Iron metabolism is unusually complex, and anaemia can occur even when there is adequate iron in the diet because of inability to use the iron or abnormally high losses of it. However, it is a dangerous trap to take supplements of iron purely as a precautionary measure, because if iron deficiency is not the cause of the anaemia, the excess iron can do great harm. Very recent research has established that surplus iron is a major contributor to rapid ageing, heart disease and stroke.

How Iron Can Be Toxic
Iron is kept in the organic form in the body, generally bound to protein as in haemoglobin, ferritin or transferrin. Haemoglobin is the pigment in the blood which provides the red colour and carries oxygen, ferritin is an iron compound mainly in the liver and spleen, and transferrin is the form in which iron is transported to the bone marrow and tissue storage areas. Because elemental iron is toxic, iron surplus to the body's needs which cannot be packaged in one of these compounds is very damaging. The body goes out of its way to protect itself against unpackaged iron which is a powerful oxidiser of other compounds leading to rapid ageing and cardiovascular disease. In the presence of free iron, vitamin C is oxidised and becomes damaging; otherwise vitamin C is a highly protective antioxidant.

Iron levels have been regarded as normal in men but deficient in women because women menstruate and go through pregnancies which deplete iron levels. However, women die less of heart disease and their skin retains its youth longer partly because of less iron. After menopause, iron stores in women increase similarly to those in men. The paradox is that iron reserves have been found to be a significant predictor of cardiovascular disease and death in a population. The higher the level of iron, the higher the level of heart disease, stroke and other degenerative conditions.

So significant is the role of surplus iron in generating free radicals that, in Alzheimer's disease, iron deposits have been found adjacent to the plaques (groups of dead cells) in the brain. In relation to the increased incidence of testicular cancer in recent decades, researchers have proposed that a major cause is an increase in the content of available iron in the Western diet due to a high intake of red meat.

So it is wrong to assume that women are necessarily deficient in iron due to menstruation, when this natural process actually protects them against damage from excess iron. A blanket recommendation that all women ensure abundant iron intake is important. The critical thing about iron supplementation is first to ensure that you are deficient. If not, then you don't want extra. A blood test to assess the iron level is a very desirable move. If iron levels are adequate, then it can be risky to consume red meat (besides its other problems) in which abundant iron is in a highly absorbable form, the haem form which is the form that occurs in blood. It will also be potentially dangerous to consume iron supplements. If taking a multi-mineral, check that it contains no iron or only a very small amount such as one or two milligrams.

Anaemia May Or May Not Be Iron Deficiency
Anaemia means literally 'lack of blood', whereas the disease, anaemia, is actually any condition in which the concentration of haemoglobin is below normal. In the lungs, haemoglobin combines with oxygen, to produce a bright red colour. When this oxygen is released to the tissues, the blood turns bluish. Hence the blue colour of the stagnant blood in varicose veins or bruises. Haemoglobin is manufactured in bone marrow, and the nutrients critical to the process are iron, vitamins B5, B6, B9 (folic acid), B12 and copper.

The normal range for haemoglobin in the blood is 12 to 16 grams per hundred ml for women and 13.5 to 18 grams per hundred ml for men. Deficiency of haemoglobin can take the form of a reduced number of cells or a normal number of cells but deficiency of pigment, described as 'hypochromic'. In the different types of anaemia, red cells may be larger than normal - 'macrocytic', or smaller - 'microcytic'. Red blood cells in iron deficiency anaemia are hypochromic and microcytic.

Women tend to have lower levels of haemoglobin and are more prone to anaemia than men as a result of the regular blood loss during menstruation.

PALE, WEAK AND OTHER SYMPTOMS
The immediately visible symptom of anaemia is pallor of the skin, although this may be masked by suntan or natural pigmentation. A better guide is the colour of the lips, mouth, tongue, fingernails and eyelid linings. In severe anaemia, the creases of the palms of the hands lose their colour. The primary effect on health of insufficient haemoglobin is that the blood cannot carry enough oxygen, resulting in a depletion of energy supplies for both body and mind. Symptoms may include weakness and fatigue, breathlessness and excessive tiredness (even on minimal exertion), dizziness, headache, palpitations of the heart, increased sensitivity to cold, loss of appetite and rapid pulse, especially on exertion. In extreme cases, the amount of oxygen in the blood is so reduced as to result in severe chest pain, called angina.

Several physical signs may help distinguish the particular type of anaemia. For example, iron-deficiency anaemia may produce sore tongue, flat brittle nails and coarse hair. Pernicious anaemia may cause numbness and tingling in fingers and toes.

The presence of anaemia is confirmed by medical examination of the blood for haemoglobin content and the shape and size of the red blood cells.
ANAEMIA TAKES VARIOUS FORMS

Anaemia is commonly associated with iron deficiency in the diet, which is often the cause, but also often not the cause. The numerous conditions known collectively as anaemia are most easily classified according to the mechanism by which they occur. There are four main mechanisms, and their most common causes are listed below:

1. Decreased production of haemoglobin
   - Deficiency of iron, copper, vitamin B₆ or vitamin B₁₂
   - Lead poisoning
   - Severe alcohol abuse

Iron-deficiency anaemia is the most common form of anaemia in Western countries.

2. Decreased production of red blood cells
   - Deficiency of vitamin B₁₂ (called pernicious anaemia) or of vitamin B₃ (folic acid) or of protein or copper
   - Leukaemia or some other cancers
   - Heavy metals, especially lead and mercury, and cytotoxic drugs including chloramphenical (antibiotic)
   - Certain disorders of the endocrine glands
   - Severe chronic kidney or liver disease

3. Abnormally rapid destruction of red blood cells – haemolytic anaemias
   - Vitamin E deficiency allows fat in red cells to become oxidised
   - Lead poisoning
   - Excess of copper which oxidises fats
   - Certain drugs
   - 'Sickle cell' anaemia, an inherited abnormality of red blood cells, found mainly in American negroes.
   - Deficiency of the enzyme glucose-6-phosphate dehydrogenase

4. Excessive blood loss
   - Excessive menstrual bleeding – a common cause of anaemia
   - 'Hidden' bleeding in the digestive tract due to ulcers, colitis, haemorrhoids, diverticular disease, cancer or other conditions
   - Bleeding into the stomach following over-use of aspirin
   - Excessive bleeding or poor blood clotting due to deficiency of nutrients such as vitamin C or vitamin K
   - Copious nose bleeds – a rare possibility

IRON DEFICIENCY ANAEMIA
THE MOST COMMON

This is hypochromic anaemia – the number of red blood cells is normal, but they lack colour. It is the most common form of anaemia, affecting just a few percent of men but a much greater proportion of women. Iron deficiency occurs particularly during infancy or pregnancy when demands are greater, and in the adolescent female due to the combination of increased needs for growth and the onset of menstruation.

Iron deficiency can be the result of dietary deficiency, but it often occurs when there is adequate iron in the diet, a fact which is often overlooked. Non-dietary causes of iron deficiency include:

- impaired absorption of iron
- impaired metabolism due to copper deficiency
- excessive iron loss through blood loss due to menstruation or donating blood

Absorption of Iron

Approximately three-quarters of the iron in our bodies is in haemoglobin. Most of this iron is recycled when blood cells are broken down, so that absorption from food need not be high. Average absorption is only about 10% of the total dietary iron; in deficiency conditions, this may increase to perhaps 25%.

The level of iron in childhood is affected by the cutting of the umbilical cord at birth. If cut before it finishes pulsing, much placental blood, and therefore iron, is lost to the baby, whereas if cut afterwards, much valuable iron is saved.

Iron in food may occur as phytates, oxalates and phosphates and keep iron away from iron absorption. For example, protein or certain amino acids, and organic acids such as malic, citric and ascorbic acids indicate high levels of oxalic acid which affects absorption. Both requirements are met by green vegetables such as parsley, English spinach, silverbeet, alfalfa and wheatgrass. Only parsley and silverbeet that are not bitter should be used, because the bitterness indicates high levels of oxalic acid which can combine with iron rendering it insoluble. The addition of a little nettle and horseradish juices may be helpful. Include carrot and beetroot juices for their nutrients and palatability. Drink at least two glasses daily of this 'carrot-and-chlorophyll' juice. A beneficial fruit juice is prune juice. Suggested herbs are dandelion, blackcurrant, fenugreek, raspberry leaves and kelp.

Iron Absorption
Is Inhibited By:
- Phytates, oxalates and phosphates which form insoluble compounds with iron
- High intake of tannin from tea and coffee
- Excessive intake of cadmium, zinc, copper or manganese
- Excess of vitamin E which interferes with iron absorption
- Decreased hydrochloric acid production by the stomach
- Deficiency of vitamin C
- Chronic diseases of the small intestine such as Crohn's disease
- Intestinal parasites or tumours
- Severe infection

Iron Absorption
Is Enhanced By:
- Low bodily levels of iron
- Vitamin C (ascorbic acid) which increases stomach acidity and also chelates with iron
- Adequate stomach acid
- The presence of chelating agents, for example, protein or certain amino acids, and organic acids such as malic, citric and ascorbic acids
- Adequate calcium to bind phytates, oxalates and phosphates and keep them away from iron

Corrective Measures

The diet should be predominantly alkali-forming (producing an alkaline residue in the system) and should also include foods that contain good levels of iron and which are readily absorbed. Note that acid fruits contain weak organic acids but are alkali-forming. Both requirements are met by green vegetable juices, freshly made from greens such as parsley, English spinach, silverbeet, alfalfa and wheatgrass. Only parsley and silverbeet that are not bitter should be used, because the bitterness indicates high levels of oxalic acid which can combine with iron rendering it insoluble. The addition of a little nettle and horseradish juices may be helpful. Include carrot and beetroot juices for their nutrients and palatability. Drink at least two glasses daily of this 'carrot-and-chlorophyll' juice. A beneficial fruit juice is prune juice. Suggested herbs are dandelion, blackcurrant, fenugreek, raspberry leaves and kelp.

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Spring 2005
For dietary deficiency of iron, the following list gives the iron content of common foods, starting with the richest:

### Iron Content of Common Foods

<table>
<thead>
<tr>
<th>Food</th>
<th>Iron (mg/100g)</th>
<th>RDI (mg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bran, wheat</td>
<td>11.9</td>
<td>12</td>
</tr>
<tr>
<td>Pepitas</td>
<td>11.2</td>
<td></td>
</tr>
<tr>
<td>Wheatgerm</td>
<td>9.7</td>
<td></td>
</tr>
<tr>
<td>Beans, soya, dried</td>
<td>9.5</td>
<td></td>
</tr>
<tr>
<td>Parsley</td>
<td>8.4</td>
<td></td>
</tr>
<tr>
<td>Lentils, dried</td>
<td>7.5</td>
<td></td>
</tr>
<tr>
<td>Beans, lima, dried</td>
<td>5.7</td>
<td></td>
</tr>
<tr>
<td>Beans, kidney, dried</td>
<td>5.6</td>
<td></td>
</tr>
<tr>
<td>Bran, oat, raw</td>
<td>5.4</td>
<td></td>
</tr>
<tr>
<td>Sesame seeds</td>
<td>5.2</td>
<td></td>
</tr>
<tr>
<td>Tahini</td>
<td>5.1</td>
<td></td>
</tr>
<tr>
<td>Cashews, raw</td>
<td>5.0</td>
<td></td>
</tr>
<tr>
<td>Sunflower seeds</td>
<td>4.6</td>
<td></td>
</tr>
<tr>
<td>Pine nuts</td>
<td>4.1</td>
<td></td>
</tr>
<tr>
<td>Flour, rye, wholemeal</td>
<td>4.0</td>
<td></td>
</tr>
<tr>
<td>Egg yolk, raw</td>
<td>4.0</td>
<td></td>
</tr>
<tr>
<td>Almonds</td>
<td>3.9</td>
<td></td>
</tr>
<tr>
<td>Pistachio nuts</td>
<td>3.9</td>
<td></td>
</tr>
<tr>
<td>Oats, rolled, raw</td>
<td>3.7</td>
<td></td>
</tr>
<tr>
<td>Hazel nuts</td>
<td>3.2</td>
<td></td>
</tr>
<tr>
<td>Spinach, English</td>
<td>3.2</td>
<td></td>
</tr>
<tr>
<td>Flour, wheat, wholemeal</td>
<td>3.0</td>
<td></td>
</tr>
<tr>
<td>Walnuts</td>
<td>2.5</td>
<td></td>
</tr>
<tr>
<td>Pecan nuts</td>
<td>2.4</td>
<td></td>
</tr>
<tr>
<td>Peanuts, raw, with skin</td>
<td>2.3</td>
<td></td>
</tr>
<tr>
<td>Silverbeet</td>
<td>2.3</td>
<td></td>
</tr>
<tr>
<td>Bread, wholemeal</td>
<td>2.3</td>
<td></td>
</tr>
<tr>
<td>Brazil nuts</td>
<td>2.2</td>
<td></td>
</tr>
<tr>
<td>Macadamia nuts</td>
<td>1.8</td>
<td></td>
</tr>
<tr>
<td>Peas, green, raw</td>
<td>1.8</td>
<td></td>
</tr>
<tr>
<td>Egg, whole, raw</td>
<td>1.6</td>
<td></td>
</tr>
<tr>
<td>Fig, dried</td>
<td>1.4</td>
<td></td>
</tr>
<tr>
<td>Coconut, fresh</td>
<td>1.1</td>
<td></td>
</tr>
<tr>
<td>Lettuce, mignonette</td>
<td>1.1</td>
<td></td>
</tr>
<tr>
<td>Beans, green, raw</td>
<td>1.0</td>
<td></td>
</tr>
<tr>
<td>Broccoli</td>
<td>1.0</td>
<td></td>
</tr>
<tr>
<td>Beetroot, raw</td>
<td>0.9</td>
<td></td>
</tr>
</tbody>
</table>

### Iron Supplements

The standard medical supplement is iron sulphate, which should be taken with a protein meal so it will chelate. This is more soluble than any natural form of iron, often too soluble. If taken on an empty stomach, it can damage the gut lining leading to diarrhoea, constipation, nausea and/or vomiting. It is possible that the nausea of morning sickness may sometimes be due, not to iron deficiency as is assumed, but to iron sulphate toxicity. Large doses of iron sulphate tend to destroy vitamins E, C and A.

Iron phosphate is less soluble, so the iron is less likely to chelate and is poorly absorbed. Its advantage is less toxicity. Vitamin C taken with iron as a supplement or in the form of, say orange juice, forms a chelate that is readily absorbed. If a vitamin E supplement is also being taken, it should be at the opposite end of the day because they interfere - inorganic iron can destroy vitamin E. An iron supplement should not be taken on an empty stomach.

The strongly preferred supplement is chelated iron, an organic form usually chelated with an amino acid or sometimes as lactate, gluconate or citrate. Iron deficiency can often be overcome by consuming iron-rich foods with a sprinkling of vitamin C in the form of ascorbic acid or sodium ascorbate. Use just a little vitamin C, like salt sprinkled over a meal. Do not include in the same meal phytate-rich foods – mainly grains, legumes and sesame seeds. Phytates bind iron and reduce absorption. This method may achieve good results and could be tried first before resorting to supplements.

Blood tests will indicate if iron levels are improving. It takes typically six weeks for anaemia to respond and three months for full improvement.

### Vitamin B12 Deficiency Anaemia – Pernicious Anaemia

Vitamin B12 is essential for the manufacture of haemoglobin and the production of red blood cells by bone marrow. Deficiency of vitamin B12 produces, not only anaemia, but also a reduction in white blood cells (increasing susceptibility to infection) and also fewer of the blood platelets necessary for normal clotting of blood after injury. B12 deficiency causes some red cells to be larger than usual, the condition being referred to an ‘macrocytic’ or ‘megaeiocytic’ anaemia.

Vitamin B12 is found in all animal foods, where it is bound to protein. In the human stomach it is separated from the protein and bound to a special glycoprotein called the intrinsic factor which is produced in the stomach. The bound combination travels intact to the small intestine where the vitamin is absorbed into the bloodstream. Uncombined vitamin B12 is wasted.

### Deficiency of Intrinsic Factor

Deficiency of intrinsic factor is probably more common than deficiency of the vitamin, and without it almost none of the vitamin B12 is absorbed. Anaemia caused in this way is called pernicious anaemia. It was originally labelled ‘pernicious’ because it could not be explained by iron deficiency.

### Deficient production of intrinsic factor may result from:

- Atrophy (wasting away) of the stomach lining due to stress, alcoholism or deficiencies of vitamin B3 or B9 (folic acid or folate). There is widespread deficiency of folic acid
- Insufficient production of hydrochloric acid
- Corrosive chemicals, for example, caustic soda
- Antibodies against certain organisms
- Stomach removal
Inability to absorb B₁₂ in the small intestine may result from:

- Crohn’s disease or coeliac disease
- Pancreatic disease, which reduces alkali secretion
- Intestinal parasites or tumours which can mop up B₁₂
- Drugs including the antibiotic neomycin, oral contraceptives, alcohol and oral diabetics.

Because it occurs at insignificant levels in plant foods, B₁₂ is the subject of much controversy with vegetarian diets. Around three years supply of the vitamin is stored in the liver, so gross deficiency could take years to produce symptoms. If there are absorption problems in the small intestine, deficiency could develop in a matter of months.

Deficiency Symptoms

Vitamin B₁₂ is required for blood and nerves, so deficiency leads to anaemia, plus nerve and mind problems. The anaemia will be accompanied by increased infections and poor blood clotting.

Mental symptoms include depression, paranoia, psychosis and, if severe, extreme confusion and personality changes.

Neurological symptoms are called sub-acute combined degeneration of the spinal cord. There may be pins-and-needles, numbness in the extremities, nerves inflamed and tender, poor co-ordination leading to difficulty in walking, and paralysis if severe.

Vitamin B₁₂ prevents anaemia identically to the way B₁₂ does, so if B₁₂ is deficient but B₁₂ is adequate, there may be no anaemia but there will be mental and neurological symptoms.

Daily Requirement

The Recommended Daily Intake in Australia for adults is 2.0 micrograms. Animal foods can easily supply enough B₁₂ but, of course, if intrinsic factor is lacking, deficiency can occur. Plant foods contain only traces of B₁₂, most of which is an inactive analog of B₁₂ which cannot be used by the body.

In vegan diets there are no animal products whatsoever, and B₁₂ deficiency is a potential problem which must be watched for in order to prevent serious harm.

For a detailed account of B₁₂ deficiency see ‘Vitamin B₁₂ and Vegetarian Diets – What You Should Know’, p28 in this issue of NVNH.

Remedial Action

In pernicious anaemia, it is unlikely that lifestyle changes will restore the production of intrinsic factor, so injections of vitamin B₁₂ are usually necessary. These are normally administered monthly and continued throughout life.

Significant nervous system damage is largely irreversible. Fortunately the disease tends to be diagnosed in the relatively early stages when such symptoms are minimal.

Vitamin B₁₂ content of common foods

Micrograms (mcg) of vitamin per 100 grams of food.

- Almost all animal products contain this vitamin; very few plant foods contain any usable B₁₂.
- Egg yolk 5.80
- Eggs, whole 1.55
- Cheddar cheese, unprocessed 0.84
- Cottage cheese 0.71
- (For comparison, lamb chops 1.80, beef steak 1.19, flounder 1.19, chicken 0.44.)

In a person who has adapted to a vegetarian diet, the ‘friendly’ gut bacteria may produce some useful vitamin B₁₂. However, due to antibiotics, stress or a former high-meat diet, these bacteria may be too compromised to produce a significant amount.

VITAMIN B₉ DEFICIENCY ANAEMIA

Vitamin B₉ – folic acid or folate – has an identical function to that of vitamin B₁₂ in the making of blood cells and haemoglobin, so deficiency can cause anaemia. Similarly to B₁₂ deficiency, some red cells will be larger than usual, and the condition is also referred to a ‘macrocytic’ or ‘megalocytic’ anaemia.

Folic acid deficiency is a common vitamin deficiency in the Western world, thought to affect almost half of the population and a higher proportion of pregnant women. This is largely due to insufficient consumption of vegetables and fruits and destruction by cooking, and because alcohol is antagonistic to B₉. However, many foods are now being fortified, so this situation should be improving. As the name implies, folic acid is found in foliage. It is the next most unstable vitamin after vitamin C and is extremely sensitive to heat, being mostly destroyed by about 15 minutes of cooking.

Absorption is reduced by alcohol, oral contraceptives and certain drugs.

If B₉ is deficient, even when B₁₂ is adequate, anaemia is still possible. Live blood cell analysis can detect the early stages of deficiency of either vitamin by showing macrocytic red blood cells. As with B₁₂ deficiency, the anaemia is accompanied by increased infections and poor blood clotting.

The Recommended Daily Intake is 200 micrograms from diet, yet the typical Western diet supplies only a fraction of this. To overcome deficiency, it is necessary to increase the intake of raw foods, especially vegetable salads and nuts, and consider topping up with supplements.

Folic Acid content of common foods

Micrograms of vitamin per 100 grams of food.

- Chick peas, dry 200
- Spinach 190
- Egg yolk 150
- Parsley 120
- Peanuts 110
- Pumpkin seeds 100
- Almonds 100
- Brussels sprouts 80
- Hazelnuts 72
- Broccoli 69
- Cashews 68
- Walnuts 66
- Cabbage 66
- Eggs, whole 64
- Wholemeal flour 54
- Avocado 51

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APLASTIC ANAEMIA

Aplastic means defective development of tissue; aplastic anaemia is the condition in which bone marrow ceases to produce normal amounts of blood cells - red, white and platelets - resulting in anaemia, decreased white blood cells to combat infections and reduced blood platelets leading to poor blood clotting and excessive bleeding. When the bone marrow is examined under a microscope, some of the developing blood cells are seen to have been replaced by fat.

The cause is thought to be some kind of injury to bone marrow, although the exact cause often cannot be identified. A number of drugs or chemicals are known to damage bone marrow. Drugs used in the treatment of cancer have this side-effect, and the marrow usually recovers spontaneously when the drug is stopped. Benzene, the widely used commercial and domestic solvent, also has this effect and the damage is usually reversible. Irradiation in high doses is another cause.

The anaemia develops gradually. Bruising occurs easily, and bleeding from the nose, gums and other places may be common. When an infection occurs there is little resistance. Sometimes recovery will occur when the causative agent is identified and removed. Where white blood cell levels are particularly low, great care must be taken to keep the person free from infection. With severe depression of the bone marrow, the standard medical approach is a bone-marrow transplant.

HAEMOLYTIC ANAEMIAS

This is a group of blood disorders in which there is reduced concentration of haemoglobin due to excessive breakdown of red blood cells. The classic medical view is that the defects may be inherited (congenital) or acquired. Inherited abnormalities in enzymes of red blood cells mean that the cells can be easily damaged by certain foods or drugs - including sulphonamides, phenacetin and the anti-malarial drug Primaquine. Deficiency of one enzyme (glucose-6-phosphate dehydrogenase) is relatively common world-wide, but anaemia does not develop unless there is exposure to these drugs or to foods derived from the broad bean.

In acquired haemolytic anaemia, red blood cells are destroyed by antibodies induced by infections such as malaria, chemical agents such as lead or drugs, malignancy or by other causes.

A person with this condition appears pale with yellow-tinged skin from jaundice, resulting from the by-products of red cell breakdown.

Medical treatment, if the anaemia is severe, involves blood transfusions and sometimes removal of the spleen.

OVERCOMING ANAEMIA

WHEN THERE IS NO OBVIOUS CAUSE

Where anaemia is the result of a deficiency of iron, vitamin B12, folic acid, other B-vitamins or other nutrients, these can usually be corrected by consuming foods rich in these nutrients and maybe also topping-up with supplements. In the case of deficiency of the Intrinsic factor, injections of vitamin B12 may be necessary as mentioned earlier.

However, there are cases in which anaemia is not readily traceable to particular nutrients, and is ultimately the outcome of a general debility of the whole system. This is essentially the consequence of the toxemia that results from modern diet, stress, sedentary lifestyle and exposure to man-made chemicals, all of which are part and parcel of modern living, but nevertheless far removed from the lifestyle conditions for which the human body is designed.

An impoverished and congested bloodstream does not supply the vital organs and other tissues with their proper nutrition and facilitate the complete removal of wastes. The whole body is affected, both physically and mentally, creating a vicious cycle leading to further impairment of the bloodstream and further degradation of the system.

Like most modern diseases, anaemia is a disease of civilisation, requiring that the whole system be regenerated through changes in lifestyle designed to restore normal function and vitality.

At the outset, if you suspect anaemia, it is wise to consult a medical practitioner for diagnosis as this can be valuable, if not essential. The guidance of a naturopath or wholistic medical practitioner will generally be necessary during recovery because iron metabolism and anaemia are complex.

First and foremost, look for any environmental chemical, drug or food that could possibly be the causative agent and take steps to avoid it.

Consider the type of anaemia and deal with it according to its causes. Be very certain that iron deficiency does exist before taking iron supplements, as the long-term consequences of iron overload could be worse than the anaemia. If iron or other minerals or vitamins are deficient, seek to remedy these, initially by increasing the intake of foods that are abundant in these nutrients.

Certain foods are rich in minerals and vitamins generally, so that, even in the absence of iron deficiency, they are likely to help the anaemia in other ways, and their only side-effect can be better health all round. They include:

- Green vegetable juices, such as the 'carrot-and-chlorophyll' mentioned earlier.
- Parsley, English spinach and silverbeet (finely chopped) make excellent salad ingredients, provided they don't taste bitter. Bitterness indicates high oxalic acid which renders some of the iron and other minerals insoluble.
- Beetroot, a liver tonic, in salads or juices.
- Nettle, rich in iron and other minerals, can be drunk freely in the form of tea.
- Useful fruits or juices include red grape, blueberry, black currant, prune and apricot. Keep grapes in moderation so as to avoid disturbances to blood sugar level.
- Herbs, taken with the guidance of a herbalist.

As the foundation of good nutrition, adopt a balanced diet of natural foods in accordance with Natural Health Dietary Guidelines.

Even when the cause cannot be determined, anaemia will sometimes be overcome by rejuvenation of the whole system using self-healing methods. How to facilitate self-healing was explained in the Spring 2001 issue of NV/NH.

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