

Weight Control

Unit

7

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Healthy weight

The fact that the attainment of ideal body weight makes an important contribution to health is undeniable and is one of the aims of healthy eating. A combination of factors determine our weight, and that's why it's difficult to set an exact ideal weight that applies to everyone. It's important to remember there's a range of healthy body weights. Aiming to keep within this means an end to aspiring to one magic weight a person thinks he should be.

Many people have a distorted perception of what constitutes a healthy body weight. We're surrounded by images of celebrities, many of whom are underweight. Comparing yourself with these images isn't helpful. But comparing yourself to friends and family isn't that useful either, because as obesity becomes more common our perception of 'average' weight may in fact be too heavy.

It's important to make an objective assessment of our size. Looking at ourselves in the mirror isn't a good way to assess whether we are a healthy weight.

What is healthy weight?

There are a number of ways we can work out that if we are within a healthy weight range. We need to get an accurate idea because it's easy to underestimate or overestimate our own weight. Ideal weight has traditionally been defined by tables of 'desirable weight for height'. Height should be measured without shoes and weight without shoes and outdoor clothing. People who weigh more than 20% over the upper limit of weight for their height are considered to be obese.

Body Mass Index

We can check our body size using the body mass index (BMI), which assesses our weight in relation to our height.

$BMI = \frac{\text{weight (kg)}}{\text{Height (m)}^2}$

The desirable range is 19- 25

Classification of body mass index

> 15	severe emaciation
15-19	under weight
19-25	ideal weight
25-30	over weight
30- 40	obese
> 40	severe obesity

Waist circumference

Another method of assessing whether we are a healthy weight is to measure our waist.

This gives an indication of how much fat is stored around our middle. Excess fat in this area increases the risk of heart disease and diabetes.

Body fat

One can measure the amount of fat in the body using scales designed for this purpose, often called body fat analysers. These pass a small, safe electrical signal through our body. Lean tissue, such as muscle, and blood contain water and act as conductors of the electrical signal, while fat resists it. The greater the resistance, the more body fat we have.

Overweight

If the BMI and waist circumference indicate that a person is overweight, changes to the lifestyle could help to control his weight. The person needs to make changes to the diet and physical activity over the long term.

Underweight

Not weighing enough can also put a person's health at risk. If a person is underweight because of a restriction of the diet, he is at risk of a number of nutritional deficiencies.

Young women especially are at risk of anaemia (a lack of iron), while insufficient calcium can lead to osteoporosis in later life. Amenorrhoea (missing menstrual periods) is also common among women who are underweight, and it can lead to infertility.

Healthy weight but unhappy

If the person's weight lies within the healthy range but he is unhappy with his shape, he can probably derive more benefits from a supervised exercise programme than by restricting the diet. This will improve his fitness, help to tone specific muscle groups and enhance his overall health and wellbeing.

Why a healthy weight is important?

If the BMI or waist circumference is above the healthy range the person is at increased risk of diabetes, cardiovascular disease and certain cancers such as colon, prostate and breast cancer. One is also more likely to experience joint problems and back pain, and may become breathless and have difficulty in sleeping. The more weight gain, the more severe these problems may become.

The basics of a healthy weight:

- Prevention of weight gain or stopping recent weight gain can improve health.
- Health can improve with relatively minor weight reduction (5 percent to 10 percent of body weight).
- Adopting a healthy lifestyle – eating smarter and moving more – can improve health status even if the person does not lose any weight at all.

For a person who wants to maintain a healthy weight for the rest of his life, must understand that it's all about **–energy balance–**.

Energy Balance

losing weight, gaining weight or maintaining weight depends on the amount of calories we take in and use up during the day, otherwise referred to as energy balance. Learning how to balance energy intake (calories in food) with energy output (calories expended through physical activity) can help us achieve our desired weight.

Although the underlying causes and the treatments of obesity are complex, the concept of energy balance is relatively simple. If we eat more calories than our body needs to perform our day's activities, the extra calories are stored as fat. If we do not take in enough calories to meet our body's energy needs, our body will go to the stored fat to make up the difference. (Exercise helps ensure that stored fat, rather than muscle tissue, is used to meet our energy needs.) If we eat just about the same amount of calories to meet our body's energy needs, our weight will stay the same.

On the average, a person consumes between 800,000 and 900,000 calories each year! An active person needs more calories than a sedentary person, as physically active people require energy above and beyond the day's basic needs. All too often, people who want to lose weight concentrate on counting calorie intake while neglecting calorie output. The most powerful formula is the combination of dietary modification with exercise. By increasing our daily physical activity and decreasing our caloric input we can lose excess weight in the most efficient and healthful way.

Counting Calories

Each pound of fat that our body stores represents 3,500 calories of unused energy. In order to lose one pound, we would have to create a calorie deficit of 3,500 calories by either taking in 3,500 less calories over a period of time than we need or doing 3,500 calories worth of exercise. It is recommended that no more than two pounds (7,000 calories) be lost per week for lasting weight loss. Adding 15 minutes of moderate exercise, say walking one mile, to the daily schedule will use up 100 extra calories per day. (Our body uses approximately 100 calories of energy to walk one mile, depending on our body weight.) Maintaining this schedule would result in an extra 700 calories per week used up, or a loss of about 10 pounds in one year, assuming the person's food intake stays the same. To look at energy balance another way, just one extra slice of bread or one extra soft drink a day - or any other food that contains approximately 100 calories - can add up to ten extra pounds in a year if the amount of physical activity we do does not increase.

If the person already has a lean figure and wants to keep it he should exercise regularly and eat a balanced diet that provides enough calories to make up for the energy he expends. If a person wishes to gain weight he should exercise regularly and increase the number of calories he consumes until he reaches his desired weight. Exercise will help ensure that the weight he gains will be lean muscle mass, not extra fat.

Balanced diet and weight control

A balanced diet should be part of any weight control plan. A diet high in complex carbohydrates and moderate in protein and fat will complement an exercise programme. It should include enough calories to satisfy our daily nutrient requirements and include the proper number of servings per day from the "basic four food groups": vegetables and fruits (4 servings), breads and cereals (4 servings), milk and milk products (2 - 4 depending on age) and meats and fish (2).

Our daily intake should not fall below 1200 calories. Also, weekly weight loss should not exceed two pounds.

Exercise and Weight Control

Exercise is associated with the loss of body fat in both obese and normal weight persons. A regular program of exercise is an important component of any plan to help individuals lose, gain or maintain their weight.

The Importance of Exercise in Modern living

In today's busy life most people do not get enough exercise in their ordinary routines. All of the advances of modern technology - from electric can openers to power steering - have made life easier, more comfortable and much less physically demanding. Yet our bodies need activity, especially if they are carrying around too much fat. Satisfying this need requires a definite plan, and a commitment. There are two main ways to increase the number of calories one expends:

1. Starting a regular exercise programme.
2. Increasing the amount of physical activity in the daily routine.

The best way to control weight is a combination of the above. The sum total of calories used over time will help regulate the weight as well as keep the person physically fit.

Adopting Active Lifestyles

Before looking at what kind of regular exercise programme is best, let's look at how we can increase the amount of physical activity in our daily routine to supplement our exercise programme.

- Recreational pursuits such as gardening on weekends, bowling in the office league, family outings, an evening of social dancing, and many other activities provide added exercise. They are fun and can be considered an extra bonus in the weight control campaign.
- more "action" can be added to the day by walking to the neighbourhood grocery store instead of using the car. Park several blocks from the office and walk the rest of the way. Walk up the stairs instead of using the elevator; start with one flight of steps and gradually increase.

These little bits of action are cumulative in their effects. Alone, each does not burn a huge amount of calories. But when added together they can result in a sizable amount of energy used over the course of the day. And they will help improve the muscle tone and flexibility at the same time.

Choosing Exercise

Although any kind of physical movement requires energy (calories), the type of exercise that uses the most energy is aerobic exercise. The term "aerobic" is derived from the Greek word meaning "with oxygen." Jogging, brisk walking, swimming, biking, cross-country skiing and aerobic dancing are some popular forms of aerobic exercise.

Aerobic exercises use the body's large muscle groups in continuous, rhythmic, sustained movement and require oxygen for the production of energy. When oxygen is combined with food (which can come from stored fat) energy is produced to power the body's musculature. The longer we move aerobically, the more energy needed and the more calories used. Regular aerobic exercise will improve cardio respiratory endurance, the ability of the heart, lungs, blood vessels and associated tissues to use oxygen to produce

energy needed for activity and the person will build a healthier body while getting rid of excess body fat.

In addition to the aerobic exercise one must supplement the programme with muscle strengthening and stretching exercises. The stronger muscles, the longer the person will be able to keep going during aerobic activity, and the less chance of injury.

The Benefits of Exercise in a Weight Control Programme

The benefits of exercise are many, from producing physically fit bodies to providing an outlet for fun and socialisation. When added to a weight control programme these benefits take on increased significance.

We already have noted that proper exercise can help control weight by burning excess body fat. It also has two other body-trimming advantages 1) exercise builds muscle tissue and muscle uses calories up at a faster rate than body fat; and 2) exercise helps reduce inches and a firm, lean body looks slimmer even if your weight remains the same.

Actually, fat does not "turn into" muscle, as is often believed. Fat and muscle are two entirely different substances and one cannot become the other. However, muscle does use calories at a faster rate than fat which directly affects the body's metabolic rate or energy requirement. Our basal metabolic rate (BMR) is the amount of energy required to sustain the body's functions at rest and it depends on our age, sex, body size, genes and body composition. People with high levels of muscle tend to have higher BMRs and use more calories in the resting stage.

Some studies have even shown that metabolic rate stays elevated for some time after vigorous exercise, causing us to use even more calories throughout the day. Additional benefits may be seen in how exercise affects appetite. A lean person in good shape may eat more following increased activity, but the regular exercise will burn up the extra calories consumed. On the other hand, vigorous exercise has been reported to suppress appetite. And, physical activity can be used as a positive substitute for between meal snacking.

Better Mental Health

The psychological benefits of exercise are equally important to the weight conscious person. Exercise decreases stress and relieves tensions that might otherwise lead to overeating. Exercise builds physical fitness which in turn builds self-confidence, enhanced self-image, and a positive outlook. When one starts to feel good about himself, he is more likely to want to make other positive changes in his lifestyle that will help keep his weight under control.

The Calorie Requirement

The estimates for number of calories (energy) used during a physical activity are based on experiments that measure the amount of oxygen consumed during a specific bout of exercise for a certain body weight.

The energy costs of activities that require a person to move his own body weight, such as walking or jogging, are greater for heavier people since they have more weight to move. For example, a person weighing 150 pounds would use more calories jogging one mile than a person jogging alongside who weighs 115 pounds. Always check to see what body weight is referred to in caloric expenditure charts you use.

Energy Expenditure Chart

A. Sedentary Activities

Energy Costs Cals/Hour*

Lying down or sleeping	90
Sitting quietly	84
Sitting and writing, card playing, etc.	114

B. Moderate Activities (150-350)

Bicycling (5 mph)	174
Canoeing (2.5 mph)	174
Dancing (Ballroom)	210
Golf (2-some, carrying clubs)	324
Horseback riding (sitting to trot)	246
Light housework, cleaning, etc.	246
Swimming (crawl, 20 yards/min)	288
Tennis (recreational doubles)	312
Volleyball (recreational)	264
Walking (2 mph)	198

C. Vigorous Activities More than 350

Aerobic Dancing	546
Basketball (recreational)	450
Bicycling (13 mph)	612
Circuit weight training	756
Football (touch, vigorous)	498
Ice Skating (9 mph)	384
Racquetball	588
Roller Skating (9 mph)	384
Jogging (10 minute mile, 6 mph)	654
Scrubbing Floors	440
Swimming (crawl, 45 yards/min)	522
Tennis (recreational singles)	450
X-country Skiing (5 mph)	690

*Hourly estimates based on values calculated for calories burned per minute for a 150 pound (68 kg) person.

Balance Food and Physical Activity

What we eat is just one part of the energy balance equation. The other is physical activity. Most of us take in more calories than we spend on our daily activities. Finding a healthier balance means fitting more activity into our day. The minimum for good health is 30 minutes of moderate to vigorous activity each day. To reach a healthy weight, we may need to be physically active longer (60 minutes a day) or participate in more intense activities.

Healthy Weights for Healthy Kids

When children are young, parents and other caregivers are responsible for providing an environment that helps them maintain a healthy weight. The parents can help their child by:

- Becoming a positive role model for healthy eating and activity habits Providing a calm, reassuring atmosphere at regular meals and snack times Setting healthy limits on screen entertainment like television and video games Involving the whole family in fun physical activities
- Helping children develop a positive body image
- Avoiding restrictive diets and excessive exercise regimens.

When it comes to nutrition and fitness, the role of parents is the same no matter the weight of their children. Not all skinny kids have healthy eating habits or active lifestyles. And not all overweight children develop risk factors for diabetes or heart disease.

A healthy weight for kids is about much more than numbers. It is about healthy behaviours, such as enjoying a variety of nutrient-rich foods and a variety of activities for strength, flexibility and aerobic capacity.

Healthy Weights for Healthy Men

Energy balance is the key to weight management for men and women, young or old. For a healthy weight, it is important for men to balance physical activity (calories out) with food and beverage intake (calories in). While food choices are important, there's increasing evidence that many of us are drinking our way to weight problems, too.

Studies suggest calorie intake from beverages has more than doubled since the 1960s, primarily due to a surge in soft drink, sports drink and sweetened tea consumption. According to the research, we don't balance these increased liquid calories by taking in fewer calories from food or by increasing our physical activity. Over the long run, these additional beverage calories can lead to energy imbalance and weight gain.

Drinking Plenty of Refreshing, Calorie-Free Water

Water does the body good. Without any unnecessary calories, it helps our muscles and brain stay hydrated for optimal physical and mental performance. How much water we need depends on our size and activity level; larger, more active people need more fluids.

Drinking Nutrient-Rich, Low-Fat Milk Three Times a Day

Milk isn't just for kids; it's essential for adults too. Nutrient-rich dairy foods help build and maintain healthy bones, teeth and muscle mass. They also may help lower the risk of high blood pressure. For the most nutrients with the least fat and calories, one should look for fat-free or low-fat options. Research also suggests fat-free milk may be an effective sports drink. Whey protein (high-quality milk protein) in combination with resistance exercise seems to boost the rate at which the body makes lean muscle.

Maximum of 4 to 6 ounces of Juice a Day

While 100-percent juice can be a great source of several nutrients, it's possible to get too much of a good thing. Whole fruits and vegetables are much better ways to get vitamins, minerals and fluids. Actual food tends to be more satisfying, plus we get the added value of fibre and phytonutrients from the skin and pulp.

Drinking Other Beverages

Soft drinks, sweetened teas, fruit drinks and most sports and "energy" drinks are loaded with calories and sometimes caffeine. Coffee drinks are often surprisingly high in calories, fat and sugar. Alcoholic drinks are packed with empty calories too.

Healthy Weights for Healthy Women

Healthy weight management for adult women — like any other age — is all about energy balance. That means eating smarter and moving more. Unfortunately, when trying to lose weight, busy women tend to limit some of the very foods they need the most.

Carbohydrates

The biggest problem with low-carb diets is they restrict body's preferred energy source. If a person wants to cut back on calories from carbohydrates, he must focus on reducing the intake of soft drinks, candy and sugar. To maximize the energy level and long-term health nutrient-rich carbohydrates must be chosen. One can take whole and fortified grains (6 to 7 servings per day, at least half of them fibre-rich whole grains) and can also eat fruits (2 cups) and vegetables (2 ½ cups) every day.

Protein

Women sometimes cut back on protein foods to avoid fat. However, one of the most satisfying ways to eat and control weight is to include lean protein in every meal. Trying low-fat dairy foods, eggs, meats, nuts and beans (a total of 6 ounces per day) can help. Protein may be especially helpful in the morning, adding some protein to breakfast can make one satisfied until lunchtime.

Iron

Low iron intakes can lead to serious problems like iron-deficiency anaemia, the most common nutrient deficiency for women and children. To prevent anaemia and fatigue a woman must take a minimum of 15 milligrams of iron per day. Women can pump up their intake with excellent iron sources, like lean red meat and iron-fortified cereals. Other good sources include poultry, fish, beans and leafy green vegetables.

Calcium

Calcium does a lot more than build strong bones and teeth. Getting enough calcium helps keep the heart and muscles strong and may help prevent high blood pressure and colon cancer too. They can take high-calcium foods, such as low-fat dairy (milk, cheese and yogurt); tofu; green leafy vegetables; and calcium-fortified fruit juices. A woman must aim for at least 1,000 milligrams per day (more for women younger than 18 or older than 50).

Folic Acid

Every woman of childbearing age needs 400 micrograms of folic acid every day. That's what it takes to reduce the risk of neural tube birth defects by 75 percent. Folic acid can also boost the immune function by producing disease-fighting white blood cells and helps in reducing the risk of heart disease. A woman can get folic acid from tasty, nutrient-rich foods, such as enriched grain products, whole grains, green leafy vegetables, oranges, berries, nuts and beans.

Healthy Weight during Pregnancy

While pregnancy is not the time to lose weight, women should not use their expanding bellies as an excuse to eat more than is necessary. The amount of food a woman needs during pregnancy depends on a number of things including their body mass index (BMI) before pregnancy, the rate at which they gain weight, age and appetite. All pregnant women should eat a variety of nutrient-rich foods each day. They may also need to take a vitamin and mineral supplement if recommended by the physician. Many women start off pregnancy overweight or obese; many gain more weight than is healthy during their pregnancy. Research shows the risk of problems during pregnancy and delivery is lowest when weight gain is kept within a healthy range. Obesity during pregnancy is risky for both mother and child. Some risks include gestational diabetes, gestational hypertension (high blood pressure), Cesarean delivery, birth defects and even fatal death. If a woman is obese during pregnancy, it also raises the chance her child will be obese later in life.

Weight Gain Guidelines

The latest weight gain guidelines by the Institute of Medicine are based on a woman's BMI before pregnancy. The amount of weight a woman gains should depend on what category the pre-pregnancy BMI lands in:

- *Underweight:* BMI less than 18.5
- *Normal:* BMI of 19 to 25
- *Overweight:* BMI of 26 to 30
- *Obese:* BMI greater than 31

The weight ranges below are for a full-term pregnancy:

- *Underweight:* 28 to 40 pounds *Normal:* 25 to 35 pounds *Overweight:* 15 to 25 pounds *Obese:* 11 to 20 pounds.

For twins, the recommendations naturally go up:

- *Normal:* 37 to 54 pounds *Overweight:* 31 to 50 pounds *Obese:* 25 to 42 pounds.

There are no set guidelines for underweight BMI weight gain with twins.

Calorie Intake

In general, pregnant women need between 2,200 calories and 2,900 calories a day. A gradual increase of calories as the baby grows is the best bet. Here is an overview of how calorie needs change during each trimester:

- The first trimester does not require any extra calories.
- The second trimester requires an added 347 calories a day. The third trimester requires 452 calories more a day.

Avoid extra calories by cutting down on sugary and fatty foods. Replace regular soda, sweets and fried foods with healthy options like low-fat milk, whole fruit and whole grains.

Physical Activity

Physical activity can help manage weight gain. The activity guidelines for pregnant women are 30 minutes of moderate exercise on most, if not all, days of the week.

Healthy Weights for Healthy Older Adults

Study after study confirms eating well and being active can make a dramatic difference in the quality of life for older adults. A person is never too old to enjoy the benefits of improved nutrition and fitness. With nutrient-rich foods and activities an elderly person can feel an immediate difference in the strength, energy levels and enjoyment of life. In fact, as we get older, our food and activity choices become even more important to our health.

More Nutrients, Fewer Calories

As we age, we need fewer total calories, but more nutrients, especially protein, B-vitamins and calcium. In terms of nutrition, we need to focus on quality not quantity. All the food choices, for every food group, need to be power-packed with more nutrients per calorie. For both optimal physical and mental health, older adults truly need to make every calorie count. Retired people on limited incomes may have trouble buying enough nutrient-rich foods to meet all their nutritional needs.

The golden years are definitely not the time for extreme diets or drastic weight loss. The goal should be to eat better while eating less. Fad diets frequently eliminate entire food groups, which can lead to serious nutrient gaps. Rapid weight loss often leads to a loss of lean body mass, exactly the opposite of what older people need for good health.

One must aim for a stable weight as he gets older. If an elderly person wants to lose a few pounds, the right balance of foods and activities could help him to lose a little fat, while maintaining strong muscles and bones.

Enjoy the Power of Protein

People of all ages need protein for strong, healthy bodies. Some older adults do not get the protein they need to maintain muscle mass, fight infection and recover from an accident or surgery. Chewing protein foods such as meat or chicken also can be a problem for some older adults. Here are tips to pump up the protein intake, without upsetting food budget or energy balance:

- Canned beans can be added to salads, soups, rice dishes and casseroles. Peanut butter can be used the crackers.
- Grated, low-fat cheese can be mixed into scrambled eggs.
- A spoonful of dry milk can be added into fluid milk, cream soups and mashed potatoes.

