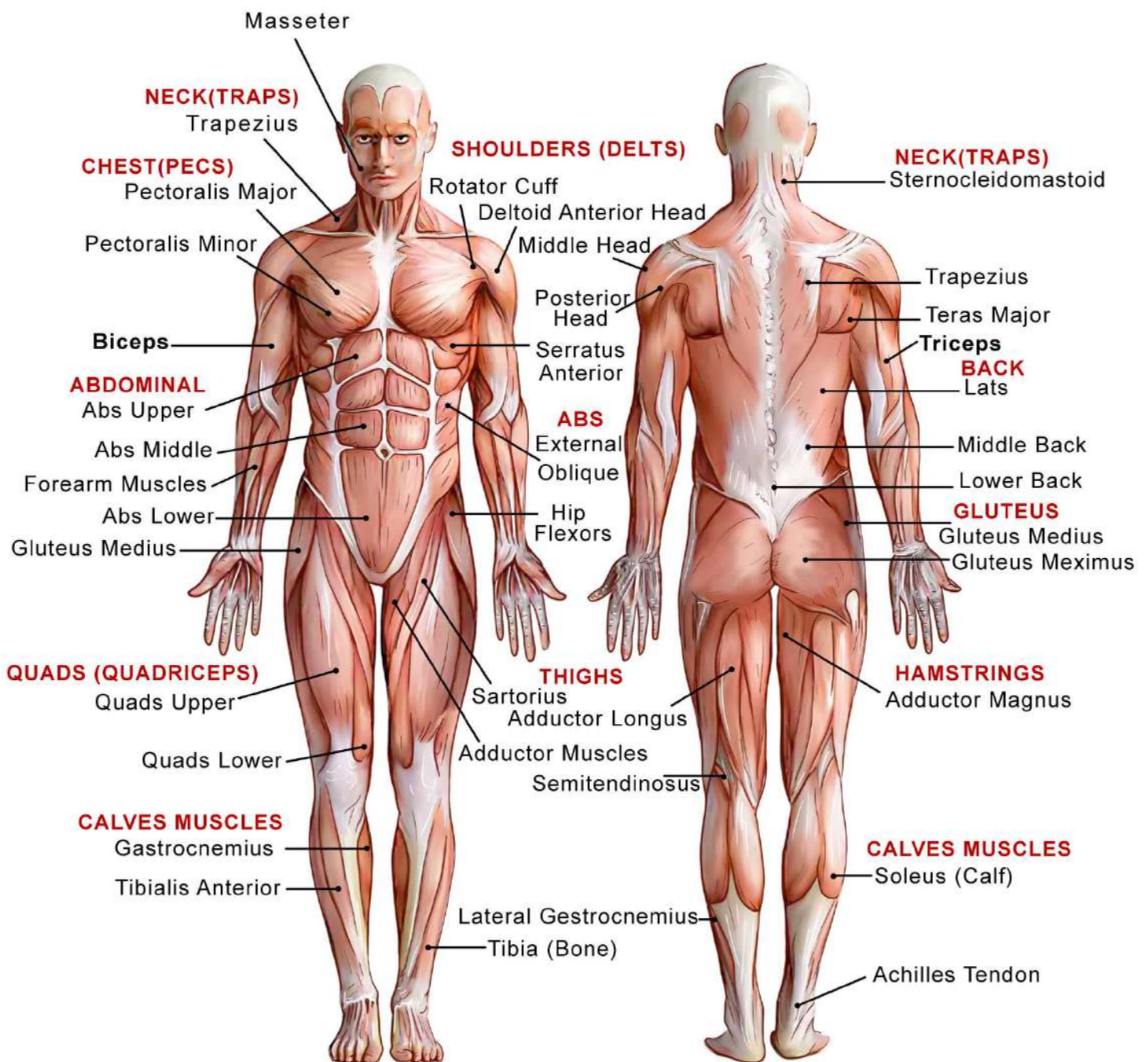


HUMAN BODY MUSCLES ANATOMY DIAGRAM

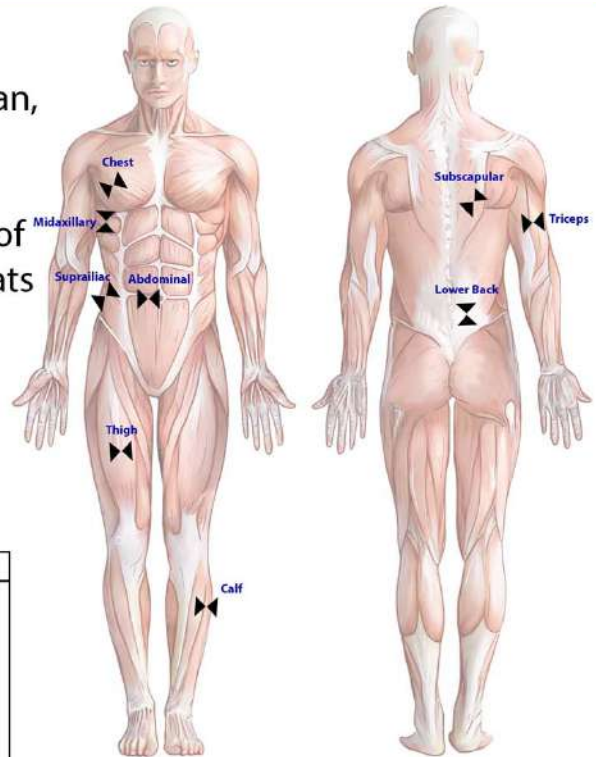


BODY FAT PERCENTAGE

What Body Fat Suitable to your Body:

If you are getting leaner by working out and eating clean, you might be wondering when you'll start to see your abs pop. its all about your overall body fat percentage. Your body fat percentage represents the total amount of fat mass you have. This consist of two types, essential fats and storage fats.

You can have body fat percentage measured by taking skinfold measurements, keeping in mind that this will give you a rough estimate of your fat body mass, NOT 100% accurate. **Example is given below>**



9 Body Sites Skinfolds

Abdominal	Chest	Midaxillary	Bicep or Triceps	Suprailiac
9.5 MM	7 MM	9.5 MM	2 MM	3.5 MM

Thigh	Calf	Subscapular	lower back	Measurements Fronts & Back
6 MM	2 MM	10 MM	6 MM	9 specs total: 55.5 MM



Tool: Body Fat Caliper

How to calculate body fat percentage: with Body Fat Caliper in MM

- 1: 9 sites, Abdominal, Chest, Midaxillary, Biceps/Triceps, Suprailiac, Thigh, Calf , Subscapular, Lower Back.
- 2: Take all 9 sites in MM, divide to body weight (LB) $55.5 / 160 (72.75 \text{ kg}) = 0.34\%$
- 3: Multiply calculated figure to 0.27, so $0.34 \times 0.27 = 0.091$
- 4: Multiply calculated figure to body weight: $0.091 \times 160 = 14.5$ (This is storage fat in LBs)
- 5: So lean body mass will be: Body Weight - Storage Fat, $160 - 14.5 = 145.5 \text{ LB (66 KG)}$
- 6: So to show your Abs you should loose: $14.5 / 2.2 = 6.5 \text{ KG}$

NOTE: To convert KG to LB multiply to 2.2 and convert LB to KG divide to 2.2

IDEAL BODY FAT PERCENTAGE CHART		
Description	Men	Women
Essential fat	2-5%	10-13%
Athletes	6-13%	14-20%
Fitness	14-17%	21-24%
Average	18-24%	25-31%
Obese	25%+	32%+



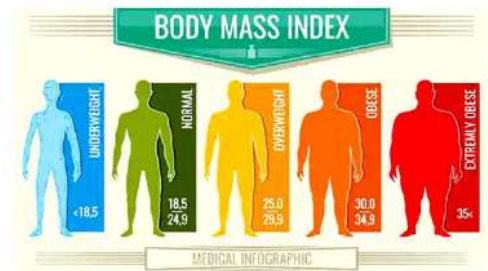
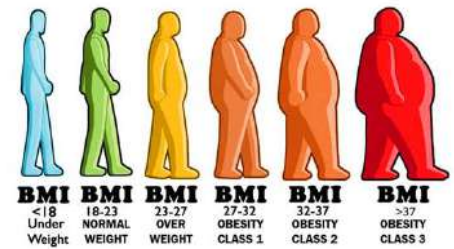
BODY MASS INDEX (BMI)



BODY MASS INDEX (BMI) is a value derived from the mass (weight) and height of a person. The BMI is defined as the body mass divided by the square of the body height, and is universally expressed in units of kg / m^2 , resulting from mass in kilograms and height in meters

For Example: A person height: 5 ft, 7 in (67 inch)
Height in meter: $67 / 39.37 = 1.7$ meters
Weight: 72 KG

$$\text{BMI} = W / H^2, 72 / 1.7 \times 1.7 = 24.9 \text{ BMI}$$



Underweight (<18.5 kg/m^2)	Healthy weight (18.5 - 24.9 kg/m^2)	Overweight (25 - 29.9 kg/m^2)	Obese Class I (30 - 34.9 kg/m^2)	Obese Class II (35 - 39.9 kg/m^2)	Obese Class III (> 40 kg/m^2)
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lbs	4' 10"	4' 11"	5' 0"	5' 1"	5' 2"	5' 3"	5' 4"	5' 5"	5' 6"	5' 7"	5' 8"	5' 9"	5' 10"	5' 11"	6' 0"	6' 1"	6' 2"	6' 3"	kgs
100	20.9	20.2	19.6	18.9	18.3	17.8	17.2	16.7	16.2	15.7	15.2	14.8	14.4	14.0	13.6	13.2	12.9	12.5	45.5 kgs
105	22.0	21.3	20.5	19.9	19.2	18.6	18.1	17.5	17.0	16.5	16.0	15.5	15.1	14.7	14.3	13.9	13.5	13.2	47.7 kgs
110	23.0	22.3	21.5	20.8	20.2	19.5	18.9	18.3	17.8	17.3	16.8	16.3	15.8	15.4	14.9	14.5	14.2	13.8	50 kgs
115	24.1	23.3	22.5	21.8	21.1	20.4	19.8	19.2	18.6	18.0	17.5	17.0	16.5	16.1	15.6	15.2	14.8	14.4	52.3 kgs
120	25.1	24.3	23.5	22.7	22.0	21.3	20.6	20.0	19.4	18.8	18.3	17.8	17.3	16.8	16.3	15.9	15.4	15.0	54.5 kgs
125	26.2	25.3	24.5	23.7	22.9	22.2	21.5	20.8	20.2	19.6	19.0	18.4	18.0	17.5	17.0	16.5	16.1	15.7	56.8 kgs
130	27.2	26.3	25.4	24.6	23.8	23.1	22.4	21.7	21.0	20.4	19.8	19.2	18.7	18.2	17.7	17.2	16.7	16.3	59.1 kgs
135	28.3	27.3	26.4	25.6	24.7	24.0	23.2	22.5	21.8	21.2	20.6	20.0	19.4	18.9	18.3	17.8	17.4	16.9	61.4 kgs
140	29.3	28.3	27.4	26.5	25.7	24.9	24.1	23.3	22.6	22.0	21.3	20.7	20.1	19.6	19.0	18.5	18.0	17.5	63.6 kgs
145	30.4	29.3	28.4	27.5	26.6	25.7	24.9	24.2	23.5	22.8	22.1	21.5	20.8	20.3	19.7	19.2	18.7	18.2	65.9 kgs
150	31.4	30.4	29.4	28.4	27.5	26.6	25.8	25.0	24.3	23.5	22.9	22.2	21.6	21.0	20.4	19.8	19.3	18.8	68.2 kgs
155	32.5	31.4	30.3	29.3	28.4	27.5	26.7	25.8	25.1	24.3	23.6	22.9	22.3	21.7	21.1	20.5	19.9	19.4	70.5 kgs
160	33.5	32.4	31.3	30.3	29.3	28.4	27.5	26.7	25.9	25.1	24.4	23.7	23.0	22.4	21.7	21.2	20.6	20.0	72.7 kgs
165	34.6	33.4	32.3	31.2	30.2	29.3	28.4	27.5	26.7	25.9	25.1	24.4	23.7	23.1	22.4	21.8	21.2	20.7	75 kgs
170	35.6	34.4	33.3	32.2	31.2	30.2	29.2	28.3	27.5	26.7	25.9	25.2	24.4	23.8	23.1	22.5	21.9	21.3	77.3 kgs
175	36.7	35.4	34.2	33.1	32.1	31.1	30.1	29.2	28.3	27.5	26.7	25.9	25.2	24.5	23.8	23.1	22.5	21.9	79.5 kgs
180	37.7	36.4	35.2	34.1	33.0	32.0	31.0	30.0	29.1	28.3	27.4	26.6	25.9	25.2	24.5	23.8	23.2	22.5	81.8 kgs
185	38.7	37.4	36.2	35.0	33.9	32.8	31.8	30.8	29.9	29.0	28.2	27.4	26.6	25.9	25.1	24.5	23.8	23.2	84.1 kgs
190	39.8	38.5	37.2	36.0	34.8	33.7	32.7	31.7	30.7	29.8	28.9	28.1	27.3	26.6	25.8	25.1	24.4	23.8	86.4 kgs
195	40.8	39.5	38.2	36.9	35.7	34.6	33.5	32.5	31.5	30.6	29.7	28.9	28.0	27.3	26.5	25.8	25.1	24.4	88.6 kgs
200	41.9	40.5	39.1	37.9	36.7	35.5	34.4	33.4	32.3	31.4	30.5	29.6	28.8	28.0	27.2	26.4	25.7	25.1	90.9 kgs
205	42.9	41.5	40.1	38.8	37.6	36.4	35.3	34.2	33.2	32.2	31.2	30.3	29.5	28.7	27.9	27.1	26.4	25.7	93.2 kgs
210	44.0	42.5	41.1	39.8	38.5	37.3	36.1	35.0	34.0	33.0	32.0	31.1	30.2	29.4	28.5	27.8	27.0	26.3	95.5 kgs
215	45.0	43.5	42.1	40.7	39.4	38.2	37.0	35.9	34.8	33.7	32.8	31.8	30.9	30.0	29.2	28.4	27.7	26.9	97.7 kgs
220	46.1	44.5	43.1	41.7	40.3	39.1	37.8	36.7	35.6	34.5	33.5	32.6	31.6	30.7	29.9	29.1	28.3	27.6	100 kgs
225	47.1	45.5	44.0	42.6	41.2	39.9	38.7	37.5	36.4	35.3	34.3	33.3	32.4	31.4	30.6	29.7	28.9	28.2	102.3 kgs
230	48.2	46.6	45.0	43.5	42.2	40.8	39.6	38.4	37.2	36.1	35.0	34.0	33.1	32.1	31.3	30.4	29.6	28.8	104.5 kgs
235	49.2	47.6	46.0	44.5	43.1	41.7	40.4	39.2	38.0	36.9	35.8	34.8	33.8	32.8	31.9	31.1	30.2	29.4	106.8 kgs
240	50.3	48.6	47.0	45.4	44.0	42.6	41.3	40.0	38.8	37.7	36.6	35.5	34.5	33.5	32.6	31.7	30.9	30.1	109.1 kgs
245	51.3	49.6	47.9	46.4	44.9	43.5	42.1	40.9	39.6	38.5	37.3	36.3	35.2	34.2	33.3	32.4	31.5	30.7	111.4 kgs
250	52.4	50.6	48.9	47.3	45.8	44.4	43.0	41.7	40.4	39.2	38.1	37.0	35.9	34.9	34.0	33.1	32.2	31.3	113.6 kgs
255	53.4	51.6	49.9	48.3	46.7	45.3	43.9	42.5	41.2	40.0	38.9	37.7	36.7	35.6	34.7	33.7	32.8	31.9	115.9 kgs
	147.3 cms	149.9 cms	152.4 cms	154.9 cms	157.5 cms	160 cms	162.6 cms	165.1 cms	167.6 cms	170.2 cms	172.7 cms	175.3 cms	177.8 cms	180.3 cms	182.9 cms	185.4 cms	188 cms	190.5 cms	

BASAL METABOLIC RATE (BMR)

Definition

Many weight loss and exercise guides use the terms basal metabolic rate (BMR) and resting metabolic rate (RMR) interchangeably.

Basal Metabolic Rate

A measurement of the number of calories needed to perform your body's most basic (basal) functions, like breathing, circulation and cell production. Resting Metabolic Rate

A measurement of the number of calories that your body burns at rest. Resting metabolic rate is usually measured in the morning before you eat or exercise and after a full night of restful sleep.

The amount of calories used in a day (Calories Out) is more accurately termed total energy expenditure (TEE) – the sum of basal metabolic rate (BMR), thermogenic effect of food (TEF), non-exercise activity thermogenesis (NEAT), excess post-exercise oxygen consumption (EPOC) and, of course, exercise.

$$TEE = BMR + TEF + NEAT + EPOC + \text{Exercise}$$

NEAT is the energy used in activity other than sleeping, eating or exercise; for instance, in walking, gardening, cooking, cleaning and shopping. TEF is the energy used in digestion and absorption of food energy. Certain foods, such as dietary fat, are easily absorbed and take very little energy to metabolize. Proteins are harder to process and use more energy. TEF varies according to meal size, meal frequency and macronutrient composition. Excess post-exercise oxygen consumption (EPOC—also called after-burn) is the energy used in cellular repair, replenishment of fuel stores and other recovery activities after exercise.

So now our equation looks like this

$$\text{Fat gained} = \text{Calories In} - BMR - NEAT - TEF - EPOC - \text{Exercise}$$

All of these are highly variable depending upon genetics, gender, age, weight, height, diet, body temperature, external temperature, cognition, new bone/protein/muscle synthesis, and organ function. Exercise is the same. Sure, it's important for a number of very good reasons. But we can't expect it to produce significant weight loss. It's a minor player. Emphasizing exercise detracts from the real issue of dietary problems.

BASAL METABOLIC RATE

For men: $BMR = 10 \times \text{weight (kg)} + 6.25 \times \text{height (cm)} - 5 \times \text{age (years)} + 5$

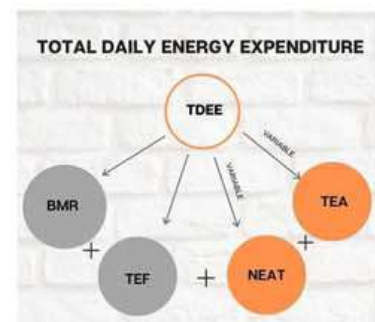
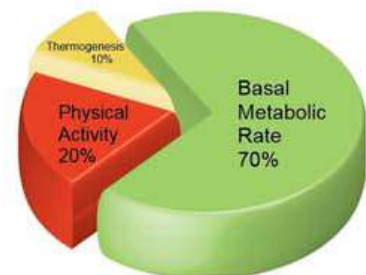
For women: $BMR = 10 \times \text{weight (kg)} + 6.25 \times \text{height (cm)} - 5 \times \text{age (years)} - 161$

BMR Example:

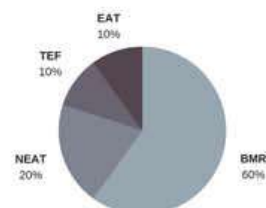
$$BMR = 10 \times 76 + 6.25 \times 170 - 5 \times 31 + 5$$

$$= 760 + 1063 - 155 + 5 =$$

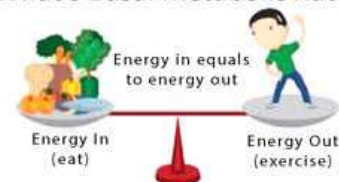
So BMR would be: 1673 calories



T.D.E.E



What's Basal Metabolic Rate



MEN

$$BMR = 66.47 + (6.24 \times \text{weight in lbs}) + (12.7 \times \text{height in inches}) - (6.755 \times \text{age})$$



WOMEN

$$BMR = 655.1 + (4.35 \times \text{weight in lbs}) + (4.7 \times \text{height in inches}) - (4.7 \times \text{age})$$

CALORIE DEFICIT



Calories—Basic Facts

A calorie is a unit of energy. It is the amount of heat needed to raise the temperature of one gram of water by one degree Celsius. Calories in food provide energy in the form of heat so that our bodies can function even when they are at rest.

What Is a Calorie and Why Do We Count Them?

The total number of calories you burn each day is called your total daily energy expenditure or TDEE. When TDEE is calculated, it includes:

- Calories burned through exercise and non-exercise movement
- Calories burned during digestion (called the thermic effect of food or TEF)
- Calories you burn to maintain basic bodily functions such as breathing and blood circulation

In order to figure out how many calories your body needs to perform basic functions, you can estimate your resting metabolic rate (RMR). Once you know your RMR you can use a calculator to estimate your total daily energy expenditure. You can also get it tested in a lab setting or health club.

Calculate Your Total Daily Energy Expenditure (TDEE)

What Is a Calorie Deficit?

Many people consume more calories than they need to maintain their weight each day. When you consistently eat more calories than your body needs, the extra calories are stored as fat. So how do you get rid of extra fat and lose weight? You create a calorie deficit. This energy deficit happens when you eat less during the day. If your body doesn't get the calories it needs to perform all of its necessary functions, you create a calorie deficit. When you create a calorie deficit, your body gets energy or fuel from stored fat.

The Proper Calorie Deficit to Lose Weight

While it seems simple to create a calorie deficit and lose weight, You need to create a specific energy deficit for weight loss to happen. Researchers estimate that you need a calorie deficit of 3500 calories per week to lose one pound of fat. That seems like a lot of calories, doesn't it? While the total number seems high, the weekly energy deficit can be broken down into daily deficits to make weight loss more manageable. If you create a calorie deficit of 500 calories per day, you'll reach a total deficit of 3500 calories per week.

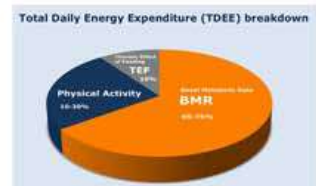
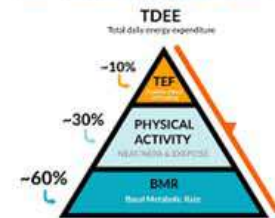
How to Create a Calorie Deficit

So how do you create a deficit of 500 calories per day or 3500 calories per week? You don't have to starve yourself with a trendy diet or juice fast. In fact, there are three healthy ways to create a calorie deficit for weight loss.

- **Eat less food.** If you cut your portion sizes, cut back on snacking and choose lower-calorie foods at mealtime, you'll consume fewer calories each day. If you reduce your caloric intake enough, you'll create a calorie deficit large enough for weight loss.
- **Get more active.** The number of calories your body needs each day depends on your activity level. If you increase the number of calories your body needs, but still consume the same number of calories from food, you'll reach a calorie deficit.
- **Combine diet and exercise.** Most successful dieters combine diet and exercise to lose weight. That means that they might eat 250 fewer calories each day and then go for a 60-minute brisk walk to burn an additional 250 calories. It doesn't matter which plan you choose to create an energy deficit.

Calorie Surplus

When you are eating more calories than you are burning. Gaining weight requires a calories surplus. When you enter this state, and uses it to either make you more muscular (if you are working out) or build up body fat.



1 CALORIE DEFICIT

• FAT LOSS • SLOW RATES OF MUSCLE GAIN
Yes, you can build muscle in a deficit, but won't be optimal.

2 CALORIE MAINTENANCE

• ZERO FAT LOSS • MUSCLE GAIN
You can only lose body fat in a calorie deficit.

3 CALORIE SURPLUS (SMALL)

• ZERO FAT LOSS • FAST (ER) MUSCLE GAIN • SOME FAT GAIN
You'll be in a surplus, i.e. an excess of calories, you'll gain some fat.

4 CALORIE SURPLUS (LARGE)

• ZERO FAT LOSS • FAST (ER) MUSCLE GAIN • LOTS OF FAT GAIN
You can't force-feed muscle growth. You'll get very fat.



let's get **active**



DIET PLANS



Low-carb diets have been popular for decades — especially for weight loss. All involve limiting carb intake to 20–150 grams per day. The primary aim of the diet is to force your body to use more fats for fuel instead of using carbs as a main source of energy. How it works: Low-carb diets emphasize unlimited amounts of protein and fat while severely limiting your carb intake. When carb intake is very low, fatty acids are moved into your blood and transported to your liver, where some of them are turned into ketones. Your body can then use fatty acids and ketones in the absence of carbs as its primary energy source.

Intermittent fasting cycles your body between periods of fasting and eating. Rather than restricting the foods you eat; it controls when you eat them. Thus, it can be seen as more of an eating pattern than a diet.

The 16/8 method: Involves skipping breakfast and restricting your daily eating period to eight hours, subsequently fasting for the remaining 16 hours of the day.

The eat-stop-eat method: Involves 24-hour fasts once or twice per week on non-consecutive days.

The 5:2 diet: On two non-consecutive days of the week, you restrict your intake to 500–600 calories. You do not restrict intake on the five remaining days.

ultra-low-fat diet restricts your consumption of fat to under 10% of daily calories. Generally, a low-fat diet provides around 30% of its calories as fat. Studies reveal that this diet is ineffective for weight loss in the long term. Proponents of the ultra-low-fat diet claim that traditional low-fat diets are not low enough in fat and that fat intake needs to stay under 10% of total calories to produce health benefits and weight loss.

Carb Cycling, In order to optimize carb intake, some people now "cycle" their carbohydrates. This is known as carb cycling. Carb cycling is a dietary approach in which you alternate carb intake on a daily, weekly or monthly basis. It is commonly used to lose fat, maintain physical performance while dieting, or overcome a weight loss plateau. Some people adjust their carb intake day-to-day, Protein is usually similar between days, whereas fat intake varies based on the carb intake. A high-carb day normally means low-fat, whereas the low-carb days are high-fat.

The ketogenic diet (or keto diet, for short) is a low-carb, high-fat diet that offers many health benefits. It involves drastically reducing carbohydrate intake and replacing it with fat. This reduction in carbs puts your body into a metabolic state called ketosis. When this happens, your body becomes incredibly efficient at burning fat for energy. It also turns fat into ketones in the liver, which can supply energy for the brain.

A balanced diet, you need eat a range of foods to get all of the nutrients and fibre your body needs. There are five main groups. First starchy foods, which include bread, pasta, rice and potatoes. Second, fruits and vegetables. Third, milk and other dairy foods. Fourth, meat, fish, eggs, beans and other non-dairy sources of protein.

Macro will be divided into, 10% Fats, 25% Protein, 25% Fibre-rich carbohydrates, and 40% Fruits and vegetables.

LOW CARB DIET



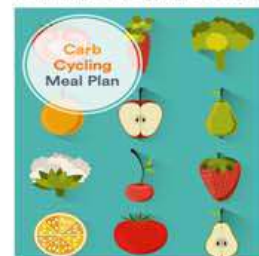
INTERMITTENT FASTING



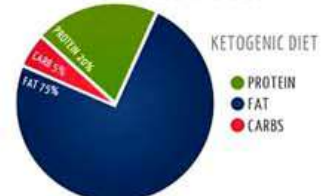
ULTRA-LOW-FAT DIET



CARB CYCLING DIET



THE KETO DIET



BALANCED DIET

