

Obesity:

Causes, Consequences and

Current Treatment Benefits

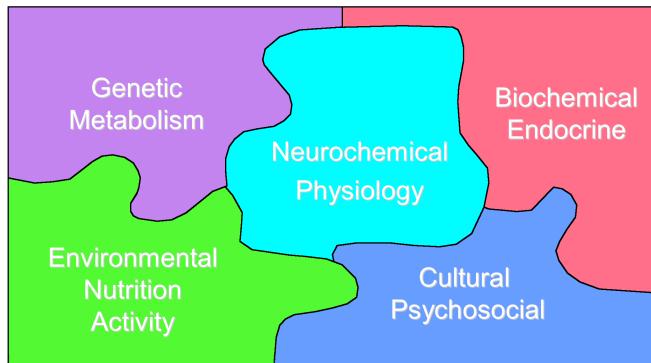
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Cause of Obesity: Numerous Complex, Interrelated Factors^{1,2}



Adapted from *Weighing the Options*; 1995:52. 2. Clinical guidelines. National Heart, Lung, and Blood Institute Web : Available at: http://www.nhlbi.nih.gov/nhlbi/cardio/obes/prof/guidelns/ob_gdlns.htm. Accessed July 31, 1998.

Why do people, in fact, become overweight? Although no one can argue the fact that it boils down to consuming more calories than what a person needs for basic existence, it is a very complex issue. There are approximately 45 different mechanisms in the human body that help regulate body weight. We've boiled it down to the above areas of influence on body weight. How strongly each of these influence one's weight control mechanisms will determine how much we will weigh.

Along with this, we have unfortunately some long held beliefs in America about why some people are overweight. I have labeled these as "common myths in America" regarding the cause of obesity. As you read the following I believe you will agree that these are underlying thoughts that we're led to believe in America.

Cause of Obesity: Common Myths in America
<ul style="list-style-type: none">✓ "Being fat is a sign of poor self-control."✓ "Being fat is a sign of laziness."✓ "People, especially women, are designed to be thin and should be thin."

One of my goals is to help people understand the facts regarding overweight conditions. Being overweight is a medical condition very much like high blood pressure,

high cholesterol or diabetes. There are genetic and environmental influences that vary from person to person for all of these conditions. Furthermore, there is a great variation from person to person regarding how much of each condition they might have. In other words, nearly everyone would benefit from having a few pounds off, having a lower blood pressure, lowering their cholesterol, etc. Perhaps the biggest difference between being overweight and these other conditions is that being overweight **SHOWS!** Let's look at the real facts:

Cause of Obesity:
Facts in America

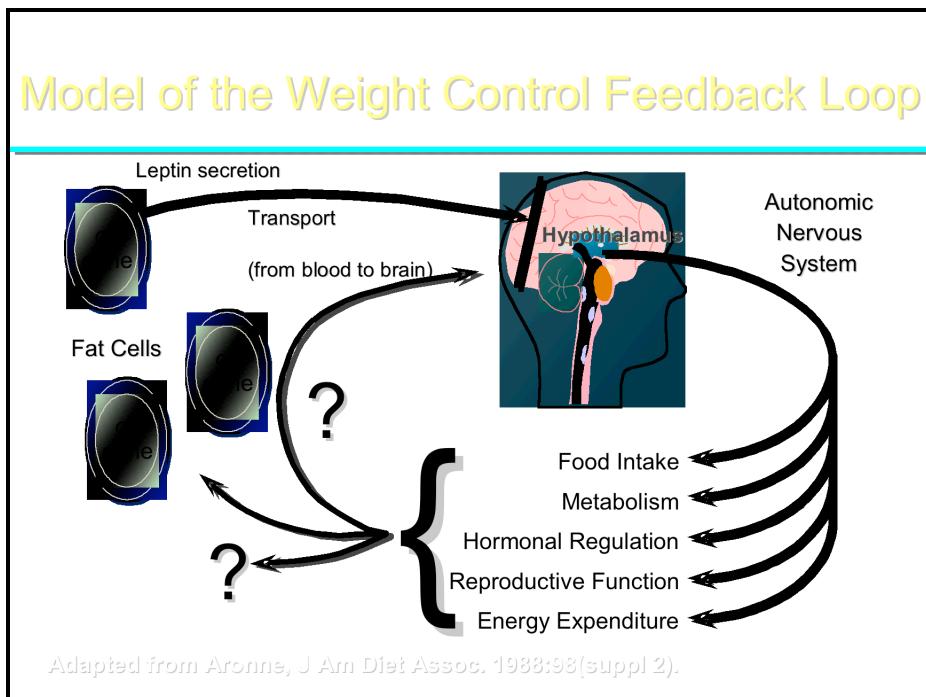
Facts:

Obesity is not caused by some ill-defined personality defect!

70% of the determination of body weight is heredity.

Heredity is a major determinant of metabolic rate and weight gain response to food.

Now let's look at one of the complex cycles involved in weight control. Leptin is a newly discovered hormone that helps regulate appetite. It's not as simple as just choosing to eat less and expect to be able to control your food intake as a result. It can be very difficult to override these chemical messages with self-discipline!



Next, I want to point out what I believe is some of **the most important information** available regarding why people are overweight and why it can be very difficult to achieve "normal weight" for some truly obese individuals. If you are one of the

millions of Americans dealing with their weight, you owe it to yourself to understand the following table.

Become aware of the “fat cell” and how its size and total number affect your weight. Did you know that a typical obese individual has over 60 billion fat cells to control? That’s around three times as many as a normal weight individual. Furthermore, the obese person’s fat cells are 50% larger than the thin person’s. Much of this is genetically determined. No wonder weight control is so difficult!

The number of fat cells cannot be controlled or reduced. Therefore, to reduce weight to “normal” for the obese means shrinking their fat cells to around 40% of the size of the normal individual. That means reducing those stubborn fat cells to around 1/4th of their original size! And that makes the fat cells very angry and hungry. You see, their whole job in life is to store fat and store as much as possible inside their cell membranes. When you start burning that fat off and shrinking the fat cell, the leptin cycle shown above starts gearing up and triggers an increased appetite. Now you know why yo-yo dieting occurs and why you will likely need assistance in keeping the weight off after losing significant weight. Those hungry fat cells are always lurking in the background trying to get you to overeat and regain weight so they can be full and happy again.

Etiology of Obesity: Numerous Complex, Interrelated Factors^{1,2}

	Fat Cell Size (mcg lipid/cell)	Total Fat Cell Number (billions)
Normal weight	0.66	26
Childhood onset obese	0.90	85
Adult onset obese	0.98	62

- These fat cell numbers cannot be changed by weight loss or exercise!
- Fat cell number increases from age 1-22 yrs, during pregnancy, or if over 60 lbs overweight.

Being overweight does not just increase one’s risk of disease, medical bills and premature death. There are also those less tangible costs to one’s life. For example, feeling comfortable in public, being able to travel comfortably in a plane, hiking on

vacation with the family, etc. Employers are less likely to give a job (or a promotion) to overweight individuals. Note the following consequences:

Consequences of Obesity

- Increased premature sickness and death
- Reduced productivity and functioning²
- Increased healthcare costs²
- Discrimination: social and economic²

1. Gray. *Med Clin North Am.* 1989;73:1-13. 2. Gorstein et al. *PharmacoEconomics.* 1994;5(suppl 1):58-61.

Health Implications of Obesity:

- In 1993 it was reported that obesity was a key contributor to at least 300,000 excess deaths per year.
- “Obesity is the number two preventable killer in America second only to smoking.” - C.Everett Coop, M.D., prior surgeon general
- Obesity costs were \$99.2 billion in 1995.

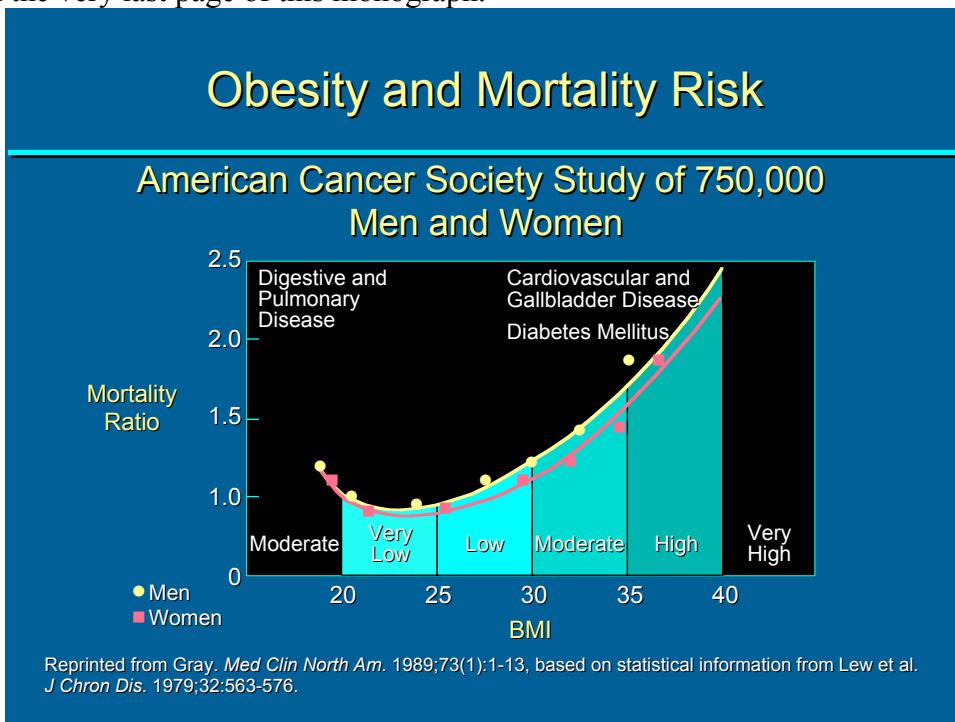
Each of the following medical problems increases in those who are even slightly overweight. And the more one is overweight, the greater the increase in risk. This table

refers to risk of morbidity, that is disease risk. If you have one or more of the following, you can improve or perhaps eliminate the condition by losing weight.

Morbidity increases for the following conditions as the BMI rises above 20:

- ▼ Hypertension
- ▼ Type 2 diabetes
- ▼ Hypercholesterolemia
- ▼ Coronary heart disease
- ▼ Fatigue
- ▼ Stroke
- ▼ Gallbladder disease
- ▼ Gout
- ▼ Osteoarthritis
- ▼ Complications with pregnancy
- ▼ Respiratory problems
- ▼ Cancers of the endometrium, breast, prostate, colon
- ▼ Sleep apnea
- ▼ Infertility and menstrual irregularities
- ▼ Hirsutism
- ▼ Urinary incontinence
- ▼ Psychological disorders including depression
- ▼ Low back pain

The following table refers to mortality, the increased risk of death due to obesity. As you can see the moderately obese (BMI >35) have nearly twice the risk of premature death. The lowest risk is for those of normal weight (BMI 20 - 25). Find your BMI on the chart on the very last page of this monograph.



Now look at some specific diseases with me. If you have high blood pressure, you should know that weight loss is probably the most powerful treatment available for most people.

Benefits of Modest Weight Loss On Hypertension

With a 5% average weight loss, over 50% of patients with severe hypertension remained off of medication at 1 year follow-up!

1. Ramsay LE, et al. *Br Med J.* 1978;2:244. 2. Schotte DE, Stunkard AJ. *Arch Intern Med.* 1990;150:1701. 3. Kannel WB, et al. *Ann Intern Med.* 1967;67:48.

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Similar principles apply to those with high fat levels in their blood. Cholesterol and triglycerides drop significantly and at times dramatically with weight loss.

High Cholesterol and Triglycerides

- » Highest risk in abdominal obesity.
- » 5 lb weight gain raises LDL 10 mg/dl
- » Weight reduction of 13% has lowered:
 - triglycerides up to 44%
 - lowered LDL (bad cholesterol) by up to 22%
 - raised HDL (good cholesterol) by up to 27%

Diabetics stand more to gain with weight loss than perhaps any other group. With less than optimal treatment, few diabetics reach their normal life expectancy. Weight loss can be a powerful tool to “regain” some of this lost time!

Benefits of Modest Weight Loss in Patients With Type 2 Diabetes

A 22 lb. weight loss could restore 35% of the reduction in life expectancy!

1. Lean et al. *Diabet Med.* 1989;7:228-233. 2. Wing et al. *Arch Intern Med.* 1987;147:1749-1753.

If you have heart disease, there is a good chance you've already been told by your physician to lose a few pounds. Doctors are aware of the dramatically increased risk of heart disease in those who are even a little overweight. Find your BMI on page 14, then see what your relative risk of heart attack (left side of chart) is compared to thin people.

Obesity and Cardiovascular Disease

Relative Risk of Nonfatal MI and Fatal CHD
(Combined) vs BMI, in Women



MI = myocardial infarction; CHD = coronary heart disease.

Adapted from Willett et al. *JAMA.* 1995;273:461-465.

CHD Risk and Obesity

→ An increase in BMI by 1 unit (5 lbs.) has been shown to increase risk of coronary events by 10%.

Enough on the health risks of being overweight. You probably were aware of much of that information from reading the newspaper right? But what about those “unspoken” risks of being overweight. You know, the ones we know are true but don’t want to talk about. The obese are regularly discriminated against in nearly every area of life. Look at the following information discovered in recent research:

Resulting Discrimination of the Obese:

- ✓ Employment opportunities
- ✓ College acceptance
- ✓ Less financial aid from parents in paying for college
- ✓ Job earnings
- ✓ Rental availability
- ✓ Opportunities for marriage

What can be done to control being overweight? Yes, it is a difficult condition. Let's look at the relative value of diets, exercise, "fad diet books and programs", and the comprehensive medical approach.

Facts on Dietary Treatment

- Reduced calorie intake is crucial. Change in physical activity alone rarely results in significant weight loss.
- Calorie restriction is characteristic of those achieving long-term weight control.
- "Diet" alone, however, results in weight regain in 98.5% of patients within 5 years.

Are one of the current "fad diets" the answer for obesity? Unfortunately, for most if not all, it simply isn't that easy. Let's look at some of these currently popular diets.

Current "Fad" Diets

- Examples of current fad diets:
- Fat restricted diets
 - The Dr. Pritikin Weight Loss Diet
 - The Dr. Dean Ornish Program
- Protein restricted diets
 - Dr. John McDougal Diet
 - Dr. Walter Kempner's Rice Diet
- Carbohydrate restricted diets
 - Dr. Michael Eades Protein Power
 - Dr. Atkin's Diet Revolution

Current “Fad” Diets

- Fad diets, i.e. those named after a particular physician, lay person or program, typically restrict one or more food groups to achieve short-term weight loss.
- These fad diets often refer to the book as a “rediscovered long-forgotten principle.”
- None of these fad diets have long-term studies to support them or control groups.
- Complications from the dietary restrictions typically have not been studied or reported, particularly by the author of the book.

Current “Fad” Diets

- Common findings of fad diets restricting one or more major macronutrients (i.e. fat, carbohydrates or protein):
 - Short-term weight loss over a few weeks is possible.
 - Long-term weight control is unusual due to the difficulty in restricting a major food group with the American diet.
 - Resumption of the great tasting restricted food, often with binging, is typical within a few months with weight regain.

Current “Fad” Diets

- Focus on carbohydrate restricted diets
- No studies documenting typical weight loss results. Books based on testimonials only.
- It is difficult to restrict carbohydrates long-term. There is often rebound binging.
- Typically restrict diet to < 40 grams CHO/day

We are extremely skeptical of these fad diets due to the fact that there are no long-term or even short-term studies showing the benefits, risks and eventual results. You, also, should be cautious about choosing any program that does not offer their specific long-term statistics, i.e one year at least.

Remember again all the conditions that will either improve or perhaps be prevented by controlling your weight now:

Health Benefits with Modest Weight Loss: Improvement or Prevention of:

- | | |
|--|--|
| <ul style="list-style-type: none">▼ Hypertension▼ Type 2 diabetes▼ High cholesterol▼ Coronary heart disease▼ Fatigue▼ Stroke▼ Gallbladder disease▼ Gout▼ Osteoarthritis▼ Complications with pregnancy | <ul style="list-style-type: none">▼ Respiratory problems▼ Cancers of the endometrium, breast, prostate, colon▼ Sleep apnea▼ Infertility and menstrual irregularities▼ Excess hair growth▼ Urinary incontinence▼ Psychological disorders including depression▼ Low back pain |
|--|--|

I believe that a “hands-on” approach is ideal for weight control. Why face such a difficult undertaking without some personal support and guidance? Even a word of encouragement or a helpful suggestion at the crucial moment can be the difference between ultimate success and another failed attempt. We believe the team should have the following members available:



Now, just what sort of results have we achieved with our comprehensive medical weight management approaches. Following is a summary of our results. We could break it down into subgroups, etc, but I think seeing that we have significant patient experience and overall success is far more important. Many of these individuals achieved their ultimate weight goals. Others simply achieved a major weight loss that dramatically improved their health, energy levels, activity levels and disease risk.

The graphic has a white background with a black border. At the top, the text "Center for Nutrition and Preventive Medicine, P.A." is centered in a large, bold, black font. Below this is a horizontal teal line. Underneath the line, the text "Statistical Results" is in a bold, black font. Below that, the text "Patients Completing 1 Year of Treatment have now lost over 5,800 lbs!" is also in a bold, black font. At the bottom, there is a bulleted list of statistics in a black font.

- 16% average weight loss (approximately twice that of drug + diet studies)
- 31% average reduction in excess body fat
- 42 lb. average weight loss
- 4 inches off waist

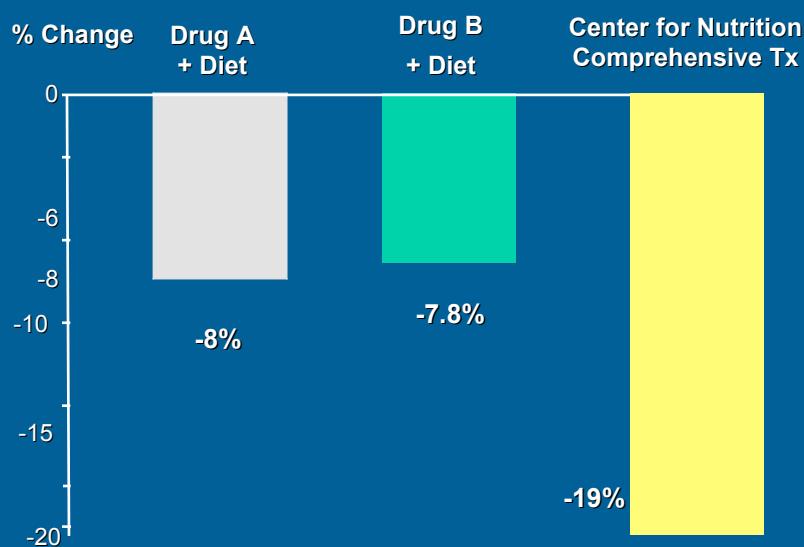
Center for Nutrition and Preventive Medicine, P.A.

Statistical Results
All Patients In Treatment
2,129 patients losing over 44,400 lbs.

- 15% drop in LDL cholesterol
- 35% drop in LDL/HDL ratio
- Diastolic blood pressure drop of 10%
- Fasting blood sugar reduction of 7%

Note how our patients after 2 years of treatment compare to those on programs by pharmaceutical companies testing the latest medications with a good “diet”. Believe it or not, after 2 years of consistent treatment on our program, our patients have lost nearly 1/5th of their initial body weight **on average**. Some, in fact, lost far more!

2-Year Weight Loss Results: Single Medications vs Center for Nutrition



It's never too late to get control of your weight. We encourage you to take tangible steps now to attain reasonable, achievable weight goals. Then stick with a program that will help you with the all-important aspect of maintenance.

Assist your body in becoming as healthy as possible. If being overweight is creating a barrier in your life to experiencing good health with all its benefits, take action now. Truly life is wonderful and we want to care for our physical area in a way that will allow us the opportunity to have an energy-filled, healthy, and abundant life. Although no one can "cure" your weight problem, there is help that can really make a difference. If we can be a part of this process in your life, we'd love to help.

Appendix: BMI Table

TABLE I Body Weights in Pounds According to Height and Body Mass Index*															
		Body Mass Index (kg/m ²)													
		19	20	21	22	23	24	25	26	27	28	29	30	35	40
Ht. (in)	Body Weight (lbs.)														
58	91	96	100	105	110	115	119	124	129	134	138	143	167	191	
59	94	99	104	109	114	119	124	128	133	138	143	148	173	198	
60	97	102	107	112	118	123	128	133	138	143	148	153	179	204	
61	100	106	111	116	122	127	132	137	143	148	153	158	185	211	
62	104	109	115	120	126	131	136	142	147	153	158	164	191	218	
63	107	113	118	124	130	135	141	146	152	158	163	169	197	225	
64	110	116	122	128	134	140	145	151	157	163	169	174	204	232	
65	114	120	126	132	138	144	150	156	162	168	174	180	210	240	
66	118	124	130	136	142	148	155	161	167	173	179	186	216	247	
67	121	127	134	140	146	153	159	166	172	178	185	191	223	255	
68	125	131	138	144	151	158	164	171	177	184	190	197	230	262	
69	128	135	142	149	155	162	169	176	182	189	196	203	236	270	
70	132	139	146	153	160	167	174	181	188	195	202	207	243	278	
71	136	143	150	157	165	172	179	186	193	200	208	215	250	286	
72	140	147	154	162	169	177	184	191	199	206	213	221	258	294	
73	144	151	159	166	174	182	189	197	204	212	219	227	265	302	
74	148	155	163	171	179	186	194	202	210	218	225	233	272	311	
75	152	160	168	176	184	192	200	208	216	224	232	240	279	319	
76	156	164	172	180	189	197	205	213	221	230	238	246	287	328	

Adapted with permission from Bray, G.A., Gray, D.S. Obesity. Part I. Pathogenesis. West J. Med. 1988; 149:429-41.

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