Pennington Nutrition Series
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Weight Loss

Currently, almost 65% of all adult Americans are considered overweight or obese.

Weight Loss

Reduced caloric intake will result in weight loss. A diet that contains 1300-1500 calories a day, regardless of protein, fat, or carbohydrate composition, will result in weight loss. Those on high fat, low-carbohydrate diets lose weight because the intake of protein is self-limiting and overall caloric intake is decreased. Low-fat and very-low-fat diets contain a high amount of complex carbohydrates due to high fruit and vegetable intake, and they are low in calories.

Following any of the popular diets today will result in a weight loss if there is a restriction of calories. However, the long-term safety and effectiveness of current popular diets is not known.

Body Composition

As one loses weight, body fat and lean body mass (LBM) are reduced. The best diet for weight loss is one that maximizes the loss of body fat and minimizes the loss of LBM. Whether the diet is high or low in fat does not appear to play a major role, but adequate protein is important.

However, in the short-term, low-carbohydrate diets cause greater initial loss of body water than body fat. This is due to the fact that each gram of carbohydrate holds on to 4 grams of water. On low carbohydrate diets, body carbohydrate stores are utilized for energy, and water associated with it is lost. When the diets are discontinued, the individual's carbohydrate stores and water weight is regained.

Physical activity is an important factor in maintaining LBM. Weight lifting exercises minimize LBM loss during weight loss.

Nutritional Adequacy

When individuals consume foods from all food groups, it is more likely that their diet will be nutritionally adequate. The moderate-fat reduction diet is optimal for ensuring proper nutrient intake.
Poor food choices may result in inadequate levels of certain nutrients, regardless of overall macronutrient composition.

High fat, low carbohydrate diets are nutritionally inadequate. They lack vitamin E, A, C, thiamin, B6, folate, calcium, magnesium, iron, zinc, potassium, and dietary fiber. The diet is also high in saturated fat and cholesterol. Very low fat diets are deficient in vitamin B12 due to low meat intake.

Metabolism

Blood lipid levels, i.e. total cholesterol (TC), low-density lipoproteins (LDL), high-density lipoproteins (HDL), and triglycerides (TG) decrease as body weight decreases. LDL cholesterol decreases significantly on a diet low in saturated fatty acids. HDL is increased with physical activity.

Energy restriction, independent of diet composition, results in improved glycemic control, and is an important aspect of diabetes treatment. As body weight decreases, so does blood insulin and plasma leptin levels.

Blood pressure decreases with weight loss, independent of diet composition. The DASH Diet (Dietary Approaches to Stop Hypertension), which is high in fruits, vegetables, and low-fat dairy products, is particularly effective in lowering blood pressure. For more information, visit:
http://www.nhlbi.nih.gov/health/public/heart/hbp/dash/new_dash.pdf

Hunger

Many factors influence hunger, appetite, and subsequent food intake. Proportion of protein in the diet may be the most important. Others to be considered include foods with low caloric density and physical activity.

Influences of Appetite

<u>Neurochemical Factors</u>
Neurochemicals in the brain

<u>Intestines</u>
Food in the stomach, digestive products, intestinal hormones

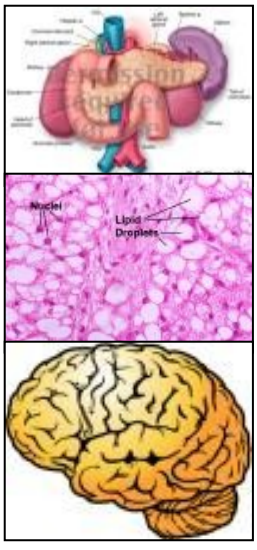
<u>Sensory qualities of food</u>
Taste, texture, and smell

<u>Genetics</u>
Weight of parents and grandparents

<u>Environmental factors</u>
Food availability, cost, cultural norms

<u>Emotional Factors</u>
Boredom, depression, stress, joyful events

These can influence appetite on a meal-to-meal basis.



Long-term Control

Long-term body weight regulation is controlled by hormonal signals from the endocrine pancreas, adipose tissue, and the brain, (insulin, leptin, and several neurochemicals). These are influenced by the macronutrient and the energy content of the diet.

Division of EDUCATION

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The Pennington Biomedical Research Center is a world-renowned nutrition research center.

Mission:
To promote healthier lives through research and education in nutrition and preventive medicine.

The Pennington Center has several research areas, including:

- Clinical Obesity Research
- Experimental Obesity
- Functional Foods
- Health and Performance Enhancement
- Nutrition and Chronic Diseases
- Nutrition and the Brain
- Dementia, Alzheimer's and healthy aging
- Diet, exercise, weight loss and weight loss maintenance

The research fostered in these areas can have a profound impact on healthy living and on the prevention of common chronic diseases, such as heart disease, cancer, diabetes, hypertension and osteoporosis.

The Division of Education provides education and information to the scientific community and the public about research findings, training programs and research areas, and coordinates educational events for the public on various health issues.

We invite people of all ages and backgrounds to participate in the exciting research studies being conducted at the Pennington Center in Baton Rouge, Louisiana. If you would like to take part, visit the clinical trials web page at www.pbrc.edu or call (225) 763-3000.