Cancer Association of South Africa (CANSA)

Research • Educate • Support

Fact Sheet
on
Obesity and Cancer

Introduction

Obesity can be described as an imbalance between energy intake and expenditure, such that excess energy is stored in fat cells, which enlarge or increase in number. However, the complex medical condition of obesity is affected by a host of contributing factors.

Obesity is defined as a body mass index (BMI) of more than 30 according to World Health Organization criteria.

[Picture Credit: Obesity 1]

Obesity has become a global epidemic with an estimated 1,3 billion people being overweight or obese. Its prevalence in developed countries, such as the United States, is as high as 26,6% in men and 32,2% in women above the age of 20 years. However, obesity is not only a problem of developed nations but is becoming an increasing problem in countries undergoing epidemiological transition, such as South Africa, Mexico and South American countries.

Lyon, France, 26 November 2014 - A new study by the International Agency for Research on Cancer (IARC), the specialised cancer agency of the World Health Organization (WHO), shows that nearly half a million new cancer cases per year can be attributed to high body mass index (BMI). The study, published in *The Lancet Oncology*, highlights that overweight and obesity have become major risk factors, responsible for an estimated 3.6% (481 000) of all new cancer cases in 2012 (IARC).

Key Facts About Obesity

The World Health Organization (February 2018) provided the following key facts around obesity:

- Worldwide obesity has nearly tripled since 1975.
- In 2016, more than 1.9 billion adults, 18 years and older, were overweight. Of these over 650 million were obese.
- 39% of adults aged 18 years and over were overweight in 2016, and 13% were obese.
- Most of the world's population live in countries where overweight and obesity kills more people than underweight.

- 41 million children under the age of 5 were overweight or obese in 2016.
- Over 340 million children and adolescents aged 5-19 were overweight or obese in 2016.
- Obesity is preventable.

Overweight and obesity are leading risks for global deaths. Around 3.4 million adults die each year as a result of being overweight or obese. In addition, 44% of the diabetes burden, 23% of the ischaemic heart disease burden and between 7% and 41% of certain cancer burdens are attributable to overweight and obesity.

Adults

For adults, WHO defines overweight and obesity as follows:

- overweight is a BMI greater than or equal to 25; and
- obesity is a BMI greater than or equal to 30.

BMI provides the most useful population-level measure of overweight and obesity as it is the same for both sexes and for all ages of adults. However, it should be considered a rough guide because it may not correspond to the same degree of fatness in different individuals.
For children, age needs to be considered when defining overweight and obesity.

Children under 5 years of age

For children under 5 years of age:

- overweight is weight-for-height greater than 2 standard deviations above WHO Child Growth Standards median; and
- obesity is weight-for-height greater than 3 standard deviations above the WHO Child Growth Standards median.

Children aged between 5–19 years

Overweight and obesity are defined as follows for children aged between 5–19 years:

- overweight is BMI-for-age greater than 1 standard deviation above the WHO Growth Reference median; and
- obesity is greater than 2 standard deviations above the WHO Growth Reference median.

Common health consequences of overweight and obesity

Raised BMI is a major risk factor for noncommunicable diseases such as:

- cardiovascular diseases (mainly heart disease and stroke), which were the leading cause of death in 2012;
- diabetes;
- musculoskeletal disorders (especially osteoarthritis – a highly disabling degenerative disease of the joints);
- some cancers (including endometrial, breast, ovarian, prostate, liver, gallbladder, kidney, and colon).

The risk for these non-communicable diseases increases, with increases in BMI.

Childhood obesity is associated with a higher chance of obesity, premature death and disability in adulthood. But in addition to increased future risks, obese children experience breathing difficulties, increased risk of fractures, hypertension, early markers of cardiovascular disease, insulin resistance and psychological effects.

Facing a double burden of disease

Many low- and middle-income countries are now facing a "double burden" of disease.

- While these countries continue to deal with the problems of infectious diseases and undernutrition, they are also experiencing a rapid upsurge in noncommunicable disease risk factors such as obesity and overweight, particularly in urban settings.
- It is not uncommon to find undernutrition and obesity co-existing within the same country, the same community and the same household.

Children in low- and middle-income countries are more vulnerable to inadequate pre-natal, infant, and young child nutrition. At the same time, these children are exposed to high-fat, high-sugar, high-salt, energy-dense, and micronutrient-poor foods, which tend to be lower in cost but also lower in nutrient quality. These dietary patterns, in conjunction with lower levels of physical activity, result in sharp increases in childhood obesity while undernutrition issues remain unsolved.

Obesity is a Major Preventable Cause of Cancer

Major studies confirm that being overweight or obese increases the risk of various cancers (Bianchini, *et al*., 2002; International Agency for Research on Cancer, 2002; Renehan, *et al*., 2008; Reeves, *et al*., 2007). The World Health Organization (WHO) says that overweight and obesity are the most important known avoidable causes of cancer after tobacco (World Health Organization, 2003).

Obesity in South Africa

In South Africa, where under-nutrition, poverty and infectious diseases (such as HIV/AIDS and tuberculosis), are realities, the problem of obesity could be viewed as less pressing. However, obesity and its co-morbidities negatively affect the lives of many South Africans and the consequent burden of disease contributes to the increasing cost of health care, both at a state level and in the private sector (Medical Research Council, South Africa).

[Picture Credit: Obesity 2]

According to a study by the National Department of Health, more than half of South African women are overweight or obese, with the figure for Black women nearly 60%. Fat intake among Blacks has jumped almost 65% since 1940, when records first started being kept. Obesity-related diseases like hypertension and diabetes are spiralling. More South African adults now die from obesity than from poverty (Health Systems Trust).

In a recent survey conducted by the SA Medical Research Council, it was found that 61% of the South African population is overweight, obese or morbidly obese. In addition, 70% of all South African women over the age of 35 were overweight or obese with 33% of Black women exposed to this risk and 25% of Coloured, White and Asian women following suit.

In contrast, 18% of White men over the age of 35 are obese, followed by 9% percent of Asian, 8% percent of Coloured, and 6% of Black men. With an estimated 2,8 million people annually dying as a result of being overweight or obese, it is time for South Africans to take stock, says the Self-Medication Association of South Africa (SMASA)

According to a 2018 study, local researchers from the University of KwaZulu-Natal (UKZN), University of the Witwatersrand (Wits), and international researchers from Denmark and England analysed the body mass index (BMI) of South African children, adolescents and young adults from 2008 to 2015. The number of young South Africans suffering from obesity doubled in six years while this took 13 years to happen in the United States. This research was published in the International Journal of Epidemiology in December 2018.

Obesity is linked to non-communicable diseases, such as diabetes mellitus, coronary heart disease and hypertension, which are among the top 10 causes of death in South Africa (Gboyega A Ogunbanjo).

According to the World Health Organization, 2015:

South Africa's obesity ranking	-	24th in the world
Overall mean BMI	-	27.3
Female obesity ranking	-	23rd
Female mean BMI	-	29.1
Male obesity ranking	-	110th
Male mean BMI	-	25.4

Defining Being Overweight and/or Obese

Overweight and obesity are both labels for ranges of weight that are greater than what is generally considered healthy for a given height. The terms also identify ranges of weight that have been shown to increase the likelihood of various diseases and other health problems.

For adults, overweight and obesity ranges are determined by using weight and height to calculate a number called the body mass index (BMI). BMI is used because, for most people, it correlates with the amount of body fat.

- An adult who has a BMI between 25 and 29.9 is considered overweight
- An adult who has a BMI of 30 or higher is considered obese

Devised between 1830 and 1850 by the Belgian Adolphe Quetelet during the course of developing 'social physics', BMI is defined as the individual's body mass divided by the square of their height – with the value universally being given in units of kg/m^2.

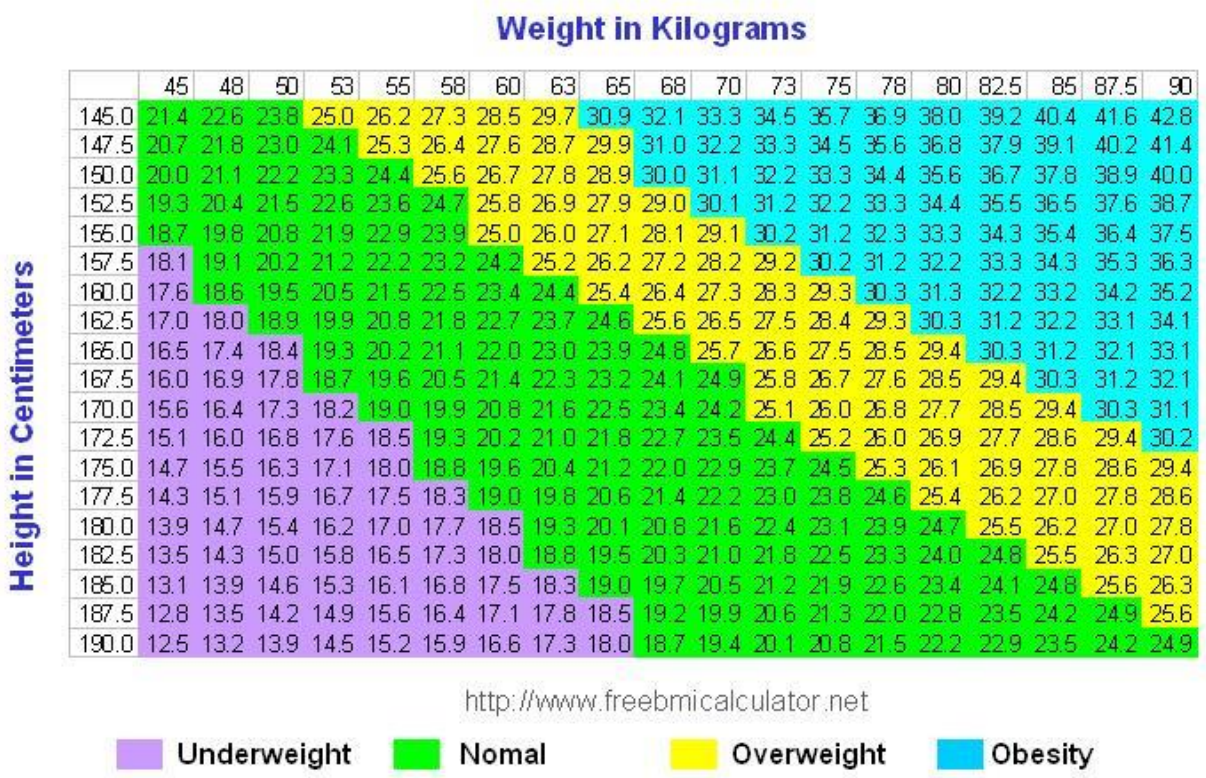
$$\mathrm{BMI} = \frac{\mathrm{mass(kg)}}{(\mathrm{height(m)})^2}$$

(Wikipedia).

One important category of obesity not captured by BMI is so-called 'abdominal obesity' - the extra fat found around the middle that is an important factor in health, even independent of BMI.

The simplest and most often used measure of abdominal obesity is waist size. Guidelines generally define abdominal obesity in women as a waist size 89cm or higher, and in men as a waist size of 101cm or higher.

Body Mass Index (BMI) and Body Mass Index Categories
The chart below can be used to determine the Body Mass Index (BMI) of an individual.



	45	48	50	53	55	58	60	63	65	68	70	73	75	78	80	82.5	85	87.5	90
145.0	21.4	22.6	23.8	25.0	26.2	27.3	28.5	29.7	30.9	32.1	33.3	34.5	35.7	36.9	38.0	39.2	40.4	41.6	42.8
147.5	20.7	21.8	23.0	24.1	25.3	26.4	27.6	28.7	29.9	31.0	32.2	33.3	34.5	35.6	36.8	37.9	39.1	40.2	41.4
150.0	20.0	21.1	22.2	23.3	24.4	25.6	26.7	27.8	28.9	30.0	31.1	32.2	33.3	34.4	35.6	36.7	37.8	38.9	40.0
152.5	19.3	20.4	21.5	22.6	23.6	24.7	25.8	26.9	27.9	29.0	30.1	31.2	32.2	33.3	34.4	35.5	36.5	37.6	38.7
155.0	18.7	19.8	20.8	21.9	22.9	23.9	25.0	26.0	27.1	28.1	29.1	30.2	31.2	32.3	33.3	34.3	35.4	36.4	37.5
157.5	18.1	19.1	20.2	21.2	22.2	23.2	24.2	25.2	26.2	27.2	28.2	29.2	30.2	31.2	32.2	33.3	34.3	35.3	36.3
160.0	17.6	18.6	19.5	20.5	21.5	22.5	23.4	24.4	25.4	26.4	27.3	28.3	29.3	30.3	31.3	32.2	33.2	34.2	35.2
162.5	17.0	18.0	18.9	19.9	20.8	21.8	22.7	23.7	24.6	25.6	26.5	27.5	28.4	29.3	30.3	31.2	32.2	33.1	34.1
165.0	16.5	17.4	18.4	19.3	20.2	21.1	22.0	23.0	23.9	24.8	25.7	26.6	27.5	28.5	29.4	30.3	31.2	32.1	33.1
167.5	16.0	16.9	17.8	18.7	19.6	20.5	21.4	22.3	23.2	24.1	24.9	25.8	26.7	27.6	28.5	29.4	30.3	31.2	32.1
170.0	15.6	16.4	17.3	18.2	19.0	19.9	20.8	21.6	22.5	23.4	24.2	25.1	26.0	26.8	27.7	28.5	29.4	30.3	31.1
172.5	15.1	16.0	16.8	17.6	18.5	19.3	20.2	21.0	21.8	22.7	23.5	24.4	25.2	26.0	26.9	27.7	28.6	29.4	30.2
175.0	14.7	15.5	16.3	17.1	18.0	18.8	19.6	20.4	21.2	22.0	22.9	23.7	24.5	25.3	26.1	26.9	27.8	28.6	29.4
177.5	14.3	15.1	15.9	16.7	17.5	18.3	19.0	19.8	20.6	21.4	22.2	23.0	23.8	24.6	25.4	26.2	27.0	27.8	28.6
180.0	13.9	14.7	15.4	16.2	17.0	17.7	18.5	19.3	20.1	20.8	21.6	22.4	23.1	23.9	24.7	25.5	26.2	27.0	27.8
182.5	13.5	14.3	15.0	15.8	16.5	17.3	18.0	18.8	19.5	20.3	21.0	21.8	22.5	23.3	24.0	24.8	25.5	26.3	27.0
185.0	13.1	13.9	14.6	15.3	16.1	16.8	17.5	18.3	19.0	19.7	20.5	21.2	21.9	22.6	23.4	24.1	24.8	25.6	26.3
187.5	12.8	13.5	14.2	14.9	15.6	16.4	17.1	17.8	18.5	19.2	19.9	20.6	21.3	22.0	22.8	23.5	24.2	24.9	25.6
190.0	12.5	13.2	13.9	14.5	15.2	15.9	16.6	17.3	18.0	18.7	19.4	20.1	20.8	21.5	22.2	22.9	23.5	24.2	24.9

Common Health Consequences of Being Overweight and/or Obese
Raised BMI is a major risk factor for non-communicable diseases such as:

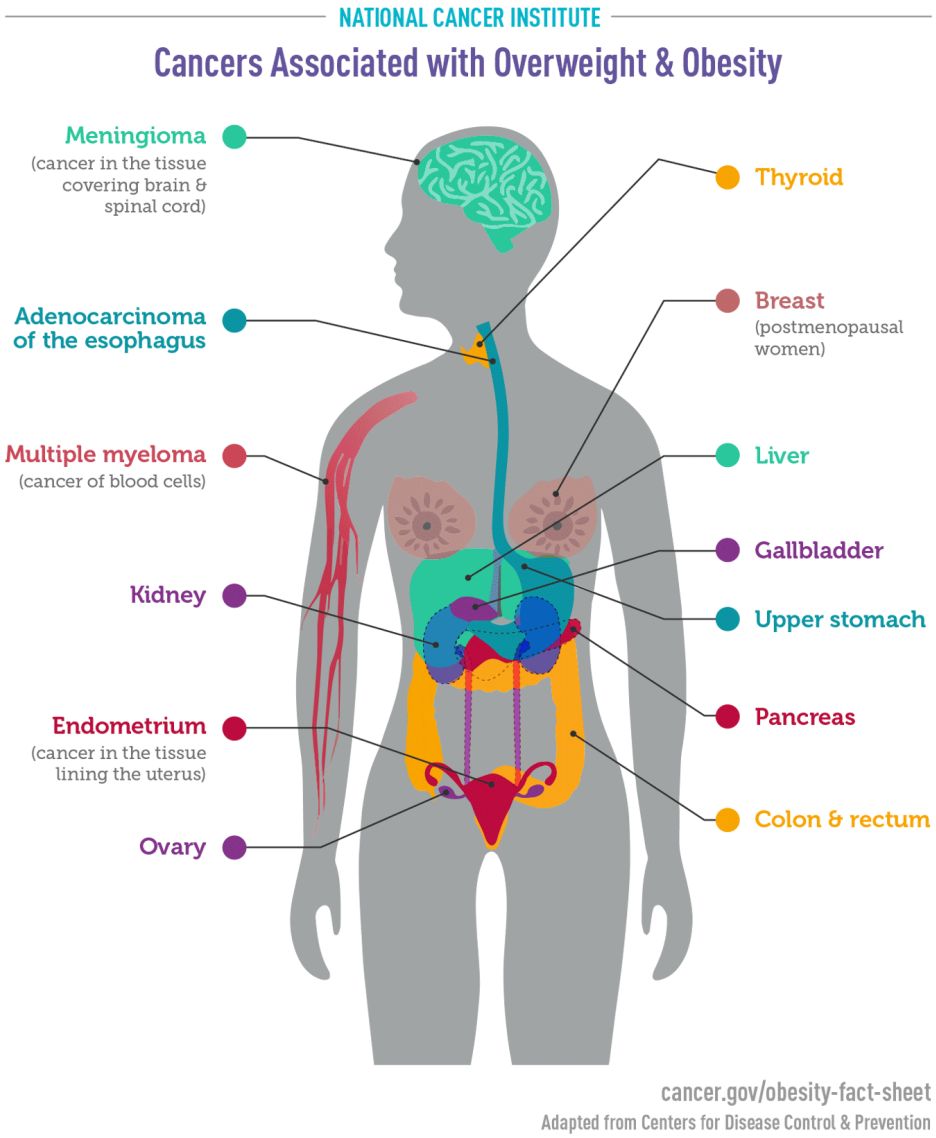
- Cardiovascular diseases (that includes mainly heart disease and stroke), which were the leading worldwide causes of death in 2008
- diabetes
- musculoskeletal disorders (especially osteoarthritis - a highly disabling degenerative disease of the joints)
- cancers

The risk for these non-communicable diseases increases with the increase in BMI.

Childhood obesity is associated with a higher chance of obesity, premature death and disability in adulthood. In addition to increased future risks, obese children experience breathing difficulties, increased risk of fractures, hypertension, early markers of cardiovascular disease, insulin resistance and psychological effects.

In a recent study by Solveig, *et al*. (2014) it was found that:

- Overweight 5-year-olds were four times as likely as normal-weight children to become obese
- Among children who became obese between the ages of 5 and 14 years, nearly half had been overweight and 75% had been above the 70th percentile for body-mass index when they were 5 years old
- Incidence of obesity between the ages of 5 and 14 years was more likely to have occurred at younger ages, primarily among children who had entered kindergarten overweight



[Picture Credit: National Cancer Institute]

World Cancer Research Fund International

Obesity, physical activity and cancer

There is a strong link between being overweight or obese & an **increased risk** of 10 cancers:

- Liver
- Advanced prostate
- Ovarian
- Gallbladder
- Kidney
- Colorectal (bowel)
- Oesophageal*
- Postmenopausal breast
- Pancreatic
- Endometrial (womb)

There is a strong link between being physically active & a **decreased risk** of 3 cancers:

- Postmenopausal breast
- Colorectal (bowel)
- Endometrial (womb)

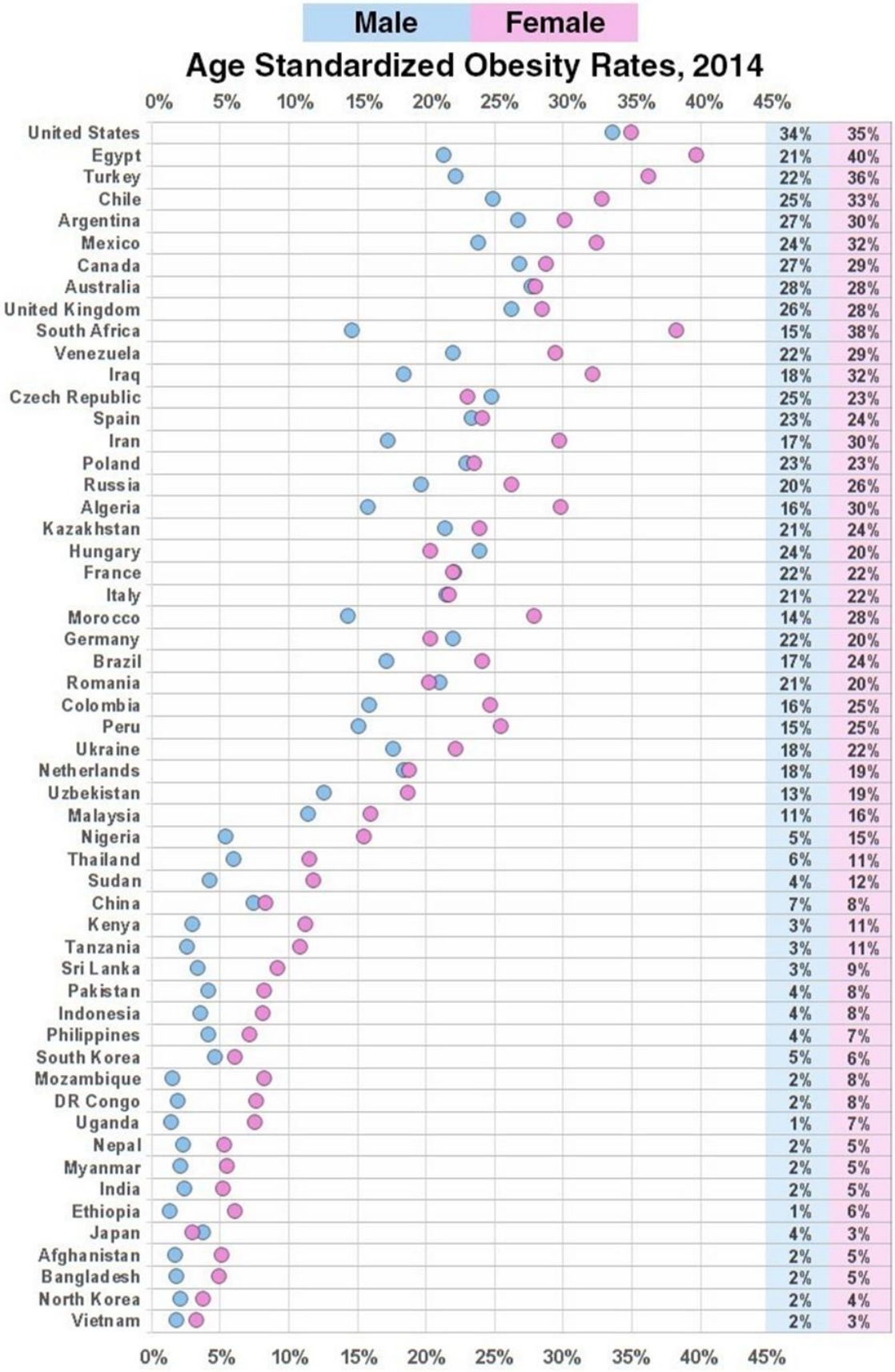
Top 10 countries* with the highest % of overweight or obese adults

- Mexico 71.3%
- United States 68.6%
- Chile 64.5%
- New Zealand 63.8%
- Australia 63.4%
- Israel 62.2%
- United Kingdom 61.9%
- Hungary 61.6%
- Ireland 61%
- Finland 59.2%
- Luxembourg 59.2%

1.9 billion adults worldwide are overweight or obese. This exceeds the population of China

Physical inactivity is the 4th leading cause of death worldwide

www.wcrf.org



(World Economic Forum)

Obesity and Cancer

Acute inflammation, a physiological process generated by the body in response to injury, infection, or irritation, is vital to healing. However, when this process becomes chronic it may contribute to a variety of diseases, including cancer. Obesity is associated with a low-grade chronic inflammation, characterised by increased circulating fatty acids and chemo-attraction of immune cells that contribute to the inflammatory condition. Although the features of chronic inflammation in obese adipose tissue are clearly defined, the signals and mechanisms that trigger chronic inflammation are not yet well understood.

There is a strong relationship between metabolism and immunity, which can become deleterious under conditions of metabolic stress. Obesity, considered a chronic inflammatory disease, is one example of this link. Chronic inflammation is increasingly being recognised as an aetiology in several cancers, particularly those of epithelial origin and, therefore, the link between obesity and cancer. (Ramos-Nino, 2013).

Cancers linked to obesity include:

- Breast cancer (postmenopausal women)
- Cancer of the Colon
- Cancer of the Rectum
- Cancer of the Uterus
- Cervical cancer
- Endometrial cancer
- Gall bladder cancer
- Kidney cancer
- Liver cancer
- Meningioma
- Multiple myeloma
- Non-Hodgkin Lymphoma
- Oesophageal adenocarcinoma
- Ovarian cancer
- Pancreatic cancer
- Prostate cancer
- Thyroid cancer
- Upper stomach cancer

Causes of Being Overweight or Obese

The fundamental cause of obesity and overweight is an energy imbalance between calories consumed and calories expended. Globally, there has been:

- an increased intake of energy-dense foods that are high in fat or added sugars; and
- an increase in physical inactivity due to the increasingly sedentary nature of many forms of work, changing modes of transportation, and increasing urbanisation.

Changes in dietary and physical activity patterns are often the result of environmental and societal changes associated with development and lack of supportive policies in sectors such as health,

agriculture, transport, urban planning, environment, food processing, distribution, marketing and education.

A lack of energy balance most often causes overweight and obesity. Energy balance means that energy IN equals energy OUT.

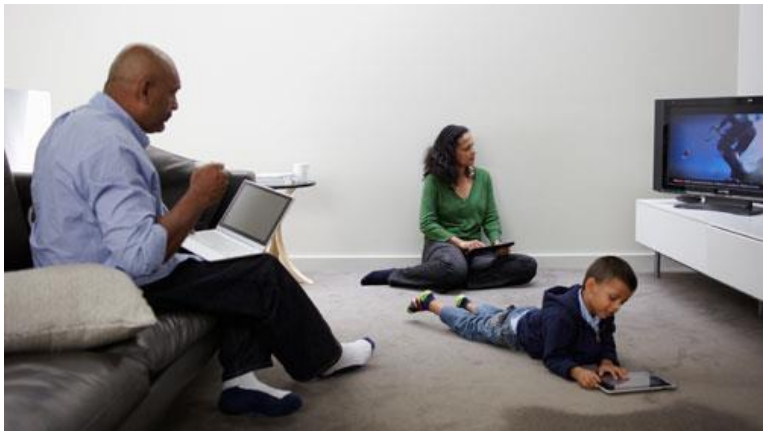
Energy IN is the amount of energy or calories one gets from food and drinks. Energy OUT is the amount of energy one's body uses for things like breathing, digesting and being physically active.
To maintain a healthy weight, energy IN and OUT do not have to balance exactly every day. It is the balance over time that helps one maintain a healthy weight.

- The same amount of energy IN and energy OUT over time = weight stays the same
- More energy IN than energy OUT over time = weight gain
- More energy OUT than energy IN over time = weight loss

Overweight and obesity happen over time when a person takes in more calories than what is used

Causes include:

An Inactive Lifestyle - Many South Africans are not very physically active. One reason for this is that many people spend hours in front of TVs and computers doing work, schoolwork, and leisure activities. In fact, more than 2 hours a day of regular TV viewing time has been linked to overweight and obesity.



[Picture Credit: Viewing TV]

Reasons for not being active include: relying on cars instead of walking, fewer physical demands at work or at home because of modern technology and conveniences and lack of physical education classes in schools.

People who are inactive are more likely to gain weight because they do not burn the calories that they take in from food and drinks. An inactive lifestyle also raises the risk for coronary heart disease, high blood pressure, diabetes, various cancers and other health problems.

Environment - Most environments do not support healthy lifestyle habits; in fact, it encourages obesity. Some examples include:

- Lack of neighbourhood sidewalks and safe places for recreation - not having area parks, trails, sidewalks, and affordable gyms makes it hard for people to be physically active
- Work schedules - people often say that they do not have time to be physically active because of long work hours and time spent commuting
- Oversized food portions - many individuals are exposed to huge food portions in restaurants, fast food places, movie theatres, supermarkets and even at home. Some of these meals and

snacks can feed two or more people. Eating large portions means too much energy IN. Over time, this will cause weight gain if it is not balanced with physical activity

- Lack of access to healthy foods - some people do not live in neighbourhoods that have supermarkets that sell healthy foods, such as fresh fruits (in season) and vegetables. Or, for some people, these healthy foods are too costly

[Picture Credit: Advertisement]

- Food advertising - most communities are surrounded by advertisements from food companies. Often children are the targets of advertising for high-calorie, high-fat snacks and sugary drinks. The goal of these advertisements is to sway people to buy these high-calorie foods

Genes and Family History - Studies of identical twins who have been raised apart show that genes have a strong influence on a person's weight. Overweight and obesity tend to run in families. One's chances of being overweight is greater if one or both parents are overweight or obese.

[Picture Credit: Obese child]

One's genes also may affect the amount of fat stored in the body and where on the body the extra fat is carried. Because families also share food and physical activity habits, a link exists between genes and the environment.

Children adopt the habits of their parents. A child who has overweight parents who eat high-calorie foods and are inactive will likely become overweight too. However, if the family adopts healthy food and physical activity habits, the child's chance of being overweight or obese is reduced.

Health Conditions - Some hormone problems may cause overweight and obesity, such as underactive thyroid (hypothyroidism), Cushing's syndrome, and polycystic ovarian syndrome (PCOS).

Underactive thyroid is a condition in which the thyroid gland does not make enough thyroid hormone. Lack of thyroid hormone will slow down the metabolism and cause weight gain. The person also feels tired and weak.

[Picture Credit: Cushing's Syndrome]

Cushing's syndrome is a condition in which the body's adrenal

glands make too much of the hormone cortisol. Cushing's syndrome also can develop if a person takes high doses of certain medicines, such as prednisone, for long periods.
People who have Cushing's syndrome gain weight, have upper-body obesity, a rounded face, fat around the neck, and thin arms and legs.

PCOS is a condition that affects about 5 to 10% of women of childbearing age. Women who have PCOS often are obese, have excess hair growth as well as have reproductive problems and other health issues. These problems are caused by high levels of hormones called androgens.

Medicines - Certain medicines may also cause one to gain weight. These medicines include some corticosteroids, antidepressants and seizure medicines.

[Picture Credit: Corticosteroids]

These medicines can slow the rate at which the body burns calories, increase appetite, or causing the body to hold on to extra water. All of these factors can lead to weight gain.

Emotional and Psychological Factors - some people eat more than usual when they are bored, angry, or stressed. Over time, overeating will lead to weight gain and may cause overweight or obesity.

[Picture Credit: Emotions]

Psychological factors also influence eating habits and obesity. Many people eat in response to negative emotions such as boredom, sadness, or anger. People who have difficulty with weight management may be facing more emotional and psychological issues; about 30% of people who seek treatment for serious weight problems have difficulties with binge eating. During a binge-eating episode, people eat large amounts of food while feeling they cannot control how much they are eating.

Smoking - Some people gain weight when they stop smoking. One reason is that food often tastes and smells better after quitting smoking.

[Picture Credit: Stop Smoking]

Another reason is that nicotine raises the rate at which one's body burns calories, so one burns fewer calories when one stops smoking. However, smoking is a serious health risk and quitting is more important than possible weight gain.

Age - As one gets older, one tends to lose muscle, especially if less active. Muscle loss can slow down the rate at which the body burns calories. If there is no reduction in calorie intake as one gets older, weight gain becomes a reality.

Midlife weight gain in women is mainly due to aging and lifestyle, but menopause also plays a role. Many women gain about 2 to 3kg during menopause and have more fat around the waist than they did before.

[Picture Credit: Abdominal Obesity]

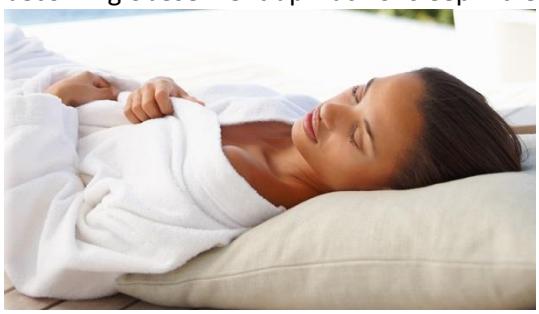
Many middle-aged men also develop abdominal obesity by not balancing energy IN and energy OUT.

Pregnancy - During pregnancy, women gain weight in the process of supporting their babies' growth and development.

[Picture Credit: Postnatal Weight Gain]

After giving birth, some women find it hard to lose weight. This may lead to overweight or obesity, especially after a few pregnancies.

Lack of Sleep - Research shows that lack of sleep increases the risk of obesity. For example, one study of teenagers showed that with each hour of sleep lost, the odds of becoming obese went up. Lack of sleep increases the risk of obesity in other age groups as well.



People who sleep fewer hours also seem to prefer eating foods that are higher in calories and carbohydrates, which can lead to overeating, weight gain and obesity.

[Picture Credit: Sleep]

Sleep helps maintain a healthy balance of the hormones that make one feel hungry (ghrelin) or full (leptin). When not getting enough sleep, the level of ghrelin goes up and the level of leptin goes down. This makes the person feel hungrier than when well-rested.

Sleep also affects how the body reacts to insulin, the hormone that controls blood glucose (sugar) level. Lack of sleep results in a higher than normal blood sugar level, which may increase the risk for diabetes.
(National Heart, Lung and Blood Institute; Web MD; Harvard School of Public Health; Stanford Hospital and Clinics; Mayo Clinic; Life is Beautiful).

How to Prevent Being Overweight or Obese

The best way to prevent being overweight or becoming obese is to eat a healthy diet of at least five portions of vegetables or fresh fruit (in season) as well as to be physically active.

Preventing Obesity in Infants

The longer babies are breastfed, the less likely they are to become overweight and obese as they grow older. Breastfed babies are 15 to 25% less likely to become overweight. For those who are breastfed for six months or longer, the likelihood is 20 to 40% less.

[Photo Credit: Himba Woman and Child]

Many formula-fed babies grow up to be adults of healthy weight. If a child was not breastfed, it does not mean that he or she cannot achieve a healthy weight.

Preventing Overweight and Obesity in Children and Adolescents

Young people generally become overweight or obese because they do not get enough physical activity in combination with poor eating habits. Genetics and lifestyle also contribute to a child's weight status.

There are a number of steps one can take to help prevent overweight and obesity during childhood and adolescence. This includes:

- Gradually work to change family eating habits and activity levels rather than focusing on weight. Change the habits and the weight will take care of itself.
- Be a role model - parents who eat healthy foods and are physically active set an example that increases the likelihood their children will do the same.
- Encourage physical activity for the whole family - children should have an hour of moderate physical activity most days of the week. More than an hour of activity may promote weight loss and subsequent maintenance.

[Photo Credit: Adolescents]

- Reduce screen time - this means reducing time spent in front of the TV, computer and video games to less than two hours a day.
- Encourage children to only eat when they are hungry. It is also important to eat slowly.
- Avoid using food as a reward or withholding food as a punishment.
- Keep the refrigerator well stocked with fat-free or low-fat milk and vegetables and fresh fruit (in season) instead of sugary drinks and snacks high in sugar and fat
- Serve at least five servings of vegetables and fresh fruit (in season) daily
- Encourage children to drink water rather than beverages with added sugar, such as soft drinks, sports drink and fruit juice drinks

Preventing Overweight and Obesity in Adults

Many of the strategies that produce successful weight loss and maintenance will help prevent overweight and obesity. Improving eating habits and increasing physical activity play a vital role in preventing overweight and obesity. Things that can be done include:

- Eat at least five portions of fresh fruit (in season) and vegetables each day. A vegetable serving is one cup of raw vegetables or one-half cup of cooked vegetables or vegetable juice. A fruit serving is one piece of small to medium fresh fruit (in season) or fresh fruit juice, or a quarter cup of dried fruit.
- Select whole grain foods such as brown rice and whole wheat bread. Avoid processed foods especially those made with refined sugar, flour and saturated fat.
- Start off by weighing and measuring food to gain an understanding of portion sizes. For example, a adequate serving of meat is the size of the palm of one's own hand. Avoid super-sized menu items particularly at fast-food restaurants. One can achieve a lot just with smart choices in serving sizes.
- Balance the food 'check book'. Eating more calories than one burns for energy will lead to weight gain.
- Get on a scale regularly to check weight.
- Avoid foods that are high in 'energy density' or that have a lot of calories in a small amount of food. For example, a large cheeseburger and a large order of potato fries may have almost 1 000 calories and 30g or more of fat. By ordering a grilled chicken sandwich or a plain hamburger and a small salad with low-fat dressing, one can avoid hundreds of calories and eliminate much of the fat intake. For desert, have a portion of fruit.

- Avoid or limit fizzy sugary drinks - one tin of sugar sweetened beverage (350ml) contains more than 40g of sugar (equals 6-7% of one day's energy intake). Ideal added sugar intake is between 5-6% energy intake per day.

- Be physically active up to cracking a sweat. Be involved in at least 30 minutes of moderate to vigorous physical activity on most, or preferably, all days of the week. An activity includes walking a 15-minute kilometre or weeding and hoeing the garden.

[Picture Credit: Obese Man]

- Rather climb the stairs than using the escalator or lift.
- Make opportunities during the day for a 10 to 15 minute of some calorie-burning activity, such as walking around the block or up and down a few flights of stairs at work. Every little bit helps.

Preventing Overweight and Obesity for the whole Family

- Be active - make personal and family time active
- Find activities that the whole family can join in - go for a brisk family walk around the block or work in the garden
- Encourage children to go bike riding or rollerblading
- Children's portion sizes should be smaller than those for adults
- Cut back on portion size that will help balance energy IN and energy OUT

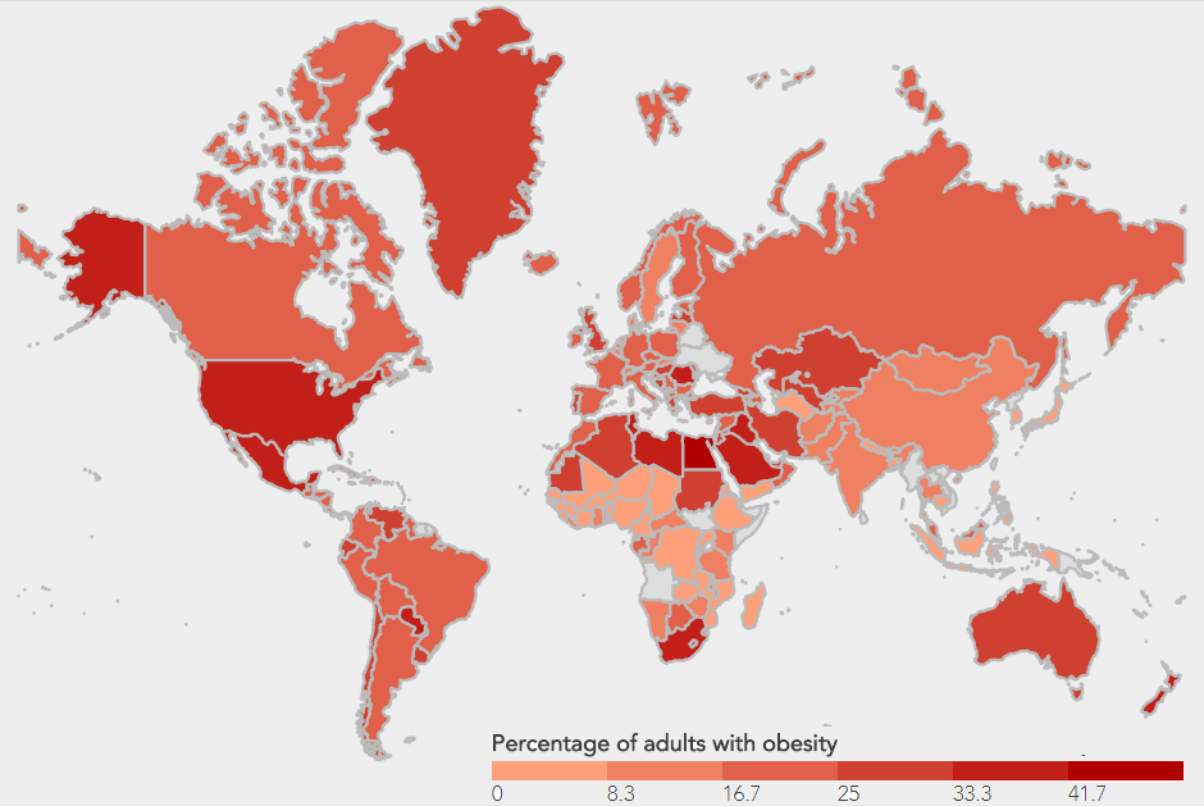
World Obesity Map

One might think the U.S. is the most obese nation in the world. Soaring rates of obesity in the Pacific Islands, nations in the South Pacific Ocean east of Australia and Fiji, have shot to the top of the worldwide obesity scale.

Previously it has been theorised that Pacific Islanders are genetically predisposed to obesity, but experts now say the introduction of Western diets to the islands are to blame for the problem.

American Samoa, found south of Samoa, tops the chart, with 75 per cent of the population reported as obese.

The position in South Africa is not good at all.

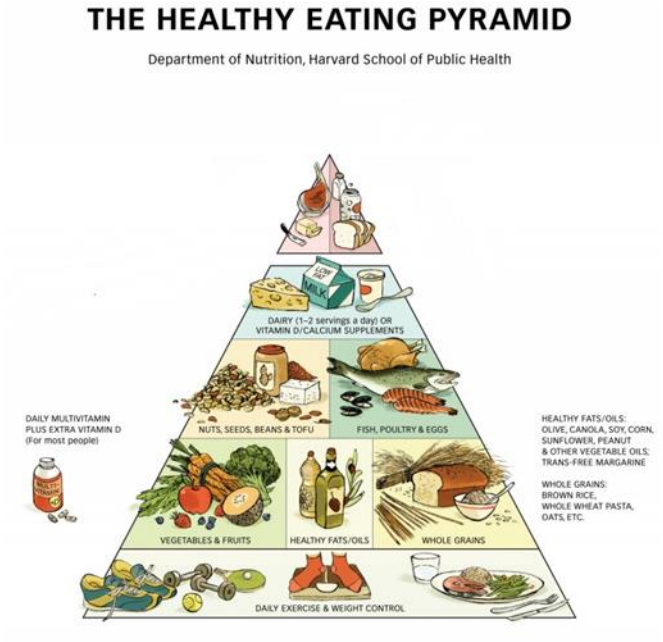


[Picture Credit: European Congress on Obesity - 2018]

An Example of a Healthy Eating Pyramid

The Harvard School of Public Health created the Healthy Eating Pyramid, and updated it in 2008. The Healthy Eating Pyramid is based on the best available scientific evidence about the links between diet and health. The Healthy Eating Pyramid sits on a foundation of daily exercise and weight control. Why? These two related elements strongly influence one's chances of staying healthy. They also affect what one eats and how food affects one.

[Picture Credit: Harvard School of Public Health]



Exercise and weight control are linked through the simple rule of energy balance: Weight change = kilojoules in – kilojoules out. If one burns as many calories as one takes in each day, there is nothing left over for storage in fat cells, and weight remains the same. Eating more than one burns, ends up adding fat and kilograms. Regular exercise can help control one's weight, and it is a key part of any weight-loss effort.

Medical Disclaimer

This Fact Sheet is intended to provide general information only and, as such, should not be considered as a substitute for advice, medically or otherwise, covering any specific situation. Users should seek appropriate advice before taking or refraining from taking any action in reliance on any information contained in this Fact Sheet. So far as permissible by law, the Cancer Association of South Africa (CANSA) does not accept any liability to any person (or his/her dependants/ estate/heirs) relating to the use of any information contained in this Fact Sheet.

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