpness. Complains one patient at the University of Michigan's obesity program: "Look at Elvis Presley. He was a star. A star. After he's dead, what do they talk about? How fat he was, how many rolls and bulges he had. It's terrible."

"It feels awful to be fat," says Rodin, who has lost a considerable amount of weight herself. "You feel upset and distressed and you overeat." Clinical case studies from her own and other research suggest that obesity can cause anxiety, alienation, low self-regard, mistrust, behavioral immaturity and hypochondria. But, she says, random research results also indicate that

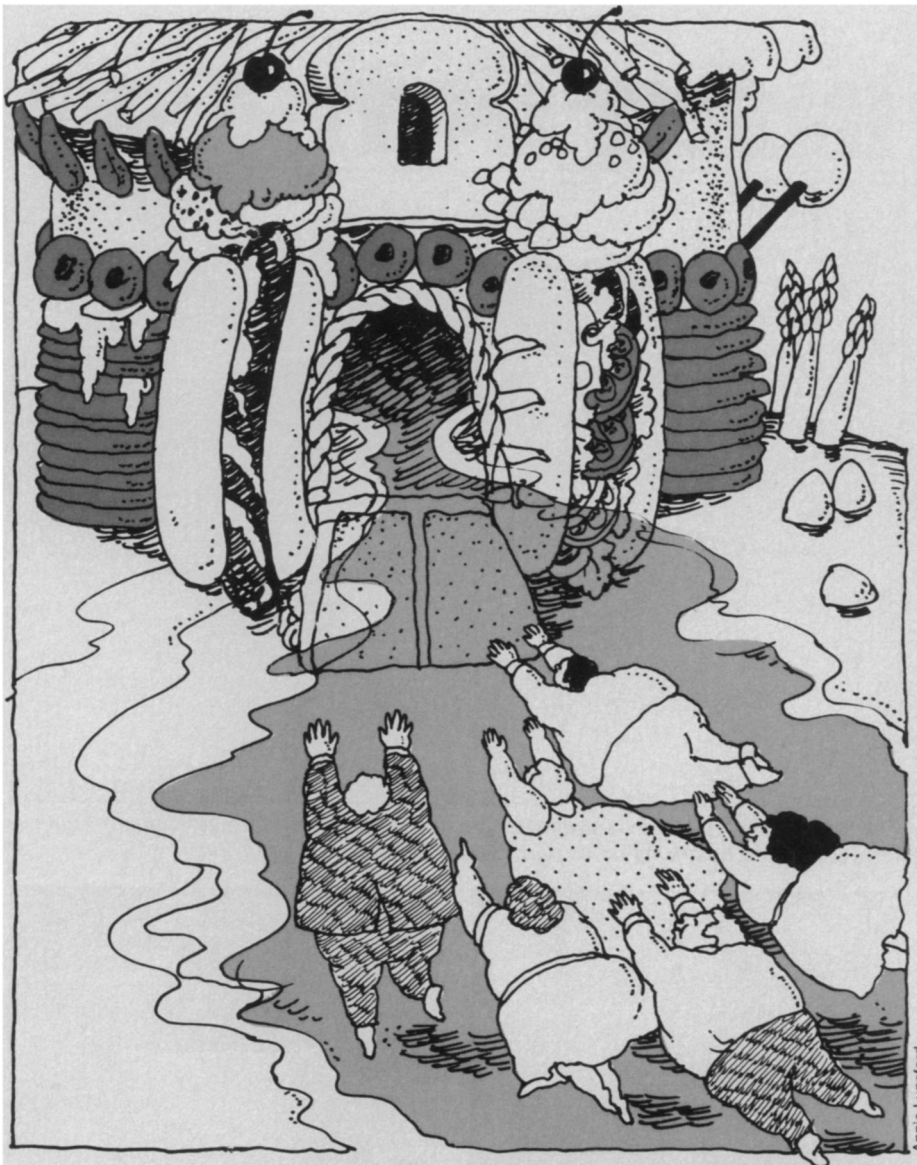
"most overweight people are psychologically normal," at least to begin with.

In addition, studies of people who have undergone successful intestinal bypass operations show that after weight loss such persons thought more of themselves, worked more effectively and made more friends than when they were fat. (Rodin's own work in this area demonstrates that bypass patients — as opposed to those who lose weight by dieting — lose much of their desire for sweet foods. This indicates that perhaps the physical structure of the intestine influences a person's desire for food, particularly sweets, she says.)

- Dieting itself may backfire and compound the obesity problem. "If you disrupt a conscious diet [by eating something fattening], you figure, 'I broke it, so I might as well go wild,'" Rodin says, explaining the thinking of many obese people. Most average weight people, however, would not have such a reaction. One study demonstrated this type of diet-breaking philosophy by overeaters and concluded that "almost everyone" can be placed in one of two categories: those who consciously restrain their food intake and those who do not. Most dieters obviously fall into the "restraint" category and are in a "fragile" situation where they are vulnerable to outside influences to make them eat.

But it is a similar type of vulnerability, a certain "sensitivity" to various stimuli, including food, that separates many fat, and potentially fat, people from their thinner counterparts. And it is this "metabolic turn on" to the sight, smell and thought of food that Rodin ranks among the primary causes of the onset of obesity.

"Fat people are more easily aroused," says the psychologist. "They are more susceptible to food cues — food turns them on!" And though the arousal may begin at the psychological level, it triggers the body's neurochemical mechanisms that stimulate extreme hunger. Among her findings over the last few years, Rodin has observed a "huge insulin response" among overweight persons to the sight and smell of food such as sizzling steak. "Normal weight people do not show this rise," she says, "even after fasting 18 hours." These results corroborate similar findings at Columbia University a decade ago. And in



another study, researchers found that obese people ate twice as many cashew nuts when bright lights were focused on the nuts as when the lights were dimmed.

But it is not just the prominence or presentation of food that drives some people to eat. Overweight people have also been shown to eat when they are distressed, excited or amused. In one test, obese people ate significantly more food after viewing an arousing film (dealing with humor, sex or violence) than they did after seeing a travelogue.

And studies also suggest that heavy individuals are more prone to become emotional to begin with. Rodin and others found at Columbia several years ago that obese students reacted far more emotionally than others to tape recordings of detailed accounts of the Hiroshima bombings and leukemia cases. A sequel to that study in which subjects were electrically shocked after making a mistake in learning a maze demonstrated that pain disrupts the learning ability of obese people more than it does that of others.

In still another experiment, Rodin reports that time seems to pass more slowly

for fat people when they are bored than it does for normal weight people. And the passage of time is "a powerful cue for eating," she says. It also appears as though obesity is more prevalent in lower social classes, she says, where there is "less good food to eat" and where perhaps, in many cases, time does pass more slowly for people. Whatever the class, however, many obese persons are "hyper-responsive" to just about "everything," she says.

There is evidence for some genetic predisposition for obesity, Rodin notes. Various studies have shown that children of fat parents tend to be overweight. And other research indicates that the pattern of obesity is set in childhood, primarily during the first two years when the number of fat cells in a youngster's body may be determined for the rest of the child's life.

Nevertheless, "environmental influences are very strong even among the genetically predisposed," Rodin says. She disagrees with the school of thought that identifies obesity as being solely determined by biology. That theory states that fat people are chronically below their "biological set point," the weight which they

were born to have, and literally starve when they attempt to diet.

Rodin says her own work suggests that rather than serving exclusively as a biological precursor to a person's receptiveness to food and other external cues, obesity is also a *consequence* of such responsiveness. Her research with teenagers at a summer camp and with adult women at a reducing club supports this view and further indicates that overweight people are not hungry all the time, as the biological theory stipulates. The overall difference between fat and thin people may ultimately involve a "long-term" regulatory mechanism that causes a normal weight person, but not a fat prone one, to cut back after overeating. However, she cautions that there are exceptions to every seeming rule: "A lot of non-fat people are aroused, too [by outside cues]; and not all fat people have this high arousal accompanied by an insulin increase."

Rodin and her colleagues at Yale have been working on various techniques to help people combat obesity by advocating:

- Prevention through improved nutrition in early childhood.
- A "global" change in the way U.S. institutions promote various types of food and lifestyles. "Advertising is all wrong now," she says. Emphasis should be shifted as much as possible away from the current focus of fattening foods to more nutritious foods along with exercising and healthful lifestyles.
- Conscious change of eating habits at the personal level. One moderately successful approach has been to have people write down the time, frequency, amount and circumstances of their meals both at home and at work or school. "We try to get people to cue to other stimulants besides food," Rodin says, "and make it more inconvenient for them to get at food."

At the neuro-endocrine level, recent results suggest that the fat prone person may produce an abnormally high amount of brain catecholamines manufactured in various neurotransmitters. This, scientists speculate, could help to trigger the hyper-arousal response common among overweight individuals. Tentative plans are being made to test anti-catecholamine drugs on animals, Rodin says.

"A large segment of obesity may have nothing to do with psychological determinants," she says. But studies indicate that at least in some people "deep psychological needs are responsible for overeating." In any case, there is something in most overweight people that triggers their biopsychosocial mechanisms and leads to obesity. "We don't know if it [the mechanism] is [primarily] genetically predisposed or acquired," says Rodin. "But we know that being fat can keep you fat, and for many people it's a losing battle. Of all the human frailties, obesity is perhaps the most perverse." □