

Nutritional Therapy in the Treatment of Common Minor Health Problems

A Clinical Audit

Introduction

This paper investigates the proposal that Nutritional Therapy when used as a complete therapeutic system can be a viable, inexpensive and effective treatment for numerous chronic but potentially distressing disorders for which conventional methods of treatment can offer no satisfactory remedy in the long term. Such disorders include, but are not limited to chronic fatigue, migraine and headaches, mood problems, poor resistance to infection, skin problems and irritable bowel syndrome. This paper discusses the rationale for Nutritional Therapy, and offers as evidence a survey carried out on 298 patients treated with this system over a three-year period in a GP's practice in south London.

Principles of Nutritional Therapy

Nutritional Therapy can be defined as a therapeutic system in which special diets and nutritional products are prescribed to individuals, with a view to halting, retarding or reversing any damage to that individual's physiological and biochemical function which may have been caused by any of the following factors:

1. Food or environmental allergy or intolerance.
2. Toxic overload due to heavy metals or chemicals in the environment, dysbiosis, poor eliminative ability or poor liver function.
3. Nutritional deficits due to poor diet, special needs or malabsorption.

The patient's nutritional needs are assessed by examination and symptom analysis, and by the use of laboratory investigations. Questions relate to symptoms, medical history, stress factors, lifestyle and eating habits, and the patient can be given a questionnaire to complete which will serve as a basis for discussion and diagnosis (see Appendix I). State-of-the-art laboratory tests, developed by specialists in this field, and which measure nutrients or nutrient-dependent enzymes in blood, hair, sweat, white cells and other tissues or fluids are preferred to ordinary blood levels, which are well known to be lacking in the sensitivity required to diagnose nutritional deficiency states other than frank scurvy, beri-beri and similar overt diseases. [1,2,3]

An overview of the diagnostic factors normally taken into account is now given, with a brief discussion of intervention methods and their rationale.

1. Food allergy/intolerance

The role of idiosyncratic food allergy/intolerance in diseases such as irritable bowel syndrome, migraine, urticaria and rheumatoid arthritis is now widely acknowledged in the literature [4-14]. While fixed-name diseases do not always correlate readily with such reactions, the nutritional therapist frequently finds, upon routine investigation, that patients with a variety of chronic minor conditions find a dramatic improvement in their presenting problem soon after beginning a hypoallergenic diet excluding foods which in evolutionary terms were introduced relatively late into the human diet but are now commonly eaten every day by most people in Britain (wheat, dairy produce, artificial food additives, etc.).

A history of allergic rhinitis, hay fever or excessive mucus production is often a good indicator that the patient is susceptible to allergies or intolerances, and that the presenting problem may be linked with these.

It may also be helpful for symptom reduction to ask the patient to avoid challenging metabolic detoxification mechanisms with inhalant factors such as fumes, gases and sprays wherever possible. Attention is also paid to skin contact agents such as soaps and cosmetics.

Intolerances to items such as sugar or caffeine also commonly occur. For instance, a low-sugar diet may be helpful in reducing mood swings, poor concentration, irritability and fatigue caused by chronic hyperinsulinaemia. A high caffeine intake may be associated with headaches [5,15] and exacerbate psychiatric problems [5,16,17,18]

Patients with inflammatory diseases such as osteoarthritis may have an intolerance to animal fats. This may be due to the small amount of arachidonic acid in such fats, and a consequent excess production of series 2 leukotrienes and inflammatory prostaglandins [19,20].

2. Nutritional deficits

For the purposes of Nutritional Therapy, answers to the diagnostic questionnaire (see Appendix I) are used as a pointer to the possible presence of sub-clinical micronutrient deficiencies. The questions are a compilation from various sources, particularly Davies and Stewart [21].

Earlier this century, nutritional investigations were restricted to specific clinical pictures such as that of scurvy.

Lately there has been an explosion of interest in the role of the so-called sub-clinical nutritional deficiency states in the onset and/or promotion of diseases as diverse as Aids, schizophrenia, birth defects and acne [22-54].

Most studies carried out on micronutrient (vitamin and mineral) intake in Britain have shown a satisfactory *average* intake for the population group studied as a whole, in terms of meeting Recommended Daily Amounts (RDAs - now replaced by Dietary Reference Values). Unfortunately very little information has been released on the percentages of test subjects whose intakes would be deemed severely inadequate. These percentages may be quite significant, representing many thousands of people, as evidenced by one study [55].

Are official guidelines a valid indicator of adequacy?

Neither RDAs nor DRVs are designed to be optimal values. They represent intakes which healthy groups of people should find adequate to prevent overt deficiency disease. They are not intended to make any allowance for additional needs due to infection, disorders of the gastrointestinal tract or metabolic abnormalities. These limitations are recognised by COMA [56].

A confounding factor is that most micronutrients have not normally been included in most British studies on nutrient intake (for instance magnesium). The lack of information about them must then be self-perpetuating. The situation is, however, politically expedient, since a population is presumed adequately nourished unless research proves otherwise.

In the light of all these factors, and bearing in mind

- 1) The great wealth of research in which nutrient repletion (by supplementation) has resulted in the reversal of diverse chronic disease states hitherto not known to be associated with nutritional deficiency, [32,57-187] and
- 2) The equally great wealth of research revealing that individuals who eat a nutrient-poor diet high in sugar and fat have consistently higher rates of heart disease, cancers, cataracts and other diseases, than those consuming diets rich in fruit and vegetables [188-245],

routine investigations into nutritional status seem warranted for most patients at risk of or suffering from chronic diseases.

While much research remains to be done, the significance of the research carried out so far needs to be better understood. Nutrients are not drugs but substances naturally occurring in the body which are essential for biological processes. Accordingly many biochemical pathways may be disrupted when the intake or absorption of a nutrient or nutrients is inadequate or when utilisation and/or excretion are increased. As organ reserves become depleted, the ultimate result in the long term may be multiple functional insufficiencies which affect the immune, nervous or detoxification systems, and promote

the onset of disease states. While some success has been obtained in preventing or reversing a number of diseases using single nutrients - for instance neural tube defects with folic acid, and premenstrual syndrome (PMS) with vitamin B6 - the success of such treatments may well be "hit or miss" unless the individual patient's nutritional status is first investigated with test methods capable of detecting a functional deficiency. This is because different investigators have identified different nutrient deficits involved in PMS, some of which may coexist. Relying simply on the results obtained from clinical trials where only one nutrient was administered, without such investigations, may lead to the prescribing of the wrong nutrient(s).

Nutritional Therapists generally have a high level of awareness of this sector of research, and use the literature as a guide to identifying possible micronutrient deficiencies in their patients. They have access to a range of suitable tests, some of which are described in Appendix II.

3. Toxic overload

While the effects on health and metabolism of a wide variety of environmental toxins are known to toxicologists, little research has been done to identify links between endo- and exotoxic exposure and common chronic diseases. Some notable exceptions are multiple sclerosis and parkinsonism [246-250], where results have been variable. The outcome of the functional impairment which can be caused by toxic damage is often so similar to conditions diagnosed as neurological diseases or chronic fatigue syndrome, for instance, that this lack of research is lamentable in the face of such a promising avenue of investigation. It is probably explained by the relative lack of commercial potential for the appropriate treatments. The research that *is* available notably links hyperactivity disorder in children with excess environmental lead, [251,252]. Likewise, elevated levels of toxic metals in hair samples have been linked with delinquent behaviour in adults [253,254].

Nutritional counselling can help reduce the intake and absorption of toxic metals into the body, for example by advocating a diet high in calcium and selenium, which compete with lead and mercury for absorption and uptake into cellular systems [255,256]. Nutrients such as methionine, magnesium, taurine and antioxidants play an important role in the biotransformation of endo- and exotoxins, and clinical practice suggests that an increased supply of such nutrients may considerably aid the process [257], in time resulting in the loss of associated symptoms. Such symptoms may be not only due to the toxic overload itself, but to nutritional deficits induced as a result of the over-use of nutrients for detoxification processes, leaving a relative lack of these nutrients for other metabolic functions.

Functional nutrient deficits can also be induced by the impairment of cellular nutrient uptake mechanisms as a

result of the presence of excess levels of endo- or exotoxins.

Dietary regimes can also reduce a potential toxic overload by investigating and treating gut dysbiosis, which can add significant amounts of endotoxin to a patient's total detoxification load; by aiding liver detoxification with specific nutrients and herbs which stimulate liver drainage (cholagogues); and by treating constipation.

Patients with functional deficiencies caused by a toxic overload may seem unresponsive to dietary improvement and vitamin/mineral supplements until work has been undertaken to reduce any toxic overload which is interfering with nutrient assimilation.

The Therapeutic Trial

If the Nutritional Therapist believes, on the basis of the available literature, the therapist's experience and the patient's history, symptoms and diet, that the patient is suffering from a food intolerance, toxic overload or nutritional deficit(s) as described above, then the Nutritional Therapist will normally prescribe an intervention programme in the form of a therapeutic trial. This is justified by the fact that such programmes are non-toxic, low in cost, and most patients in the author's experience find them acceptable in the short term if the rationale is fully explained.

Patients are aware that these are exploratory programmes. Most come to Nutritional Therapists as a last resort, having obtained no satisfactory help from other sources. Many have also spent a long time experimenting on themselves with health promotion measures before deciding that they would prefer the guidance of an experienced practitioner.

The intervention consists of nutritional health education, a short-term diet and, if necessary, a course of dietary supplements. With the exception of vitamin C, which has interferon-stimulating and other immune-boosting effects at high dosages [258-260], and pantothenic acid - deficiencies of which seem particularly to affect the adrenal glands - meganutrient therapy is not used in the United Kingdom. The allegations of vitamin C toxicity are discussed in Appendix IV.

The response to the therapeutic trial normally supports or refutes the diagnosis. If a response is obtained, the patient and therapist then work together to modify the programme so that minimum intervention is required to achieve or maintain the desired therapeutic effects.

Products used to supplement dietary regimes

Dietary supplements used by nutritional therapists include vitamins, minerals, amino acids, probiotics, evening primrose oil, fish oil, and a small range of common herbs. They are used to augment the repletive effects of a therapeutic diet, yielding faster, better results.

Nutritional therapists have experienced some criticism about the safety in use of such items. Since it is known, for instance, that certain micronutrients, notably vitamins A and D, selenium and other trace metals, can be toxic when given in massive doses, or in exceptionally high doses over a long period of time, micronutrient supplementation is viewed with caution, and doses in excess of the RDA (RNI) have traditionally not been encouraged except in cases of overt deficiency. However, even for potentially toxic nutrients, the margin between the intake necessary to prevent a specific deficiency syndrome and that at which toxic symptoms have been reported is very wide, and no evidence exists of toxic effects at the dosages traditionally used to correct deficiencies, provided that the proper precautions are observed.

The Survey

Charts I-V were prepared from the results of treating 298 patients in a National Health Service general practice, with Nutritional Therapy over a 3-year period from June 1990 to the end of May 1993. The patients were referred to the Nutritional Therapist by the General Practitioner.

Health problems reported by the patients were divided into 18 main categories, and the therapeutic response was assessed for each patient/problem. Due to time lack (therapist employed at the surgery for only two hours per week) co-ordination between the Nutritional Therapist's records and the doctor's records was problematic. For instance a significant number of patients were referred to the therapist for hypertension but omitted to report the hypertension to the therapist, considering other problems to have greater priority!

The categories were as follows:

- Chronic fatigue
- Endocrine problems (e.g. PMS, menopausal symptoms, low blood sugar)
- Gastrointestinal (e.g. irritable bowel syndrome, hyperacid stomach)
- Headaches/migraine (excluding sinus headaches)
- Hypercholesterolaemia
- Hypertension
- Chronic infections (e.g. vaginal thrush, tendency to frequent colds or flu)
- Insomnia
- Joint pain
- Miscellaneous pain
- Nervous/emotional disorders (e.g. depression, mood swings, anxiety attacks)
- Obesity
- Poor appetite
- Poor circulation (cold extremities)
- Pregnancy nausea/vomiting
- Respiratory disorders (e.g. asthma, chronic catarrh)
- Sinusitis
- Skin disorders (e.g. acne, psoriasis, eczema)

The charts are based on the therapist's clinical notes taken at the time of the consultations and recording the progress reported by the patient. Response was rated as follows:

- a) No change.
- b) Patient reported slight or temporary improvement in symptoms or test results/measurements.
- c) Patient reported definite, lasting improvement in symptoms or test results/measurements, and no relapse was subsequently reported.
- d) Unassessable.

In many cases a "definite, lasting improvement" was reported as a loss of symptoms, not merely an alleviation of the problem. This particularly applied to digestive problems, headaches, skin diseases and menstrual/premenstrual problems.

Patients were rated unassessable when:

- a) They did not return after the first appointment, or
- b) They did return after the first appointment, but the interval was not long enough to allow an assessment (for instance some patients reported intermittent problems recurring only 2-3 times per year), or
- c) Compliance with the advice given, or results of following advice given were difficult to ascertain (for instance due to communication problems with mentally compromised patients, further test results not being available, and so on).

Patients were not rated unassessable if they failed to follow the advice given; an important component of Nutritional Therapy is the skill and technique involved in getting the patient to "give it a go" and then remain on course. Although most of the patients who did not persist with their appointments probably did not succeed in following the advice given, it is not unknown for patients to find the initial diet so successful that they feel no need to return for further advice.

Charts II and IV report the results obtained with the full sample of patients. This is useful for assessing the overall proportion of successes which can be obtained using Nutritional Therapy, in a relatively unbiased population sample from an Inner London general practice. The figures suggest that about one third of such a sample will be prepared to follow the recommendations of a professional Nutritional Therapist under these conditions. Charts III and V show the results obtained purely in this subgroup of good compliers.

While Charts II and III show the results in terms of absolute patient numbers, Charts IV and V show them as percentages of the patient samples.

Concluding remarks: Where to go from here?

Migraine is one of the problems which responds best to Nutritional Therapy. The cost to the NHS of anti-migraine medication alone must be considerable. If the results

obtained with these patients can be repeated in other GP practices (for migraine patients almost 30% of total sample including non-compliers, and more than 85% of good compliers, reporting definite, lasting benefit, (generally permanent control of symptoms) this could bring the NHS substantial savings, provided that the correct protocol is followed. The number of consultations required to achieve this result for migraine and headaches is approximately 7, over a 10-week period. In straightforward cases there is little need for dietary supplements, and the headaches can often be controlled with diet alone.

With the SPNT's present lack of resources, no further research is possible for the time being. However, three of the society's Nutritional Therapists are now working in a General Practice setting, and it is hoped that further clinical audits will be forthcoming. The SPNT badly needs financial support for setting up trials and employing research workers.

Nutritional Therapists welcome referrals from GPs. As specialist practitioners, they relieve a GP who is interested in this area from being an expert in it. Any GP who wishes to employ a Nutritional Therapist, on a part-time or full-time basis, or for a trial period, should contact the Society for the Promotion of Nutritional Therapy at the address given on page 1. The society is working towards the highest possible standards in Nutritional Therapy and seeks to provide GPs with therapists matching their requirements as closely as possible.

It should be noted that Nutritional Therapy is a completely different discipline from Dietetics: Nutritional Therapists and Dietitians do not have the same training, and there should be no confusion between them..

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UK General Practitioners wishing to employ a Nutritional Therapist should contact the British Association for Nutritional Therapy at www.bant.org.uk

Chart I: Distribution of health problems in sample of 298 patients treated with Nutritional Therapy

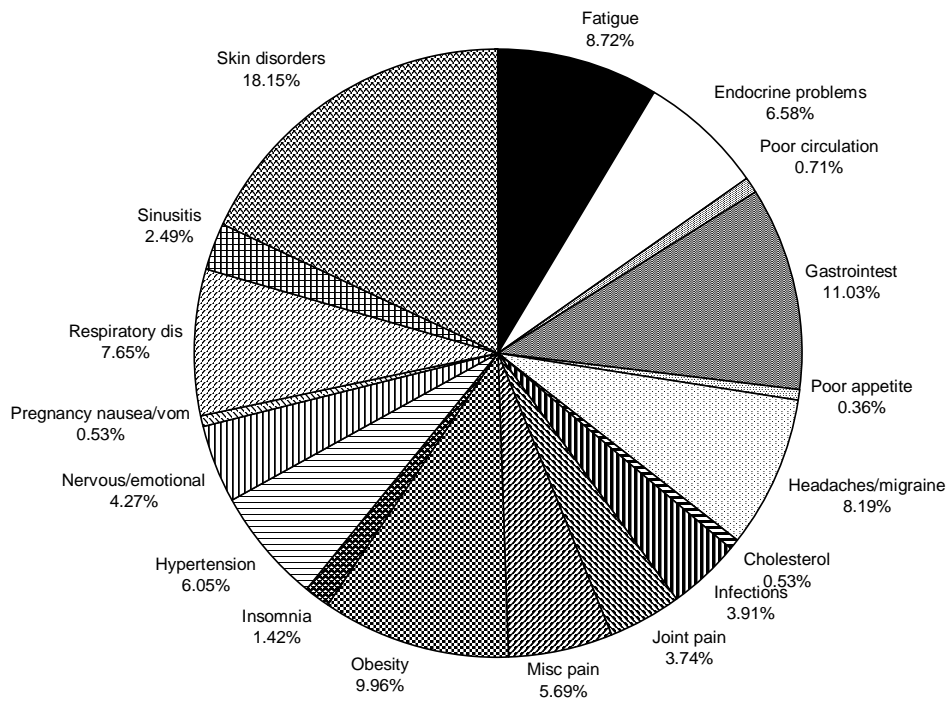


Chart II: Analysis of results by category of health problem on full sample of patients

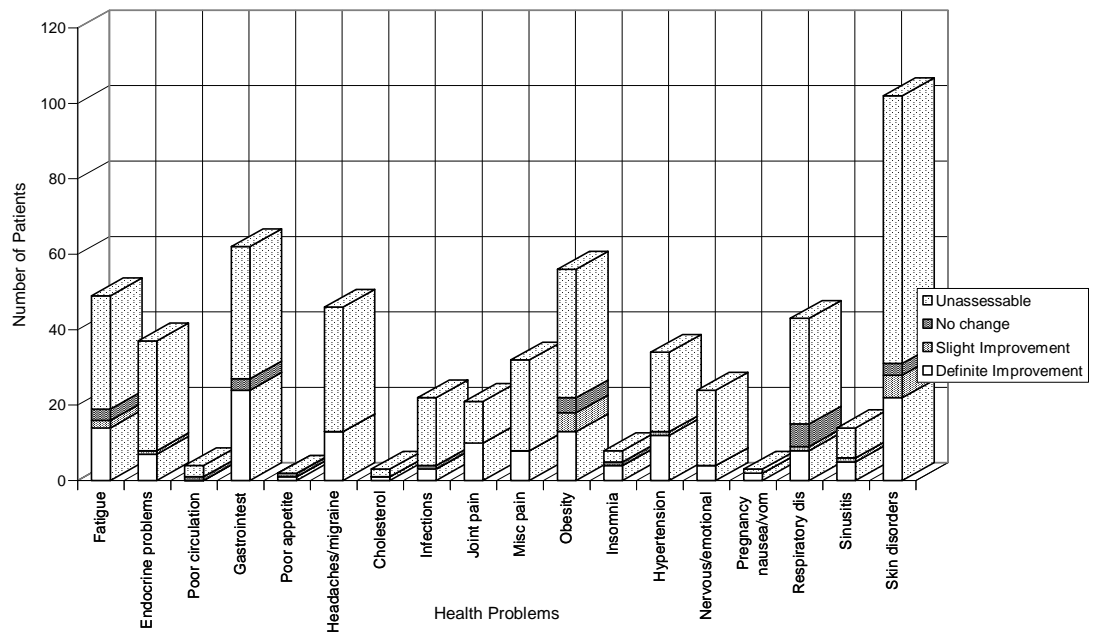


Chart III: Analysis of results by category of health problem on patients complying well with advice given by nutritional therapist

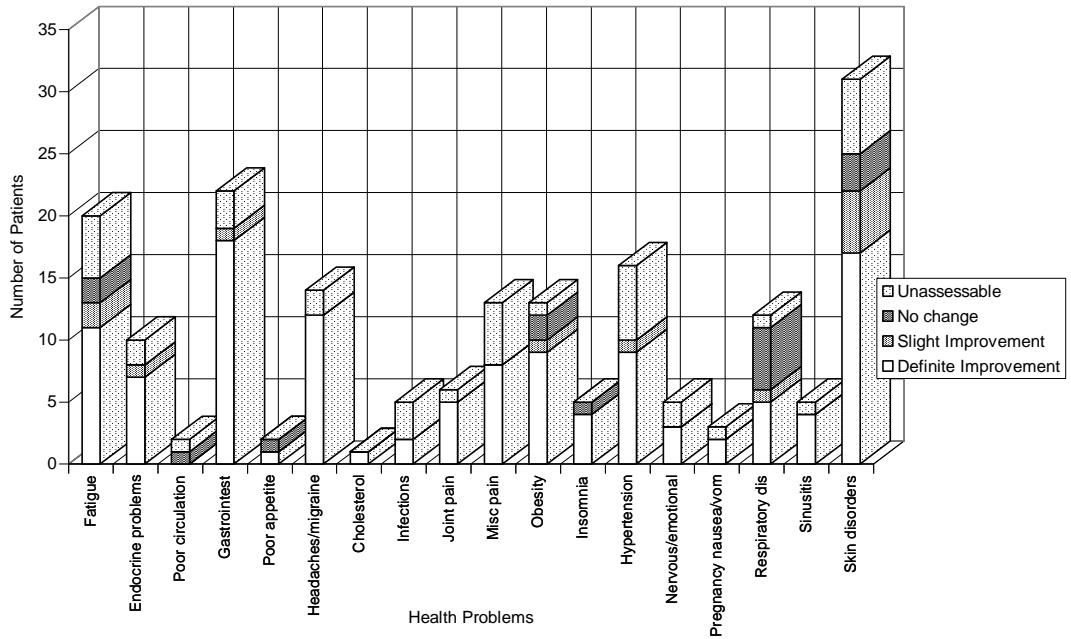


Chart IV: Percentage analysis of results by category of health problem on full sample of patients

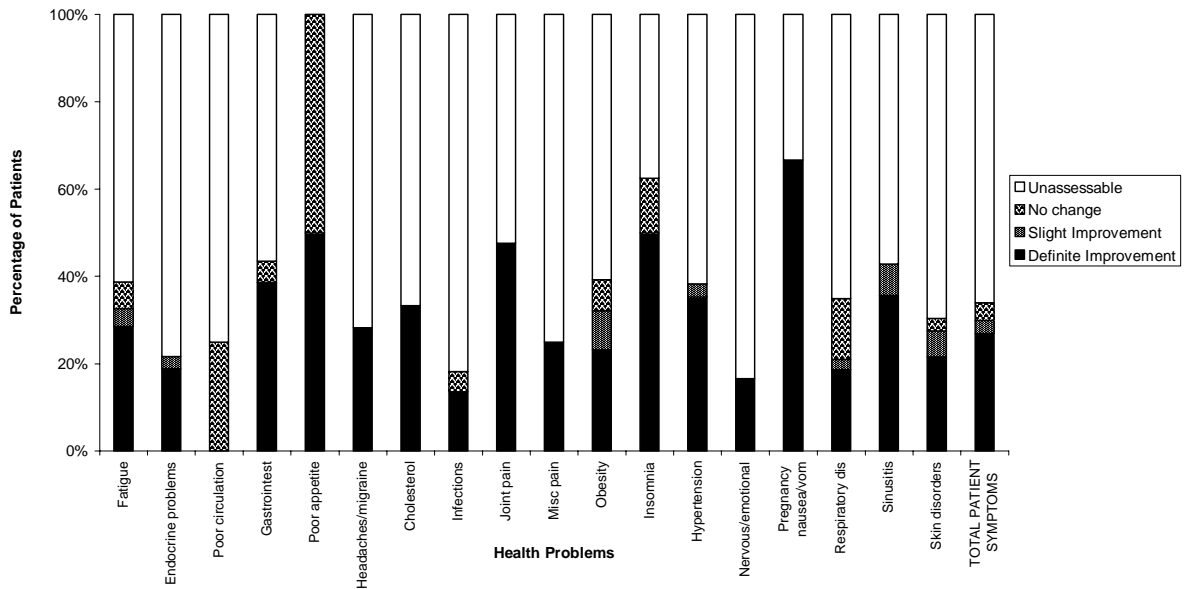
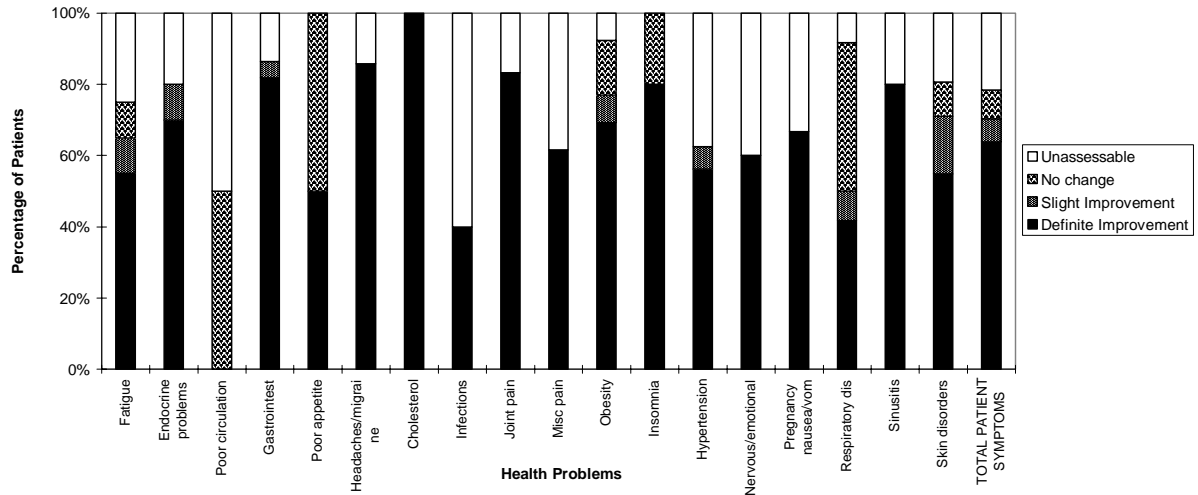


Chart V: Percentage analysis of results by category of health problem on patients complying well with advice given by nutritional therapist



	Definite Improvement	Slight Improvement	No change	Unassessable	Total Patients
Fatigue	14	2	3	30	49
Endocrine problems	7	1	0	29	37
Poor circulation	0	0	1	3	4
Gastrointest	24	0	3	35	62
Poor appetite	1	0	1	0	2
Headaches/migraine	13	0	0	33	46
Cholesterol	1	0	0	2	3
Infections	3	0	1	18	22
Joint pain	10	0	0	11	21
Misc pain	8	0	0	24	32
Obesity	13	5	4	34	56
Insomnia	4	0	1	3	8
Hypertension	12	1	0	21	34
Nervous/emotional	4	0	0	20	24
Pregnancy nausea/vom	2	0	0	1	3
Respiratory dis	8	1	6	28	43
Sinusitis	5	1	0	8	14
Skin disorders	22	6	3	71	102
TOTAL	151	17	23	371	562

	Definite Improvement	Slight Improvement	No change	Unassessable	Total Patients
Fatigue	11	2	2	5	20
Endocrine problems	7	1	0	2	10
Poor circulation	0	0	1	1	2
Gastrointest	18	1	0	3	21
Poor appetite	1	0	1	0	2
Headaches/migraine	12	0	0	2	14
Cholesterol	1	0	0	0	1
Infections	2	0	0	3	5
Joint pain	5	0	0	1	6
Misc pain	8	0	0	5	13
Obesity	9	1	2	1	13
Insomnia	4	0	1	0	5
Hypertension	9	1	0	6	16
Nervous/emotional	3	0	0	2	5
Pregnancy nausea/vom	2	0	0	1	3
Respiratory dis	5	1	5	1	12
Sinusitis	4	0	0	1	5
Skin disorders	17	5	3	6	31
TOTAL	118	12	15	40	184

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Appendix II

Laboratory tests for nutritional deficiencies

The measurement of blood levels of nutrients, although widely used in conventional medicine, is not usually sensitive enough to detect sub-clinical deficiencies. Other methods may be more appropriate, depending on the nutrient. Such methods may be 'functional' tests, that is to say instead of measuring the nutrient itself, the investigator measures levels of a metabolite which is dependent on the nutrient for its production, before and after supplementation with the nutrient. Low levels of the metabolite before supplementation, followed by significant increases afterwards, can indicate a low 'activity' of the nutrient, and therefore a functional deficiency.

Nutrient	Most sensitive test methods
Vitamin A	Vitamin A (retinol) and beta-carotene are usually measured in the serum. Isotope dilution assay with tetradeuterated vitamin A allows the estimation of total body reserves of vitamin A.
Vitamin B1	Red blood cell thiamine diphosphate measurements may be more sensitive than the commonly used red blood cell transketolase activity test, since a transketolase effect is sometimes not observed even in severe vitamin B1 deficiency states. Measuring the amount of this vitamin excreted in urine after taking an oral dose of it is also thought to be a reliable method.
Vitamin B2	The measurement of the vitamin B2-dependent enzyme glutathione reductase in red blood cells is thought to be the best available method, although several factors such as deficiencies of other nutrients or the age of the red blood cells may interfere with its accuracy.
Vitamin B3	Red blood cell NAD levels are thought to be a good indicator of B3 status. The measurement of the two metabolites N-methylnicotinamide and 2-pyr excreted in urine are also thought to be reliable.
Vitamin B5	The measurement of coenzyme A activity, which is dependent on pantothenic acid, is thought to be the most reliable indicator.
Vitamin B6	Measurement of red cell pyridoxal-5-phosphate (P5P) is thought to be more accurate than plasma pyridoxine. The most reliable functional test is thought to be measurement of the enzyme glutamate amino transferase.
Vitamin B12	Elevated urinary methylmalonic acid or homocysteine are indicative of vitamin B12 deficiency. The Schilling test is used to determine vitamin B12 absorption.
Biotin	Measurement of the enzyme pyruvate carboxylase in white blood cells before and after treatment of the cell preparation with excess biotin, together with measurement of 3-hydroxy and 2-hydroxyisovaleric acids in the serum.
Folic acid	Folate depletion in red blood cells occurs only in the later stages of deficiency, when megaloblastic anaemia may already be present. Microbiological assays (which measure the extent of growth of folate-dependent bacteria cultured with a blood sample) are thought to be more sensitive than red cell levels.
Vitamin C	A saturation test may be used to diagnose scurvy: vitamin C is given in multiple small doses. Some hours later vitamin C excretion is measured in the urine. If urinary vitamin levels do not rise, scurvy is present. White cell vitamin C measurements are considered the best available method for assessing vitamin C reserves. Under most circumstances a simple serum vitamin C measurement will suffice.
Vitamin D	Measurement of 25-hydroxycholecalciferol in the plasma is thought to be the most reliable method to determine vitamin D reserves.
Vitamin E	A useful method to measure vitamin E status is to determine the fragility of red blood cells in the presence of hydrogen peroxide. (Vitamin E deficient red cells burst in the presence of hydrogen peroxide.) Platelet vitamin E levels are thought to be a good method of measuring the dietary intake of vitamin E.
Calcium	There is no reliable method for measuring calcium status. Serum calcium is almost always normal. Hair mineral analysis can provide some indication, but high hair calcium levels can reflect a low as well as high calcium status.
Chromium	Serum chromium levels are a good indicator of chromium status. Sweat chromium levels correlate well with serum levels. Hair chromium levels can be useful if the hair has received no cosmetic treatments.
Copper	Low serum copper levels are rare, even in the presence of deficiency. The measurement of the copper-dependent enzyme superoxide dismutase in red cells is thought to be the best index of copper status.

Iron	Measurements of serum ferritin (an iron storage protein) are thought to be a good indicator of iron status. Less expensive is the measurement of serum iron and serum iron-binding capacity (IBC). Low serum iron and high IBC is indicative of iron deficiency.
Magnesium	White blood cell magnesium levels are accepted as the definitive test for magnesium status. Measurements of urinary magnesium excretion over a 24-hour period after magnesium loading are also reliable. Red cell magnesium tests are cheaper but their usefulness is limited.
Manganese	Serum and sweat manganese levels are considered to be good indicators of manganese status.
Phosphorus	Serum inorganic phosphorus and urine phosphate measurements are normally used.
Potassium	Red cell potassium is a good indicator of potassium status.
Selenium	Levels of the selenium-dependent enzyme glutathione peroxidase in the blood are a sensitive indicator of selenium status. Red cell selenium measurements are also reliable.
Sodium	24-hour urinary sodium excretion is a useful indicator. Sodium deficiency is relatively rare.
Zinc	White blood cell zinc levels are accepted as the best indicator of zinc status. Sweat zinc levels can be equally sensitive, more so than hair or serum zinc. Also used are the zinc tolerance test, indicating zinc deficiency if plasma zinc does not significantly rise after zinc loading; and the zinc taste test, a fairly crude device in which a 0.1% zinc sulphate solution is given by mouth, suggesting deficiency if the subject cannot taste it.
Amino acids	24-hour urinary measurements of amino acids, their metabolites, and the products of the amino acid pathways. Serum levels may also be appropriate.
Essential fatty acids (EFAs)	Levels in red cell membranes give a good indication of status. The results should be given as a 'profile', which allows imbalances between different fatty acids to be identified. These imbalances can indicate defects in enzymes such as delta-6-desaturase required for EFA metabolism.