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Welcome to the Diet Specialist online nutritionist training course. This is a detailed and comprehensive course that will enable you to become a successful nutritionist by covering a wide range of topics on nutrition.

We would like to wish you all the best for the future.

Muna Alrawi
Diet Specialist, BSc, MSc, RD, Director

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Contents page

Food and nutrients	**4**
Proteins	4
Carbohydrates	7
Fibre	8
Dietary fat	11
Vitamins and minerals	13
Water	14
Caffeine and alcohol	17
Healthy eating and obesity	**19**
The energy balance	19
Different types of diets	21
Detoxification	25
Metabolism	28
Religious dietary practices	30
Understanding dietetic aspects of food	32
Influencing change	**35**
Why do people overeat?	35
Behavioural change cycle	36
Eating form	37
Goals achievement form	39
Assessing individual's weight	40
Tips on influencing change	42
Resources of information for the public	44
Dietetics and disease	46
Disorders of the stomach and colon	46
Diabetes	48
Coronary heart disease and hyperlipidaemia	50
Hypertension	52
Osteoporosis	54
Food allergies and intolerances	56
Appendix A – vitamins and minerals	58

PROTEINS

Function

Proteins have a wide range of functions including

- Enzymatic function: Proteins are essential for operations of enzymes hence catalyse and regulate the chemical processes on which body function depends.
- Transport function: Proteins act as carriers in blood and body fluids for many nutrients; hence they regulate the movement of these nutrients and metabolites between the intracellular and extracellular compartments.
- Hormonal function: some hormones in the body are proteins such as Insulin and Thyroxin.
- Immune function: Antibodies are proteins synthesised by lymphocytes as part of the immune system.
- Buffering Function: some proteins such as Albumin in the blood help to maintain the acid-base balance in the body.

Structure

Proteins consist of building blocks called amino acids. There are three different types of amino acids including:

- Essential amino acids: These either cannot be synthesized at all by the body, or not at a fast enough rate to meet the body's needs. There are 9 essential amino acids.
- Semi essential amino acids: These can be synthesised from other amino acids provided that precursor amino acids are present in the diet in sufficient amounts.
- Non-essential amino acids: These can normally be readily synthesised by the body from other carbon and nitrogen containing precursors.
- Conditionally essential amino acids: These are amino acids which are normally non-essential but may become essential in circumstances when the requirement for them exceeds the body's ability to synthesise them (illness or trauma).

Requirements

- Human requirements are 0.75g protein/kg of body weight per day.
- Growth in children and pregnancy increases requirements.
- Intake in UK = 84.7g in men & 62g in women.

Deficiency

Is most likely to occur as a result of:

- Breakdown of protein
- Failure to meet energy requirements.
- Catabolic response to trauma and surgery.
- Failure to absorb protein in gastrointestinal disorders or liver disease.
- Excessive protein loss from body due to renal disease.

<u>Long term deficiency leads to:</u>

- Anaemia.
- Increased susceptibility to infection.
- Muscle wasting.
- Poor wound healing.

Surplus:

- Cannot be stored by the body.
- Associated with renal problems and demineralisation of bone.

Protein supplementation:

- Athletes do not require diet disproportionately high in protein because their energy requirements are also high. Only 12-15% of energy should come from protein.
- The use of amino acid supplement is not recommended as little is known about their effect, and their safety remains to be evaluated.

Dietetic tips on how to increase protein intake in diet

Milk and milk products:

- Add skimmed milk powder into milkshakes, soups, sauces, gravies, casseroles, and meatloaf.
- 1 cup protein fortified milk = 210 calories, 21 gm protein

Cheese Ideas:

- Cook low fat cheese based casseroles, or sprinkle low fat cheese on top.
- Use low fat cheese or cream sauces over meats or sprinkle grated low fat cheese on vegetables, baked potatoes, and salads.
- Prepare low fat cheese spreads or dips for crackers or raw vegetables.
- Make grilled low fat mature cheese or low fat cheese sandwiches.
- 1 cup cottage cheese contains 28 grams of protein, so use more of it.

Yogurt Ideas:

- Eat light plain or fruit flavoured yogurt.
- Make desserts, dips and milkshakes with light yogurt.

Soy products:

- Include more tofu, Quorn and falafel as alternatives to meat.

Nuts:

- Snack on nuts, sunflower or sesame seeds and granola.
- Spread low sugar peanut butter on bread, crackers, celery, apples or bananas.
- Add nuts to cereals, breads, and cookies.

Lean meats, chicken and eggs:

- Add lean meats, chicken, turkey and tuna where possible even to salads
- Use eggs as a main dish. Try hard or soft boiled, scrambled, poached or omelettes.
- Make egg based casseroles, quiche or egg salad sandwiches.
- Add hard-boiled eggs to potato or macaroni salads.

CARBOHYDRATES

Function

- Carbohydrates are an ideal source of energy for the body. This is because they can be converted more readily into glucose, the form of sugar that is transported and used by the body. It can do this more than proteins or fats can.
- Even so, a diet too high in carbohydrates can upset the delicate balance of your body's blood sugar level, resulting in fluctuations in energy and mood which leave you feeling irritated and tired. It is better to balance your intake of carbohydrates with protein, a little fat and fibre.

Simple and Complex carbohydrates

- Simple carbohydrates are often referred to as refined sugars. They are found in fruits and vegetables as natural sugars, as well as honey and jams, biscuits, pastries and cakes, jellies, pizzas, sugary breakfast cereals, and breads, brown and white cane sugar, prepared foods and sauces, soft drinks, and sweets and snack bars.
- Complex carbohydrates are often referred to as starch or starchy foods. They are found naturally in bananas, barley bean, brown rice, chickpeas, lentils, nuts, oats, root vegetables, wholegrain cereals, pasta and bread.

Requirements

- Current advice is that we should get half of our energy needs from carbohydrates, with at least one third of our daily intake of food being starchy carbohydrates.
- According to the British Nutrition Foundation the average adult's daily diet meets this target with women getting 47.7% of their daily energy from carbohydrates (203g) and men 48.5% (275g).
- But not all carbohydrates are equal: refined sugars should make up only 11% of your daily diet. For adults, the average intake of refined sugars is slightly higher than this recommended level, with men the most consumption at 13.6 %.

The difference between simple and complex carbohydrates

- All carbohydrates form glucose when digested. Glucose is transported around the body via blood and taken into cells to be converted into energy. The pancreas gland in your abdomen secretes the hormone insulin, which controls the uptake of glucose by your cells.
- If you have any excess glucose, this is converted into glycogen – which is stored in the liver or in fat around the body. The more refined the carbohydrate, the faster the glucose is released into your blood.
- Complex carbohydrates take longer to digest; and provide a slower and more sustained release of energy than simple carbohydrates. In their natural form they contribute to long-term good health, appetite control and sustained energy levels.

Dietetic tips to reduce sugar intake in diet.

- Reduce your sugary foods and drinks as much as possible. These foods are classified as empty calories as they are very high in calories with no other nutrients.
- Cut down on processed and packaged foods, salad dressings, spaghetti sauces, soups and even pizza crusts as all contain sugar.
- If you take sugar in tea or coffee try cutting down, or replace sugar with an artificial sweetener.
- When buying canned fruits, always look at fruit in natural or fruit juice instead of syrup.
- Try to use freshly squeezed juices instead of sweetened juices.
- Use low sugar foods e.g. light yoghurt, sugar free jellies and mousses.
- Avoid foods high in sugar e.g. biscuits, cakes, and chocolate. If this is difficult replace these for complex carbohydrates such as those mentioned above.
- Know your sugars. Fructose, glucose, lactose, maltodextrin, dextrose and syrup are all types of sugar masquerading under their scientific names. Read food labels so that you know what you are putting into your body.

FIBRE

Structure

- Starch and fibre are names for groups of carbohydrates found in bread, cereals, potatoes, rice and pasta. Starches are not fattening; it is the way they are cooked that makes them fattening, unless they contribute to excess calorie intake.
- Dietary fibre is a heterogeneous mixture of polysaccharides and lignin not degraded by the endogenous enzymes of vertebrate animals.

Function

- Having fibre in your diet slows the glucose absorption after a meal helping you to stay longer without getting hungry
- The fibre also has an impact on the gut hormones CCK which increases satiety
- High fibre/wholegrain foods are more bulky and hence they will have enhanced chewing and slower gastric emptying also improving satiation.
- High fibre/wholegrain foods may displace other more energy-dense foods

Recommendations and current intake

- A healthy adult needs 18g of fibre a day.
- The Scientific Advisory committee on nutrition reported in 2008 that 84% of adults had less than 16g of whole-grain intake with 29 % reporting no intake.

Dietetic tips on how to increase fibre intake

- Try to introduce high fibre cereals into your diet.
- Add bran to muffins, breads and casserole.
- Try to have baked potatoes with the skin.
- Go for wholemeal or wholegrain bread instead of white bread. Look out for high-fibre breads and breads with added seeds.
- Try wholemeal pasta and brown rice instead of white pasta and white rice. Remember, brown rice does take longer to cook than white rice so give yourself plenty of time the first time you use it!
- Eat fruits and vegetables raw whenever possible. Boiling them too long can cause up to one half of the fibre to be lost in the water. Steam or stir-fry them if you have to cook.

- Puréeing doesn't destroy fibre, but juices don't have the fibre of the whole fruit if the pulp has been strained away.
- Aim to have 5 pieces of fruits and vegetables every day. They are low in calories and as they are full of fibre they will fill you up.
- Add beans and lentils to salads, soups and stews. Have beans on toast as a light meal or try some mixed bean salads with kidney beans, chickpeas and butterbeans.

DIETARY FAT

Function

- Supplies fuel for the cells, provides essential fatty acids, act as a carrier for fat soluble vitamins and minerals, forms a protective layer around organs, is a substrate for hormone synthesis and provides energy in the form of adipose tissue.

- Foods that contain a lot of fat can easily hamper your metabolism rate. Fat is not as easily digested as some of the other foods that will slow your metabolism. High fat foods create a scenario where your body simply doesn't know what to do with it all. In this instance, your metabolism slows down and takes a break while your body starts saving the fat for future use. This results not only in a slower metabolism, but in an increase in body fat as well.

Types of fatty acids

- Saturated fatty acids: Increases low density cholesterol (LDL) which increases the risk of heart disease, and atherosclerosis.
- Monounsaturated fatty acids: Found in oils such as olive oil, canola oil, peanut oil, sunflower oil and sesame oil. Other sources include avocados, peanut butter, and many nuts and seeds. This is the most beneficial (no hypercholesterolemia effect). If it substitutes the saturated fats, it lowers LDL; and provides nutrients to help develop maintain your body's cells.
- Polyunsaturated fatty acids: The body lacks enzymes to synthesize omega 3 and 6 (essential fatty acids). These are found in oils, nuts and seeds, soybean oil, corn oil and sunflower oil, as well as oily fish such as salmon, mackerel, herring and trout. Polyunsaturated fats can help reduce the cholesterol levels in your blood and lower your risk of heart disease and have a crucial role in brain function.

Requirements

- Total fat intake should not exceed 33% of total energy from food (excluding alcohol).
- Intake of saturated fats should not exceed 10% of energy intake.
- Intake of monounsaturated should provide about 12%.
- Intake of unsaturated fatty acids should provide 6% to be made up of mixture of n-6 and n-3 fatty acids.

- Trans fatty acids should not exceed 2% of dietary energy or more than 5g per day.

Trans Fats

- Trans fats are created in an industrial process which adds hydrogen to liquid vegetable oils to make them more solid.
- Companies like using trans fats in their foods because they're easy to use, inexpensive to produce, last a long time and have a nice taste.
- Trans fats raise your bad (LDL) cholesterol levels and lower your good (HDL) cholesterol levels. Eating trans fats increases your risk of developing heart disease and stroke. It's also associated with a higher risk of developing type 2 diabetes.
- Trans fats can be found in many foods – but especially in fried foods like French fries and doughnuts, and baked goods including pastries, pies, biscuits and pizza.
- You can determine the amount of *trans* fats in a particular packaged food by looking at the Nutrition Facts panel. You can also spot *trans* fats by reading ingredient lists and looking for the ingredients referred to as 'partially hydrogenated oils'.

Dietetic tips on how to reduce fat intake in diet

- Choose lean cuts of meat and trim off any visible fat.
- Choose low fat, polyunsaturated or monounsaturated spread instead of butter.
- Measure oil for cooking with tablespoons rather than pouring it from the container
- Avoid additional fat to foods, e.g. glazing vegetables.
- Use Quorn, quark, tofu or falafel as an alternative to meat products.
- Grill, bake, boil, poach, microwave or steam instead of frying wherever possible or roast so you don't need to add any extra fat.
- Choose lower fat versions of dairy foods whenever you can, such as semi- skimmed or skimmed milk, reduced-fat yoghurt and low fat cheeses.
- Avoid processed foods and hidden fats in pies, pastries, quiche, Yorkshire puddings, sausage rolls, cakes, biscuits and crisps.
- Mix salads with low calorie salad dressing rather than mayonnaise or dressing on sandwiches and salads.

VITAMINS AND MINERALS

Function

Fat-soluble vitamins

- Fat-soluble vitamins A, D, E and K.
- While your body needs these vitamins every day to work properly, you do not need to eat foods containing them every day. This is because, if your body does not need these vitamins immediately, it stores them in your liver and fatty tissues for future use. These stores can build up so they are there when you need them. However, if you have much more than you need, fat-soluble vitamins can be harmful, therefore caution need to be considered when supplementing with these vitamins.
- Fat-soluble vitamins are found mainly in fatty foods such as animal fats including butter and lard, vegetable oils, dairy foods, liver and oily fish.

Water-soluble vitamins

- Water-soluble vitamins are not stored in the body, so you need to have them more frequently. Water-soluble vitamins are vitamin C, the B vitamins and folic acid.
- If you have more than you need, your body gets rid of them through urinating.
- Water-soluble vitamins are found in fruit, vegetables and grains. Unlike fat-soluble vitamins, they can be destroyed by heat or by being exposed to the air; also they can be lost in water used for cooking. This means that by cooking foods, especially boiling them, we lose many of these vitamins. The best way to keep as much of the water-soluble vitamins as possible is to steam or grill, rather than boil them.

Minerals

Minerals are necessary for three main reasons:

- Building strong bones and teeth
- Controlling body fluids inside and outside cells
- Turning the food you eat into energy
- Minerals are found in varying amounts in foods such as meat, cereals including cereal products such as bread, fish, milk and dairy foods, vegetables, fruit (especially dried fruit) and nuts.

Trace elements

- Trace elements are also essential nutrients that your body needs to work properly, but in much smaller amounts than vitamins and minerals.
- Trace elements are found in small amounts in a variety of foods such as meat, fish, cereals, milk and dairy foods, vegetables and nuts.

Sources and function of vitamins and minerals

See appendix A for a detailed table outlining the sources and function of the main vitamins and minerals groups

Dietetic tips on how to increase vitamins and minerals intake in diet.

- Aim to have 5 different portions of fruits and vegetables per day. A portion of fruit and vegetables (Approximately 40 calories) - 1 apple, orange, pear, nectarine, kiwi or small banana. 100g (40z) sprouts, pepper, mixed vegetables (Frozen). 100g (40z) strawberries, raspberries, cherries or grapes. 150g (6oz) carrots, turnip, swede, cabbage, spring greens, cauliflower or broccoli. Small bowl of salad. 2 tablespoons tinned/stewed fruit in natural or fruit juice, not syrup. 3-4 dried apricots, prunes, figs or apple rings, and 120ml (small glass) of unsweetened juice.
- Keep healthy snacks easily to hand (e.g. fresh fruit in a bowl, or fruit salad)
- When hungry snack on raw vegetables such as cucumber, celery or carrots.
- Add chopped, fresh or dried fruit onto your breakfast cereal.
- Use plenty of vegetables, and pulses while making soups, and try to put some extra vegetables beans or lentils in your casseroles and stews and less meat.
- Try to load up on freshly squeezed juices instead of a usual coffee, tea or cola.
- Try to have salad, vegetables and /or fruit with every meal.
- Stock up on frozen vegetables for easy cooking in the microwave or oven.
- Limit the intake of dried fruits; they are good source of vitamins and minerals but they are very high in sugar and calories.
- Keep on hand canned and frozen fruit, but always look at fruits that canned in natural of fruit juice; not syrup.
- Try some fruit desserts like unsweetened fruit crumbles or sugar free jelly with fruit chopped into it.
- Ensure that a 1/3 of your lunch and 1/3 of your dinner plate should be vegetables or salad.
- Take one vitamin and mineral supplement per day (consult your dietitian).

WATER

Daily requirement

- The average person needs 6-8 glasses of water per day.
- The aim is to drink water consistently. If you drink too much all at once or too fast, it will simply pass through you, with little or no benefit to your body.
- Research shows that thirst and hunger sensations are triggered together. If there is a slight dehydration in your body the thirst mechanism may be mistaken for hunger and you may eat when your body is actually craving fluid.
- Water is a natural appetite suppressant. Drink a glass of water preferably hot before you eat any meal or snack will help fill you up and help you eat less.

Benefits of water

- Regulates appetite.
- Aids healthy digestion.
- Boost energy levels.
- Aids the elimination of wasted food from your body, and release toxic products.
- Helps in reducing water retention.
- Alleviates some headaches.
- Helps to reduce blood pressure.
- Eases joint pain.
- Decreases the risk of some cancers; such as bowel cancers.
- Maintains the functions of kidneys; therefore less chance of developing kidney stones.
- Helps in maintaining the moist for your skin.

Conditions caused through lack of water

- Pressure ulcers.
- Constipation
- Kidney and gallstones: good hydration can reduce the risk of kidney stone formation.
- Cognitive impairment: dehydration adversely affects mental performance, mild dehydration symptoms include light-headedness, dizziness and tiredness, well as reduced alertness and ability to concentrate. Once thirst is felt (0.8 - 2% dehydration), mental function

may be affected by as much as 10%. Mental performance deteriorates progressively as the degree of dehydration increases.

Dietetic tips on how to increase fluid intake

- Drink after visiting the toilet.
- Carry a bottle with you at all times.
- Use a straw.
- Try sparkling water with a slice of lemon.
- Have water with each meal.
- Set goals for the number of glasses you aim to drink every day
- Drink water after brushing your teeth.
- Ask for water when offered a drink in work settings, or carry a bottle to meetings.
- Every time you drink coffee or tea, also drink water.

CAFFEINE AND ALCOHOL

Caffeine

- Ninety three per cent of workers drink at least one caffeinated beverage a day.
- Caffeine acts as a stimulant to the nervous system, and whilst its mild action may help to prevent a feeling of fatigue, it is also a diuretic.
- This means that it makes the body produce more urine, which in turn can lead to dehydration.
- A cup of fairly strong coffee contains about 60-100mg caffeine.
- The average cup of tea made from 5g tea bag contains 50-80mg caffeine.
- Cocoa also has about 20mg of caffeine in an average cup.
- Caffeine is also present in some carbonated soft drinks.
- If you like to enjoy a cup of coffee at work, try to drink water after it.

Alcohol

- Maximum intake of alcohol is 3-4 units per day for men, which adds up to 21 units of alcohol a week.
- For women it is 2-3 units per day, which adds up to 14 units of alcohol a week.
- A unit is 25ml of spirits (standard pub measure), 125ml of wine (small glass), half a pint of ordinary strength lager, cider or beer.

Dietetic tips on how to reduce alcohol intake

- Avoid binge drinking.
- Do not drink on an empty stomach.
- Use low calorie/diet mixers to reduce your calorie intake further and to make your drinks last longer.
- Check the label – many drinks' labels now tell you how many units they contain.
- Don’t eat snacks like crisps and peanuts with your drinks – the added salt will make you want to drink more and will raise your blood pressure.
- If you drink at home, buy a measure so that you know how much you are drinking.
- Keep a drink diary, as writing this on a regular basis will help you to work out how much you're drinking.
- Try drinking each drink more slowly or alternating alcoholic drinks with soft or low alcohol ones.
- Have alcohol-free days. Get out of the habit of drinking because you are stressed or have nothing else to do. Look for other ways to relax: activities like swimming, yoga or going to the cinema. These will make you feel better and don't involve alcohol.

THE ENERGY BALANCE

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

Metabolic fuels
Carbohydrates - 4kcal/g
Protein – 4kcal/g
Fat – 9kcal/g
Alcohol – 7kcal/g

Weight maintenance vs Weight loss
An individual's dietary objectives will determine the overall balance of their diet as we all have different requirements depending on our body's shape and size, and levels of activity

Diagram A (Weight Maintenance)

- Dairy products
- Starchy foods
- Fruits and Vegetables

Diagram B (Weight loss)

- Fruit and vegetables
- Protein foods
- Starchy foods

Basal metabolic rate calculation (BMR) & calorie intake
To calculate how many calories an individual needs in their diet, you can calculate the client's BMR using the following calculation:

Imperial BMR Formula
Women: BMR = 655 + (4.35 x weight in lbs) + (4.7 x height in inches) - (4.7 x age in years)
Men: BMR = 66 + (6.23 x weight in lbs) + (12.7 x height in inches) - (6.8 x age in year)

Metric BMR Formula

Women: BMR = 655 + (9.6 x weight in kilos) + (1.8 x height in cm) - (4.7 x age in years)
Men: BMR = 66 + (13.7 x weight in kilos) + (5 x height in cm) - (6.8 x age in years)

Then multiply the BMR by the activity the following factor to get calorie requirement:
If you are sedentary (little or no exercise): Calorie-Calculation = BMR x 1.2
If you are lightly active (1-3 days/week): Calorie-Calculation = BMR x 1.375
If you are moderately active (3-5 days/week): Calorie-Calculation = BMR x 1.55
If you are very active (6-7 days a week): Calorie-Calculation = BMR x 1.725
If you are extra active (very hard exercise & physical job): Calorie-Calculation = BMR x 1.9

DIFFERENT TYPES OF DIETS

Low carbohydrate diets

Often leads to tiredness and fatigue and mostly produces water loss with no real improvement of health. In additional, they are often unsustainable, possibly contributing to yo-yo dieting because many dieters regain the weight they lose after stopping. Not suitable for some medical conditions such as diabetes.

High protein diets

Studies have shown that including protein in your diet has been shown to increase the secretion of the PYY hormone which signals to the brain that you are full; which aids weight loss. Although in the same time excessive unbalanced intake of protein can lead to liver and kidney failures and mood swings, increase in cholesterol levels, increase risk of heart disease, cancer, and even osteoporosis. Therefore those on this diet need to make sure that they have a balanced diet to avoid the negative effects of having too much protein in their diet.

GI diets

The glycaemic index measures carbohydrates. The index is a list of how blood sugar levels rise after you eat a small portion of a carbohydrate food.

- The concept is that low-glycaemic foods are more satisfying than high-glycaemic foods. Low-GI foods take longer to absorb and help dieters feel full longer, so they are less likely to overeat. High-GI foods break down faster, leaving you hungry and less satisfied. Most, but not all foods on the lower end of the GI scale tend to be healthier, nutrient-rich, less processed, and higher in fibre - Foods high in fibre can be very filling, especially when paired with protein.

Liquid diets

Lacks essential nutrients and mainly fibre which leads to constipation and slows metabolism as the body constantly being in starvation status and very low calorie diets are non-sustainable.

PH balance diets

- Describes a group of loosely related diets based on the belief that certain foods can affect the acidity of bodily fluids, including

the urine or blood, and can therefore be used to treat or prevent diseases. Acidity is measured by the pH level of the fluid, and can range from 0-14, with a low pH corresponding to an acidic fluid, a high pH corresponding to an alkaline fluid, and a pH level of 7 being neutral.

- Almost all foods that we eat, after being digested, absorbed, and metabolised, release either an acid or an alkaline base (bicarbonate) into blood. Grains, fish, meat, poultry, shellfish, cheese, milk, and salt all produce acid, so the introduction and dramatic rise in our consumption of these foods means that the typical Western diet has become more acid-producing. Consumption of fresh fruit and vegetables decreased, which further made the Western diet acid-producing.
- Our blood is slightly alkaline, with a normal pH level of between 7.35 and 7.45. The theory behind the alkaline diet is that our diet should reflect this pH level and be slightly alkaline. A diet high in acid-producing foods disrupts this balance and promotes the loss of essential minerals such as potassium, magnesium, calcium, and sodium, as the body tries to restore equilibrium. This imbalance is thought to make people prone to illness.

The eat well plate

This is the most well-known and promoted diet plan and contains all of the food groups in the recommended proportion. This is represented as follows:

- The majority of this diet is made up of fruit and vegetables as well as bread, rice, potatoes and pasta.
- Then it is recommended to eat meat, fish, eggs and beans as well as milk and dairy foods
- The smallest quantity of food is meant to be sugary and fatty foods.

Food groups	What's included	How much and what types?
Bread, Other cereals and potatoes. Represents the body's main source of energy. High in fibre, vitamins and minerals. It makes up about a third of your daily diet.	Contains starchy carbohydrates and root vegetables. Other cereals include breakfast cereals, pasta, rice, oats, chapattis, and crackers.	Choose wholegrain, brown or high fibre kinds whenever you can. Have large amounts at each meal or have them for snacks when you hungry.
Fruit and vegetables. High in vitamins, minerals and fibre. It makes up about a third of your daily diet.	Fresh and frozen fruit and vegetables, dried fruit and fresh fruit juice.	You should eat at least five portions of different fruit and vegetables each day. It can be eaten as part of every meal, or as a first choice for a snack.
Milk and Dairy foods High in saturated fat therefore needs to eaten in moderation. High in protein which is needed for growth and repair body tissues. Also they're an important source of calcium, which is essential for healthy bones and teeth.	Milk, cheese and yoghurt. NB : fromage frais and Cottage cheese have slightly lower calcium levels.	Aim for 2 to 3 servings / day. **A serving** is:1/3 pint of milk, 1 pot of yoghurt and a small matchbox size piece of cheese. Choose lower fat or reduced fat alternatives when possible to cut down fat, not calcium.
Meat, poultry, fish and alternatives. High in protein, vitamins and minerals. Could also be high in fat; depends on the way of cooking; therefore need to be eaten in moderation.	Alternatives include beans, eggs, nuts, lentils, peas, and pulses. Soya mince, tofu and textured vegetable protein.	Try to have 2 servings per day. **A serving is:**100g (4oz) chicken or turkey, 1-2 eggs, 50-75g (2-3oz) of cold meat, 4 tablespoon baked beans, 50g(2oz) dried pulses. - Choose lower fat alternatives

		- Try to have fish twice a week and other oily varieties are good. - Try to eat more pluses, they are cheap, healthy and can be used to make meat go further or for a meat-free meal.
Food containing fat and sugar They contain very few nutrients and are often known as 'empty calories', also they are very low in vitamins and minerals.	Margarine, butter, low fat spread, cooking oils, salad dressing, creams, crisps, biscuits and sugar.	- Limit the intake of these foods to the minimum. - They should only be eaten as occasional treats, or to increase the palatability of other foods. - Look for low fat-alternatives or reduced- fat whenever you can. - Look for sugar-free drinks, and cut down the amount of sugar you use in drinks and in baking.

Other well-known diets include:

Vegans refrain from consuming/using any animal products. Vegans are against the exploitation of animals for any reason. It's a lifestyle, not just a diet.

Vegetarians do not consume any animals and meat by products - beef, chicken, pork, fish, shellfish, cheese made from animal rennet, gelatine - but some do consume milk and eggs as well as other animal products.

Vegan is always a vegetarian, but a vegetarian is not necessary a vegan.

Dietetic tips that need to be considered when advising vegans or vegetarians include:

1) Ensure they are getting enough protein through other sources such as milk, cheese, pulses, nuts, seeds, soya, Quorn and Quark.

2) Ensure they have enough Selenium which is important for the immune system and protection against cancer. Sources include brazil nuts, bread and eggs.
3) Ensure they have enough iron through eating beans, chick peas, dried fruit, vegetables such as broccoli and baked potato with skin.
4) Ensure they have enough Omega 3 from oils such soya, rapeseed and flaxseed oil. Also nuts, seeds, such as walnuts and pumpkin seeds.
5) Vegan diet that excludes all animal products, including milk and dairy foods, needs more attention to ensure adequate amounts and regular intake of Calcium and Vitamin B12 along with a source of Vitamin D if sun exposure is limited.
6) Calcium is found in soya bean products, breads, nuts, dried fruits, sesame seeds, pulses, green leafy vegetables also breakfast cereals, and breads which are fortified with Calcium.
7) Vit B-12 can be found in products which are fortified with it such as some yeast extracts, soya milks, vegetable and sunflower margarines, fortified breads and breakfast cereals.

Meal ideas for vegetarians

- Make or buy vegetable quiches.
- Try vegetable stir fry with Quorn strips and noodles or rice.
- Cook an extra portion when making a vegetarian dish, freeze and use later when the family meal is not suitable.
- Remove a portion of sauce for Bolognese/casseroles/curry before meat is added.
- Add green, brown lentils to food as it gives the appearance of red meat.
- Have rice dishes such as vegetable risotto with grated cheese, bean paella or vegetable Pilau with Dahl.
- Veggie burgers or nut cutlets are easy to buy ready-made and are handy to serve instead of meat.

DETOXIFICATION

Definition

Detoxification is the process of removing unhealthy substances from our bodies which are accumulated from our diet, lifestyle and the environment. Our body's detoxifying organs are the liver, kidneys and gall bladder, however with the number of toxins in our modern day environment, these have to work a lot harder in order to get rid of the toxins.

Benefits

A body detox helps to take the load off these organs, helping you feel refreshed and with organs that last longer. Other benefits include:

- Weight loss and faster metabolism.
- Less mood swings.
- Improves our immune function.
- Scavenges free radicals and eliminate toxins.
- Strengthen body's fight against cancer cells and generate healthy cells in our body.
- Cleanses mucous, congestion, fermentation, inflammation in our digestive tract.
- Purifies our blood.
- Reforms our lifestyle addictions to sugar, salt, and high glycaemic carbohydrates.

Dietetic drinking tips on how to detoxify your body

- Lemon water in the morning.
- 8 cups of water per day, 1 more cup for every 25 pounds extra.
- Drinking water every two hours.
- Hot drinks before meals.
- Green, nettle tea, and milk thistle.
- Decaffeinated drinks.
- No alcohol, and no fizzy drinks.

Dietetic eating/lifestyle tips on how to detoxify your body

- Having one grapefruit per day.
- Try to limit potatoes and root vegetables.
- No sugars or artificial sweeteners to be used.
- Try to use organic food, organic fruit and vegetables and home cooked meals.

- Try to limit canned, bottled and processed foods, as well as sugary and junk foods.
- Try to sit with feet up elevated for knees higher than ankles.

Did you know that the national institute of diabetes and digestive and kidney disease (NIDDK) recommends drinking cranberry juice to help in flushing out the bacteria responsible for creating urinary tract infections from your system? Cranberries contain flavonoids that target the particular type of bacteria which gets attached to the urinary tract cells and weakens them without disrupting the normal intestinal flora. The harmful bacteria will then get flushed out of your body with the rest of the toxins during urination.

Did you know that taking vitamin C helps the body to produce glutathione which represents a compound that is found in the liver? This can strengthen the liver as a detoxifier, helping it to remove harmful toxins.

METABOLISM

Definition

Metabolic rate is the rate at which our body burns calories and perform the chemical reactions in the body's cells that convert the fuel from food into the energy which then needed to do everything from moving to thinking to growing.

Different foods affect our body's metabolic rate in different ways. Research shows that protein foods increase the metabolic rate by up to 30% compared to fats which will raise it by 4% and carbohydrates which raise it by 6%. By having the right mixture of foods, a diet combined with exercise can be designed to increase the metabolic rate of an individual.

Is there a slow metabolism?

Metabolism is affected by a number of factors including:

- Age
- Weight
- Physical activity
- Medication
- Lifestyle
- As well as genetic factors

Hence using these factors it is possible to get a qualitative understanding for an individual's metabolic rate. This can then be used to encourage an individual to speed up their metabolism

Dietetic tips on how to speed metabolism

If you have a weight problem you are likely to be deficient in B vitamins. These vitamins assist in the utilization of energy from the foods we eat, for example vitamin B12 helps in carbohydrate metabolism. Hence by eating foods rich in Vitamin B, you can significantly increase your metabolism. Other ways of speeding your metabolism include:

- Never miss your breakfast
- Eat 3 meals and 5 snacks per day.
- Aim to eat every 2-4 hours
- Start your meals with protein and base it around protein
- Eat a small piece of protein before bed
- Never Microwave food in plastic containers; empty content in glass plate first

- Varying meals between breakfast, lunch and dinner speeds your metabolic rate as your bodies has to cope with breaking down different types of foods.
- Chew food 20-25 times before swallowing
- Exercise at least for 30 min 4-5 times per week, and preferably using some weight during exercise.

Evidence suggest that 30 minutes of moderate exercise at least five days a week is the minimum target to gain health benefits and improve your fitness. While you need to increase you activity to 40-60 minutes at least five days a week to help you to lose weight and stop the weight going back on.

Practical ideas to increase physical activity at the work place.

- Walk reports and other paperwork to colleagues rather than sending an email message.
- Walk in place in front of your desk for a few minutes.
- Commute on your feet. If you live close enough (and it's safe), walk or bike to work. If you have to drive, park farther away than you usually do so you have to walk a little farther.
- Stand when you are talking on the telephone or writing on a chart.
- Taking the stairs burns five times more calories than taking the elevator.
- Seek out colleagues with similar interests and start a lunch-time walking club.
- Take a walk before or after lunch, split your allocated time in half to accommodate a designated time to walk.
- Keep going to the water machine to have a drink rather having a bottle at your disk, and use toilets located in different floors.
- Wear a pedometer. Find out how many steps is an 'average' day for you and set a new goal. Shoot for a minimum of 10,000 steps a day.
- Map out a walking trail that you can take during lunch break or after work.
- Add variety to your walk by choosing different paths throughout the workplace.
- Remember to carry your cell phone and identification when you walk outside.
- Stand up and sit down a few times to loosen your muscles
- Perform some simple exercises and stretches at your disk

RELIGIOUS DIETARY PRACTICES

Christian

For most Christians, eating habits are not affected - though some will be vegetarians, usually for moral reason, and some will refrain from eating meat on Fridays. Some sects, for instance Mormons, have many rules and restrictions regarding eating and drinking, for sample complete abstinence from tea, coffee and alcohol and an emphasis on wholesome eating.

Judaism (kosher)

- The term Kosher, or Kasher means fit and describes all foods that are permitted.
- A Kosher kitchen is divided into separate sections one for dairy, meat and pareve (without meat). Different sets of utensils are used for meat/poultry and dairy.
- Many Jewish people practice some or all of these restrictions in various degrees. It would be best to inquire as to what if any restrictions they have.
- No pork and shellfish. Fish is acceptable as long as it has fins and scales. All animals with split hooves and which chew the cud (including sheep and cows) are permissible. Jews refrain from eating meat and dairy products at the same meal. No wine, unless it is kosher wine. All meat has to be prepared by a qualified kosher butcher (SHOCHET).
- If meat was eaten in the same day, one must wait six hours before consuming any dairy products

Muslims (halal)

- This religion has various food restrictions according to their own dietary laws, which are Halal.
- Carnivorous animals are not permitted. All pork and pork products are totally forbidden. Sea animals which do not have fins or scales are considered undesirable by some Muslims otherwise all other seafood is permissible.
- Alcohol in any form is not permitted
- Permissible meat other than pork can be eaten only if it is prepared in the correct way (halal).
- Other products avoided by Muslims include foods containing, lard, gelatine and Rennet.

Hindu
Most Hindus do not eat meat (strict Hindus are vegetarians) and none eat beef since the cow is sacred to them.

Sikh
The Sikhs do not have many strict rules regarding food but many are vegetarians. No alcohol is permissible.

Buddhist
Strict Buddhists are vegetarians and their dishes vary since many live in India and China, where available foods will be different.

UNDERSTANDING DIETETIC ASPECTS OF FOOD

Interpreting food labels:

When you look at food label you should look at the following:

- The total number of calories in the product.
- The total amount of fat
- How much of the total fat is saturated fat.
- How much sugar it contains
- How much salt it contains
- How much fibre it contains.

If you are unsure whether a snack or a drink or any product you are choosing is a healthy choice or not, check out the nutritional information on the label and follow these guidelines per 100g:

Nutritional information per 100g

A lot	A little
20g of fat	3g of fat
5g of saturates	1g of saturates
10g of added sugars	2g of added sugars
1.25g of salt 0.5g of sodium	0.25g of salt 0.1g of sodium
3g of fibre	0.5g of fibre

Always use this daily guideline amounts for the most important nutrients listed on food labels to know how much you need for your gender. However what you need will be different from one person to the next. If your main aim is weight loss your needs will be much lower than these figures. The daily recommended amounts are:

Typical values	Women	Men	Children (5-10 yrs)
Calories	2,000 kcal	2,500 kcal	1,800 kcal
Protein	45 g	55 g	24 g
Carbohydrate	230 g	300g	220 g
Sugars	90 g	120 g	85 g
Fat	70 g	95 g	70 g
Saturates	20 g	30 g	20 g
Fibre	24 g	24 g	15 g
Salt	6 g	6 g	4 g

Always look at 'A little' part of this table in all nutrients
Apart from the fibre look at 'A lot' part.

Marketing terminology

- **Ingredients:** if you want to know what ingredient most makes up a product, check which ingredient is listed first, because ingredients are listed in order of quantity.
- **Low-fat**: a claim that a food is low in fat may only be made where the product contains no more than 3g of fat per 100g for solids or 1.5g of fat per 100ml for liquids
- **No added sugar or unsweetened** this usually means that no sugar or sweetener has been added to the food to make it taste sweet. This doesn't necessarily mean that the food will not contain naturally occurring sugars found in fruit or milk.
- **Light or lite:** to say that a food is 'light' or 'lite', it must be at least 30% lower in at least one typical value (listed on the label on the back of the pack), such as calories or fat, than standard products. The label must explain exactly what has been reduced and by how much, for example 'light: 30% less fat'.
- You may be surprised at how little difference there is between foods that carry claims and those that don't. A 'light' or 'lite' version of one brand of crisps may contain the same amount of fat or calories as the standard version of another brand.

Health claims:

- Food packaging companies often makes health claims for the food, such as, 'helps maintain a healthy heart', or 'helps aid digestion'. Previously, the rules on claims made it difficult for people to know what certain terms meant. Now there are specific rules to help prevent misleading claims, which means that any claims made about

the nutritional and health benefits of a food must be based on science.

- General claims about benefits to overall good health, such as ‘healthy’ or ‘good for you’ will only be allowed if accompanied by an approved claim. This means that these claims must be backed up by an explanation of why the food is ‘healthy’.
- Labels are not allowed to claim that food can treat, prevent or cure any disease or medical condition. These sorts of claims can only be made for licensed medicines.
- **Use by:** you will see ‘use by’ dates on food that goes off quickly, such as smoked fish, meat products and ready-prepared salads. Don't use any food or drink after the end of the ‘use by’ date on the label, even if it looks and smells fine. This is because using it after this date could put your health at risk. Once a food with a ‘use by’ date on it has been opened, you also need to follow any instructions such as ‘eat within three days of opening’.
- **Best before**: dates are about quality, not safety. When the date is passed, it doesn't mean that the food will be harmful, but it might begin to lose its flavour and texture. Eggs can be eaten a day or two after their ‘best before’ date as long as they are cooked thoroughly until both yolk and white are solid, or if they are used in dishes where they will be fully cooked such as a cake. Cook eggs until both the white and yolk are solid will kill any bacteria, such as salmonella. People who are in ‘at-risk’ groups should only eat eggs, or food containing eggs, that have been thoroughly cooked.
- Every year in the UK we throw away 7.2 million tonnes of food and drink, most of which could have been eaten. So think carefully before throwing away food past its ‘best before’ date. Remember, the ‘best before’ date will only be accurate if the food is stored according to the instructions on the label, such as ‘store in a cool dry place’ or ‘keep in the fridge once opened’.

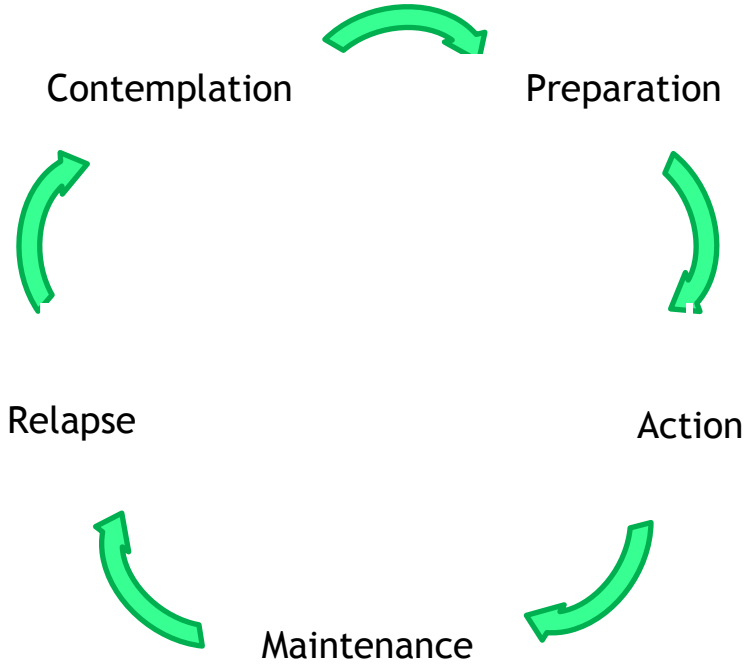
Why do people overeat?

- **Physiological need:** people eat when they are hungry, but people also eat because they were not satiated during an earlier meal, such as when people start snacking.
- **Sensory appeal:** this includes things like appearance, smell, taste, texture and positive emotions that are associated with a particular meal or location.
- **Psychological influences**: this includes things like boredom, depression, comfort eating, high levels of stress and feelings of rejection.
- **Socials factors:** social norms play a big part in our motivations for eating, whether these are religious festivals or holiday breaks or just peer pressure from our friends when we go out.
- **Financial concerns:** in the west it is uncommon to find even those who are poor not eating due to lack of money, however what is common is to find those who are on a low income purchasing cheap very unhealthy food. Those with good levels of income may also excessively spend on food.
- **Habitual reasons:** some people eat either out of habit or out of boredom and see it as something to do. Some even go to the extent of mindless eating.

A very good tip: if you feel hungry, go and have a glass of water as thirst is often mistaken for hunger. If after that you are still hungry, go and eat something.

Behavioural change cycle

Once we understand why someone is overeating, we can then set out to help them do something about it. The following behavioural change cycle sets out some clear steps to help us do this:



Name: *Date:*

Weight at beginning of week _____ Weight at end of week _____

Food Intake ↓		Toilet visits ↓
DAY 1		
Breakfast		
Mid-morning		
Lunch		
Mid-afternoon		
Evening		
Supper		
Extras		
DAY 2		
Breakfast		
Mid-morning		
Lunch		
Mid-afternoon		
Evening		
Supper		
Extras		
DAY 3		
Breakfast		
Mid-morning		
Lunch		
Mid-afternoon		
Evening		
Supper		
Extras		

DAY 4		
Breakfast		
Mid-morning		
Lunch		
Mid-afternoon		
Evening		
Supper		
Extras		
DAY 5		
Breakfast		
Mid-morning		
Lunch		
Mid-afternoon		
Evening		
Supper		
Extras		
DAY 6		
Breakfast		
Mid-morning		
Lunch		
Mid-afternoon		
Evening		
Supper		
Extras		
DAY 7		
Breakfast		
Mid-morning		
Lunch		
Mid-afternoon		
Evening		
Supper		
Extras		

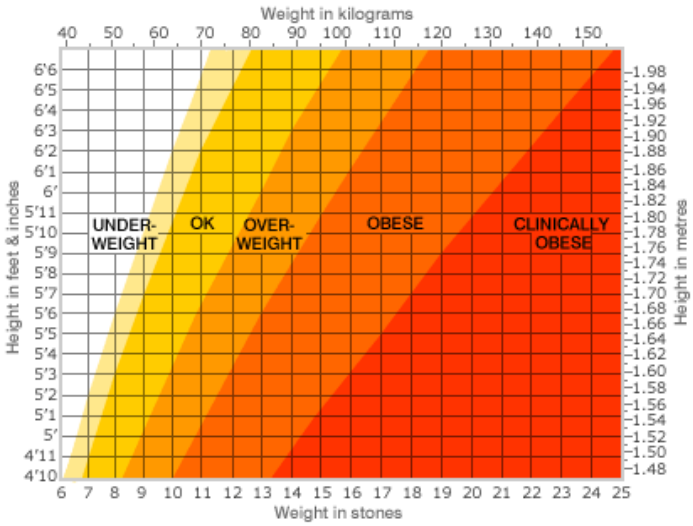
Goals Achievement **Name:**

Date	Goals for this week	% of Target Achieved

Assessing individual's weight
When making an assessment of an individual's weight, take the following measurements:

Anthropometric measurements:

- Height
- Weight
- BMR
- BMI (Weight (kg) / Height (m)^2)



Body Fat percentage:
Females: (1.2*'BMI) + (0.23*Age) - 5.4 **Males:** (1.2*'BMI) + (0.23*Age) - 10.8 - 5.4

Description	Women	Men
Essential % of fat	10-13%	2-5%
Typically Athlete	14-20%	6-13%
Physically fit	21-24%	14-17%
Acceptable	25-31%	18-24%
Obese	32%+	25%+

Basal Metabolic Rate: see the energy balance section

Body measurements:

- Arm measurements
- Upper and lower tummy measurements
- Chest measurement
- Hip measurement
- Waist measurement
- Thigh measurements

Waist to hip ratio: Waist / Hip measurement (High risk of CHD, women >0.7, men > 1.0)

Tips on how to influence behavioural change

- Building a trusting, caring relationship with the patient.
- Showing real empathy with difficulties patients/clients are experiencing.
- Showing understanding of the way in which risky behaviours (comfort eating) are ways of coping with stress or dealing with unwanted feelings.
- Allow them time to think about change, patients may withhold information if they sense that admitting to behaviour will result in being bullied to change it.
- Get patients to fill out pros and cons, which are reasons for continuing current lifestyle and reasons for changing current lifestyle.

Making changes - SMART objectives

1. Specific objectives e.g. cutting down drinking of 4 units per week.
2. Measurable results – it will help to assess progress and enhance motivation e.g. to lose a certain amount of weight to fit into a dress. A positive outcome should be related to the patient- otherwise reward will be insignificant
3. Agreement between the people who have to make it work: put a patient plan to achieve his/her goal as the patient is the only person that can make the change.
4. Realism – believing something is possible is a prerequisite of making attempt to achieve it e.g. is the weight loss target realistic? Steps need to be small and achievable in foreseeable future abut long-term worthwhile.
5. Time scale: a clear timescale should be put in place where reviews are periodically performed to ensure that the changes are being implemented.
6. Supportive back up: help the patient in searching for their individual supporters because trying to change a re-occurring behaviour requires support.

Functional approach to behavioural change

- Give patient healthy alternative to their behaviours, do not ignore the cause. For example eating a bag of chips may be seen as more convenient. Show them how bringing a lunch box will save them more time

- Cognitive distraction therapy - if they have bar of chocolate or biscuit with cup of tea, change the cause and have fruit juice.
- Adjust the advice to the client's working habits, stress levels and working times.
- If someone does not find any suitable alternative- they are not ready to change.

For successful change, the patient should believe:

- This current behaviour is bad for me.
- I will be better off if I change.
- I have a good chance of succeeding if I try.
- Discuss with the patient how the healthier approach will be more affordable and cheaper, and the idea of healthy lifestyle will cost more is not valid.

Dietetic tips for practical behavioural changes

- Sit down while eating; as you will fill up much sooner.
- Do nothing else while eating, don't watch TV or listen to a radio.
- Don't waste the calories – taste and enjoy them.
- Use smaller plates so that moderate portions do not appear meagre.
- Clean your teeth after a meal or when you get the craving to eat.
- Practice refusing offers to overeat. Learn to say No, thank you.
- Never say the word "I'm on a diet". Alternatively say I'm trying to reduce my intake of fatty and sugary foods.
- Prepare yourself for risk situations when you tend to eat without thinking (e.g. when you come back from work). Plan ahead what you are going to eat and prepare it in advance.
- Clear up the table and dishes as soon you finish from the meal; so you are less tempted to eat what is left over.
- Pause during the meal and put you knife and fork down between mouthfuls.
- Wait at least five minutes after your meal before deciding whether to have a second helping.
- Chew your food well and eat slowly; it takes 15 or more minutes for your brain to get the message you have been fed. Slowing the rate of eating can allow (fullness) signals to begin to develop.
- No more crash diets
- When shopping write a shopping list and stick to it.
- Always shop on a full stomach
- Use the behavioural rule "When you cheat, combine with a healthy treat".
- Research confirms that changing some of your eating behaviours; and the way you think towards food and exercise; will make it much easier for you to stick to your diet plan, and it will help you feel more in control of what you are trying to achieve.

Resources of information for the public

- Department of health and NHS
- World Cancer Research fund
- Food standard Agency
- British Nutrition Foundation

- British Dietetic Association
- Food and drink federation
- British Heart Foundation National Centre for Physical Activity and Health

DISORDERS OF THE STOMACH & COLON

Heartburn, Indigestion & Irritable Bowel Syndrome IBS

Definition

- Heartburn is a burning sensation in the chest that can extend to the neck, throat, and face; it is worsened by bending or lying down. It is the primary symptom of gastroesophageal reflux, which is the movement of stomach acid into the oesophagus.
- Indigestion, which is sometimes called dyspepsia, is a general term covering a group of nonspecific symptoms in the digestive tract. It is often described as a feeling of fullness, bloating, nausea, heartburn, or gassy discomfort in the chest or abdomen.
- Irritable bowel syndrome (IBS) is a common gut disorder. The cause is not known. Symptoms can be quite variable and include abdominal pain, bloating, and sometimes bouts of diarrhoea and/or constipation. Nausea (feeling sick), headache, poor appetite, tiredness, backache, muscle pains, feeling quickly full after eating, and heartburn. Symptoms can range from mild to severe. There is no cure for IBS, but symptoms can often be eased with treatment.

Common causes for all the above

- Erratic eating habits, long periods without food followed by large meal.
- Hurried meals.
- Frequent consumption of heavy meals.
- Eating late at night.
- Excessive consumption of tea, coffee, or alcohol.
- Stressed lifestyle or anxiety.
- Intolerance to certain foods.

Practical dietary modifications for prevention and treatment

- Eating smaller meals at regular intervals, and avoid missing meals or leaving long gaps between eating.
- Avoiding late at night meals.
- Avoid bending, lifting or lying down after meals.
- Reducing weight if needed.
- Avoid high spiced or foods that cause irritation.

- Sleep semi right position or with the head of the bed raised a few inches to help prevent reflux
- Drink at least eight cups of fluid/day, especially water or other non-caffeinated drinks. This helps to keep the stools soft and easy to pass along the gut.
- Restrict caffeinated tea and coffee to three cups per day.
- Restrict the amount of fizzy drinks that you have to a minimum.
- Don't drink too much alcohol. (Some people report an improvement in symptoms when they cut down from drinking a lot of alcohol, or stop smoking if they smoke).
- Consider limiting intake of high-fibre food (but see the section above where an increase may help in some cases).
- Limit fresh fruit to three portions (of 80g each) per day.
- If you have diarrhoea, avoid Sorbitol, an artificial sweetener found in sugar-free sweets (including chewing gum) and in drinks.
- If you have a lot of wind and bloating, consider increasing your intake of oats (for example, oat-based breakfast cereal or porridge) and linseeds (up to one tablespoon per day). You can buy linseeds from health food shops.
- Peel cucumber and peppers and fruits in extreme bloating as it causes indigestion.
- Keep a diary and see how changing quantities of most commonly consumed foods changes the symptoms.

DIABETES

Definition

Diverse disorder; its main presentation is chronic hyperglycaemia, caused by either insulin deficiency or resistance to the effects of insulin in tissues or combination of insulin.

Type 1 diabetes: insulin dependent, 10-15% of patients with diabetes.
Specifications: Acute onset, occurs at young age, availability of ketones in the urine, and associated with weight loss.
Causes: genetic, viral, low birth weight, environmental.

Type 2 diabetes: non-insulin dependent (patient may become insulin dependent at later stages), 85-90% of patients with diabetes.
Specifications: Slow onset, occurs at older age, has a strong link with obesity.

Type 2 diabetes symptoms

- Feeling very thirsty, tiredness, passing a lot of urine, blurred vision, general aches and pains, slow healing of cuts.

Causes & risk factors

- Impaired glucose tolerance
- Insulin resistance syndrome
- Genetic component
- Familial - tends to run in families.
- Sudden stress Age > 40.
- Body weight.
- Gender: more common in women

Practical dietary modifications for prevention and treatment

- Ensure an adequate and balanced nutritional intake.
- Limit rapidly absorbed carbohydrate intake.
- Monitor body weight, with encouraging weight maintenance and weight reduction when necessary.
- Avoid hypoglycaemia.
- Eat plenty of starchy carbohydrates, especially those with a low GI, and avoid high GI foods, especially between meals

- Eat regular meals and healthy snacks, and don’t skip meals.
- Don’t miss breakfast
- Avoid all unhealthy/hydrogenated fats
- Choose low-fat dairy products
- Check food labels.
- Have 5 portions of different fruits and vegetables per day (fruit juice counts as one portion, and a smoothie can be up to 2 portions).
- Choose lean meat and remove fat and skin from chicken.
- Avoid fried and fast food, and baked goods.
- Keep hydrated and avoid binge-drinking
- Replace potatoes, with sweet potatoes with skin for fibre.
- Replace white bread with rye bread or soda bread or Ryvita crisp breads.
- Replace white carbs (rice, pasta), with Quinoa, spelt, millet.
- Exercise 4-5 times for 20 min per week.

CORONARY HEART DISEASE & HYPERLIPIDEMIA

Definition
Cholesterol is found naturally within the body in the structure of cell walls. Cholesterol is carried around the body in the blood on proteins known as high density (HDL) and low density (LDL) lipoproteins. HDL cholesterol is beneficial to the body but LDL cholesterol can cause blood vessels to become narrowed or blocked. High LDL levels can increase the risk of heart attacks, Myocardial Infraction (MI), chest pain (angina), narrowing of the blood vessels (peripheral artery disease) and stroke – collectively known as cardiovascular disease (CVD).

Symptoms:
- Angina
- Heart attacks- Sweating, light –headedness, nausea, and breathlessness.
- Heart failure

Risk factors
Those who are at high risk include:
- Smokers
- Physical inactivity
- Hyperlipidaemia
- Type 2 diabetes
- Hypertension

Non-avoidable factors:
- Simply getting old is a risk factor for cardiovascular disease; risk of stroke doubles every decade after age 55.
- Your family's history of cardiovascular disease indicates your risk. If a first-degree blood relative has had coronary heart disease or stroke before the age of 55 years (for a male relative) or 65 years (for a female relative) your risk increases.
- Your gender is significant: as a man you are at greater risk of heart disease than a pre-menopausal woman. But once past the menopause, a woman's risk is similar to a man's. Risk of stroke is similar for men and women.
- Your ethnic origin plays a role. People with African or Asian ancestry are at higher risks of developing cardiovascular disease than other racial groups.

Practical dietary modifications for prevention and treatment

- Lose weight and eat healthy.
- Exercise regularly
- Stop smoking
- Try to consume 2-3 portions of wholegrains per day.
- Choose lean cuts of meat and trim off any visible fat.
- Choose low fat, polyunsaturated or monounsaturated spread instead of butter, lard or dripping. And spread them thinly.
- Measure oil for cooking with tablespoons rather than pouring it straight from the container.
- Avoid additional fat to foods, e.g : glazing vegetables, or using extra fat in cooking. Oil is better than lard for cooking but is still calorie rich so use as little as you can get away with.
- Grill, bake, boil, poach, microwave or steam instead of frying wherever possible or roast so you don't need to add any extra fat.
- Choose lower fat versions of dairy foods whenever you can, such as semi- skimmed or skimmed milk, reduced-fat yoghurt, and low fat cheeses.
- Avoid processed foods and hidden fats in pies, pastries, quiche, Yorkshire puddings, sausage rolls, cakes, biscuits and crisps.
- Mix salads with low calorie salad dressing rather than mayonnaise or dressing on sandwiches and salads.
- Eating 47g of soy protein a day led to a 9% drop in total cholesterol and a 13% reduction in LDL.
- Try to consume 1-2 portions of oily fish per week.
- Cut back if you drink a lot of alcohol.
- Cut down on salt and caffeine.

HYPERTENSION

Definition

High blood pressure, or hypertension, is very common in the UK - one in four adults suffer from it. It usually occurs as we get older and the walls of our blood vessels lose some of their elasticity and become rigid. Several aspects of your lifestyle, including diet, can cause this to happen more quickly. Untreated hypertension increases the risk of heart attacks and stroke as well as kidney and eye damage.

Symptoms and risk factors

Your chances of having high blood pressure increase as you get older. There is often no clear cause of high blood pressure but you are at increased risk if you:

- Are overweight
- Have a relative with high blood pressure
- Are of African or Caribbean descent
- Eat a lot of salt
- Don't eat enough fruit and vegetables
- Don't do enough exercise
- Drink a lot of coffee (or other caffeine-based drinks)
- Drink a lot of alcohol
- Are aged over 65

Practical dietary modifications for prevention and treatment

The DASH (Dietary Approaches to Stop Hypertension) study showed that eating a low-fat diet, rich in essential minerals or antioxidants, helps to lower blood pressure.„

- Fruit and vegetables - aim to eat at least five portions per day. Fresh, frozen, dried, juiced and canned all count. If using canned vegetables, look for lower salt
- Include 2-3 servings of low-fat dairy foods such as semi skimmed milk, low-fat yoghurts and low-fat cheese.
- Include 2-3 servings of wholegrains/day including breakfast cereals, bread and pasta.
- Include at least 1-2 portions of oily fish especially dark-fleshed fish per week such as salmon, pilchards, sardines, mackerel, herring and

trout. Fresh, frozen or canned are all good, but avoid fish canned in brine.

- Lose weight if needed.
- Exercise regularly.
- Sit with feet up.
- No smoked foods.
- Cut back if you drink a lot of alcohol.
- Stop smoking.
- Cut down on salt and caffeine.

OSTEOPOROSIS

Definition

Osteoporosis means 'porous bone'. Bones become thin and their strength is reduced, making them more likely to break. Thinning bone can also cause chronic bone pain in later years - particularly back pain. Bones are made of collagen fibres filled in with calcium and other minerals to create a hard structure. Bones are constantly remodelled to suit our lifestyle. During childhood and early adulthood they develop their strength and from our mid-30s onwards start to lose calcium slowly, causing bone thinning.

Symptoms and risk factors

Bone pain and softness, cramps in the legs at night, loss of height as a result of destabilized spines, abdominal pain, broken bones and fatigue.

Non avoidable risk factors

Gender - Women are much more likely to develop osteoporosis than are men.
Age - The older you get, the greater your risk of osteoporosis
Race - You're at greatest risk of osteoporosis if you're white or of Asian descent
Family history - Having a parent or sibling with osteoporosis puts you at greater risk, especially if you also have a family history of fractures.
Frame size - Men and women who have small body frames tend to have a higher risk because they may have less bone mass to draw from as they age.
Hormonal imbalance - low levels of oestrogen especially at menopause.
Thyroid problems - Too much thyroid hormone can cause bone loss.
Other glands - Osteoporosis has also been associated with overactive parathyroid and adrenal glands.

Avoidable risk factors

Osteoporosis is more likely to occur in people who have:

- Low calcium intake.
- Eating disorders
- Weight-loss surgery.
- Using steroids and other medication.
- A sedentary lifestyle.
- Excessive alcohol consumption.
- Smokers

Practical dietary modifications for prevention and treatment

- Try to get adequate calcium intake (700mg to1000mg a day) by making sure that you have enough protein-containing foods in your diet.
- Aim for meat, fish, dairy or vegetarian alternatives, Tofu or pulses twice a day
- Try to get adequate vitamin D from diet and supplements (vitamin supplements or cod liver oil) or exposure to sunshine. Take vitamin D supplements at 10-20 micrograms.
- Vitamin D rich foods: Oily fish, liver, egg yolks, fortified margarines, fortified fruit juices, some fortified breakfast cereals, Vitamin D-enriched milk, and dried milk powder
- Try to consume adequate amounts of vitamin K, found in green, leafy vegetables, to help form the bone-hardening protein called osteocalcin.
- Avoid vitamin A supplements in excess of 1500mcg (5000vIU*) daily. This amount is only found in high dose supplements, and blocks the action of vitamin K on bone Health.
- Daily weight-bearing exercise can strengthen lower bones.
- Walking, running, standing or just shifting weight from one foot to another while standing for a bus are examples of weight bearing exercise.
- Swimming is not a weight bearing exercise
- Sedentary or bed bound people will find it difficult to strengthen bones, even if their diet is calcium rich. This is due to lack of weight bearing exercise.

FOOD ALLERGIES AND INTOLERANCES

Definition

A food allergy is an abnormal response to a food triggered by the body's immune system. When you are allergic to certain types of food, the suspect food triggers the immune system into releasing antibodies called immunoglobulin E. These cause the body to start releasing histamines, and it's these that are responsible for all the unpleasant symptoms.

Difference between allergy and intolerance

Food allergy and food intolerance are both a type of food sensitivity. Food intolerance doesn't involve the immune system and is generally not life-threatening. Very often, people mistake food intolerance for food allergy. Food intolerance is much more common, and is the less serious of the two conditions. Just because your body responds badly to a particular food, it doesn't automatically mean that you are allergic to it. Sometimes; another type of reaction to food called 'food intolerance' occurs.

The symptoms of food intolerance may look and feel like those of a food allergy such as vomiting, stomach ache and diarrhea. However; the immune system is inactive and it does not cause these symptoms. For example some fruit juices and natural sugars can cause rashes and diarrhea, but these aren't allergic reactions.

Foods that cause allergic reactions

Any food can cause an allergic reaction. However, studies have found that 80 to 90% of people with food allergies are allergic to one or more of these foods:

- Eggs, Milk, Cow's milk protein, Soya milk, Wheat , Soy , Peanuts &Tree nuts (such as almonds, pecans, cashews, Brazil nuts and walnuts), Fish and shellfish
- Problems can also be caused by non-tolerated food additives such as phosphates, colourings, preservatives, emulsifiers, glutamates, sweeteners and fluoride.

Symptoms of Food Allergy

Symptoms may appear within minutes or as long as several hours after eating the allergy-provoking food. Allergic reactions to foods most often involve the following parts of the body:

- Skin symptoms: Itchy, scaly rash called Eczema, redness or flushing and swelling.
- Digestive tract symptoms: Stomach pain, nausea, vomiting, diarrhoea and bloating.
- Respiratory symptoms: sneezing, coughing, runny nose, wheezing and itchy, watery eyes.
- The most severe allergic reaction is anaphylaxis, which involves all parts of the body including the cardiovascular system so that your body goes into shock (the blood pressure falls dangerously low). In addition to producing the symptoms of food allergy, it may also lead to difficulty in breathing, and unconsciousness and in extreme cases, even death. If you ever suspect this type of reaction, don't wait, seek emergency medical treatment.

Avoid allergy provoking foods by following these steps:

- Read the ingredient list on food labels carefully to check for foods that are off-limits.
- Since food manufacturers often change ingredients, you must always read labels, even ones on foods you are familiar with. As many foods, particularly soy and wheat, can be 'hidden' in veggie burgers, soups, ready meals, cakes and biscuits.
- Be aware that common recipes sometimes contain unusual ingredients. Therefore keep a watchful eye when eating dishes served by family, friends or restaurants. Always ask whether the meal contains the specific food that you are allergic to, and ask the cook for preparation details.
- Particularly in restaurants, don't take a chance. Question staff about ingredients, and if the server does not know what is in a dish, ask the chef, and if there is any uncertainty about the ingredients don't eat the food.

Practical dietary modifications for treatment

- If you think that you are allergic to certain food, start a food diary recording what you eat, when and what reaction occurs. After a week or two, ask your doctor for advice. Don't just panic and start cutting out food groups randomly by thinking that they may be the cause of the allergy! You could be cutting out nutritious foods needlessly. It's very important that if foods are excluded from the diet suitable alternatives are introduced to avoid nutrient deficiencies. Consult your doctor or a registered dietitian. Dietitians can help design a food plan, suggest alternative foods or ingredients to replace forbidden ones, and provide instruction on reading food labels

- If the doctor/dietitian confirms the diagnosis, strict avoidance of the offending food (or foods) is the only proven method of managing the allergy which can be very challenging. Till today there is no medical cure for food allergy. However, within the next few years there will be safe and effective vaccines for food allergies.

Appendix A - Vitamins and minerals

Vitamin A (Retinol or Beta-carotene)	Liver, egg yolk, dairy products, margarine. Beta carotene (pro-vitamin A) is found in dark green and deep yellow fruits and vegetables.	Keeps eyes healthy; develops bones; protects linings of respiratory, digestive and urinary tracts; maintains healthy skin and hair. Beta carotene fights free radicals (chemicals that damage cells).
Vitamin B1 (Thiamine)	Whole grains, cereals and enriched grain products; also legumes (dried beans, peas, and nuts), organ meats, lean pork and eggs.	Promotes healthy functioning of the nerves, muscles and heart. Metabolises carbohydrates.
Vitamin B2 (Riboflavin)	Organ meats, enriched breads and cereals, legumes, almonds, cheese and eggs; also meat, fish and dark green vegetables.	Metabolises carbohydrates, fats and proteins, produces hormones; promotes eye and skin health.
Vitamin B3 (Niacin)	Meat, organ meats, whole grains and cereals, and legumes; also eggs, milk, green leafy vegetables and fish.	Metabolises carbohydrates and fats; helps functioning of digestive system; maintains health skin.
Vitamin B5 (Pantothenic Acid)	Organ meats, yeast, raw vegetables, eggs and dairy products.	Produces hormones and maintains body's immune system.
Vitamin B6 (Pyridoxine)	Whole-grain products, poultry, fish, and nuts; also meat, most fruits and vegetables, eggs and dairy	Metabolises protein; helps produce haemoglobin; promotes functioning of digestive

	products	and nervous systems, and healthy skin.
Vitamin B12 (Cyanocobalamin)	Primarily organ meats; also fish, lean meats, poultry, cheese, and eggs.	Builds genetic material of cells and produces blood cells.
Vitamin C (Ascorbic Acid)	Almost exclusively fruits and vegetables (especially citrus fruits, tomatoes, peppers, strawberries, and cantaloupe) although breast milk and organ meats contain small amounts.	An antioxidant, fights and resists infection; heals wounds; promotes growth and maintenance of bones, teeth, gums, ligaments and blood vessels.
Vitamin D (Cholecalciferol)	For most people, sun exposure is the primary source of vitamin D. Food sources include Vitamin D-fortified milk, eggs, fish-liver oils and fatty fish such as herring, mackerel and salmon.	Builds strong bones and teeth and maintains the nervous system.
Vitamin E (Tocopherol)	vegetable oils, nuts, wheat germ and whole-wheat products, egg yolks and green leafy vegetables.	Protects the lungs, nervous system, skeletal muscle and the eye's retina from damage by free radicals; may reduce risk of heart disease by protecting against atherosclerosis.
Vitamin K	Dark green leafy vegetables, eggs, cheese, pork and liver.	Promotes normal blood-clotting.
Calcium (Ca)	Primarily in milk and dairy products; also dark-green vegetables, legumes, shellfish, fish with edible bones and tofu; also calcium-fortified orange juice.	Builds bones and teeth; promotes blood clotting, contraction of muscles and nerve impulses.
Chromium (Cr)	Whole wheat and other whole grains and molasses.	An essential nutrient required for normal sugar and fat metabolism; may also

		help prevent high cholesterol and atherosclerosis.
Copper (Cu)	Organ meats, shellfish, whole-grain products, legumes and dried fruits.	Builds bones, red blood cells and haemoglobin; Metabolises iron, maintains connective tissue and blood vessels; may play a role in cancer prevention.
Iron (Fe)	Iron is poorly absorbed from food. The richest sources are red meat and organ meats; other sources include whole-wheat products, shellfish, nuts and dried fruit. Many breads and cereals are enriched with iron. Vitamin C aids absorption of iron and is often added to iron supplements.	Helps produce haemoglobin and red blood cells; delivers oxygen to muscles and other body tissues; protects against effects of stress
Magnesium (Mg)	Legumes, whole-grain cereals, nuts and dark-green vegetables; also meat, seafood and dairy products.	Builds bones and teeth; involved in functioning of muscular and nervous systems and hear and circulatory system.
Potassium (K)	Potatoes, dried fruits, bananas, legumes, raw vegetables, avocados and mushrooms; also lean meat, milk and fish.	Helps nerves and muscles function; regulates heart's rhythm; regulates bodily fluids.
Selenium (Se)	Whole-grain cereals, fish and shellfish, meat and dairy products.	An antioxidant, helps protect cells and tissues from damage by free radicals; may also protect against some cancers.
Zinc (Zn)	Shellfish (particularly oysters), organ meats and lean red meat, yeast, whole-	Involved in growth, skin health and wound healing, development

grain cereals, and legumes.	of the reproductive organs, protein metabolism and energy production.

