WEIGHTLOSS THROUGH DIET & EXERCISE

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A. INTRODUCTION TO WEIGHT LOSS THROUGH DIET & EXERCISE

In these cases where the individual is beyond the weight range, certainly the excess weight/fat should be reduced by resorting to a reduced calorie intake (i.e. diet moderation) & increased calorie expenditure (i.e. exercise activity).

In this chapter, we advocate two tried and tested Nutritional Weight Loss Methods; the Low Calorie Method, and the High Fibre Method. We also mention without recommendation various fad diet that are frequently advocated, but which have dubious medical support and highlight diets that have proven to be effective and also nutritionally appropriate.

For exercise activity, we have suggested aerobic activity as well as strength building exercise, and have also included other exercise systems for maintaining overall good health.

B. DIET REDUCING METHODS

The person should be put in a negative energy balance, ideally 500-1000 calories less than their metabolic needs. An ideal reduction of 500g – 1 kg / week weight loss is recommended. Once the target weight is fixed, progress should be checked once a week, to keep track of progress and changes made wherever required. Usually 3 kgs are lost in the first month largely due to utilization of carbohydrate store and water. Accordingly, reducing diets should be well balanced and provide adequate amounts of proteins, vitamins, minerals, fiber and less fats.

i. LOW CALORIE METHOD

Weight should conform to height as per the height / weight chart. If above the range, reduce by a combination of exercises and diet as follows:

1. Maximum calorie intake should not exceed current weight in kgs x this is Sedentary Metabolic rate.
2. If you are to lose weight, do an hour exercise daily and reduce calorie intake to between 1000 – 1500 calories daily.
3. Do not reduce calorie intake by more than 500 calories daily from maximum intake g., (weight = 80 kgs, therefore maximum calorie intake = 80 x 24 = 1920; therefore, prescribed reduction = 1920 – 500 = 1420 calories).
4. Beyond the above calculation, do not go below 1000 calories ever, don’t exceed 1500 calories.

5. When you achieve correct weight, consumption of calories should be correct weight x 24 plus daily exercise.
6. Do 1 hour (500 calorie) exercise output daily.
7. Approx calorie chart of foods follows:

Name	Quantity	Calories	Name	Quantity	Calories
Nuts			**Snacks**		
Apricots	15 gm	306	Dal wada	30	200
Dates/currants	15	317	Pakoda	1	200
Figs	20	55	Samosa	1	256
Walnuts	15 gm	102	Potato chips	10 pcs	110
Raisins	20	315	Tapioca chips	100 gms	570
Sweets			Dahi wada	1	364
Barfi	1 pc	100	Meat puff	1	200
Halwa	1 pc	570	Mathri	1 Large	420
Gulab Jamun	1 pc	100	Godam Ponga	1	356
Jalebi	1 pc	200	Muruku	2 pcs	583
Mysore Pak	1 pc	357	Namak Para	2 pcs	326
Rasogolla	1 pc	150	Papad (grilled)	1	25
Ladoo	40 gms	250	Papad (fried)	1	43
Petha	40 gms	250	Bhel puri	1 cup	280
Baln shah	40 gms	250	Papri	1 plate	25
Imarti	40 gms	250	Pani Puri	1 plate	125
Patisa	40 gms	250	**Drinks**		
Mesu	40 gms	250	Apple Juice Cider	1 bottle	95
Rasmalai	40 gms	250	Coffee without sugar	1 cup	25
Sohan Halwa	40 gms	250	Coconut Water	1 glass	50
Malpua	40 gms	250	Orange Juice	1 glass	95
Meat			Tomato Juice	1 glass	45
Cooked in oil (1 tbsp) with spices, onions, tomatoes	1 cup	250	Tea without sugar	1 cup	22
Fish (boiled)	1 cup	100	**Beverages**		
Mutton(boiled)	1 cup	100	Coke	1 bottle	95
Ham	1 thick slice	100	Lime Juice	2 tbsp	35
Chicken	1 cup	220	Ginger ale	1 bottle	75
Mutton chops	1	100	**Alcoholoc Drinks**		
Tandoori Chicken	2 pcs	250	Beer	1 glass	100
Fish fingers	3 pcs	162	Brandy	1 peg	70
Sheekh Kababs	2 pcs	300	Dry Wines	1 wine glass	75

Crab					
Shrimps(Fried & rolled)	2 cups	67	Champagne	1 glass	115
Bread, Roti & rice	1.5 cup	190	Whisky Rum	1 peg 1 peg	75 75
Bread	1 slice	60	Ginger ale	1 peg	105
Paratha	1	100	**Oil**		
Phulka	1	75	Vegetable oil	1 tbsp	130
Rice Plain	1 cup	120	Salad oil	1 tbsp	125
Fried Rice	1 cup	250	**Milk & Milk Products**		
Eggs			Milk	1 cup	100
Fried	1	100	Condensed Milk	1 cup	320
Omelette	1	110	Skimmed Milk	1 cup	45
Poached or boiled	1	80	Skimmed Buttermilk	1 glass	60
Miscellaneous			Curd	1 cup	60
Jam	1 tbsp	100	Khoa	1/2 cup	206
Marmalade	1 tbsp	100	Butter	1 tbsp	120
Honey	1 tbsp	30	Ice cream	1 scoop	114
Horlicks	2 tbsp	41	Shredded cheese	1/2 cup	150
Ovaltin Bournvita	3 tbsp	38	Blue cheese	1/2 cup	100
Mango Pickles	1 pc	65	Cheese	1/2 cup	82
Sugar	1 tbsp	60	Cottage Cheese	1 tsp	16

There are several calorie charts published which give you the calorie value of various food preparations and these may be all referred to in order to establish the calorie value of food eaten by you**.** A sample 1500 calorie per day chart is mentioned below

Meal	**Item**	**Total Calories**
Bed Tea	1 cup tea with no sugar	20
Breakfast	2 Chapattis 1 katori curry Or 1 masala dosa / 2 idlis	275
Lunch	1 cup cooked rice, or 3 chapattis, 1 cup dal/ sambar 1 cup curry, 1 cup salad/curd 1 Fruit	600
Evening Tea	1 cup tea with milk, no sugar	20
Dinner	1 cup cooked rice or 3 chapattis, 1 cup dal/ sambar 1 cup curry, 1 cup salad/curd	500
Nightcap	1 cup milk	75

Principles of dietetic management with low calories

Normal protein, vitamin and mineral, restricted carbohydrate, restricted fat, liberal fluid, and high fiber diets are given in cases of weight reduction by low calorie method.

Energy: Beyond the sedentary metabolic rate method above, generally about 20 kcal per kg ideal body weight is prescribed for a sedentary person and 25 kcal for a moderately active worker. A diet that provides 800 to 1000 kcal below the daily requirement leads to loss of 3 to 4 kgs monthly. This gradual loss does not result in severe hunger, nervous exhaustion and weakness that often accompany drastic reduction regimens. For most men 1400 to 1600 kcal diet for weight loss is advised and for women 1200 to 1400 kcal are indicated. Diets that supply 1000 kcal or less are rarely necessary except for individuals who are bedridden. In many elder people satisfactory weight loss are achieved only when energy intake is limited to 1000 to 1200 kcal this is because of their reduced basal metabolism and reduced physical activity.

Proteins: About 1g of protein/kg body weight is prescribed during weight loss diets for tissue repair and for specific dynamic action.

Carbohydrates: High carbohydrate starch content foods like potatoes and rice are restricted. Sugar, which gives empty calories, should be totally avoided. Fruits rich in carbohydrate pulp like banana, mango, custard apple etc. should be avoided or taken in moderation. However carbohydrate foods rich in fibre, such as leafy vegetables and other plant foods should be encouraged.

Fat: Low fat or no fat diet should be given as calories are reduced. Foods rich in fat, like nuts and oil seeds, should be avoided. Skim milk should be the choice.

Vitamins and Minerals: With prolonged restriction of fats, there is likely to be a restriction of fat-soluble vitamins A and D, which may be supplemented. A multivitamin and multi mineral preparation of iron, salts and possibly calcium are indicated for diets containing 1000 kcal or less. Calories restricted diets for obese children may be planned with increasing mineral and vitamin requirement in mind. For these reasons diets used for them are usually less restricted. Restriction of sodium as common salt is helpful in weight reducing diet as excess sodium predisposes to retention of fluid.

Fluid: Fluids can be taken liberally as healthy kidneys excrete extra fluids. Alcohol, caffeine, aerated drinks should be avoided. Also a glass of water before meals helps to cut down food intake.

High Fiber

A menu loaded with high-fiber foods is generally very filling yet low in calories. For instance, five apples have about the same caloric content as a small candy bar. High – fiber items also absorb a lot of water, which makes you feel full and they appear and feel bulkier too, which psychologically can make you think that you are eating more food than your actual caloric intake. Furthermore, fiber- rich foods such as carrots, raw spinach, and wholegrain breads require more chewing than lighter foods. They take longer to eat, which

will help you eat less, too. Another major way that fiber appears to contribute to weight loss and overall health is through its absorption-delaying property. That high-fiber diet slows the absorption of intake of glucose, resulting in prolonged satiety.

High fiber low calorie foods like green leafy vegetables; fruits, vegetable salads, whole grain cereals and pulses can be included in the diet. Inclusion of high fiber foods in diets for obese people has many advantages. They are 1. Low in calorie density. 2. Foods like greens provide many vitamins and minerals 3. A high fiber diet promotes a feeling of satiety. 4. Helps in regulating bowel movements. 5. Reduces blood cholesterol. 6. Promotes chewing and decreases rate of ingestion. Higher intake of fiber automatically cuts down fat and calories. The British Nutrition Foundation (1990) has established the effectiveness of dietary fiber intake in achieving significant loss in body weights without any side effects.

ii. HIGH FIBRE LOW FAT METHOD

1. Limit fat (grams) to between 15-30 gms per day
2. Eat at least 50-75 grams of fibre per day.
3. Drink at least 1-cup dairy food (Skimmed milk, curd etc)
4. Eat at least 2 cups of fresh fruit or vegetable daily.
5. Avoid refined sugars & alcohol
6. Do not exceed 1500 calories; do not go below 1000 calories per day
7. Utilize 500 calories per day for exercise (i.e. 1 hour of exercise).
8. Approx fat and fibre content in Daily foods follow:

Items	Fat(gm)	Fiber(gm)	Item	Fat(gm)	Fibre(gm)
Almonds 1 cup	72	16	Bread wheat 1 pc	1	3
Apple 1 cup	0	8	Vegetable clear soup 1 cup	0	0
Apple juice 1 cup	0	0	Soup non-veg clear 1 cup	1	0
Banana 1	0	2	Soup thick veg 1 cup	0	2
Beans Baked 1 cup	1	10	Soup Thick Non-Veg 1 cup	5	0
Beans Cooked 1 cup	0	12	Butter 1btsp	5	0
Beef Lean 1 cup(60z)	32	0	Butter Milk Whole 1 cup	8	0
Beef Medium 1 cup(60z)	50	0	Butter Low Fat 1 cup	2	0
Beer 1 glass	0	0	Cabbage 1 cup	0	4
Beet root 1 cup	0	6	Carrot 1 cup	0	4
Biscuit 1 pc	5	1	Cashew nut 1 cup	32	4
Bread White 1 pc	1	1	Cauliflower 1 cup	0	2
Cereal Bran 1 cup	0	22	Jelly (1 tsp)	0	0
Cereal Flatus 1 cup	0	6	Lamb Lean (1 cup)(60z)	24	0
Cheese Cottage 1 cup	8	0	Lamb medium (1 cup)(60z)	50	0
Cheese Whole 1 cup	36	0	Lettuce(1 cup)	0	4
Chicken with skin 1 cup(60z)	20	0	Liquor (Rum/Whisky/Gin)(1 peg)	0	0
Chicken with no skin 1 cup (60z)	6	0	Nuts	60	9
Chocolate 1pc	18	0	Mango 1 piece	0	6

Chilli tomato sauce 1 tbsp	0	1	Fish (1cup)(60z)	24	0
Corn 1 cup	0	4	Margarine (1 tsp)	4	0
Crabmeat 1 cup(60z)	20	0	Mayonnaise (1 tsp)	4	0
Cream 1 tbsp	5	0	Milk Whole (1 cup)	5	0
Cucumber 1 cup	0	2	Milk Skimmed (1 cup)	1	0
Dates 1 cup	0	8	Mushroom (1 cup)	0	8
Egg 1 pc	5	0	Noodles (1 cup)	2	3
Bacon 1 strip	2	0	Oil Vegetables (1 tsp)	5	0
Tomatoes 1 pc	0	2	Onion (1 cup)	0	8
Walnuts 1 cup	64	8	Orange (1 pc)	0	4
Watermelon 1 cup	0	4	Orange juice (1 cup)	0	0
Wine 1 cup	0	0	Papaya (1 cup)	0	2
Yoghurt 1 cup	8	0	Peanut Butter (1 tsp)	8	1
Vegetable Salad Mixed (2 cup)	0	8	Peanuts (1 cup)	72	12
Egg white	0	0	Pear (1 pc)	1	4
Brinjal 1 cup	0	4	Peas (1 pc)	0	10
Flour Wheat (1 cup)	0	18	Pineapple (1 cup)	0	4
Flour White(1 cup)	0	4	Pork Lean (1 cup)(60z)	16	0
Fruit Cocktails (1 cup)	0	8	Pork Medium(1 cup)(60z)	46	0
Fruit juice (1 cup)	0	0	Potato (1 cup)	0	12
Grapes (1 cup)	0	4	Rice Brown(1 cup)	0	6
Greens (1 cup)	0	8	Rice White(1 cup)	0	2
Ham (1 cup)(	26	0	Sausage(1 cup)(60z)	36	0
Honey(1 tsp)	0	0	Soya bean (1 cup)	0	12
Ice cream (regular)	16	0	Spinach (1 cup)	0	4
Jam (1 tsp)	0	0	Sugar (1 tsp)	0	0

Sample High fibre Low fat Diet (Indian)

Meal	**Items**	**Fat (gm)**	**Fibre (gm)**
Early Morning	One cup juice	0	0
Breakfast	two chapattis	0	6
	One cup vegetables	0	8
	One cup milk	1	0
Lunch	One cup cooked rice	0	6
	One cup lentils	0	10
	One cup curry(veg.)	0	8
	One cup salad	0	8
	One fruit	0	8
Tea	One cup tea	1	0
Dinner	Two chapattis	0	6
	One cup dal		10
	One meat curry	10	0
	One cup salad	0	8

	One cup curd	8	0
	Two sppons oil for cooking	10	0
	(Total)	30	78

Foods to Generally Restrict and Avoid

While on a diet and even otherwise, in order to maintain good health, the following foods may be restricted.

High-Fat Foods: butter, margarine, cheese, chocolate, cream, ice cream, fat meat, fatty fish, or fish canned in oil, fried foods of any kind such as doughnuts and potato chips, gravies, nuts, oil, pastries, and salad dressing.

Simple Carbohydrate Foods: breads of any kind, candy cake, cookies, products such as macaroni, noodles, spaghetti, pancakes, waffles, rice, potatoes, sweet potatoes, honey, molasses, sugar, syrup, rich puddings, sweets.

Beverages: All fountain drinks, including malted milks and chocolates, carbonated beverages of all kinds, rich sundaes, alcoholic drinks, sweetened drink mixes.

iii. SOME POPULAR DIETS

There are several diets that have huge followings and their proponents swear by their success. These diets include the Atkins diet, the Zone diet, the South Beach diet, the Beverly Hills Diet, the Sugar Boosters Diet, the Zero diet, The Cabbage soup diet etc. However, many of these diets contradict the basic rules of healthy nutrition and so have not been mentioned in this text.

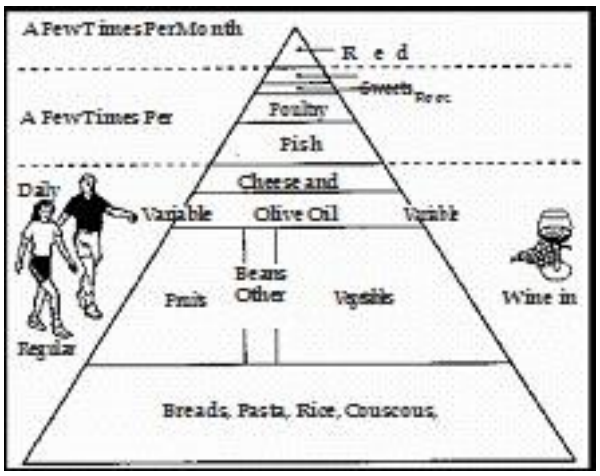
Diets like the Mediterranean diet, the GM diet, the Glycemic Index diet, and the Dean Ornish diet, however, merit inclusion because not only do they endorse the basic rules of healthy nutrition, but because they succeed in their weight loss objectives also. Our analysis of these diets follows:

a) Mediterranean Diet

The traditional diets of the Mediterranean region were mainly based on the foods from a rich diversity of plant sources and included fruits, vegetables, whole grains, beans, nuts and seeds. In North Africa, vegetables and legumes form the center of the diet; in Southern Europe it was rice, pasta, potatoes with vegetables and legumes. In Eastern Mediterranean, bulgur and rice together with vegetables and legumes such as chick peas constitute the core of many meals. Throughout the Mediterranean bread is a staple in the diet and is eaten without butter or margarine.

In January 1993, the Harvard University School of Public Health, held a conference on the Mediterranean diet and its impact on public health. They reviewed data from a variety of epidemiological studies that described the dietary traditions of the people from the Mediterranean area (Creete, Greece, Southern Italy and Northern Africa), which may have been responsible for the low rates of chronic disease. From this committee, the Mediterranean Food Guide Pyramid was developed.

Mediterranean Diet Pyramid



Now that we know it may be beneficial, what exactly is the Mediterranean diet? The Mediterranean diet is not a diet per se, but rather a loose term that describes the eating practices of the people in this region. Below are the characteristics of the "diet" that may indeed protect us in the fight against heart disease.

Uncooked fibre

Fibre in the traditional Mediterranean diet, fruits and vegetable were locally grown and often consumed raw or minimally processed. This may be crucial given our ever growing understanding of the potential protective factors of dietary fiber, antioxidants and other micronutrients found in plant foods.

Olive Oil vs. Total Fat

Olive oil, high in monounsaturated fat is a good source of antioxidants and is the area's principle source of fat. Evidence suggests the traditional diets were about 40% fats (The American Heart Association recommends 30%). However the diet was very low in saturated fat.

For more the 30 years, researchers have known that a high intake of fat in the form of olive oil in the traditional Greek diet did not have any apparent negative health consequences. Researches believe that olive oil was neutral with respect to effects of serum cholesterol. However current research has found olive oil and its high monounsaturated fat may actually increase HDL (good) cholesterol, but does not increase LDL (bad) cholesterol.

Low to Moderate Consumption of Dairy Products

Dairy products from a variety of animals, goats, sheep, buffalo, cows and camel, primarily in the form of cheese and yogurt, were traditionally consumed in low to moderate amounts. In the entire region, very little fresh milk was consumed and meals were usually accompanied by wine or water.

Researches suggest that the live bacterial cultures of yogurt may have contributed to the regions good health. Following the Mediterranean diet, butter and cream should be used on special occasions. Olive oil is the preferred fat.

Sparing use of Poultry and Red Meat

All foods from animal sources, especially red meat as illustrated on the pyramid was used sparingly. Total red meat and poultry consumed was about 15 oz per week. Fish intake varied between countries but overall was slightly higher, about 5- 15 oz per week

Although the available data can not be definitive, there is evidence that suggests red meat is associated with colon cancer, prostate cancer and heart disease. We can not assume the risk is due solely to the fat content, but possibly the carcinogens formed from cooking. Further more, animal products contain no fiber or antioxidants and may displace plant based foods that do contain these important elements.

Physical Activity

The people of the Mediterranean region incorporate physical activity into their everyday lifestyle and are considered vital to maintain good health and optimal weight.

It has been well documented that exercise benefit people's physical, psychological and social well- being and improves their resistance to disease.

Wine in Moderation with Meals

Throughout the Mediterranean wine is drunk in moderation and usually taken with meals for men moderation is two glasses per day, for women moderation is one glass per day.

Current research suggests there is a correlation between alcohol intake and a reduction in heart disease. However, alcohol may be associated with an increase in the risk of breast cancer. Therefore, wine consumption should be considered optional.

b) Glycemic Index Diet

In 1981, Professor of nutrition Dr David Jenkins was looking at how different carbohydrate-rich foods affected blood sugar levels in people with diabetes and discovered that, contrary to popular belief, many starchy foods affected blood sugar levels quite dramatically, while some sugary foods had little effect. From his research, he developed a scale called the Glycaemic Index, which quite simply ranked foods based on the effect they had on blood sugar levels.

How it works

The Glycaemic Index runs from 0 to 100 and usually uses glucose – which has a GI value of 100 – as the reference. The effect other foods have on blood sugar levels are then compared with this. In simple terms, the GI index tells us whether a food raises blood sugar levels dramatically, moderately or a little bit. Foods that have only a slow, small effect on blood sugar have a low GI value, while those causing a rapid and massive rise in blood sugar have a high GI value.

So what's the link with weight loss?

The theory behind diets based on the Glycaemic Index is that foods with a low GI value slowly release sugar into the blood, providing you with a steady supply of energy, leaving you feeling satisfied longer so that you're less likely to snack. In contrast, foods with a high GI value cause a rapid – but short-lived rise in blood This leaves you lacking in energy and feeling hungry within a short time, with the result that you end up reaching for a snack. If this

pattern is frequently repeated, you're likely to gain weight as a result of constantly overeating.

Glycemic Index of foods

Many lists divide the foods into low, medium/ moderate and high categories. Foods in the low category usually have a GI value of 55 or less; in the medium category, a GI value of 56 to 69; and in the high category, a GI value of 70 or more. You might be surprised by some of the foods included in the low and high categories – for example, 'healthy' rice cakes and bran flakes actually have a high GI whereas salted peanuts and milk chocolate have a low GI value!

How do GI diets work?

Diets based on GI index simply encourage you to eat plenty of foods with a low GI value and avoid those with a high GI value. This helps to prevent swings in blood sugar, helping you feel fuller for longer. However, most GI diets also recommend cutting down on fat, especially saturates. This means many of the foods, which have a low GI, value but are high in fat – whole milk, crisps and chocolate, for example – are still limited.

What affects the GI value of a food?

There are several things. Firstly, the overall nutrient content of food will affect its GI. For example, fat and protein affect the absorption of carbohydrate. This helps to explain why chocolate, which is high in fat, has a low GI value. It also explains why high- fat crisps have a lower GI value than low-fat jacket potatoes. Whole milk also has a low GI value because it's packed with protein and fat.

How you cook food, the degree of processing and the ripeness and variety of a fruit, for example, also affect its GI. Even the structure of the carbohydrate itself influences the GI. For example, processed instant oatmeal has a higher GI than traditional rolled oats used to make porridge. This is because, as a result of the processing, the starch in instant oats is more easily exposed to digestive enzymes, causing it to break down and enter the bloodstream more rapidly. Meanwhile, some foods have low GI values because they are packed with fibre, which acts as a physical barrier, slowing down the absorption of carbohydrate into the blood.

GI value of Meals

GI index charts only identify the effect different foods have on blood sugar levels when they are eaten on their own and, consequently, many nutritionists believe this is one of the main problems with GI diets. Basically, when you eat a mixture of food together as in a meal, the GI value of that whole meal changes. As a guideline though, the more low GI foods you include in a meal, the lower the overall GI value of that meal will be.

Are there any negatives to the GI diet?

As outlined above, one of the main limitations to GI diets is the fact it's difficult to identify the GI value of a meal. Meanwhile, some foods with a low GI value are also packed with fat and/or salt and contain few nutrients. Chocolate and crisps, for example, are high in fat and contain few vitamins and minerals. Meanwhile, a 50g pack of salted peanuts contains around 5g of salt – that's almost the maximum amount recommended by nutrition experts for good health!

Consequently, it's possible to follow a GI diet that's packed with fat and lacking in many of the nutrients you need to stay healthy. However, most GI diet plans come with advice to cut down on the amount of fat you eat and recommend avoiding many of the high-fat, low GI foods. For example, they recommend choosing skimmed milk over whole milk.

What do the experts think?

In general, most nutritionists and dieticians are supportive of the basic principles of the GI diet. They do, however, believe that you shouldn't get too hung up about avoiding all high GI foods because when foods are eaten together in a meal, that meal can have a very different GI value to the individual foods it contains.

How much weight can I expect to lose?

Most GI diets suggest you will lose around 1-2lb a week, possibly with a slightly greater loss in the first few weeks when your body loses water as well as fat. This follows the guidelines recommended by nutrition experts.

Are there any health benefits to the GI diet?

Following a diet that includes plenty of foods with a low GI index may have a role in helping to prevent or reduce the risk of getting Type 2 or maturity- onset diabetes, according to experts at Diabetes UK, the largest diabetes organization in the UK. Research has also shown that lower GI diets can help improve levels of 'good' cholesterol and so may reduce the risk of heart disease.

Anyone with diabetes should always check first with their doctor before making changes to their diet. However, most diabetes experts agree that including foods with low GI value in meals can help to maintain even blood sugar levels. However, they also agree that eating to control diabetes isn't just about looking at the GI value of foods. You should also focus on eating a balanced, healthy diet you can stick with for life.

In Conclusion: At last, here's a diet that's popular but still follows basic healthy eating guidelines! The diet generally contains plenty of fruits and vegetables and recommends eating fewer refined and sugary carbohydrates. Meanwhile, if you want to give the diet a go, always remember to apply the general principles of healthy eating – a healthy diet wouldn't recommend including huge amounts of chocolate, crisps or whole milk and neither should a GI diet. Having said this, there's little to argue about with a diet that recommends swapping baguettes and bagels for wholegrain breads, cornflakes for porridge, and white rice for whole meal pasta.

GI Diet Plan, Sample day

Meal	**Item**
Breakfast	Bowl of porridge made from traditional oats and skimmed milk and sweetened with a little honey.Plus a pear
Mid morning	1 pot low - fat fruit yoghurt and a banana
Lunch	Bowl of lentil soup plus an open tuna sandwich made with 2 slice of wholegrain bread, a thin scrape of low fat spread and tuna in .Plus a handful of cherries
Mid afternoon	Small pack of low fat crisps
Dinner	Speghetti Bolognese(made from extra lean minced beef and a lots of vegetables) served with whole wheat spegetti and salad

Low Glycemic Index foods (55 or less)

Include some of these foods in each meal or snack, but go for low-fat choices where possible, such as skimmed milk. If you want to lose weight, you'll also need to watch your portion sizes. That means sticking to small servings of pasta and noodles, limiting yourself to two slices of bread with a meal, and having only a couple of squares of chocolate or a small handful of peanuts.

Food	**GI**
Roasted and salted peanuts	14
Loe fat yogurt with sweetener	14
Cherries	22
Grapefruit	25
Peael barley	25
Red lentils	26
Whole milk	27
Dried apricoots	31
Fettuccine pasta	32
Skimmed milk	32
Low fat fruit yogurt	33
Whole meal spaghetti	37
Apples	38
Pears	38
Tomato soup, canned	38
Apple juice, unsweetened	40
Noodles	40
White spaghetti	41
Chick peas, canned	42
Peaches	42
Porridge made with water	42
Lentil soup	44
Oranges	44
Macaroni	45
Green frapes	46
Orange juice	46
Peas	48
Baked beans in tomato sauce	48
Carrots, boiled	49
Milk chocolate	49
Kiwi fruit	52
Stone ground whole meal bread	53
Banana	55
Raw oat bean	55
Swwet corn	55

Medium Glycemic Index foods (56 to 69)

You may include a few of these foods each day, but again limit portion sizes if you want to lose weight.

Food	**GI**
Muesli, non toasted	56
Boiled potatoes	56
Sultanas	56
Pitta bread	57
Basmati Rice	58
Honey	58
Digestive biscuit	59
Cheese and tomato pizza	60
Ice cream	61
New potatoes	62
Coca cola	63
Apricots, canned in syrup	64
Raisins	64
Shortbread biscuit	64
Couscous	65
Rye bread	65
Pineapple, fresh	66
Cantaloupe melon	67
Croissant	67
Shredded wheat	67
Mars bar	68
Ryvita	69
Crumpet toasted	69
Weetabix	69
Whole meal bread	69

High Glycemic Index Foods (70 or more)

Swap these foods for those with a low GI value or eat them together with a low GI food. Having a jacket potato with baked beans, for example, will lower the GI value of that whole meal.

Food	**GI**
Mashed potato	70
White bread	70
Watermelon	72
Swede	72
Bagel	72
Bran flakes	74
Cheeries	74

French fries	75
Coco pops	77
Jelly beans	80
Rice cakes	82
Rice Krispies	82
Cornflakes	84
Jacket potato	85
Puffed wheat	89
Baguette	95
Parsnips, bolied	97
White rice, steamed	98

c) General Motors Diet

The following diet and health program was developed for employees and dependents of General Motors, Inc. and is intended for their exclusive use. This program was developed in conjunction with a grant from U.S. Department of Agriculture and the Food and Drug Administration. It was field tested at the Johns Hopkins Research Center and was approved for distribution by the Board of Directors, General Motors Corp. at a general meeting on August 15, 1985. General Motors Corp. wholly endorses this program and is making it available to all employees and families. This program will be available at all General Motors Food Service Facilities. It was management's intention to facilitate a wellness and fitness program for everyone.

This program is designed for a target weight loss of 10 lbs (i.e. 5 Kgs) per week. It will also improve your attitudes and emotions because of its cleansing systematic effects. The effectiveness of this seven-day plan is that the food eaten burns more calories than they give to the body in caloric value.

This plan can be used as often as you like without any fear of complications. It is designed to flush your system of impurities and give you a feeling of well-being. After seven days you will begin to feel lighter because you will be lighter by at least 10 lbs. You will have an abundance of energy and an improved disposition. During the first seven days you must abstain from all alcohol. You must drink 10 glasses of water each day

Day One – All fruits except bananas. Your first day will consist of all the fruits you want. It is strongly suggested that you consume lots of melons the first day. Especially watermelon and a loupe. If you limit your fruit consumption to melons, your chances of losing three lbs. on first day are very good.

Day Two – All vegetables. You are encouraged to eat until you are stuffed with all the raw or cooked vegetables of your choice. There is no limit on the amount or type. For your complex carbohydrate, you will start day two with a large baked potato for breakfast. You may top the potato with one pat of butter.

Day Three – A mixture of fruits and vegetables of your choice. Any amount, any quantity. No bananas yet. No potatoes today.

Day Four – Bananas and milk. Today you will eat as many as eight bananas and drink three glasses of milk. This will be combined with the special soup, which may be eaten in limited quantities.

Day Five – Today is feast day. You will eat meat and tomatoes. Eat two 10 oz. portions of lean beef. Hamburger is OK. Combine this with six whole tomatoes. On day five you must increase your water intake by one quarter. This is to cleanse your system of the uric acid you will be producing.

Day Six – Meat and vegetables. Today you may eat an unlimited amount of beef, mutton, poultry and vegetables. Eat to your hearts content.

Day Seven – Today your food intake will consist of brown rice, fruit juices and all the vegetables you care to consume.

The next morning you will be 10-15 lbs (5-7 Kgs) lighter than one week ago. If you desire further weight loss, repeat the program again. You may repeat this program as often as you like. On the GM diet you are allowed two glasses of white wine in addition to the instructions on the program. You may substitute champagne, bourbon, vodka, rum for white wine. Other alcoholic beverages with the exception of beer are allowed. Any liquor (bourbon, vodka, rum) is forbidden. Cream drinks are especially forbidden. You may have an occasional cordial such as crème de menthe or schnapps, but you must always limit yourself to two drinks. If you have wine, drink only wine that day. If you have beer, drink only beer that day, etc. Alcohol adds empty calories to your diet. However, after the first week it will help your digestion and settle your stomach.

G.M .'S Wonder Soup

The following soup is intended as a supplement to your diet. It can be eaten any time of the day in virtually unlimited quantities. You are encouraged to consume large quantities of this soup.

28 oz Water, 6 Large Onions, 2 Green Peppers, Whole Tomatoes (fresh or canned), 1 Head Cabbage, 1 Bunch Celery, 4 Envelopes Onion Soup Mix, Herbs and Flavouring as desired.

Vegetables as may be taken in the form of a salad if desired. No dressing except malt, white or wine vinegar, squeezed lemon, garlic, herbs. No more than one teaspoon of oil. This soup is a supplement while you are on the program and it should be a pleasure to eat. Not everyone likes cabbage, green peppers, celery etc. This recipe is not inflexible. You may substitute vegetables according to your taste. You may add any vegetables you like: asparagus, peas, corn, turnips, green beans, cauliflower, etc. Try to stay away from beans (lima, pinto, kidney etc.), however, because they tend to be high in calories even though they are very good for you.

Beverages you may consume while on the program:

1. Water (flavored with lemon /lime if desired).
2. Club Soda is OK.
3. Black Coffee.No cream or cream substitute.No sugar or sweetness.
4. Black Coffee. Herb or Leaf.
5. Absolutely nothing else except the fruit juices that are part of day seven. No fruit juices before day seven.

How and Why It Works

Day One– you are preparing your system for the upcoming programme. Your only source of nutrition is fresh or canned fruits. Fruits are nature's perfect food. They provide everything you could possibly want to sustain life except total balance and variety.

Day Two– starts with a fix of complex carbohydrates coupled with an oil dose. This is taken in the morning for energy and balance. The rest of day two consists of vegetables, which are virtually calorie free and provide essential nutrients and fibre.

Day Three– eliminates the potato because you get your carbohydrates from the fruits. Your system is now prepared to start burning excess pounds. You will still have cravings, which should start to diminish by day four.

Day Four– bananas, milk and soup sound the strangest and least desirable. You're in for a surprise. You probably will not eat all the bananas allowed. But they are there for the potassium you have lost and the sodium you may have missed the past three days. You will notice a definite loss of desire for sweets. You will be surprised how easy this day will go.

Day Five– beef, mutton, fish, poultry for Indians and tomatoes. The beef is for iron and proteins, the tomatoes are for digestion and fibre. Lots and lots of water purifies your system. You should notice colourless urine today. Your allowance calls for the equivalent of five "quarter pounders". Do not feel you have to eat all this beef. You must eat the six tomatoes.

Day Six– is similar to day five, iron and proteins from meat, vitamins and fibre from vegetables. By now your system is in total weight loss inclination. There should be a noticeable difference in the way you look today, compared to day one.

Day Seven– finish off the program like a good cigar used to finish off Victorian meals except much healthier. You have your system under control and it should thank you for the flushing and cleaning you just gave it.

Ornish Diet

The Dean Ornish *Eat More Weigh Less* diet is a low-fat, mainly vegetarian diet plan. Meat, poultry or fish foods aren't recommended, while only a few dairy products are allowed – like fat-free yogurt, fat-free milk and lower-fat cheese.

The Ornish diet lists "Eat Freely" foods, "Eat Moderately" foods and "Banned" foods. Providing you observe these dietary instructions, you can eat all you want without counting calories or portion sizes. (Note: **Banned foods** include, all fats and oils, nuts, seeds, avocados, as well as refined carbs like sugar, white flour and white rice.)

Sample Meals

Meal	**Item**
Breakfast	Wholegrain cereal with fat free yogurt, fresh berries, orange juice
Lunch	Baked potatoes stuffed with spicy spinach and cheese, plus broccoli, potato and garbenzo bean (white chana) salad & fat free dressing, plus grren salad, followed by fresh fruit
Meal	Bruschetta with sun dried tomatoes; whole wheat pasta with dry roasted vegetables, green salad; for dessert, peaches in wine
Liquid	Water, tea, coffee, skimmed milk, and juices

Advantages

Like any diet that is high in fruit and vegetables, low in refined carbs, saturated fat and salt, the Ornish diet is undeniably a healthy way to eat, even if – according to current theory – the diet is low in essential fatty acids.

Furthermore, the unrefined carbs and fiber in the diet will definitely keep you full. Even so, it is some way removed from the average Western diet and requires a fair amount of adaptation. Given his success in helping people to lose weight and his experience in helping patients reduce their symptoms of heart disease, Dean Ornish's approach to diet nutrition and weight reduction has worked well.

Disadvantages

Fat has many important roles in our diets. Although 10% of calories from fat may be adequate to prevent essential fatty acid deficiency and aid in the absorption of fat-soluble vitamins, a very-low- fat diet is difficult for most people to follow. Fat provides a pleasant taste to food. It also gives us a feeling of satiety, meaning it helps us feel satisfied, curbs our appetite, and guards against overeating. People who follow a very-low-fat diet often feel hungry and unsatisfied.

C. BEHAVIOUR MODIFICATIONS & DIETARY COUNSELLING

Behavior Modification

This is based on the premise that excessive food intake is a acquired habit, that can be changed. By means of this concept the individual learns to focus attention on the environmental factors that influence his or her food intake and gradually to modify these so that a change occurs in eating habits and subsequent weight loss occurs.

Initially, the client is asked to keep a detailed record of food intake and activity patterns. From this, the client and counselor identify problem areas and outline strategies to overcome them. Emphasis is on **changing eating patterns**. For example, if the problem is too much unstructured eating, such as frequent snacking while watching television, knitting or other activities might be recommended as a diversion. Some techniques that have been used successfully to control food intake include (1) eating only at specified times and places; (2) learning to eat more slowly; (3) omitting other activities, such as reading or watching television while eating; (4) using smaller plates and placing portions directly on the plate rather than serving family style; (5) use of a reward system; and so on.

Dietary Counselling

Motivation and Psychologic Support– A diet prescription is worthless unless the client has some motivation for losing weight, such as the maintenance or recovery of health. The client must have the capacity for self-discipline, patience, and perseverance.

Although the motivation must come from within the client, the physician, nurse, and dietitian can be of immeasurable help towards initiating this motivation, and subsequently by providing encouragement and guidance at frequent follow- up visits. The client needs to understand that a calorie intake in excess of needs is the cause of overweight and that weight loss is accomplished only when the calorie intake is reduced below the client's needs. But this explanation is not enough. The client also needs to gain insight into the reasons he or she is overeating, and to work at correcting these.

Counseling and Group Sessions- Individual counseling is essential to determine the goals that are realistic for the client and to initiate dietary regimen that is appropriate for the client's food habits and patterns of living.

Group sessions are also effective; in-group session's people compare their progress, share their problems in adhering to diets, and exchange ways to vary diets. When groups are formed, it is important that professional guidance is available from a physician, dietitian, or nurse. Each individual joining such a group should first be evaluated by the physician to determine his or her medical fitness for weight reduction.

Essential Knowledge – The dieter needs to understand that weight loss is accompanied by a reduction in the metabolic rate. This may explain the decreased rate of weight loss with time that many people experience in spite of careful adherence to a calorie restricted diet. Further calorie restriction or increased energy expenditure will be required to continue weight loss. The importance of moderate regular exercise as an essential part of any weight reduction program should be pointed out to the patients.

Calorie control, taught by means of measuring cups, spoons, food models, or actual foods, is essential. Although a given diet is planned for a specific calorie level, it must be expected that the daily calorie intake may vary by as much as 200 to 300 kcal because of variations in food composition food preparation, as well as in the precision of measurements.

Some clients ask about including alcohol, beer and wine in their diets. If the physician permits these beverages, the client needs to know that each gram of alcohol supplies 7 kcal and that the calorie value of the beverage must be taken into consideration. Usually an alcoholic beverage is restricted to one serving daily.

A single dinner in a restaurant can nullify careful adherence given to a diet for several days. Usually it is possible to select a clear soup, broiled or roasted meat without sauces, vegetables without sauces, and salad without dressing. Meat portions are likely to be larger than those allowed and the dieter will need to restrict intake to that allowed. The diet will not be exceeded too much if one foregoes the rolls, butter, and dessert. Many restaurants have menu selections suitable for dieters. There are occasions when the limitations of the diet are exceeded, and such breaks in the dieting pattern should be anticipated. Each day gives an opportunity to begin again towards the goal of desired weight.

Tips on Weight Management through Diet & Exercise

1. Dieting is a lifetime commitment and not done on a crash basis.
2. For weight loss, Calories intake should not exceed 1500 cal. / day and should not go below 1000 cal. per day.
3. Total calories intake should be less than total calories expenditure per day to lose weight.
4. In order to do this, one should exercise lightly at least once or twice every day.
5. Exercises should be both Aerobic and muscle forming.
6. Weight / measurement should be taken weekly at the same time every week.
7. It is best to use the same weighing machine each time.
8. All meals including breakfast should be eaten.
9. Maintain meal timings.
10. Eat a light-dinner, medium lunch, heavy breakfast.
11. If hungry in between meals, drink water/ eat fibrous foods.
12. Water may also be drunk during meals.
13. Avoid eating sugars, soft drinks, cakes etc.
14. Avoid too many dairy products including cream, butter and cheese

15. Avoid fried food and oily foods.
16. Avoid alcohol.
17. Eat sufficient complex carbohydrates such as maize, wheat, corn,etc
18. Eat sufficient green vegetables and fruits for roughage.
19. Preferably use a small plate and avoid 2nd helpings.
20. Enlist the support of your family and friends and remember that dieting is a lifetime commitment and not a sporadic activity.

D. MYTHS OF STARVATION DIETS

It is a very common myth that skipping meals will help in faster weight reduction. Research has proven that skipping meals and resorting to starvation diets will propel your body into a "starvation / shutdown" mode of metabolism. By lowering metabolism, this type of diet actually makes it more difficult for your system to burn off stored fat and much easier to gain back even more than you lost! One of the fundamentals of survival is to maintain a small supply of standby energy to live off of during adverse conditions such as famine. This involves storing a reserve of fat in the body.

In general, people need at least 1,000 calories daily in order to function normally, even if they are sedentary. And depending on age, body type, and activity level, many people need twice as many calories. The body cannot switch from receiving 1,500 or 2,000 calories per day to suddenly receiving only 500 calories per day without experiencing a pretty good jolt to the system.

But the reason we can temporarily adjust to a zero intake of calories is that our metabolism almost immediately changes into a state akin to hibernation. Metabolically speaking, our energy- producing system starts shutting down.

This kind of metabolism also begins converting most of the food that we consume into fat. Normally, our bodies use much of our food intake to repair body tissues and to convert into a ready energy source. Confronted with a starvation situation, however, our systems want to store fat because; ounce for ounce, fat contains more calories than does muscle tissue. This it is a richer energy source.

It doesn't take long for our bodies to fall into a shutdown or storage type of metabolism. Simply reduce your caloric intake to below 1,000 or 900 calories, or significantly reduce the number of calories your body is accustomed to receiving, and within a day or two your metabolism will lower and change. Within a week, your system will be locked tightly into a decreased basal metabolic rate. The body first converts any incoming food into fat in order to build up an emergency energy source.

This decrease in the metabolic rate, combined with a lack of any ready energy coming into the body in the form of an adequate supply of food, produces a host of unpleasant symptoms. These include fatigue, light-headedness, weakness, occasional nausea, and a lack of enthusiasm for life. After several days on this kind of diet that increases the ketones in the blood, a person's mental processes are often impaired and slowed down.

Another condition produced by starvation diet is ketosis. Although ketosis may reduce your appetite, it also makes you weak and reduces your ability to exercise. Starvation ketosis occurs when there is a serious lack of glucose in the blood, forcing the body to depend too heavily on its fat reserves for energy. The way that most healthy bodies deal with a buildup

of ketones is to excrete them in the urine. But this eliminates a lot of water and important minerals as well. And again, this water loss constitutes a great deal of your initial weight loss.

Serious conditions may arise from ketosis as well. The acidity in ketones can change the pH of the blood to the extent of producing a diabetic-like state. An extreme rise of ketones in a diabetic can be fatal. Eating a sufficient amount of carbohydrates during a diet, however, will avoid the buildup of ketones, allowing your body to metabolize energy in a normal fashion.

Another disadvantage of starvation diet is that they cause a loss of protein. One reason this occurs is that specific cells in the body, including the brain cells and some of the bone marrow, require glucose

for survival. At first these cells can utilize the glycogen and stored in the liver. But after a day or two, the liver runs out of glycogen and starts converting protein-which means your muscles-to glucose. The longer you stay on a starvation diet, the more muscle the body will be forced to use as a source of blood sugar for your brain.

The only way to counteract this phenomenon is to eat enough calories to prevent your body from switching to the starvation-metabolism made. It is also very helpful to exercise while losing weight, but, of course, a starvation diet leaves you too weak for vigorous activity.

Another reason starvation diets are a disaster is that, in the long run, you'll actually gain back more fat than you had before the diet. There are two main causes of this. First, the body goes into a **starvation metabolism**. Secondly remember what happens to the calories, they are immediately converted into and stored as fat. This might actually leave you fatter than before because you will be gaining back fat, while you probably lost some muscle mass during you diet.

Consequently, you may end up with a greater percentage of body fat after than before the diet. Another reason against starvation and quick-term diets is that constantly going on and off such diets is stressful to your heart and liver. Research has shown that frequent weight losses and gains will increase the amount of blood fat (serum triglyceride) and cholesterol in the blood stream, which probably contributes to the risk of atherosclerosis and heart disease.

Another bad habit or approach to dieting that also can throw the body into a shutdown metabolism is skipping meals or eating only one big meal a day. If you skip breakfast, for instance, about 17 or 18 hours pass without your feeding your body. This easily corresponds to the beginning of a fast. In addition, upon waking, your blood probably contains only between 80 and 120 milligrams of glucose in each 100 millilitres of blood. If you don't eat soon, your cells will have to begin drawing from the glycogen reserves stored in the liver in order to maintain that blood-sugar level. But as the glycogen stores are used up your glucose level may eventually fall below 70 milligrams, which will trigger a strong hunger response and possibly a craving for sweets to bring the glucose level up to normal.

Thus, if you skip breakfast, by midmorning your body is craving nourishment. Not eating can easily throw your system into a shutdown mode to begin conserving energy. Drinking coffee all morning on an empty stomach tends to further stimulate this response.

At coffee-break time, many people ward off their hunger pains with a pastry or doughnut. But what happens then? While this may help to postpone a shutdown metabolic reaction, it also will stress your system by producing a sharp rise in blood sugar rather than the gradual

increases you would get from a more balanced meal or from complex carbohydrates. The ingestion of simple sugars can also cause you to become hungrier, 1 or 2 hours later. This occurs because a sudden intake of simple sugar (as is found in pastries and doughnuts) causes your blood-sugar concentrations to rise rapidly above normal. In turn, this causes the pancreas to release insulin, which bathes the liver cells, which respond by removing the sugar from the blood to be stored as glycogen. The fat cells also absorb some of this excess sugar; they then convert the glucose into more fat.

All this action, coupled with another hour or two without food, soon causes your blood-sugar level to fall again. When lunchtime rolls around, you are ravenous, and it is even harder to stick to a moderate or sensible meal than if you had eaten a proper breakfast in the first place. Still, many determined souls would eat only a meager lunch consisting of something like a grapefruit and egg or just a low – calorie soft drink (many of which contain caffeine). And the blood-sugar concentration continues to drop.

At long last, dinner time arrives-the meal to which most eat to their hearts content. All these calories are ingested at a time when our activity level probably is lowest, the time most of us relax at the end of the day. Numerous studies have told us that people gain weight more readily be eating large meals later in the day, when we are more sedentary.

Eating five or six mini-meals per day is the best plan of action. By spreading your total caloric intake throughout the day, you can keep your energy level high and your metabolism active. Eating smaller meals won't stress your digestive system, either.

In addition, eating smaller meals won't place as many demands on your pancreas and other related organs as they work to maintain a proper insulin balance. That is why this mini-meal eating schedule is used for many diabetics.

E. WEIGHT LOSS MAINTENANCE

To lose weight is not easy; to maintain the desirable level of weight is even more difficult. The calorie – restricted diet planned with regard for the client's pattern of living also provides the basis for building a maintenance diet. The client's must learn that a change in food habits is essential not only for losing weight but to maintain desirable weight. Thus, additions of foods should be made judiciously until weight is being kept constant at the desired level. It is important for the client to weigh at weekly intervals or so in order to be sure that the foods added are in appropriate amounts.

If foods added for maintenance are also selected from the daily food guide, the quality of the diet with respect to protein, minerals, and vitamins is thereby enhanced. On the other hand, the additions of concentrated high-calorie foods may be more difficult to control in amounts suitable for maintenance. For example, the sedentary person of middle age must continue to forego rich desserts and sweets except on rare occasions.

A more permanent solution for weight loss combines a high fiber low calorie diet with daily exercise and stress management techniques. The eating program should be nutritious and well rounded but low in calories and fat. Consequently, it is an excellent eating regimen for any one from athletes to business people from adolescents to senior citizens. The exercise or aerobic activity will improve your metabolism and help you burn up calories and fat faster. The stress management component will teach you to control those urges to binge on sweets and snacks when you are under pressure.

Thus a weight loss program involves an entire lifestyle change because maintaining your proper weight also involves changing from being a sedentary person to being an active one. And it means altering our eating patterns and reducing the stress in our lives. The greater goal is to become healthier and becoming well. Losing weight will make you look more attractive; however, being well and healthy will give both internal and external benefits.

F. MODERATE & REGULAR EXERCISE

One of the most important rules for weight loss is exercise activity Moderate exercise done regularly for an hour 6 days a week is one of the best methods for achieving good health. Any exercise program should be started gradually in consultation with a doctor and fitness specialist such that the entire body including heart, respiratory system, muscles, joints, etc. is totally benefited. Exercises may be done at any convenient time, one or two hours after a meal and should include components for stamina, strength, mobility and flexibility as follows:

Stamina includes walking, jogging, cycling, swimming, active games etc. This aspect of exercise activity is important for weight loss. Heart rate during exercise should be approx. 220 (-) double your age, subject to minimum of 110 beats per minute (e.g. for a 40 years old – 220 – 80 = 140 bpm). Never exercise to breathlessness and do 10 repetitions of deep breathing at the end of each such session for the lungs. The benefit of this aspect of exercise beyond weight loss is for strengthening the heart, prevention of Heart Attacks, reducing Blood Pressure, Diabetes etc.

Strength can be achieved by doing between 10-20 repetitions of strength building exercises. Strength exercises are important not only for increasing the strength of the muscles but also important for giving the body its appropriate shape, increasing body metabolism and are helpful in reducing back pain etc. Younger age groups below 50 years and those individuals male and female who are gym exercisers may add gym exercises to their program 3 days a week.

Flexibility and Mobility can be achieved by doing 10 repetitions of stretching and joint mobility exercises. These exercises are extremely important in keeping the joints completely functional and are vitally relevant in preventing Arthritis, Spondylosis and other joint ailments.

Make Your Own Exercise Prescription

For Stamina: Heart / Circulatory / Respiratory System

Walking /Jogging/Swimming/Cycling/Games

Exercise for about 30-45 minutes daily according to capability

Twice daily for weight/fat reduction for about 30-45 minutes per session

Do not undertake Jogging/Cycling/Games etc. without medical clearance

Deep Breathing – Frequently during exercise

G. STRENGTH (MUSCULAR SYSTEM)

Exercises as per exercise diagrams and details below 3 days a week.

Exercises	Below 40 years	40/50years	Above 50years
Pushups	– 10 repetitions x 3sets	10 x 2	10 modified sit up
Situps	– 10 repetitions x 3 sets	10 x 2	10modifiedsit ups.
Back lift	– 10 repetitions x 3 sets	10 x 2	10 x 1
Squat	– 10 repetitions x 3 sets	10 x 2	10 x 1
Calf raise	– 10 repetitions x 3 sets	10 x 2	10 x 1

- Please note- each exercise in the sequence mentioned above is to be done 10 times and then the next exercise is to be done and so After all 5 exercises have been done, repeat the exercises as per sets required.
- Younger age groups below 40/45 years are advised to graduate to doing Gym exercises in due course.

Mobility: (Joints) Exercise as per exercise diagrams and details below. To be performed 3 days a week or daily as preferred.

Neck rotation – 10 repetitions(both ways)

Shoulder rotation – 10 repetitions(both ways)

Elbow bends – 10 repetitions(both ways)

Wrist rotation – 10 repetitions(both ways)

Waist rotation – 10 repetitions(both ways)

Toe touch – 10 repetitions

Hip mobility – 10 repetitions (each leg)

Thigh stretch – 10 repetitions (each leg)

Calf stretch – 10 repetitions (each leg)

Ankle rotation – 10 repetitions (both ways each leg)

H. STAMINA, STRENGTH & FLEXIBILITY EXERCISES

Walking: Excellent cardiovascular and fat burning benefits for the advanced age groups. Should be done briskly with swinging of the arms. Wear comfortable shoes. May be done mornings or evenings for 60 minutes.

Jogging: Suitable for younger age groups below fifty. Thirty minutes is all that is required, and it may be done continuously; or jog, and walk in between when fatigued. The pace of jogging is equal to that of a brisk walk. Preferably use thick solid comfortable shoes and run on soft or grassy surfaces. Wear comfortable clothes and breathe freely.

Swimming: For those who know how to swim, thirty minutes of continuous swimming is sufficient. Alternatively, swim the length of a pool (i.e., 10-20 mtrs.), rest at the end for 30 seconds, and swim back. Ten such lengths is good. Use any stroke you know; they are all of almost equal cardiovascular and muscular benefit.

Cycling: For any age group. Minimum time 45- 60 minutes of continuous controlled fast cycling. Cycling up slopes gives added benefits. Ordinary

cycles are good enough; indoor stationary exercycles may also be used at low resistance for 45 minutes.

Games: For the fitter, slimmer younger age group. Get fit and within your weight range first before playing games such as squash, badminton, tennis, handball, basketball, football, etc. Warm up before the game. 30-45 minutes of the game is sufficient. Weekend or once-a-week games is to be avoided unless other fitness programs are done on other days. Play within your capacity.

I. STRENGTH & CALISTHENIC EXERCISES

The following free hand exercises may be done for between 10-30 repetitions as per age to improve muscular strength, shape and metabolism.

FREE HAND EXERCISES FOR MUSCULAR STRENGTH

FLEXIBILITY AND MOBILITY EXERCISES

The following joint mobility exercises may be done to keep the body flexible.

Neck Rotation

Wrist Rotation

Shoulder Rotation

Elbow Bends

Waist Rotation

Toe Touch

Hip Mobility

Front Thigh Stretch

Calf Stretch

Ankle Rotation

Calories Utilized in Activity Exercise

Activity	Calories used per hour approx.
Sleeping	75
Sitting	100
Office work	150
Walking	250
Free hand exercise/yogasanas	300
Gardening	300
Housework	300
Manual Labour	350
Gym Exercise	400
Cycling	450
Tennis	450
Badminton	450
Squash	450
Swimming	550
Running	550

For a weight loss exercise program to be effective, a total of 500 calories per day must be utilized in daily exercise activity. This may be done either once a day or even divided into two sessions (i.e. morning and evening)

J. GYM EXERCISE / WEIGHT TRAINING

The points to keep in mind in weight training are as follows:

1. Weight training should not be done every The ideal schedule is on alternate days with a complete rest on weekends.
2. Even while there are several systems of weight training, which advocate the exercising of different muscle groups on different days, the best system for non-competitive sportsmen is to exercise the entire body in each session.

The muscle groups are:

1. Shoulders
2. Arms
3. Chest
4. Back
5. Abdomen
6. Legs

3. Weight training is basically for strengthening and building up the In order to convert this into an all-round program, it would be advisable to do some stretching exercises and cardio-vascular exercises such as running.
4. Suppleness and stamina can also be built up through weight training by following a body builder-type schedule. The weights are also used to stretch the muscles, and muscle, muscular endurance and cardio-vascular stamina are built up by repeating each exercise using lighter weights.
5. The normal repetitions of any exercise for the upper body, e. shoulders, arms, chest and back are 8 times. And for the lower body,i.e. legs including the abdomen are 15 times.
6. In order to get the best benefit out of the 8 or 15 repetitions, as the case may be, the last one or two repetitions should be somewhat strenuous and difficult. In case it is done too easily, it means the weight used is too little. And in case it is not possible to complete the repetitions, it means the weight carried is too heavy.
7. We prescribe three sets of exercises for each muscle group. However, there are several systems of weight training which we will mention briefly which prescribe different repetitions as well as different sets.
8. A repetition is one complete exercise movement from the starting point of the exercise up to the finish and then back again to the starting A set is a group of repetitions of the same exercise. Therefore, for the upper body 8 repetitions of any one exercise form one set. And 15 repetitions of one exercise for the lower body forms one set.
9. **Some systems of weight training are:**

- **Split-system:** This system of weight training is normally used by the serious body In this system, the entire body is not exercised in one day and the muscle groups are split in two or three large groups,e.g. on the first day several exercises are done only for the shoulders and arm muscle groups. On the second day, several exercises will be concentrated on the back and the chest. On the third day, the concentration of exercises will be on the legs and abdomen muscles. This cycle is repeated once more during the week with the seventh day as the day of rest.
- **Conventional:** This is the system of weight training as mentioned above. In this system each muscle group such as shoulders, arms chest, are exercised separately by completing all the exercise and sets of that muscle part consecutively with rest periods in between each set. After completing that muscle group, we proceed to the next muscle group.
- **Super-sets system:** In this system, two to three muscle groups are exercised together,e.g. one could exercise the shoulders, arms and chest at a time by doing one set of shoulder exercises then immediately proceeding to one set for arms and one set for the chest. And since normally three sets of each exercise are done, this cycle is rotated three times before moving to the next combination of muscles. The advantage in this system, over the conventional system is that no time is wasted between exercises and there is no rest period between the sets. In the conventional system a rest period is required between each set since the same muscle group has to be exercised and since each set causes fatigue to the muscle, one ought to rest. Whereas in the super-set system, each muscle group gets rest while the other muscle group is being exercised. This system is especially convenient for those who do not have much time.
- **Circuit Training:** This system of exercises is usually done by active sportsmen and is helpful for building up muscular and cardio-vascular endurance. In this system, all the exercises are done continuously one after another without any After one set of all the exercises are completed, the trainee proceeds directly to the secondcircuit of exercises

comprising a continuing series of sets for each muscle group. In this system, all muscle groups of the body are exercised consecutively one after the other in three or four circuits.

- **Progressive:** In all the previous systems of exercises, the weights used for each muscle group for all the sets are constant. However, in this system of weight training which is used by the active body builders and sportsmen, the weights are increased for each set of exercises for the body part. As a result the repetitions are For example, if the arms are being exercised, the first set may comprise eight repetitions with a given weight, the second set will comprise 5 repetitions with an increased weight and the third set will comprise only two repetitions with almost a maximum weight-load.

In addition to these basic systems shown below, there are several other variations created by exponents of weight training which are only minor variations of the above systems.

GYM EXERCISES/WEIGHT TRAINING

K. BENEFITS OF EXERCISE

1. **Exercise is the best way to start** a weight control program as one needs to feel good about oneself, you need to feel strong and feel in control of your body again. Many of the reaction and changes that will take place when one begins losing weight and changing metabolism are very subtle, but the effect of exercise on your body and mind is flattering in No matter how long it has been since you last exercised, your strength and endurance will grow faster than you would imagine.
2. **Changes your body metabolism** and build more muscle mass; which is vital to the conversion of fat to This is the real key to weight loss.
3. **Increased activity**: There is a proven link between obesity and a sedentary lifestyle that contains little or no vigorous exercise. Those who weigh the most are the one's who move the least. Therefore, to avoid obesity or to lose weight is simply not to allow your daily foodintake to exceed energy output. For example, physically trained individuals burn more fat than sedentary folks. Thus one can actually change body metabolism to a system that burns up fat faster by increasing your daily activity level and building muscle mass.
4. **Continuous Moderate Exercise**: When one exercises fat is the last to be burned. When a person exercises for just 10 minutes only a small fraction of the body fuel consumed is supplied by fat deposited in our cells. What we are burning is primarily glucose or blood With additional exercise, the body begins to use glycogen, a carbohydrate that is stored mainly in the liver and muscle cells and readily converted to glucose; however the body's storage of glycogen is limited. Fat, which has twice the energy potential of glucose, takes a lower and longer level of activity and oxygen to ignite, so if the body fat stores need to be mobilized, one has to exercise for longer periods of time. The longer your exercise, above 30-60 minutes the more fat you will burn therefore moderate exercise for prolonged time is a more efficient way of reducing body fat.
5. **Staying Power** – Increased Metabolic rate: Apart from making a direct dent in to the fat stores; exercise trims off fat by raising one's basic metabolic rate. For example if one has performed an aerobic exercise for 45 minutes to an hour; – heart rate is increased; there is increased circulation, increased body temperature and induced sweating. All this activity translates to an increased metabolic rate of up to 25 percent above normal (resting rate). The benefits don't stop there, the body metabolism will remain above normal for up to 3 hours after exercising helping you to burn an increased number of calories all the time.
6. **More Muscle Mass:** A second key factor affecting BMR is the amount of muscle mass. Muscle tissue is very dynamic; it requires more energy for maintenance and also consumes a lot more energy or calories when active. Muscle cells have the capacity to utilize 50 times more energy while converting from a resting condition to a vigorous – use condition. Also the special muscle enzymes ensure such rapid calories burning. So if you want to get rid of body fat then one needs to consider the amount and condition of your body muscle mass. And the only way to increase muscle tissue is through Dieting will do nothing to improve muscle tissue, and starvation diet will even deplete muscle tissue. Exercise will also increase the number of calorie– metabolizing enzymes within the muscle. Thus if an increase in BMR is desired while resting and when active, one needs a significant amount of muscle in the body and one has to keep those muscles strong and healthy through regular exercise.
7. **Activity energy cycle:** A cycle exists involving activity, energy, oxygen circulation, and the body's utilization of fat. Many overweight people and people on a diet do not have much energy and thus do not feel like They probably have a slowed-down rate of

metabolism as well. Now a slow metabolism doesn't produce much energy because it isprimarily storing fat rather than burning it for energy. The act of storing fat requires little or no oxygen, while much oxygen is needed to burn fat.

A sedentary person's body circulates much less oxygen than an active person's. and perhaps the amount of oxygen reaching the cells is one of the factors that determine whether fat will be stored or burned. In turn, if the fat is stored, no ready energy is produced… which induces a person to be less active…which causes less oxygen to be circulated…which burns less fat… which produces less energy…which produces less activity, and so forth. And after sitting at the office all day, you don't have much energy and so you sit in front of the TV all evening, continuing to perpetuate this low-energy, sedentary cycle.

The reverse of this cycle may explain why some people can stay thin although they seem to eat everything in sight and have tremendous amounts of energy. It may be that their system is adjusted to continually burning fat rather than storing it. This gives them extra energy, which helps to motivate them to keep exercising every day.

To summarize, there are three optimum ways in which exercise increases fat utilization: 1) it causes more fat to be consumed; 2) it increases the metabolic rate as much as 25 percent for up to 3-6 hours after exercise; and

3) it builds more muscle mass, which requires more energy just to maintain

8. **Conditioning Heart Rate Formula:** While exercising, it is very important to maintain your conditioning pulse at a rate of approx 120-140 bpm. At that level of exercise for e.g. a brisk walk or a slow jog you are burning energy efficiently by processing a high level of oxygen to mobilize the You are also exercising – and thus strengthening – your heart.