



IMAGE AWARENESS HEALTHLETTER PHYSICAL FITNESS

Weight Control



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Notice

This newsletter is designed for educational purposes only. Any individual suffering from health problems which are mentioned or discussed should consult a physician for proper diagnosis and treatment. Consult with a physician or trained professional before undertaking any rigorous weight loss program.

Overview

Modern man has developed the technology to fatten farm animals to increase profits, improve that

tenderness and palatability of meat.

Sadly, modern man has also learned how to fatten himself in the process of developing his civilization. An estimated 60 to 70 million adults and 10 million teenagers are overweight. If the excess fat were converted to energy it would provide the annual electrical needs for the cities of Boston, Chicago, San Francisco, and Washington D.C.

Domestic animals are fattened by changing hormone chemistry, not allowing the animals to exercise, feeding rich concentrated foods, and keeping the animals warm.

Human beings have chosen to do the same things to

themselves that they have done to their animals. It is a small wonder that there is so much obesity in the human population. Any attempt to provide weight control must reverse the lifestyle patterns we have fallen into.

Reference:

McArdle, William, and Magel, John, "Weight Management: Diet and Exercise," in *Medical Applications of Clinical Nutrition* edited by Jeffrey Bland, New Canaan, Conn.: Keats Publishing, 1985, p. 99.

Risks of Being Overweight

Being overweight is accompanied by a number of health risks such as:

1. Atherosclerosis and Coronary Heart Disease

These diseases are more common among those who

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Causes of Obesity

Classic nutrition studies have long demonstrated the importance of two key factors in the causation of obesity: overeating and lack of exercise.

Exercise seems to play a crucial role. Any long term attempt to lose weight by decreasing food consumption without including

exercise could well be an exercise in futility.

Recently nutritional scientists have begun to seriously study the role of brown fat, the appetite control mechanism in the brain, allergy, and temperature as they relate to weight gain. Obesity may well begin in the womb or early childhood.

Amino Acids and Weight

Supplementation with a small dose of amino acids (8 grams) half an hour before

meals was found to decrease calorie consumption among the obese by 22.5%. Those with normal weights experienced no decrease in calorie consumption as a result of this use of the amino acids.

This study suggests that the presence of L-phenylalanine (an amino acid found in aspartame) and tryptophan may play key roles in the appetite reduction. The reason why the obese appear to be affected differently than the normal person by supplementation with amino acids is because of their higher than normal insulin levels which force amino acids into the brain resulting in decrease in appetite.

Reference:

Butler, Ross, Davies, Michael, Gehling, Neil, and Grant, Allan, "The effect of preloads of amino acid on shortterm satiety," The American Journal of Clinical Nutrition, October 1981, pp. 2045-2047

Protein and Weight Loss

Many weight loss programs advocate extremely low protein intake and a high intake of fruits or other carbohydrates. Protein is a valuable component of a weight loss program because

are overweight. This is especially true of those who have developed diabetes.

2. Diabetes

Fat accumulation on the body decreases responsiveness to insulin contributing to diabetes.

3. Hypertension

One finds a marked tendency toward hypertension among those who are obese.

4. Surgical Risk

Surgery becomes more dangerous when a person is obese.

5. Osteoarthritis and Gout

Bodily changes in obesity predispose to the development of these problems.

6. Endometrial cancer

Excess body fat can weaken immune function and possibly contribute to cancer.

Reference:

McArdle, William, and Magel, John, "Weight Management: Diet and Exercise," in Medical Applications of Clinical Nutrition edited by Jeffrey Bland, New Canaan, Conn.: Keats Publishing, 1985, p.101.

| FOOD TYPE | CALORIES CONSUMED | CALORIES RELEASED AS HEAT |
|--------------|-------------------|---------------------------|
| Protein | 130 | 30 |
| Carbohydrate | 106 | 6 |
| Fat | 104 | 4 |

Thus one can eat more protein than carbohydrate or fat without gaining weight.

Reference:

Solomon, Neil, M.D., Ph.D., Doctor Solomon's Easy No-Risk Diet, New York: Warner Books, 1974, p. 19.

it increases the metabolic rate. Energy involved in the utilization of foods of protein, fat, and carbohydrate origin is shown by the chart on the previous page.

Low Protein and Behavior

Studies indicate that a low protein weight loss program may modify brain function, decreasing ability to cope with stress and increasing aggressiveness. This could make a dieting marriage partner or child more difficult to get along with.

Adult rats fed a low protein diet (8% of the diet) showed increased shock-induced fighting and an increased tendency to kill mice within two weeks. Animals with normal protein intake (27%) did not demonstrate these tendencies. The effects were reversed within two weeks by restoring the protein to the diet.

Reference:

Kantak, Kathleen and Eichelman, Burr, "Low Dietary Protein and the Facilitation of Defensive and Predatory

Aggression in Adult Rats," *Nutrition and Behavior* 1:47-54 (1982).

Calorie Consumption and Activity Level

Studies of the relationship between activity level and calorie consumption reveal an interesting phenomenon. Those with sedentary lifestyles may consume more calories than do those who exercise. In one study, those with sedentary occupations were found to consume almost as many calories as those who engaged in heavy work.

Moderate activity tends to decrease calorie consumption as well as burn calories. Thus it is extremely valuable in attaining the goal of normal body weight. Those who believe that moderate exercise increases appetite are mistaken. Sedentary animals given up to one hour of exercise had appetites suppressed.

Reference:

Mayer, J. et. al. Relation between caloric intake, body weight, and physical work; studies in an industrial male population in West Bengal. *Am. J. Clin. Nutrition*, 4:169, 1956.

Mayer, J., et. al., "Exercise, food intake and body weight in normal rats and genetically obese adult mice," *American Journal of Physiology*, 177:544, 1954.



Sugar and Appetite

Jean Mayer, one of the chief orthodox nutritionists, suggested in 1955 that sugar tended to suppress appetite. Food processors and sugar manufacturers were quick to rally around the research. It remained for a humble psychology professor, Paula Geiselman, at U.C.L.A. to challenge a position which has become a more or less accepted fact by the nutritional establishment.

Paula Geiselman found that feeding rabbits constant sugar intake did not always decrease appetite. In some instances it had the effects upon appetite listed in the accompanying chart.

A partial explanation for sugar's ability to increase ap-

JOB ACTIVITY LEVEL AND CALORIES EATEN

| | |
|------------------|-------|
| Sedentary | 3,300 |
| Light Work | 2,600 |
| Medium Work..... | 2,800 |
| Heavy Work..... | 3,400 |

JOB ACTIVITY AND WEIGHT

| | |
|------------------|-----|
| Sedentary | 148 |
| Light Work | 118 |
| Medium Work..... | 114 |
| Heavy Work..... | 113 |

Reference:

McArdle, William, and Magel, John, "Weight Management: Diet and Exercise," in *Medical Applications of Clinical Nutrition* edited by Jeffrey Bland, New Canaan, Conn.: Keats Publishing, 1985, p. 118.

Calories Do Count

Calorie consumption does play a role in weight gain. One apple added to the diet every day would provide enough calories to equal seven pounds of body fat at the end of a year. Change that to an apple pie, however, and the calories at the end of a year would add up to 35 pounds of excess body fat!

Reference:

McArdle, William, *Ibid.*, p. 102.

EFFECTS OF FEEDING RABBITS SUGAR:

1. Eating larger size meals
2. Eating for a longer period of time
3. Eating more rapidly

petite may lie in the fact that sugars improve the taste of foods. There are well known correlations between how good foods taste and how much of these foods are consumed.

Rabbits are often used in studies of appetite. Rabbits have complex, varied and numerous taste buds. They are the taste experts of the animal world!

References:

Geiselman, Paula, "Feeding Patterns Following Normal Ingestion and Intra-gastric Infusion of Glucose, Fructose, and Galactose in the Rabbit," *Nutrition and Behavior* 2:175-188 (1985).

Geiselman, Paula, "Food Intake Following Intraduodenal and Hepatic-Portal Infusion of Hexoses in the Rabbit: Evidence That Hexose Administration Can Increase Subsequent Chow Intake," *Nutrition and Behavior* 2:77-87 (1984).

Mayer, J., Regulation of energy intake and body weight: The glucostatic theory and the lipostatic hypothesis," *Ann. N.Y. Acad. Sci.* 63:15-43, 1955.

Sugar Infusion

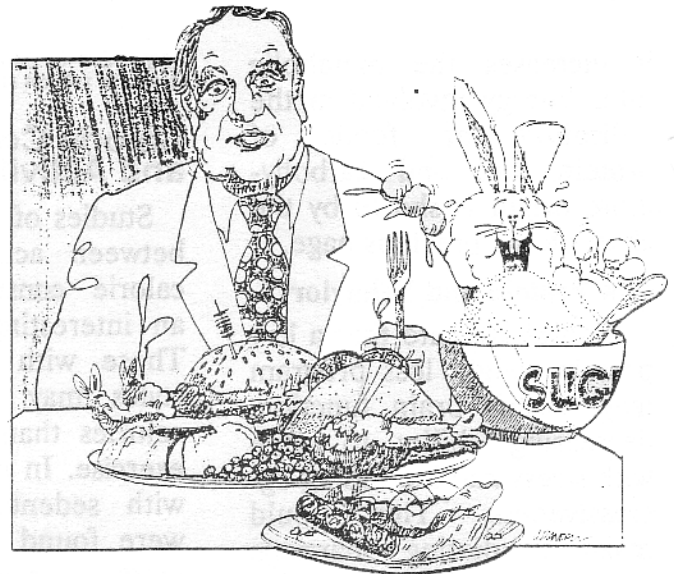
Improved taste of the food is not the only reason sugar increases appetite. Dripping sugar into the stomachs of rabbits also in-

creased the appetite. The sugars were observed to increase the rate at which the stomach emptied itself and also increased insulin levels. It was believed that these factors also increased appetite.

Quantity of sugar intake was clearly important. In one of the studies a gradual infusion of a small quantity of sugar actually decreased appetite. When the rate of sugar intake was tripled the rabbits consumed nearly twice the normal amount of food for a rabbit.

Small amounts of sugar intake may not create the health problems that larger quantities will.

Reference:



Geiselman, Paula, and Novin, D. "Sugar infusion can enhance feeding," *Science* 218:490-491, 1982b.

Aspartame

Use of the artificial sweetener aspartame may decrease calorie consumption. Psychologist Katherine Porikos and obesity expert Theodore van Itallie tested the sweetener on both obese and normal subjects. Unknown to the subjects aspartame replaced sugar in food and drink for 12 days. Both groups consumed fewer calories. This could be due to an actual decrease in appetite or to the removal of the appetite stimulating effects of sugar in the diet.

References:

Am. J. Clin. Nutr. 30:1638, 1977.
Physiol. Behav. 29:293, 1982.