Local Sections

Symposium focuses on obesity

The clue to controlling obesity may lie in finding out why some people can virtually eat as much as they want without gaining weight while others must exist in a state of semi-starvation in order to maintain weight.

Several presentations at the Northeast Section's 20th annual symposium, "Obesity and Dietary Fat," pointed toward that conclusion.

Jules Hirsch of The Rockefeller University told approximately 65 registrants that there probably are biological and psychological factors involved in obesity, but support is diminishing for the once prevalent theory that obesity was controlled primarily by overeating for psychosocial reasons.

"There is growing belief that something may be awry below the central nervous system," Dr. Hirsch said. "It may be gastrointestinal signals are not functioning properly; the satiety signals may be blocked."

Genetic obesity in animals indicates something other than psychic signals are involved, Dr. Hirsch said. Many obese persons lose weight, but later return to their former weight, achieving what might be termed an "equilibrium weight," Dr. Hirsch said, indicating some type of signals are provided to the body when there is a deficiency or a normal supply of stored calories.

Katherine Porikos of St. Luke's-Roosevelt Hospital Center and Columbia University described feeding tests in which people were free to eat as much of a food as they wished, but they did not know the caloric content of the food. During the middle third of each multiweek feeding trial, lower calorie food ingredients were used, but such use was undetectable by the subjects. Subjects tended to eat additional food to compensate for only about one-third of the calories removed. When the high-calorie ingredients were returned to the diet, the quantity of food eaten returned close to the original levels.

Attempts to control obesity by reducing food intake generally fail. Dr. Hirsch cited studies that show fewer than 10% of persons seeking to permanently lose 40 pounds or more are successful; fewer than 30% of those seeking to permanently shed 20 pounds or more succeed. Persons who do reduce by limiting eating also tend to develop negative behavior changes, often depressive symptoms, Dr. Hirsch said. Such symptoms disappear when the person regains the lost weight, he said. This further supports the theory that the body may have internal signals as to the "proper" amount of stored calories, he said. There are indications that extreme weight loss may have a negative influence on the body's metabolic system, he added.

Dr. Hirsch also said another widely held theory on the number of fat cells in the body is being challenged. That theory held that only during the early growth period are the number of fat cells established in animals and that the number did not increase or decrease with age or nutritional manipulation. Food intake could be one of the main factors determining the size of those cells and the number of those cells that actually became filled with lipid. Recent evidence indicates that, while a body may not shed any fat cells, it may be able to produce new ones after the early growth period, probably by nutritional stimulation, Dr. Hirsch said. "There's a rachet-like effect—the fat cells may increase, but they don't disappear," he said.

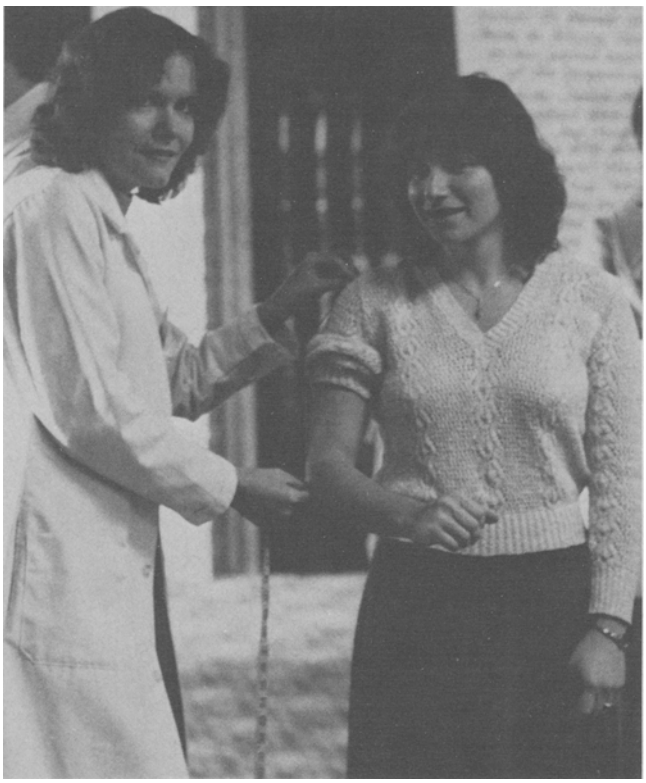
Melanie Walzer

Chairmen and speakers for the Northeast symposium were (from left) General Chairman Mark Bieber, speaker Jean Himms-Hagen, program chairman and moderator David Kritchevsky, speakers M.R.C. Greenwood, Jules Hirsch and Kathy Porikos.

Another symposium presentation, "Fat in the Fire," was a film that focused on research that has led to studies of brown adipose tissue as a prime site where fatty substances are transformed into heat, and not stored as fat tissue. A well-scripted, fast-paced film, the 1979 English production showed how researchers zeroed in on brown adipose tissue in rats and began studying how that research may relate to humans.

Jean Himms-Hagen of the University of Ottawa, who is among the researchers cited in the film, also spoke to the symposium on her work regarding thermogenesis. Thermogenesis may be diet-induced or cold-induced, she said, and explained that she is studying a 32,000-molecular weight polypeptide thus far isolated only in brown adipose tissue mitochondria. Previous investigators had disregarded brown adipose tissue as being too small for large-volume thermogenesis and concentrated instead on muscle tissue. Brown adipose tissue, however, has capacity for enormous blood flow, Dr. Himms-Hagen said, and new research has shown large amounts of such tissue in newborns, hibernators and cold-adapted animals. Fat animals with small amounts of brown adipose tissue lose body heat much more rapidly than lean rats with larger amounts, indicating that lean animals burn fat more easily, and perhaps explaining why they are relatively lean as well as why they can maintain body temperature when exposed to cold.

The English researchers cited in "Fat in the Fire" also



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Northeast symposium registrant Renee Levine, right, has arm measurement taken by Arlene Redmond for body fat computations provided at the symposium.

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Renee Levine takes weight measurement needed for computation.

discovered significant increases in human body heat production at brown adipose deposit sites after subjects were given noradrenaline, which is known to stimulate lipid metabolism.

M.R.C. Greenwood of Vassar College spoke on "Developmental Obesity: A Metabolic Hypothesis." Her recent work has shown that changes in the activity of the enzyme lipoprotein lipase can be measured in rats before there are changes in food intake or weight gain, and that such activity is not a result of increased eating or weight gain. Dr. Greenwood's work has shown that some rats tend to maintain body fat percentage even at the expense of muscle tissue development. Thus far, Dr. Greenwood said, it would be too speculative to try to apply any of her research results to obesity in people.

Micalyn B. Harris of Best Foods provided a recap of federal labeling requirements for foods identified as low- or reduced-calorie foods, and pointed out some of the frustrations encountered when developing products that satisfy the low- and reduced-calorie requirements but then fail to meet the standard of identity for that food product.

General chairman for the symposium was Mark Bieber of Best Foods, a unit of CPC North America, which is a division of CPC International. Program chairman David Kritchevsky of The Wistar Institute served as moderator. Other committee members were M. Debbie Meiners of Best Foods, registration; Donna McGrath, L.A. Salomon & Bro., hotel arrangements; and Howard Gordon, Hoffmann-LaRoche, corporate sponsorship.

Corporate sponsors included Archer Daniels Midland Co.; Ashland Chemical; Best Foods, a unit of CPC North America; Campbell Soup Co.; D.C.A. Food Industries Inc.; Entenmann's Inc.; Harshaw Chemical Co.; Hoffmann La-Roche Inc.; L.A. Salomon & Bro.; N.L. Industries Inc.; and Supelco Inc. □

Body fat measured

As an added surprise at the "Obesity and Dietary Fat" symposium, approximately 55 of the persons attending were able to have individual body fat measurements calculated.

Ultrasonic equipment was provided through the cooperation of Dr. Theodore Van Itallie and the staff of the Obesity Research Center of St. Luke's-Roosevelt Hospital and Columbia University in New York City.

The men who participated averaged 24% body fat whereas the women who participated averaged 32% body fat. Arlene Redmond, administrator of the weight control unit, reported that averages at the clinic for normal weight individuals are about 30% body fat for men and 33% for women. □

Fat breeds fat?

Is obesity an inherited trait?

Dr. Greenwood of Vassar College told the Northeast Symposium that children of obese males and obese females also tend to be obese.

So do pet cats and dogs in the same household, she said, as well as adopted children.

Dr. Greenwood said most studies do, however, show there is a strong case for believing obesity may be genetically related. □