Practical dietary advice in primary care medicine

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This account is intended to develop 'nutritional fluency' through a knowledge of food composition. It offers the primary care doctor a framework and an approach to nutritional advice. The four main goals are: to aid in the understanding of food composition, to provide a practical food intake assessment method, to develop methods of communication with the patient about food and nutrition and to offer techniques to effect dietary change.

■ The close link between food and nutrient intake and health makes nutritional assessment and diagnosis an integral part of clinical medicine. Many common problems, such as obesity, noninsulin dependent diabetes and ischaemic heart disease, are amenable to dietary intervention and the general practitioner is ideally situated to apply an integrated approach. Knowledge of a patient's socioeconomic situation and individual needs, as well as risk factors for nutrition related disorders (Table 1), allow adequate assessment and appropriate advice to be given. It is also important to recognise patients who are at risk, as time constraints do not permit prolonged nutritional assessment of all patients.

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Nutritional fluency

Nutritional fluency is a prerequisite for the treating clinician. It is the ability to apply scientific principles to dietary intervention, taking account of specific individual requirements and translating these into an adequate diet. To do this it is necessary to have a working knowledge of principles, and broad concepts of daily nutrient and energy requirements. The ability to elicit a meaningful food history is also a valuable technique, as any dietary advice must be based primarily on food that is readily available and tolerated by the patient. Adherence to the diet by the patient plays a significant role in determining the success of any dietary change, and often it is the more gradual transition towards 'healthy' food patterns that is successful in the long term. Small dietary manipulation, such as the use of skim milk instead of full cream milk or the replacement of sweet biscuits with fruit for snacks, can have significant impact on the overall dietary profile. Radical changes may be necessary in a few patients, such as those requiring rapid weight loss prior to specific procedures. As these patients require more intensive supervision, and ultimately re-education, it is often appropriate to seek the help of a clinical nutrition specialist.

Food composition

Recommended daily dietary intakes are often difficult for the primary care doctor to translate into food equivalents. The 'healthy' ranges for young adults are given in Table 2. Because of the wide variety of foodstuffs available, it is not feasible to learn the nutrient composition of each. It is, however, vital to have an overall concept of the composition of some of the more common foodstuffs. The macronutrient contents, as well as the energy contributions of average servings of common foods, are shown in Table 3. From this table it can be seen that the proportion of the total energy intake contributed by snack foods such as chocolate and potato crisps is far greater than that contributed by vegetables, which contain less total fat. Further information is readily available in food composition charts such as *Food Facts.*[1]

Likely concentrations of nutrients

If only 10% of total energy should come from added sucrose, two glasses of soft drink will reach this limit.

Table 1. Risk situations for nutrition related disorders

- Elderly, teenager with growth spurt, pregnant, lactating female
- Poor, pensioner, unemployed
- Lower educational status
- Inadequate dentition/swallowing mechanisms
- Physical/social limitations to obtaining food
- Vegetarian/food faddist
- Cultural/religious beliefs restricting food
- Psychiatric illness restricting food, e.g. depression, anorexia
- Medication altering nutrient utilisation
- Drug addict, alcoholic, heavy smoker

Table 2. 'Healthy' daily intakes for young active adults

	Men	Women
Energy (kJ)	11,600	8,400
Protein (g)	70	58
Carbohydrate (g)	375	265
Fat (g)	80	60
Alcohol (g)	20	10
Cholesterol (mg)	300–400	300–400
Dietary fibre (g)	35–45	35–45
Sodium (mg)	<2,000	<2,000
(mmol)	<90	<90

can sometimes be estimated on the basis of taste preferences and the way in which manufacturers or individuals prepare their food or beverages. Some examples are given below:

Salt

The recommended daily intake of sodium in Australia is between 1 and 2.3 g/day (40 to 100 mmol/day). As salt contains 40% sodium and a teaspoon of salt weighs 5 g, the daily allowance of sodium is equivalent to the amount contained in one teaspoon of salt (Table 4). Many foods are consumed in relatively large amounts and so, although not salty to taste, contribute significantly to the total intake.

The salt content of processed food can usually be estimated by taste and is 0.5 to 1 g/100 g (20 to 40 mmol sodium/100 g). This seems to be the preferred range but it may vary between countries. As current dietary guidelines are incorporated, this level is likely to decrease.

Sugar (sucrose)

The sugar content of soft or sweet drinks is usually 10 g/100 mL. At 16 kJ/g carbohydrate, the energy gain from a glass of sweet beverage (240 mL) would be approximately 380 kJ. Most dietary guidelines recommend that no more than 10% of total energy intake should come from added sucrose, so if the total dietary intake is 8,400 kJ it only takes two glasses of soft drink, or 10 teaspoons of sugar, to approach this limit.

Table 3. Macronutrient contents and energy contributions of average servings of common foods

Food type	Serving size (g)	Fat (g)	Protein (g)	Carbohydrate (g)	Water (g)	Fibre (g)	Energy (kJ)
Dairy products							
Yoghurt	200	8.0	8.0	12.0	168.0	0	650
Cheese (1 slice)	25	8.5	6.3	Trace	8.0	0	420
Milk (1 cup)	230	9.0	7.0	12.0	203.0	0	632
Snacks							
Ice cream	60	4.0	2.4	15.0	40.0	0	423
Chocolate (10 squares)	50	15.0	4.0	30.0	1.0	0	1,108
Potato crisps (20 crisps)	50	18.0	3.6	25.0	1.5	1.9	1,113
Vegetables							
Tomato (1 small)	100	Trace	0.9	3.0	94.0	1.5	60
Beans	100	Trace	0.8	1.0	96.0	3.0	30
Potato (1 small)	100	Trace	1.0	19.0	79.0	1.0	345

A standard drink contains 8 to 10 g of alcohol; two drinks a day will supply 270 to 340 kilojoules.

Table 4. Grams of sodium per average serving of some common foods

Food type	Serving size (g)	Sodium (g)*
Bread (1 slice)	25	0.125
Margarine (1 tablespoon)	10	0.084
Soy sauce (1 teaspoon)	5	0.366
Soup (canned)	230	1.080
Salami (3 slices)	90	1.665
Salt (1 teaspoon)	5	1.943

*Maximum recommended intake is 2.3 g per day.

Table 5. Grams of fat per average serving of some common foods

Food type	Serving size (g)	Fat (g)*
Potato (1 boiled)	100	Trace
Potato chips	250	40
Potato crisps	100	36
Cheese (1 slice)	25	6
Nuts (10)	20	5
Salami (3 slices)	90	41

*Acceptable range is 30 to 80 g per day.

Fats

Oils or fat spreads, depending on other components, will have an energy value of between 30 and 37 kJ/g. The margarine spread on one slice of bread (about 5 g) contains about 152 kJ. It is recommended that 25 to 30% of total energy intake should come from fat. This means that, in a dietary intake of 8,400 kJ, no more than 2,520 kJ should be contributed by fat. This amount is contained in 66 g of fat (i.e. about three to four tablespoons of oil or margarine, 1 to 1½ L of full cream milk or 300 g of beef). Table 5 shows the fat content (per average serve) of various foods. Due to the essential fatty acids provided by oils, they should never be eliminated totally from the diet. A daily diet of 5,040 kJ, for example, should contain one to two tablespoons of oil or margarine daily.

Alcohol

A standard drink (one glass of wine, beer or sherry) or a mixed drink (such as a gin and tonic) both contain 8 to 10 g alcohol. Thus, two drinks per day would supply 540 to 700 kJ. This figure can be as high as 420 kJ per glass in some sweet wines due to residual unfermented sugar.

Carbohydrate

In plant foods such as potatoes, carbohydrate is found associated with water and soluble fibre. Thus, one potato weighing 100 g contains about 79% water, 19% carbohydrate, 1% protein and 1% fibre. There is also a trace amount of fat present.

A comparison of the macronutrient content and energy contribution of boiled potato and crisps is given in Figure 1. Carbohydrate yields 16 kJ/g, thus supplying 304 kJ/100 g of potato; water provides no additional energy. The total energy supplied is about 345 kJ/100 g, the extra kilojoules provided by potatoes coming from the small amounts of protein (17 kJ/g), fat (37 kJ/g) and soluble fibre (13 kJ/g) present.

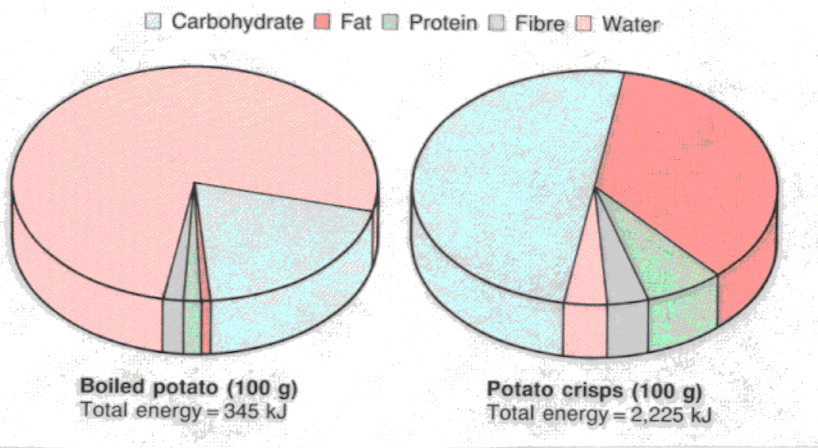


Figure 1. A comparison of the macronutrient content and energy contribution of boiled potatoes and potato crisps per 100 g serving.

There is no cholesterol in plant foods such as avocados, nuts, grains and cereals.

Dietary guidelines indicate that 50% of daily energy intake should come from carbohydrate, so, in a weight reducing diet providing 5,040 kJ at least 2,520 kJ should be provided by carbohydrate (at least 150 g). This amount of energy is provided by the sum total of the following: four slices of bread, two glasses of milk, three pieces of fruit, one glass of fruit juice and one potato.

Tips for application of food chemistry

- There is no cholesterol in plant foods such as avocados, nuts, grains and cereal.
- The effect of dietary cholesterol on the blood levels of cholesterol depends on the amount of saturated fat associated with that meal. For example, a boiled egg containing 250 to 300 mg cholesterol has less effect on the serum cholesterol if eaten without saturated fats such as butter or bacon.
- Fat from any animal source is mostly saturated.
- Vegetable oils that do not specify 'polyunsaturated' are usually saturated. They are made from coconut and palm oil and are used for most commercially made biscuits and cakes.
- Fat intake should be no more than 30% of total energy intake. Of this, 10% should be as monounsaturated fat, 10% as polyunsaturated fat and no more than 10% as saturated fat.
- Monounsaturated fat is the predominant fat in olives, peanuts and avocados. Thus, olive or peanut oils are good substitutes for mainly saturated (palm or coconut) oils.
- There are two kinds of essential fatty acids: those derived mainly from vegetable oils (linoleic and omega 6) and those derived mainly from marine sources (linolenic and omega 3). Lean meat, however, contains both omega 3 and omega 6 fatty acids in phospholipid membranes.
- Dietary fibre differs in function depending on its source (e.g. wheat bran compared to fibre from fruit and vegetable).
- Too much of any one food may lead to nutritional deficiencies because of displacement of other foods of nutritional value, e.g. lots of fibre from bread may decrease calcium bioavailability, just as lots of zinc from oysters may reduce copper availability.
- Enzyme inhibitors in foods may alter enzyme function, i.e. improperly cooked soya beans and sweet potatoes have trypsin inhibitors which could alter protein digestion.
- Good sources of magnesium are those which contain chlorophyll. Seeds (such as nuts and cereals), wheat bran and wholemeal bread are good sources, although magnesium is also found in animal derived foods such as fish and lean meats.
- In animal derived foods vitamin A is mainly preformed (retinyl ester), whereas in plant derived foods it is mainly carotenoid. Vitamin A toxicity from plant derived foods is virtually impossible because the enzyme dioxygenase, which converts beta-carotene to retinol, is rate limiting.
- There is an increasingly strong case for a wide variety of carotenoids to be included in the diet, not just beta-carotene. The principal carotenoid in tomato is lycopene which has little, if any, vitamin A activity but has a potent action to trap damaging forms of oxygen (such as free radicals).
- To improve the overall quality of nutrition, apart from increasing the variety of foods, it is useful to encourage intake of nutrient-dense foods including liver, wheatgerm, yeast or yeast products such as bread or Vegemite.

Food chemistry

Further information and useful tips regarding the application of food chemistry are listed in the adjacent box. Variety is essential, as are proper cooking techniques and avoidance of excessive amounts of any one foodstuff.

One concept of food composition that is important is that of energy and nutrient density (Table 6). Energy density is the amount of energy per gram of foodstuff. However, in determining the overall effect on energy balance, the serving size as well as the frequency of consumption must be taken into account. In Australia, where the most prevalent of all nutritional problems is obesity, it is important to encourage people with low levels of physical activity to eat food which is less energy-dense and more nutrient-dense. During periods of growth, the need for energy-dense food increases and, in people with high levels of physical activity, more energy-dense foods can be consumed without weight gain. Foods or beverages which contain more water or dietary fibre tend to be less energy-dense, while those containing fats, oils or alcohol are often very energy-dense and less nutrient-dense.

Energy density can be influenced by cooking techniques. This is best illustrated by using the various methods of preparing potatoes. A boiled potato contains 345 kJ in an average serving of 100 g (Figure 1). If it is fried as chips the energy content increases to 1,065 kJ/100 g, and usually the serving size also increases to 250 g. Thus, a single

A boiled potato contains 345 kilojoules in 100 g: as fried chips the energy content increases to 1,065 kilojoules per 100 g.

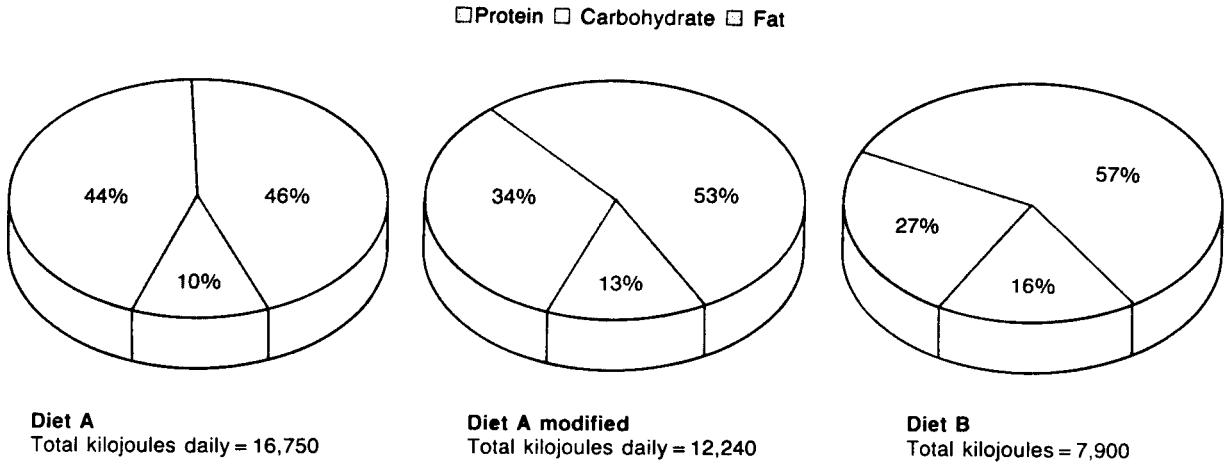


Figure 2. The percentages of total energy obtained from protein, carbohydrate and fat for diet A, diet A modified and diet B.

serving of chips can contribute 2,660 kJ to the daily energy intake. Once the potato is consumed as potato crisps, the energy content becomes as high as 2,225 kJ/100 g (an average serving weighs about 25 g). It is not difficult to see that a boiled potato, perhaps with skim milk yoghurt on top, is a better choice for patients requiring weight reduction or maintenance.

Practical assessment of dietary intake

There are several different endpoints to a dietary assessment, depending on the clinical presentation. Most commonly the problem lies in the overall energy content (either too high or too low) or in the nutrient content (either insufficient vitamins and minerals, despite sufficient energy intake, as occurs in an alcoholic, or nutrient excess, as may occur in patients taking vitamin supplements). Other areas to focus on may be the level of refined sugar in a diabetic patient, the protein intake in a patient with chronic renal disease or sodium intake in patients with hypertension. One simple method of looking for excess total energy intake is to obtain food records with an emphasis on quantities of energy-dense food and beverages consumed (i.e. fats, oils and alcohol). A quick method of assessing nutrient adequacy is described below.

Initially, it is beneficial to ask the patient what they think the main features of their food intake patterns are, and how these features could be affecting their lifestyle. Perceived problem areas may be easily highlighted and concentrated on. If an overall pattern of eating requires further assessment, more time must be spent.

There has been a great deal of research into the accuracy and reproducibility of dietary recall using various methods. The techniques used have included self-documented food intake records over various time periods, ranging from 24-hour recall to a seven-day food intake record. A 'usual' food chart is a modified 24-hour recall that documents the patient's usual eating habits and is not necessarily intended to provide an accurate

Table 6. Relative energy and nutrient densities of different types of foodstuffs

Energy density	Nutrient density	Foods
Low	High	Fruits, vegetables, skimmed milk
↕	↕	Bread, fish, eggs, cereal
		Meat, milk
		Biscuits, cakes, pastry
High	Low	Fats, oils, sugar, alcohol

The preferred method of assessing a patient's energy and nutrient intake is a seven-day food and drink diary.

Table 7. Usual food intake of a 42-year-old truck driver and recommended dietary modifications

Diet A: usual food intake (24-hour and weekly record)

	Days per week
Breakfast	
Toast (2 slices), butter, jam, fried eggs, bacon, coffee (2 cups), milk, sugar (2 teaspoons)	7
Snack	
Cake (1 slice), coffee (2 cups), milk, sugar (2 teaspoons)	7
Lunch	
Meat pie, chocolate milkshake	7
Snack	
Sweet biscuits (4), coffee (2 cups), milk, sugar (2 teaspoons)	7
Dinner	
Steak (fried, large), chips (large serve)	7
Total kilojoules (daily) = 16,750	

Suggested modification to Diet A

Dinner	
Steak (fried, large), potato (boiled, 2)	
Total kilojoules (daily) = 12,240	

Diet B: improved diet which could gradually replace the 'usual diet' (one 24-hour record)

Breakfast	
Toast (2 slices), margarine, jam, oatmeal porridge, skimmed milk (1 cup), coffee (1 cup)	1
Snack	
Banana (1), coffee (1 cup), skimmed milk	1
Lunch	
Salad sandwich, margarine, coffee (1 cup), skimmed milk	1
Snack	
Apple (1), coffee (1 cup), skimmed milk	1
Dinner	
Steak (grilled, medium), potato (boiled, 2), beans (1 cup), tomato (grilled, 1)	1
Total kilojoules (daily) = 7,900	

Diet C: 'preferred diet' with higher variety score (weekly record)

Breakfast	
Toast, skimmed milk (1 cup)	7
Weetbix, oatmeal, porridge	3
Snack	
Banana	3
Orange	4
Lunch	
Salad sandwich, margarine	7
Yoghurt (1 cup)	3
Egg (boiled)	1
Snack	
Apple	3
Nuts (3 tablespoons)	4
Dinner	
Steak, tomato	3
Fish, chicken, broccoli, carrots	2
Beans, potato	4
Total kilojoules (daily) = 8,111*	

*Could be increased with extra serves according to energy expenditure.

assessment of macro or micronutrient intake. Food frequency, that is documenting how many times a particular food is consumed per day, per week or per month, is another such method.

Although these methods may be inaccurate when used to document community eating habits, they are of considerable value in the assessment and management of individual patients, especially when used to direct the patient towards better nutritional habits or as a starting point for dietary modification. Comparison of a food diary before and after dietary change can be of great educational and motivational value to the patient.

Seven-day food diary

The preferred method of assessing a patient's energy and nutrient intake is a seven-day food and drink diary. Using this tool, the clinicians can get a good overview of food habits and, if seven consecutive days are recorded, they can judge the effect of the weekend on routine intake. It is vital that the patient is given sufficient instructions prior to completion of the record, and that he or she is encouraged to use household measures such as 'cupful', 'teaspoonful' or 'tablespoon' to quantitate intake. Cooking methods need to be documented, as do exact food descriptions, such as 'skim milk', not just 'milk'.

Although it is largely used as a research tool, the seven-day food diary is applicable to general practice. It is filled out at the patient's home and can be skimmed through very quickly by the doctor during, or prior to, a second consultation. The use of a highlighter pen enables areas of possible dietary modification to be easily identified. Another useful trick is to give patients a copy,

A simple manoeuvre such as exchanging one serve of chips for two boiled potatoes can have a marked effect.

Table 8. Foods grouped according to biological source

Animal

Eggs
Milk
Dairy (e.g. cheese, yoghurt)
Fish
Shellfish (e.g. mussels, oysters)
Crustaceans (e.g. prawns, lobster)
Ruminants (e.g. sheep, cattle)
Monogastric (e.g. pig)
Poultry (e.g. chicken, duck, turkey)
Game (e.g. rabbit, bird, kangaroo)
Liver
Brain
Giblets (e.g. kidneys, heart, intestines)

Plant

Vegetables
- Root, white (potatoes)
- Root, yellow (carrots)
- Leafy (e.g. spinach, cabbage)
- Marrow
- Flowers (e.g. broccoli, cauliflower)
- Stalks (celery)
- Onion-like (e.g. spring onions)
- Tomato
- Peppers (capsicum)
- Legumes (e.g. beans, peas, lentils)
- Mushroom and other fungi

Cereals and grains
- Morning cereal
- Corn
- Oats/porridge
- Rye (bread)
- Rice
- Pastry
- Biscuits
- Cake
- Pasta
- Bread — white wheat flour
- Bread — wholemeal wheat flour

Fruits
- Citrus (e.g. oranges, lemons)
- Tropical fruit (e.g. mango, papaya, banana)
- Stone fruit (e.g. plums, apricots, cherries, peaches)
- Apples
- Pears
- Berries (e.g. strawberries, raspberries)

with highlighting, to enable them to compare the diary before and after dietary changes.

Usual food chart

A slightly modified technique, that of a 'usual food chart', can be of benefit if a more rapid assessment is needed. This is similar to a 24-hour food recall but attempts to gain information about the patient's normal food habits across the week, rather than on any one particular day. An example (diet A) is shown in Table 7; the food analysis and diet composition are given in Figure 2. This is from a 42-year-old truck driver who is overweight (body mass index = 29).

$$\text{BMI} = \frac{\text{weight (kg)}}{\text{height}^2\text{ (m)}}$$

His major concern was that of cardiovascular risk, as he had a father who died aged 49 of an acute myocardial infarction. Apart from his weight problem he has no other cardiovascular risk factors; in particular, he does not smoke and his serum cholesterol is in the normal range. It can be seen from Table 7 that the food intake is remarkably constant over the week; hence the 24-hour record, the 'usual food intake' and the weekly record are identical in this case.

His 'usual food intake' (diet A) shows that his overall consumption of energy-dense foods is high (Figure 2), with fat providing 44% of his total energy intake. A simple manoeuvre, such as exchanging one serving of fried chips for two boiled potatoes could have a marked effect on his overall profile (suggested modification, Table 7). This change would bring his daily fat intake down towards the 25 to 30% of total energy intake which is recommended (Figure 2). It would also lower the total energy content of his diet from 16,750 kJ to 12,240 kJ/day. An 'improved' diet (diet B), which in conjunction with an increase in physical activity would aid weight reduction, is also given (Table 7). To attempt to replace his 'usual food intake' (diet A) with this 'improved food intake' (diet B) would require a large amount of time and effort. However, even a small step towards the consumption of less energy-dense and more nutrient-dense foods is of considerable nutritional value, particularly if coupled with an increase in energy expenditure. The 'improved diet' would reduce his total energy intake to 7,900 kJ/day, as well as lowering his fat intake to 27% of his total energy intake (Figure 2). This type of dietary manoeuvre would enable him to reduce his body fat as well as his cardiovascular risk.

Variety score

When looking at the overall diet, another useful method is to consider food variety. Foods from various biological sources can be scored and the total used as an indication of adequate nutrient intake. A food variety score of at least 15 over one week (or greater than 12 in one day) is generally nutritionally adequate, while a score greater than 20 will virtually guarantee adequate essential nutrient intake. A list of food groupings is shown in Table 8. Foods (in a quantity equal to one average serving) can be added up, with each type of food scoring only once, no matter how often it is eaten.

Using this method, confectionery (such as lollies and chocolate), jams, added sugar and beverages such as tea, coffee, alcohol and soft drinks, are not included as they contribute little towards overall nutrient density. The food variety score is an easy

Educational status correlates better with knowledge of nutrition than does economic status.

Table 9. Foods of different biological source and variety scores for diets A, B and C

Diet A: usual food intake of a 42-year-old truck driver

Bread (as toast)	Cake	Biscuit
Egg	Meat pie	Potato
Bacon	Milkshake	Butter

Variety score = 9

Diet B: improved diet

Bread (as toast)	Banana	Potato
Margarine	Apple	Beans
Porridge	Sandwich	Tomato
Skimmed milk	Steak	

Variety score = 11

Diet C: preferred diet

Bread	Banana	Steak
Margarine	Broccoli	Fish
Porridge	Tomato	Chicken
Weetbix	Sandwich	Potato
Orange	Nuts	Beans
Apple	Yoghurt	Carrots
Skimmed milk	Egg	

Variety score = 20

Table 10. Factors to consider before suggesting dietary change

Age
Sex
Racial origin
Religious beliefs
Family make-up
Peer group
Educational status
Socio-economic status
Exercise pattern
Medical illnesses

method of assessing adequate nutrient density.

As an example, the truck driver's diet (Table 7), which he consumed daily (seven days a week), gave a variety score of 9, using either the one-day or the one-week score (Table 9). This is clearly inadequate and steps towards reducing the energy density, i.e. by substituting boiled potato for fried chips, did not improve on this. Even his 'improved diet' (diet B, Table 7), which is substantially less energy-dense, does not provide sufficient variety if eaten every day. The variety score is 11, again using either the one-day or the one-week variety score (Table 9).

A 'preferred diet' (diet C) from the nutrient density perspective would include the addition of fish once or twice a week (also of benefit with regard to coronary artery risk), possibly chicken twice a week, as well as a wider choice of fruits and vegetables (Table 7). This would give him a food variety score of 21 for one week (Table 9) which is sufficient for adequate nutrient intake.

It is not usually difficult to reach the goal of 15 to 20 biologically different foods per week. However, for those patients in the risk groups (Table 1), particularly those who are food faddists, it is often harder. Encouraging a more nutrient-dense diet, which is also less energy-dense, is an important part of dietary education.

Effecting dietary change

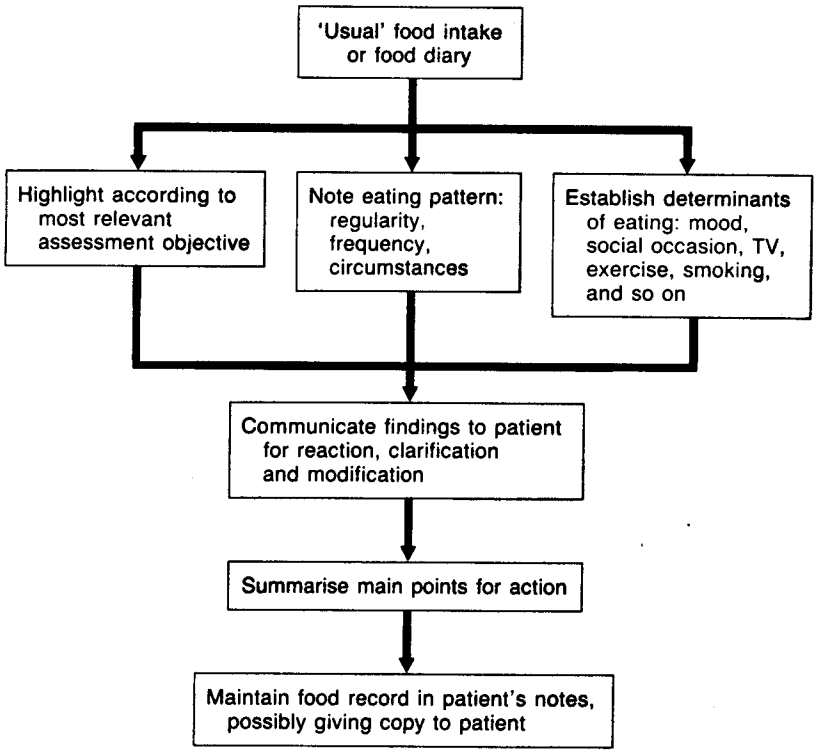
One of the over-riding considerations in discussing food and dietary intake is individual differences. Many factors become critical when attempting to alter eating habits and these need careful consideration (Table 10). They include such things as racial origin, religious beliefs, age and sex, all of which can influence

Table 11. Steps to take prior to altering diet

- Determine patients motivation and reason for requesting change
- Discuss food options with patient and the primary food preparer/buyer
- Set realistic goals (that are achievable)
- Suggest small modifications to present diet rather than drastic changes
- Make sure changes incorporate foods which are acceptable to the patient
- Always suggest alternatives to foods not recommended
- Expect dietary change to take place over a prolonged period of time

During periods of growth increased exercise may be of more benefit than a restriction of energy input.

Food intake assessment



the type of food eaten as well as the cooking techniques used. The family make-up is important, with particular relevance to the food preparer. Information on altering a diet needs to be directed, not only to the patient, but also to the food preparer and/or the food buyer. Educational status correlates well with knowledge of nutrition and is even more important than socioeconomic status, although this can affect food buying habits. Some diets with prescribed foods may not be suitable for patients with a limited income. Peer group pressure, particularly in adolescents and young adults, may be the overriding influence; for example, a traditional Asian diet may be abandoned for the westernised fast-food diet, with a subsequent dramatic increase in saturated fat consumption and total energy intake.

It is important for the treating physician to determine the motivation behind the patient's presentation. For example, a woman requesting weight control advice may actually be concerned about potential cardiovascular risk, especially if there is a family history of heart disease.

It is also essential to establish realistic goals. A patient with backache who is overweight, with a body mass index of perhaps 32, may be happy to attempt weight reduction of a degree sufficient to relieve pain, but not necessarily to bring the body mass index into the normal range.

The goals may vary for each individual patient and are also influenced by disease state. For example, a patient with abnormal glucose tolerance may improve their glucose control by reducing refined sugars and increasing complex carbohydrate containing foods. Goals may not even be constant for one patient over a period of time. For a patient who is overweight, it may be advisable to encourage an increase in variety, prior to suggesting radical reduction in energy intake. This will allow more food choices to be made and help reduce boredom if the patient is placed on an energy-restricted diet (Table 11).

Prior to formulating a diet, some knowledge of exercise level is important. A manual labourer requires a greater energy intake than a clerical worker, unless a large amount of physical exercise is performed during leisure time. It may be that increased levels of physical exercise would be of more benefit than dietary change

Table 12. Food intake management

- At first consultation clarify management objectives
- Repeat food intake assessment at intervals which allow sufficient change, but are not long enough to allow a return to former habits, e.g. two to four weeks before second evaluation
- Summarise significant changes
- Recommend further realistic changes
- Arrange follow-up review programme and indicate long term targets

It is better to try to modify the patient's present dietary habits than to hand out a 'diet sheet'.

to a young girl going through puberty who is overweight. Restriction of energy input can be dangerous during periods of growth.

Often, the best nutritional advice is the simplest. In the example given previously, the benefit of replacing a large serving of fried chips with two boiled potatoes could be seen. It is preferable to achieve a small step towards a preferred diet than to expect the patient to suddenly change habits which have been established over a lifetime. Patients given dietary advice which is not tailored to individual needs or is not realistic, are likely to get frustrated and lose what little motivation they may have had. Rather than handing out 'diet sheets', it is better first to establish the pattern of eating with the diary or usual food intake methods and then make changes to this pattern, stressing that the patient should not perceive these changes as a 'diet', which implies short term adherence, but rather a 'healthier way of eating' to be adhered to forever.

Conclusion

Advice given by a treating clinician must be accurate and specific, and must relate to the patient's current eating habits. A food intake assessment should be made on the first visit, using either the 'usual' food intake method or a seven-day food diary (see 'Food intake assessment' on page 56). The next step is to formulate a food intake management plan (Table 12) which will pinpoint long term goals. Small changes, together with frequent reinforcement of dietary goals, will allow a significant improvement in overall nutrition. Specific nutrition related disorders, such as obesity, non-insulin dependent diabetes and mild/moderate malnutrition, can usually be managed by the primary care doctor, although the nutritional requirements in more complicated cases often require specialist advice.■

Further reading

1. Briggs D, Wahlqvist ML. Food facts. Melbourne: Penguin, 1988.
2. Tanphaichitr V, Dahlan W, Suphakarn V, Valyasevi A. Human nutrition – better nutrition better life. Bangkok: Aksornsmai Press, 1984.
3. Wahlqvist ML. Food and nutrition in Australia. 3rd ed. Thomas Nelson, 1988.