

Adolescence to Adulthood

In our journey through life we are now entering adolescence which is the transition period from child to adult. Adolescence is a time of great emotional, physical and biochemical change. As the adolescent becomes aware of themselves and their environment they will start to develop into the adult they will become. There is a lot that can be done to support the emotional changes directly but one area that often gets forgotten is nutrition. You will be aware by now that nutrition underpins the health of the body and mind and so can support positive emotional, physical and biochemical changes.

Unfortunately repeated population surveys shows us that children and particularly adolescents tend to be deficient in a whole range of recognised vitamins and minerals which means we need to invest effort in making sure their nutritional status is as good as it can be before they enter the potentially difficult teenage years. This period has a reputation for being a trying time in many ways especially in terms of nutrition as teenagers assert their independence by eating what they choose rather than what you as a parent may feel is best for them. As such you may find that your teenager makes poor food choices, has unhealthy eating habits which contributes to a diet deficient in essential vitamins, minerals, fatty acids and other nutrients. At times like these all you may be able to do is hope that the good dietary habits you installed in your child will resurface later while in the meantime you continue to do the best you can to encourage healthy eating without getting too confrontational about diet.

The nutritional problems of the adolescent years are compounded by the growing effect of peer pressure, which can lead to increased intakes of sweets, fast food and highly processed foods. A simple change to a diet containing more complex carbohydrates such as whole grains can make a big difference in what is called the glycaemic index of the diet.

Glycaemic Index

What is the Glycaemic Index (GI)?

The GI is a measure of the amount of rapidly available simple sugars contained in a portion of food. Although these sugars are helpful for immediate fuel in excess they present a challenge to the regulating systems such as insulin within our bodies. In technical terms the glycaemic index is a ranking of carbohydrates based on their immediate effect on blood glucose (blood sugar) levels. It compares foods gram for gram of carbohydrate. Carbohydrates that breakdown quickly during digestion have the highest glycaemic indexes. The blood glucose response is fast and high which can be a burden on the body. Carbohydrates that breakdown slowly, releasing glucose gradually into the blood stream, are generally regarded as healthier and have low glycaemic indexes.

What is the Significance of Glycaemic Index?

- Low GI means a smaller rise in blood glucose levels after meals
- Low GI diets can help people lose weight
- Low GI diets can improve the body's sensitivity to insulin
- Low GI foods can help re-fuel carbohydrate stores after exercise
- Low GI can improve diabetes control
- Low GI foods keep you fuller for longer
- Low GI can prolong physical endurance

How to simply switch to a Low GI Diet

- Use breakfast cereals based on oats, barley and bran
- Use "grainy" breads made with whole seeds
- Reduce the amount of potatoes you eat
- Enjoy all types of fruit and vegetables (except potatoes)
- Eat plenty of salad vegetables.

How to work out the Glycaemic index of foods

Carbohydrates that break down quickly during digestion have the highest GI values i.e. they cause a sharp high rise in blood sugar.

Examples are pure glucose (GI of 100), baked potato, puffed crispbread and many refined breakfast cereals. Most of our modern starchy foods (white bread, snack foods and biscuits) are also digested and absorbed quickly.

At the opposite end, foods that are slowly digested (with a low GI) help delay hunger pangs, satisfy for longer and make weight loss easier. For people with diabetes, they mean better blood sugar control.

For slow digestion, we should look to low GI. foods such as pasta, kidney beans, muesli, oats, apples, grapefruit, milk, yoghurt and bread with whole grains.

There is no way of estimating what GI figure a food will have, as many factors influence the GI including:

- the type of starch in the carbohydrate (amylose is more slowly digested than amylopectin)
- the type of sugar (glucose is rapidly absorbed, whereas sucrose raises blood sugar levels moderately)
- whether and how the food is processed or cooked
- whether there is any fat accompanying the carbohydrate, as fat slows the rate of stomach emptying and so slows digestion
- the presence of any viscous fibre accompanying the carbohydrate. This increases the viscosity of the contents of the intestines, slowing down the interaction between digestive enzymes and starch and so slowing digestion
- the acidity of the food. Acid foods like vinegar, lemon juice, vinaigrette dressing and acidic fruit delay slow down stomach emptying

Foods and their Glycaemic indexes

Check this data vs. Willett and new GI book

Low - 55 and less			
Food	GI		
Peanuts *	14	Apple juice, unsweetened	40
Rice bran	19	Chocolate, milk *	42
Milk, full-cream	21	Corn chips *	42
Cherries	22	Orange	42
Grapefruit	25	Peach	42
Lentils, red, boiled	26	Porridge	42
Chickpeas, boiled	28	Custard (homemade with powder)	43
Apricots, dried	30	Sweet potato	44
Milk, skim	32	Grapes	46
Yoghurt, low-fat flavoured	33	Noodles, 2-minute *	46
Apple, raw	38	Sweet corn, canned	46
Pear, raw	38	Fruit loaf	47
Spaghetti	38	Baked beans	48
Tomato soup	38	Peas, green, boiled	48
		Carrots, boiled	49
		Banana	52
		Kidney beans, canned	52

Moderate - 55 to 70			
Food	GI		
Honey	55	Sugar (sucrose)	68
Muesli, untoasted	56	Crumpet	69
Rice, Basmati, boiled	58	High - 70 and over	
Ice cream, regular fat	61	Food	GI
Muesli bar	61	Bread, white	70
Mars Bar *	62	Popcorn	72
Beetroot, canned	64	Bagel, white	72
Shortbread biscuits *	64	Watermelon	72
Cous cous	65	Pumpkin	75
Cordial, diluted	66	Bread, wholemeal	77
Pineapple	66	Coco Pops	77
Croissant *	67	Potato, baked	85
		Parsnip	97

* these are foods high in fat. Use them only occasionally.

Figures reproduced from The New Glucose Revolution by J Brand-Miller, K Foster-Powell and S Coligiuri (Hodder Headline Australia, 2002)

Glycaemic Load

We can see from the above that it can be helpful for a balanced energy intake to look out for low glycaemic index foods in the diet. It is not just the glycaemic index however which is helpful but more importantly what this actually equals when portion sizes are taken into account. This is where the practical approach of the Glycaemic load is more useful in everyday life.

What is Glycaemic Load?

- Glycaemic load builds on the GI to provide a measure of total glycaemic response to a food or meal

- Glycaemic load = GI (%) x grams of carbohydrate per serving
- One unit of GL is approximately equal to the glycaemic effect of 1 gram glucose
- A typical diet has approximately 100 GL units per day (typical range 60 - 180)

For example

The glycaemic load of a potato (GI around 90) containing approximately 18 grams of carbohydrate is $18 \times 90\% = 16$.

The glycaemic load of an apple (GI around 40) containing approximately 15 grams of carbohydrate is $15 \times 40\% = 6$.

From this we can see the potato will produce a blood sugar rise three times that of the apple.

When foods have similar amounts of carbohydrate, GI will have the greatest influence on blood sugars. When the amount of carbohydrate in a portion differs the best way to predict blood sugar effects will be via the glycaemic load.

Summary

If you are trying to maintain a stable energy to weight ratio as many teenagers are then it may be helpful to become familiar with the concept of glycaemic index and glycaemic load. Although it is not easy to know exactly how much carbohydrate is in a portion of a food to be able to calculate its glycaemic load a simple observation of your portion size will help to determine if that food is going to have a high glycaemic load or not. This should help bring positive balance to the diet to help smooth out some of the other more wildly swinging effects of adolescence such as hormonal changes.

One last thing to note in the search for a balanced diet is that it is best focus on the glycaemic load of foods to help maintain a balanced weight and energy levels rather than simply cutting down on carbohydrates as a whole otherwise it can lead to a diet that is much higher in fat and protein and often higher in calories, which can cause weight gain.

Teenagers

After that diversion into the varying effects of carbohydrates on our bodies which is useful knowledge for all ages it is worth just taking a look at what teenagers are going through and how they can be supported. The first thing to remember is that the scare stories about horrible teenagers are not all true and you will probably find that your teenager still manages to communicate in words of more than one syllable and is still pleasant to live with. The stereotypical teenager however will tend to avoid vegetables, fruit and whole foods and so particularly during these years of rapid growth and mental development when their nutritional needs are increased an expanding gulf between need and intake can develop. It is this increasing deficit, which is important to spot and reduce as much as possible. Once steps are taken to improve the nutrient status of the individual and they start to feel improvements in their health and happiness then it is much easier to keep the ball rolling as they can understand the benefits good food and nutrition can give them and they can make the

choice to follow a better diet. The trick is finding a way for them to discover this for themselves rather than just because you tell them it is the case.

One method that can be used to promote good dietary habits is to form a link between diet and health, some of the benefits that teenagers are often looking for that a good whole food diet can support are:

- Sustainable energy and improved fitness
- Good body shape
- Healthy looking skin, teeth and hair

A supportive parent who offers understanding and advise in a gentle way to promote modifications rather than wholesale changes to the diet, such as suggesting certain foods and avoiding others will help support their children's health. The best help though is simply to be a good example, eat well yourself, don't buy junk and refined snack foods for the home but instead snack on fruits, nuts etc and prepare wholesome meals for your youngsters to enjoy. Most importantly though follow these steps from the earliest years if not before for your own health as well as theirs.

A big concern these days is the wide availability of fast foods, which tend to contain high levels of salt, fat and additives. As with all things balance and moderation are the key watch words, a fast food meal eaten once a week will cause any major problems where the rest of the diet is nutritious but regular diets of fizzy drinks, fast foods, refined carbohydrates, processed wheat and dairy products can be a problem resulting in nutrient deficient children.

The recommended overall diet plan is a balanced one containing fresh vegetables, nuts, whole grains, fruit and protein foods (to meet the growing needs) but with the variety in quality of food available it is generally recommended to support even the best diet with a broad based multi nutrient supplement. In addition to this certain key minerals also need to be addressed such as in simple terms, iron for girls and zinc for boys. Whether male or female we all need all the vitamins and minerals etc but during these teenage years girls and boys have extra requirements for specifically these two minerals. The reasons for this is that with the start of menstruation girls start regularly losing blood based nutrients. All nutrients are based in the blood as this is the method by which they are transported around the body and so attention needs to be paid as usual to complete nutrition however we typically think of iron with regard to blood minerals and a number of B vitamins such as B₁₂ and folic acid that also suffer particular loss through menstruation and so should be supported through the diet.

With boys the stereotypically deficient mineral as mentioned is zinc. This is particularly because of zincs major involvement in the development of the male sexual organs. We typically find low levels of zinc linked with high levels of heavy metals in boys with behavioural problems and so this mineral becomes a common supplement to support appropriate development both mental and physical in boys.

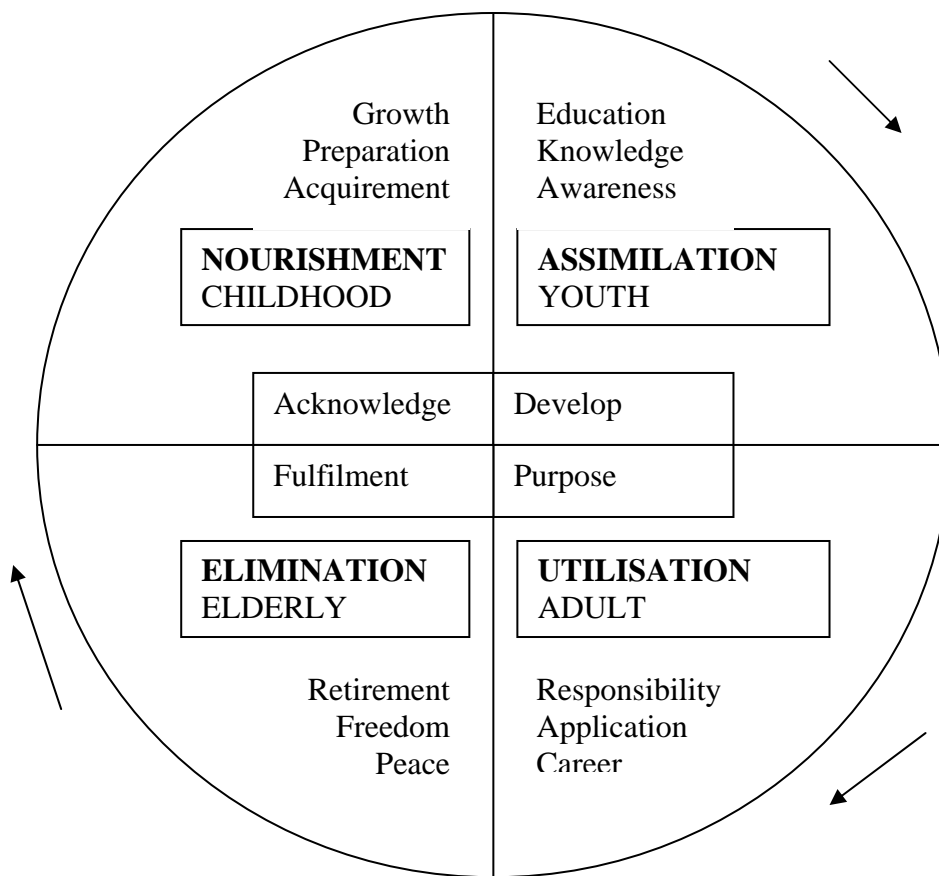
Nutritional Support programmes

Although iron and zinc and the other nutrients mentioned above are easy to focus on because of the proven extra needs during these years it would be folly to forget about

all the other nutrients needed by the growing body. We never just need one nutrient in isolation. Our bodies work in very complex ways and need a wide assortment of different nutrients in different amounts. By all means focus on the commonly deficient nutrients but always remember to back these up with that all important healthy balanced diet of fresh foods, clean water and broad based vitamin, mineral and essential fatty acid supplements.

Life and Nutrition

Elson Haas in his comprehensive book, *Staying Healthy with Nutrition*, 1992, states that there are four aspects of life and nutrition.



This circle of life holds a lot of meaning and helps to create a basic understanding of some of the key processes and needs at each of the four stages. It is added here to focus thought and to help provide some direction to life.

Adulthood Basic Dietary Guidelines

During the teenage years as we become more body conscious and later into our adult years we can become overwhelmed by the huge array of dietary guidelines thrust at us through T.V. radio, magazines and other forms of media. Do we follow the low carbohydrate diet or do we follow the low protein diet? Is margarine better for us than butter or are all forms of fat bad?

In the following pages we will look at some of the main elements in a typical diet and see where from all the hype we can find the basics of a sensible and balanced diet that will be supportive to health. From there if you want to go and try some of the many strict diet plans available feel free as these may suit your metabolic type but first it would be good to have a positive rounded and “balanced” starting point.

We all know of the basic guides to try eat less fat, sugar and salt and to increase our fibre intake, but surely there is more to a healthy diet than that. What is more, there is far more enjoyment to be got from a good diet than those four tenets suggest. As a general rule of thumb try to get as much fresh food as possible – raw salad vegetables, lightly cooked leaf and root vegetables and fruits – to take advantage of the wonderful feelings of vitality they can impart.

The other basic guidelines that are worth mentioning here are linked with alcohol and smoking. Both create stress upon the body, as it has to eliminate the toxins produced from their consumption. As such it is best to eliminate both from the diet, as soon as possible.

Water

Perhaps the easiest way anyone can achieve better health through their diet is to swap caffeine and alcohol containing drinks for a good intake of water each day. Four pints is suggested as a minimum, of good quality water. Filtered tap water, on balance, is probably the best and in any instance try to avoid plastic bottled water.

Juices

Juices can make an interesting alternative to caffeine / alcohol drinks. Apple, pear and other native fruits make very beneficial juices, whereas orange juice in particular is usually best avoided especially first thing in the morning. If possible get them from glass bottles firstly or cartons rather than plastic bottles.

Fats And Oils

Animal fats are best reduced, as are ‘artificial’ fats such as margarine. Butter in moderation is probably one of the best spreading fats, as it is a natural food. In general however, try to avoid foods containing overcooked fats e.g. those, which have been reheated. Sausage rolls, fish and chips are prime examples here, and any fast food has the potential for containing high fat levels. Try to avoid these and choose the freshest foods possible.

Dairy

The most beneficial dairy product is fresh, live yoghurt. Cheeses should be of the hard variety with a rind on at purchase (which can be removed for consumption), and milk is best in its whole unhomogenised form (not skimmed). Dairy foods can be very nutritious, but avoid them in excess. They are prone to encouraging mucus development in the gut, which then interferes with digestion of other foods.

Eggs

The best types of eggs are those described as free range. The standard battery produced egg is considered best avoided. 2-4 free-range eggs a week is a sensible rule of thumb but it is best to avoid fried eggs.

Meats

Beef is best kept to a moderate intake and prepared lean. Avoid frying. Baking, boiling or stewing is sensible cooking methods. It is advisable to source beef from one of the growing number of organic producers.

Pork

Pork preparations (bacon, ribs, ham etc.), are best included only very occasionally in the diet as this creates quite an acidic effect in the body.

Lamb

Lamb is, on balance, considered the more suitable of meats to select from as it is by nature free range.

Smoked Meats

These are highly undesirable for inclusion in the diet, as are the prepared salami-type products.

Poultry

Free range poultry is recommended as a good choice in the diet. Try to avoid in any case fried chicken.

Fish

Fish offers not only the widest choice in relation for flesh foods, but also the least restricting. Fish provides a most valuable protein source, low in total fats and especially in the more harmful saturated fats.

Good fatty fish (full of the healthy omega 3 fatty acids) include:
Salmon, sardines, herring, trout, tuna and shellfish.

It is most important to select a good quality source of shellfish, as pollution is a concern, and therefore a monitored source is most desirable. Crab is not considered desirable on the diet. Shrimps and prawns (fresh or frozen) are fine, but not the tinned variety.

Fried or breaded fish products should be avoided. Fish sauces are generally best avoided unless freshly prepared from good quality ingredients. Fish soups can be

very nutritious. Baking, grilling, broiling, steaming and poaching are simple fish preparations that preserve nutrients better than some other methods.

Vegetables

To be most nourishing, vegetables should be prepared immediately before use and in the shortest possible time following harvest. The vitality of vegetable foodstuffs reduces additionally with refrigeration. The premise is that devitalised vegetable foodstuffs are those that have been stored for long periods, refrigerated or have experienced other delays or treatments between harvest and table. Dormant vegetable foodstuffs also include dried pulses, beans, sprouts, stored root vegetables and nuts. Most nuts offer a powerful and wondrous storehouse of nutrients, and these should be consumed as fresh as possible. Devitalised vegetable foodstuffs are those that have been subjected to freezing processing etc. These foodstuffs are not devoid of all nutrition; however, the vitality is now lost.

Favourable vegetables: Cauliflower, celery, beetroot, ideally raw or - if boiled - freshly boiled. Don't take pickled beetroot except for an occasional addition. If you are fortunate enough to obtain organic beetroot, please enjoy the leaves in your salad - beetroot was originally cultivated for the leaves, not the roots. Spinach can be enjoyed raw in salads; however, if inclusion in raw form is desired, reduces the amount to a few leaves only. Onions steamed, boiled or indeed raw; leeks are also beneficial, hot or cold. Cabbage in most forms once or twice a week is also desirable.

Favourable salad ingredients: Artichokes in any form, cos lettuce, watercress, rocket, and garlic, parsley may be taken in order to reduce the garlic odour, but not too much parsley. Chives are also of value - fresh rather than dried.

Research in the November 2003 issue of the *Journal of the Science of Food and Agriculture*. showed that different ways of preparing, storing and processing vegetables can affect how good they are for you.

Antioxidants are plentiful in vegetables and work to eliminate free radicals, which can damage cell DNA and contribute to various diseases. That's why eating fibre, fruits, and vegetables, all of which contain antioxidants, can help prevent cancer and cardiovascular disease. As it turns out, though, that protective effect is most pronounced when the vegetable is in its natural state.

A study looking at **cooking methods** and the effects on nutrient levels showed the following results:

- When microwaved Broccoli lost 97 percent of flavonoids, 74 percent of sinapics and 87 percent of caffeoyl-quinic derivatives (three different types of antioxidants).
- When boiled the conventional way (i.e., not in a pressure-cooker), broccoli lost 66 percent of its flavonoids; and when tossed in a pressure cooker it lost 47 percent of its caffeoyl-quinic acid derivatives.
- Steamed broccoli, on the other hand, lost only 11 percent, 0 percent and 8 percent, respectively, of flavonoids, sinapics, and caffeoyl-quinic derivatives.

The advantage of steaming vs. conventional boiling is that you're not using water directly in contact with the vegetable. The nutritional compounds don't go into the

water. This helps because once the compounds are in the water, the temperature destroys them much more easily.

A microwave wreaks havoc because it heats the inside of the vegetable. That, combined with the fact that you normally use water when microwaving, causes the destruction of valuable nutrients.

A second study, which looked at the effects of **storage** through blanching and freezing on more than 20 common vegetables showed different effects on the different species tested.

In general, dietary fibre components were not affected or even went up slightly. Mineral content, also, tended to remain stable. On the other hand, antioxidant activity went down 20 percent to 30 percent during blanching.

Carrots, peas, and broccoli lost 30 percent of their vitamin C during blanching/freezing, while green beans lost 10 percent and spinach lost 40 percent (with an additional 30 percent lost during deep frozen storage). Spinach also lost almost 40 percent of its potassium and 70 percent of its folic acid during blanching.

This data basically tells us there are good ways to support the nutrient properties of our food and we should utilise these wherever possible. Life is not about perfection but doing the best we can to make our lives as healthy as possible within a practical environment where a little knowledge can make a huge difference for the better.

Dietary Fibre

Dietary fibre is most important. It helps remove waste and improves elimination and reduces the incidence of constipation. Fibre is present in many foodstuffs such as vegetables, dried beans and peas and many fruits. When selecting fibre products, care should be taken to select crude, unprocessed fibre materials; porridge would be much preferred to baked bran products. Porridge, wholemeal bread, and many raw vegetables offer fibre in its unadulterated natural form.

Breads and Pastry Products

Wherever possible, bread and pastry products made from organically produced flour should be chosen wholemeal, not wheat meal as only the wholemeal provides the whole grain. White bread produced from refined flour products is of doubtful nutritional value, having had almost all the nutrients refined out of it. Pumpernickel (rye) bread (extremely high in fibre), wholemeal pitas and German seed breads are all fine. White flour may be consumed if produced from very strong, unbleached flour but only occasionally.

Biscuits and Crispbreads

As a general guideline, it is advisable to eliminate refined carbohydrate foodstuffs from the diet. These refined products are devoid of living, beneficial nutrients. Wholemeal crisp breads are of value when they are of the no added fat variety.

Pasta

Pasta is a very good inclusion in the diet, providing it is whole-wheat or durum wheat pasta. Macaroni in the wholemeal form is also fine. Pasta may be consumed almost freely.

Fruit

Fruit is a great source of nutrients, when organically grown and picked fresh in season, fruit increases vitality and enjoyment. However avoid oranges and orange juice until you have been awake for at least 4 hours. Organically grown apples are most beneficial and may be consumed freely. Melons in any form should be consumed separated to any other foodstuff, allowing at least 1 hour either side of ingestion before other foodstuffs are taken.

Favourable fruits: organic apple, (when available), strawberries, pears, plums, prunes, figs, blackcurrants and finally elderberries.

Salt

Salt intake should be very carefully monitored. This advice refers to all salts: table salt, sea salt, "lo-salt" etc. Salt can appear in various guises such as sodium carbonate, di-sodium phosphate, sodium alginate, etc. Salt is essential to life so it is important that it is not eliminated from the diet, just avoided in excess.

Coffee / Tea

Coffee is best reduced as much as possible, and then when desired best taken from organic freshly prepared, not instant coffee. Look out for in particular the natural low caffeine content organic coffees, which are far better than the chemically extracted caffeine free coffees. In any case, it is best to limit intake to not more than 1 or 2 cups per day. Tea contains some undesirable toxins, and should also be limited in intake - again 1-2 cups per day, and in total not more than 2 cups of tea and/or coffee per day.

Seeds and Nuts

Seeds, particularly sunflower and pumpkin are an excellent supply of nutrients. These can be eaten as a snack or sprinkled on salads.

Brazil nuts should be avoided unless they are very fresh; almonds (brown and not de-husked) are desirable (but not more than 10/12 per day, chewed well). Dry-roasted or salted peanuts or other salted nuts, due to their high degree of processing that damages the delicate oils within them should be excluded from the diet.

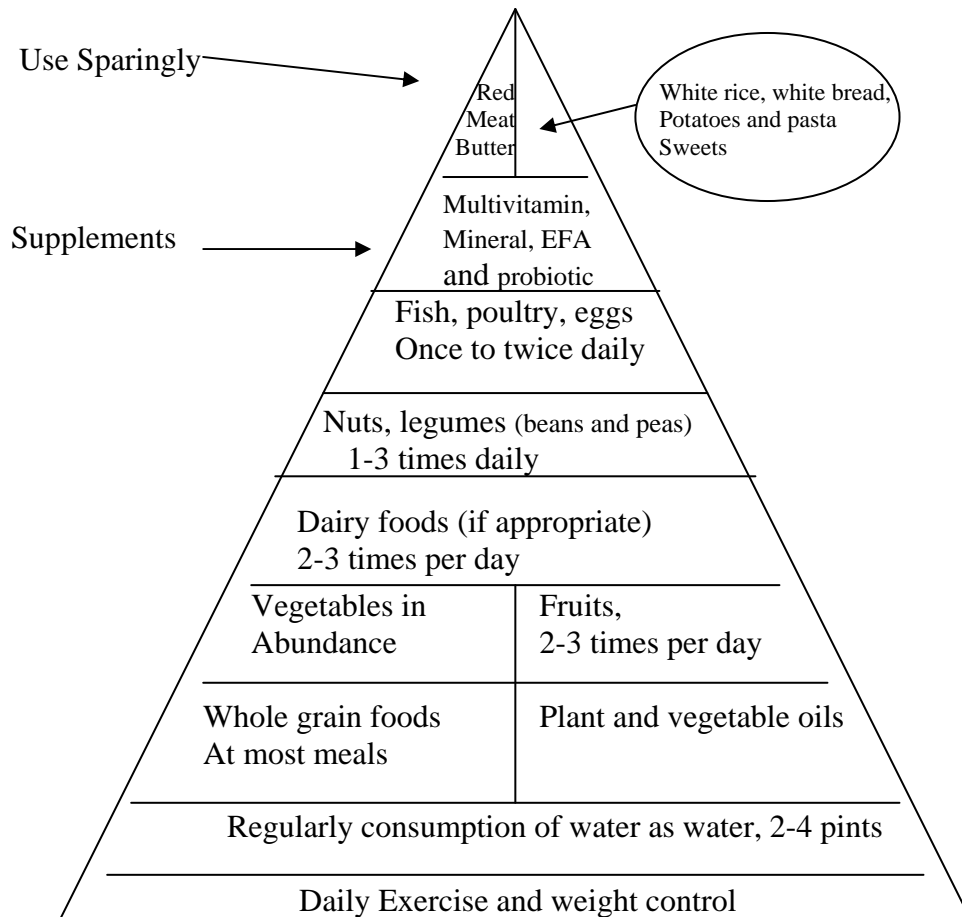
Daily recommendations for the "balanced diet"

The balanced diet is a myth, which has no clear definition in science or public nutrition. Different people understand it to mean different things but in essence it means a broad range of different foods that provide as wide a variety as possible. In practice we need to keep in mind this variety as this can help us avoid overburdening our bodies but we also need to remember to focus on freshness and the unprocessed nature of foods. To more clearly define the balanced diet then it is, a diet consisting of a wide variety of whole foods and drinks which are consumed as fresh and unprocessed as possible.

In order to help people visualise the what government's consider to be a balanced diet various food and nutrition agencies have come up with pictures of plates divided into the approximate quantities of each food group we should consume of pyramids which

show that the foods at the widest part of the pyramid should be consumed in the largest quantities with those at the narrower higher parts of the pyramid consequently should be consumed less. A positive update on the food pyramid idea was published by William Willett in his 2001 book, “Eat, drink and be healthy”. This guide showed more clearly that some fats are bad while other good and that exercise and supplements form an important part of a good diet/lifestyle plan.

Below you will find our interpretation of the food guide principle, which provides the basis for a healthy balanced diet.



Other components of the diet

Alcohol

All drug use whether legal or illegal should be avoided. Alcohol, which is toxic to the body is also a drug and is best consumed in moderation if you already drink or avoided if you don't. Research published in the American Journal of Clinical Nutrition January 2004 shows that although red wine is known to help decrease the risk of atherosclerosis (the hardening of the walls of the arteries – which may interfere with blood flow) it is not the alcohol in red or white wine that is beneficial to your health, but rather the abundant quantities of polyphenolic compounds (phytonutrients) that are found even in red wine that has had the alcohol removed. This research helps to clarify the message, which has confused many in the past, which stated that moderate alcohol drinking was healthier for you than even abstinence. Given the

toxic load put on the liver through alcohol consumption this message has been difficult to comprehend. Previous studies looking at the beneficial effects of red grape juice vs. red wine have shown that although grape juice is very beneficial as it provides an excellent source of phytonutrients and antioxidants the red wine was more helpful specifically against atherosclerosis. One theory to explain this is presented by Paul Clayton in his book Health Defence. The fact that wine is prepared anaerobically (away from air in sealed containers where oxygen reactions don't take place) means that far more of the beneficial flavonoids, the procyanidins are preserved than in grape juice which is made in open containers (aerobically).

A step forward to a clearer health message would therefore be that red grape juice is healthy drink (but beware of the sugar content!) and contains many important phytonutrients to support good health. Red wine drinkers have for many years been regarded as having an extra protection in their diet against cardiovascular problems. Red wine with the alcohol removed is the next logical step in the progression towards the drink with the greatest proportion of healthy phytonutrients but without the negative effects of alcohol and so would be the best recommendation for people concerned about heart health. Until alcohol removed red wine becomes more widely available however the current guidelines will stay in place. Consume alcohol in moderation, if you wish and enjoy the benefits it offers, but don't let it take over your life. Try adding in other drinks such as good quality grape juice for a change to broaden your spectrum of phytonutrients and taste.

Food supplements

A basic comprehensive multivitamin, mineral and essential fatty acid supplement is helpful to most people. Additionally individuals may need extra supplements depending upon their own nutritional status.

Further to this the comprehensive support that active probiotics can offer to digestive, immune and whole body health make them an invaluable component to a healthy balanced diet. Generally probiotics are not necessary to take every day continually however they can be a positive support when needed.

Margarine Vs Butter?

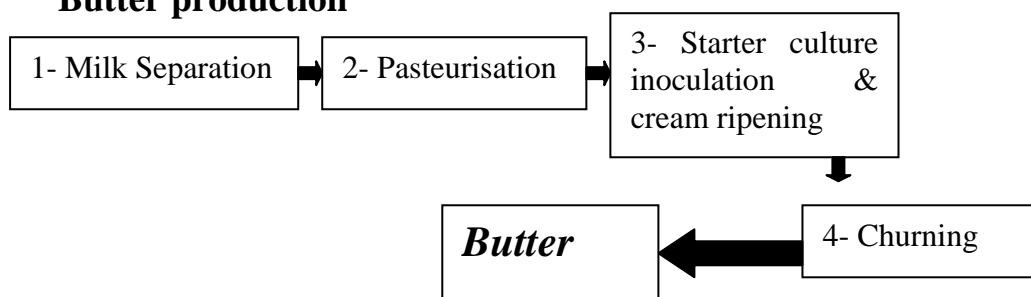
You will notice in the food pyramid above that there is no mention of margarine. The following helps to explain our view over the long standing debate as to whether butter is better.

There is much controversy surrounding the consumption and understanding of fats. Some fats are good and some fats are bad, it all depends on the type of fat, the amount consumed, how it was prepared, what it has been exposed to and how old it is. The right kind of fats, in the right amounts and prepared in the right way can build our health and keep us healthy. Whereas, the wrong fats, in the wrong amounts and prepared in the wrong way can cause degenerative disorders such as coronary heart disease (CHD) and cancer.

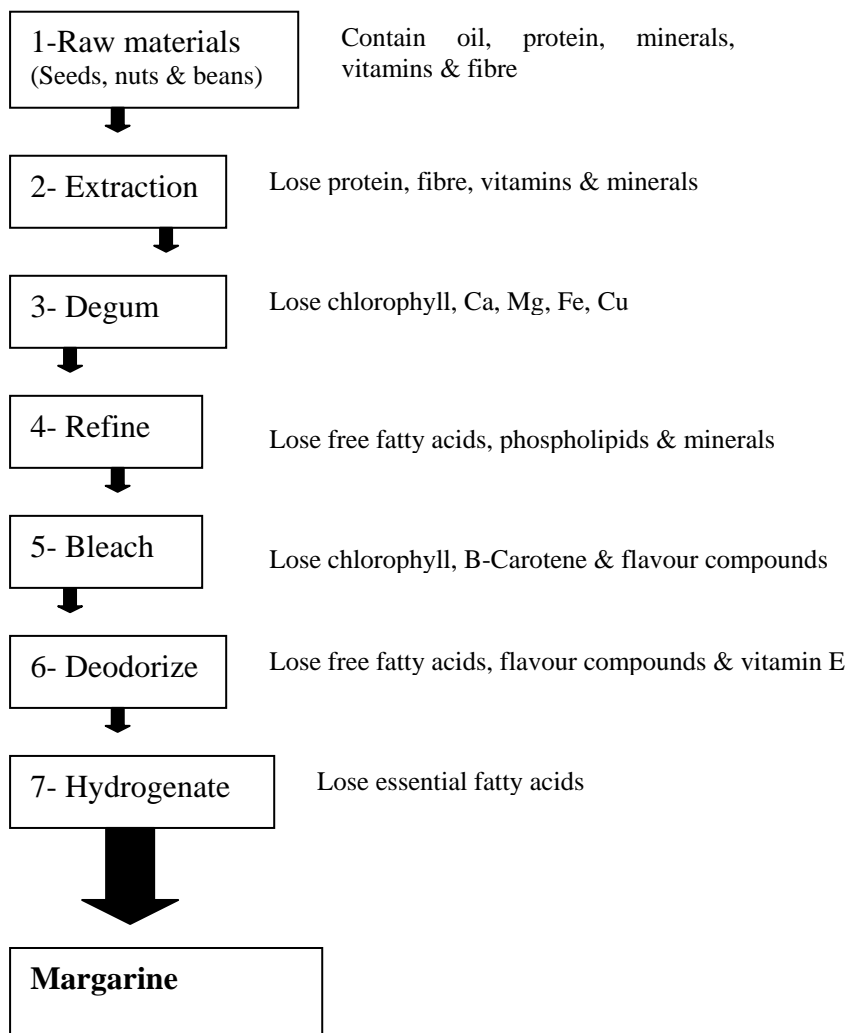
One of the latest controversies is whether margarine is better for your health than butter. Butter and Margarine contain the same amount of fat, but differ in fatty acid content. Butter contains more saturated fat than margarine or vegetable oils, it contains about 81% butterfat and 66% of the fatty acids in butterfat are saturated fatty acids. Whereas, margarine contains less saturated fatty acids and many more polyunsaturated fatty acids. This was believed to be better for a healthier diet than butter containing large quantities of saturated fats- until recently when a number of studies questioned the health benefits of margarine.

The numerous stages that occur in the process of butter and margarine manufacturing highlight the vast differences between the two substances. Margarine production involves many different chemical reactions, whereas, butter production mainly involves physical reactions.

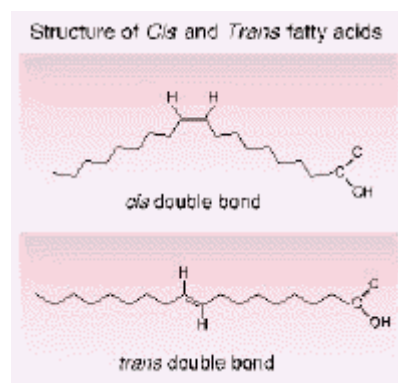
Butter production



Margarine Production



Margarine contains a large number of Trans fatty acids, which are unsaturated fats that are straight like a saturated fatty acid unlike unsaturated fatty acids, which are bent at the double bond. Hence, trans fatty acids act like saturated fats within the



body. Research shows that trans fatty acids may tend to act more like other hardened fats in affecting cholesterol levels. The replacement of naturally occurring fatty acids with trans fatty acids can lower the concentrations of HDL cholesterol as well as increase LDL cholesterol (Harmer, 1994). Trans fatty acids can increase blood cholesterol levels by up to 15% and blood fat (TG) levels by up to 47% very rapidly when partially hydrogenated vegetable oil containing 37% trans fatty acids is ingested. High TG levels play a part in the development of

cardiovascular diseases. Trans fatty acids may also adversely affect platelet function, consequently predisposing to thrombogenesis. Willet, et al. (1993) showed that a high consumption of trans fatty acids among women in a large prospective cohort study almost doubled the risk of CHD.

High levels of natural, highly unsaturated *cis*- fatty acids found in hemp, flax and cold water fish may reverse the effects of trans fatty acids (Erasmus, 1993).

Trans fatty acids occur naturally in the fats of ruminating animals such as, beef, lamb, butter and other dairy products. Trans fatty acids are also formed by the industrial hydrogenation or hardening of vegetables of vegetable oils used in the manufacture of products like margarine.

CHD is not the only degenerative disease that high levels of fats are associated with, many kinds of cancer are also linked with diets high in fats. A close correlation is found between cancer and consumption of hydrogenated trans fatty acid containing vegetable oils. However, some essential fatty acids (EFA) inhibit cancer. Parodi, 1997 has shown that milk fat contains a number of components with anticarcinogenic potential, including conjugated linoleic acid, sphingomyelin, butyric acid and ether lipids. The dairy cow also has the ability to extract other potential anticarcinogenic agents such as β -carotene, β -ionone and gossypol from its feed and transfer them to milk. This study clearly showed less tumour development with dairy products than other forms of dietary fats.

Research has shown that hydrogenation leading to the production of trans fatty acids have detrimental effects on our cardiovascular system, immune system, reproductive system, energy metabolism, fat and essential fatty acid metabolism, liver function, and cell membranes.

Conclusion

Some new margarines claim to be low in saturated fat, high in polyunsaturated and mono unsaturated fat and free from the dangerous trans fats. Therefore it is not a simple answer to say that butter is better than all margarines but one thing is for certain it is generally much less processed. Given our stated desire for whole, unprocessed, fresh foods to make up our balanced diet organic butter would be a good choice.

Organic Food

There is a lot of belief in the benefits of organic food but little in the way of scientific proof. This by no means should suggest that the benefits should not be enjoyed prior to proof but it does mean that confusion can mask true intentions.

The first problem is what does organic actually mean? A hundred people would give a hundred answers ranging from care for livestock through healthier food and to the core of the discussion no herbicides or pesticides are used during growth. Unfortunately just as there are many views over what is organic there are similarly many different definitions as to what classifies as organic.

Organic farming in principle is about working with nature to produce food whether plant or animal in a sustainable and environmentally aware way. There is no evidence that shows that organic crops are more nutritious for us as far as actual levels of vitamins and minerals are concerned because that is entirely dependent upon the soil they grow in and whether that soil is rich in minerals and accompanied by the appropriate bacteria to transfer those minerals to the plant. In explanation, there are many similarities that can be drawn between plant and animal metabolism. The first and most important is that plants create many compounds and structures just like we do to perform the functions necessary for life. At the level of the cell there are many similarities between animal and plant although also significant differences. Both for example, have cell membranes, but only plants have a cell wall. Just like animals, plants have also adapted over millennia to suit the environment in which they thrive and also just like animals they have a symbiotic relationship with that environment and the “lesser life-forms” that it contains. To give mineral metabolism as an example we know that plants take up minerals from the soil and convert them into forms that we are far better suited to absorbing, but this is only part of the picture. Micro-organisms in the soil actually convert the minerals into a form the plants can take up. Mycorrhiza (soil fungi) act as a kind of bridge between the plant and the soil help to increase the activity of many other micro-organisms in the soil as well. These fungi however are delicate and can be destroyed by artificial fertilisers and harsh treatment of the soil, which will then result in a loss of essential elements in the food chain along with decreased plant growth.

If we focus on the theoretical organic ideal then the soil will be alive with active bacteria, the plants will be mineral rich and because they grow to maturity before harvest will be vitamin and other “phytonutrient” rich too. Phytonutrients are a collection of compounds only now having their important health giving roles identified and understood. It is easiest to view them as the nutrients we can only get from food and that make real food so much more beneficial to us than even the best multivitamin and mineral supplement.

The benefits of organic food

In simple terms organic food should offer us:

1. A reduction in our consumption of chemical intake especially in fat rich foods such as butter and meat as fat tends to store higher concentrations of undesirable chemicals.
2. Ideally an increase in nutrient intake depending upon soil quality

3. A better environment for us and the flora and fauna we share this planet with

Many people are put off from buying organic food because of the cost however if you move your diet away from processed foods towards whole fresh foods your grocery bill will be reduced, if this doesn't give you enough savings to afford to buy all organic or if it is simply not available then because of point one above the best advice is to buy organic versions of fat rich foods and meats (particularly offal). Two examples of this are:

1. Dairy products (butter, milk and cheese) are best consumed from organic sources
2. Liver is the body's main detoxifying organ and so is the place where the body will store chemicals and other toxins it can't dispose of. Therefore it can clearly be seen that organic liver should be a much cleaner food than non organic liver.

In summary as with all things it is important to take control, do the best you can and enjoy diet and life. Try to avoid getting hung up on all the intricacies over organic food but do try to use it wisely as a positive part of the balanced diet.

Processed food

We have already discussed the desire to make up the diet from as much whole fresh food as possible, which raises the question, what is so wrong with processed food?

In brief processed foods have the potential of exposing us to:

- Too much fat
- Too much salt
- Too much sugar and refined carbohydrate
- Too many artificial chemicals

Processed foods also:

- Can have lower nutrient levels than fresh foods
- Create huge amounts of waste packaging
- Cost far more than whole fresh foods as they are "added value" foods (added financial value to the manufacturer)

As well as all these negatives it is important to bear in mind that used in moderation the advantages of processed foods can add value and time to life. Moderation as always is the key to supporting health, a varied diet even in the winter months when fresh foods are naturally scarce and a realistic balance between spending all day every day in the kitchen and vegetable patch and enjoying other pleasures in life.

Some processed foods are clearly better than others. Peas frozen within 2 hours of harvest for example are very useful when fresh peas are not available but microwaveable ready meals are best avoided when planning the ideal diet.

Artificial additives

It is quite staggering how many different ingredients are needed to make even the simplest dishes when that dish is made in a factory as opposed to at home. If you

have a food intolerance you soon realise how often the same foods appear in the strangest of places and how you can either spend hours scanning all the ingredient lists to avoid the foods you are sensitive too or give up with processed foods altogether and prepare your own.

For some time hyperactivity in children was thought to be linked solely to the “E-numbers” or artificial additives used in foods. Although common colours such as tartrazine and sunset yellow often crop up in lists of sensitivities with behavioural problems they are by no means the only triggers. Food intolerances can be caused by any component in the food whether artificial or not. As there are so many artificial additives in use to enhance, colour, flavour or shelf life the easiest advice is to recommend keeping their intake to a minimum. Although each additive allowed for use in foods undergoes extensive investigation before use there is no way to research how a cocktail of such chemicals will act in the body over the long term.

A question, which often causes confusion on the subject of artificial additives, is with regard to “diet” or “lite” products where the amount of sugar for example has been reduced and an artificial sweetener has been added in its place. The problem here is which is better, the full sugar variety or the low sugar with added sweetener variety? The answer depends upon your own needs and how your body may react but given some of the bad press and questions over intake and long term safety of some artificial sweeteners the choice should be an easy one for most. Avoid both versions and consume something more healthy instead would be the best advice, however if you have to have one of these products occasionally then the one containing ingredients that your body is more likely to be able to recognise as natural foods would be the best bet.