The Hypoglycemic Health Association

NEWSLETTER

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The NEWSLETTER of the Hypoglycemic Health Association is distributed to members of the Association and to Health Professionals with an interest in nutritional medicine and clinical ecology.

Please note that the next public meeting on Saturday, 1 March 1997, will start one half hour earlier to allow for **the Annual General Meeting.** Copies of the Statement of Income and Expenditure for the year ended 31 December 1996 and Auditor's's report by Mr Hugh D Macfarlane (Chartered Accountant) will be made available at the meeting. Members are also reminded that subscription fees are due from those members that have not as yet paid. The expiry date is shown in the top-right corner of the address labels. INTRODUCTORY members have "(INTRO)" printed after their names indicating that they have received copies of the Newsletter by way of introduction. Their application forms on page 14 would be appreciated. Fees have not yet changed over the last 12 years. These are $15 per annum ($10 for pensioners and students). Some medical practitioners receive copies of this Newsletter free of charge as a means of promoting complementary medicine. Members' contributions are of vital importance to the survival of this Association which is completely dependent on voluntary labour. The Association aims at bringing together patients and doctors and other health practitioners, who are interested in complementary medical practice, that is combining orthodox as well as alternative medicine. Although acknowledging achievements stemming from chemotherapy and high-tech procedures many patients *and* health practitioners want to keep up-to-date with the rapidly expanding knowledge outside mainstream medicine.

Our Next Public Meeting will be at 2 PM
on Saturday, the 1 March 1997
at the YWCA,
2 Wentworth Ave, Sydney and
our guest speaker is

Dr George Samra

who will be speaking

on the subject of

"Computerised Allergy Questionnaire, What's new in FatigueTherapy & Hypoglycemia Management"

DR GEORGE SAMRA is of course well-known to our members. He is the patron of our Association as well as a pioneer in Nutritional Medicine. It is mainly through the personal effort by Dr George Samra to have the concept of hypoglycemia recognised as a major cause of ill-health and an important factor in human behaviour. Naturally, since the foundation of the Association the concept has broadened to include the whole range of clinical nutrition and ecology, as well as traditional medicine. Dr George Samra is now well-known among probation officers, the judiciary and legal profession in assisting them to determine to what extent a program of rehabilitation can prevent criminal behaviour. Dr Samra's surgery is now located at the Wholistic Medical Centre in Kogarah practising with like-minded doctors, in particular Dr Nimmi Chima and Dr Katrina Watson who specialise in complementary medicine, homeopathy and herbalism.

Dr Samra's chosen topic should prove to be very interesting.

Previous Copies of the Hypoglycemic Newsletter

Back issues of the Hypoglycemic Newsletters are available at the NSW State Library, Macquarie Street, Sydney. They are filed under NQ616.466006/1 in the General Reference Library.
Other libraries holding copies are: Stanton Library, North Sydney; The Tasmanian State Library; The Sydney University; The University of NSW. The Association will provide free copies to any library upon request.

ADVERTISING MATERIALS appearing in or with this Newsletter does not necessarily imply any recommendation by the Hypoglycemic Health Association.

Books for sale at the meeting

Jurriaan Plesman: **GETTING OFF THE HOOK**

This book is also available in most public libraries (state and university)

Sue Litchfield: **SUE'S COOKBOOK**

Dr George Samra's book

The Hypoglycemic Connection

(now out of print) is also available in public libraries.

Contributions of articles by members and practitioners are very welcome. The Editor is interested in meeting any person aspiring to research natural medicine and contribute articles as a sub-editor to this Newsletter.

The Newcastle branch of the Association are still meeting with the assistance of Bev Cook. They meet on the last Saturday of each month beginning 1.30 pm to 3.30 pm at the Hillsborough Primary School. Enter the school from the Waratah Avenue. For further information ring Mrs. Bev Cook at 049-59-4369.

Organise local meetings

If any member would like to organise meetings in their local area or meet other members, we can help by advertising your name and phone number in this Newsletter.

Entrance fee at meetings

Because of increase in costs the Committee has decided to charge an entrance fee of $2 per person or $3 per family at our public meetings.

Donations for raffle

One way of increasing our income is by way of raffles. If any member has anything to donate towards the raffle, please contact Dr George Samra's surgery at 19 Princes Highway, Kogarah, Phone 9553-0084.

Committee members

The Association is in need of your support and ask members to help out with sending the Newsletter to our members. We also need committee members and if you are interested please contact Dr George Samra's surgery at **9553-0084.**

Research into illnesses

Members who are interested to have an informative article written on a particular illness or disease, should contact the Editor, c/- PO Box 8, Sylvania Southgate NSW. The editor is willing to research literature on the illness and report in the newsletter with the known traditional and complementary treatment . Or he may refer any medical question to an expert in the field. However, it must be understood clearly that treatment remains the responsibility of your doctor or health practitioner and that such articles are only designed to inform the patient or to complement his/her discussion of the illness with the professional practitioner. The Association does not take any responsibility for any self-diagnosis or self-treatment undertaken by the reader on the basis of anything published in this Newsletter.

Any opinion expressed in this Newsletter does not necessarily reflect the views of the Association.

ADVANCES IN ORTHOMOLECULAR PSYCHIATRY

By Dr Chris M Reading,
B Sc., Dip. Ag.Sc, MB, BS. FRANZCP

IN SCIENCE it is always important to be clear about what we mean by orthomolecular psychiatry. Dr Linus Pauling, double Nobel Prize Winner, defined it in the following terms:

> *"Orthomolecular psychiatric therapy is the treatment of mental disease by the provision of the optimum molecular environment for the mind, especially the optimum concentrations of substances normally present in the human body." [**Science, 160,** 265-271, 19 April 1968]*

He may be called the father of orthomolecular psychiatry. The word 'orthomolecular' derives from 'ortho', a combining form meaning 'straight, normal, correct'. Orthopedics refers to straightening out limbs. Orthomolecular psychiatry relates to straightening out abnormal metabolic processes that can cause psychiatric symptoms. Some people are metabolically disadvantaged, and then by correcting the deficiencies we make them metabolically advantaged.

In those days of Pauling's definition in 1968, scientists were concerned about such conditions as phenylketonuria[1]. If children were not given a diet low in phenylalanine they would become retarded. This is a classical example where changing one's diet and nutrients can make an enormous difference.

In the late 1960's and 1970's, interest was mainly directed at low vitamin status such as B1, B3, B6 and vitamin C and the theory became popularly known as "Megavitamin Therapy". Hence to update what orthomolecular psychiatry entailed I published my definition in*The Medical Journal of Australia* in July 1979, as follows:

> *"Finally, I would like to clarify what I believe orthomolecular psychiatry is all about. Megavitamin therapy is not synonymous with it. It is only a subspeciality. Orthomolecular psychiatry is the study of genetic, metabolic, endocrine, immunological and toxic disturbances that are contributing to, perpetuating, exacerbating or even causing the psychiatric symptomatology.*
> *It is the investigation of vitamin (coenzyme) levels, mineral (cofactor) levels (or toxic levels of lead, copper and, so on), hormone levels (we cannot measure endorphin levels,*

*exorphin levels or prostaglandin levels at the moment), immunoglobulin levels (especially IgA and IgM), electrolyte levels (especially bicarbonate, calcium, blood sugars, and so on). What can be corrected is corrected and the patient is followed up regularly." [**The Medical Journal of Australia**, July 14th 1979, p 40].*

I have underlined above 'or toxic levels' as this was left out in all subsequent referrals to my definition. This, together with other omissions, has resulted in gross distortion of the meaning of the term 'orthomolecular psychiatry'.

History of orthomolecular psychiatry in Australia

The history of orthomolecular psychiatry symbolically revolves around the above definition. Its fate has very little to do with science, but a lot to do with the politics of powerful medical colleges, that refuse to consider 'orthomolecular psychiatry' as a valuable and cost-effective tool in treating mental illness in the community. The reasons are and remain obscure.

The saga starts with a letter from the Principal Medical Officer (PMO) of the Medical Benefit Division in the Commonwealth Department of Health who is charged with the overview of medical benefits associated with diagnostic tests in orthomolecular medicine.

On the 18th August 1980, he wrote a letter to The Royal Australasian College of Physicians (RACP) questioning the 'large' amounts of pathology investigation claimed by a psychiatrist (referring presumably to me) who *"practises orthomolecular medicine"*. He asked the advice of the College on the status of orthomolecular medicine, and *"whether at this time there is any justification for the range of pathology tests I have mentioned."* Copies were also sent to the Royal College of Psychiatrists and Royal College of Pathologists.

That letter completely ignored my definition and he had already changed orthomolecular psychiatry into "orthomolecular medicine". In the same letter he re-defined it by stating, that

"The practitioner claims that many psychiatric illnesses and organic disorders affecting the central nervous system are the result of excessive or deficient intake of heavy metals or vitamins, allergic cerebral conditions, or manifestations of autoimmune disease."

Thus a fictitious new definition of 'orthomolecular medicine' was created for discussion by the Therapeutic Advisory Committee (8 Oct 1980) and later the Medical Benefits Schedule Revision Committee (8 Dec 1980).

Of course, there is no illness, psychiatric or otherwise due to *deficient intake* of heavy metals, such as mercury, thallium, cadmium, arsenic, lead, gold or bismuth, or any other heavy metals for that matter. Nor does anyone claim that schizophrenia or manic-depressive illness is due to an *excess intake* of vitamin B1, or B2, or B3. This definition has indeed no status in psychiatry. In fact, it is not even a scientific definition or hypothesis.

Nevertheless, when the Therapeutic Advisory Committee, met on the 8th October 1980 they discussed 'orthomolecular medicine' as defined by the Principal Medical Officer. This Committee, sitting *in camera* was attended by representatives of the Royal Colleges of Physicians, Psychiatrists and Pathologists - in other words the leading lights of the Australian medical fraternity - who then lent their names to authorise an official reply to the Principal Medical Officer.

Predictably, this came in a letter dated the 14 October 1980 by the RACP stating among others that *"orthomolecular medicine has no status in the practice of medicine or of psychiatry"*, that *"the stated clinical role of orthomolecular medicine is unproven"*, that "*the available research data which can be acknowledged to be based on scientific principles does not substantiate the claims made for orthomolecular medicine"* and that consequently, *"the screening tests to which you refer cannot be justified for the rational practice of internal medicine or of psychiatry."*

I later addressed the Commonwealth Health Department and the Australian Medical Association on the 3 December 1980 (Medical Benefits Schedule Review Committee) but I was not allowed to substantiate my previous claims. However, I had an opportunity to restate my definition and also to present the results of a study based on questionnaires sent to 1230 patients of mine, the results of which are shown in **Table 1**. This clearly points to the effectiveness of orthomolecular psychiatry. For example, of 302 patients treated for depression 93.7 per cent responded by reporting improvement in their condition (111 responded by 'very good', 125 'good', 47 'fair'). Reading down the list I have underlined some important psychiatric conditions successfully treated using orthomolecular psychiatry. Overall, there was improvement in between 74-95 per cent of all cases presented to me in my practice.

In addition and perhaps more importantly, I presented at that meeting a cost-effective-analysis of about 558 patients, clearly showing that my patients needed far less hospitalisation, less medication and that various physical conditions such as arthritis, migraine, epilepsy, psoriasis and a host of other related diseases had improved. True, there may have been some increased initial cost of accurately diagnosing 'the psychiatric illness' but at the end of the day, the government and tax-payers would have been saved millions of dollars in never-ending medical care for mentally ill people. This ignores the human cost and the suffering under a state-funded system that appears to favour one section in the medical industry, rather than the patients.

One would have expected that in an era of financial accountability the argument in favour of orthomolecular psychiatry/medicine would have found favour on grounds of cost-effective-analysis alone.

However, the Medical Benefits Schedule Revision Committee, in its wisdom, never appeared to have informed the then Minister for Health, Mr Michael MacKellar. Consequently, society as a whole has never been in a position to have an objective and scientific assessment of the benefits of orthomolecular psychiatry/medicine. The social cost of national health appears to have been shifted to the upper end of the medical industrial complex, resulting in long term expenditure in medical treatments based mainly on high-tech and chemotherapeutic interventions. The health budget blow-out is one consequence of this policy.

It ignores alternatives offered by orthomolecular psychiatry/medicine, which aims at *preventing* and correcting metabolic disorders underlying most degenerative diseases by low-cost treatment modalities, and thereby saving long-term medical care and cost.

The fictitious and nonsensical definition of 'orthomolecular medicine' as stated by the Principal Medical Officer appeared again in an article of the AMA Gazette of May 1981, titled **"New Therapy is Rejected by Medical Bodies"**. It reported that The Commonwealth Health Department had forwarded a circular to health insurance organisations giving details of its findings, namely, that *"orthomolecular medicine is unproven"* and that it *"cannot be justified for the rational practice of internal medicine or psychiatry"*.

At the time I was not aware of what the Therapeutic Advisory Committee had discussed on the 8 October 1980, because I was not allowed to view the relevant documents. Thus when the meaning of orthomolecular psychiatry was misquoted in the AMA article of May 1981, I wrote a letter the Editor - published July 1981 - correcting the misquotation. I re-stated the correct definition as published earlier in the AMA Journal of July 1979, p 40 (Index Medicus, March 1980).

The matter was again raised in Federal Parliament on the 18 August 1982 (Hansard page 550) in answer to questions raised by Dr Everingham. When asked whether the Department of Health would check my claims of success in orthomolecular treatment (as in Table 1), the Minister - Mr Carlton - simply repeated word for word the RACP letter of the 14 October 1980. To the question whether the Minister is satisfied with the meaning of 'orthomolecular' used by practitioners claiming diagnostic tests, he replied that "*The pertinent issue is not the definition of orthomolecular medicine, but whether the large range of pathology tests routinely ordered in this form of treatment is necessary"*.

This is astounding as the non-recognition of orthomolecular psychiatry/medicine is based on a false definition. It seems that politicians, unlike scientists, are not interested in definitions.

Two years later, on the 6th March 1984 (Hansard pp 600-602) Dr Everingham asked again questions in Parliament. One question

tried to have documents tabled relating to the refusal by specialist colleges to allow rational use of screening tests by orthomolecular practitioners. Dr Blewett's answer was that his Health Department needed the approval of the colleges before their documents could be tabled. He also admitted that neither his predecessor, Mr MacKellar, nor his Department did attempt to define orthomolecular medicine, although his Department described 'orthomolecular medicine' in a circular to the medical benefit funds announcing that the diagnostic tests by "*orthomolecular medicine were in the health screening category.*"

Ironically, two months later on the 3 May 1984 (Hansard page 1837), the Minister for Science in Parliament altered the previous fictitious and nonsensical definition by the Principal Medical Officer (18 August 1980) by leaving out "illnesses" but it still inferred that mental 'disorders' were due to *deficient* intake of heavy minerals[2], such as lead, mercury and cadmium. Thus the powers that be cannot even stick to their own false definition.

In February 1996 the then opposition member of parliament (Bronwyn Bishop MP) wrote to then Minister for Human Services and Health (Dr Carmen Lawrence, MP) asking seven questions all aimed at clarifying important issues affecting the decisions made by the Medical Benefits Schedule Revision Committee and Therapeutic Advisory Committee.

To date, sixteen years later, no documents have ever been tabled relating to the original decision by the medical colleges to exclude orthomolecular diagnostic tests from medical benefits. It seems to me that this conflict within the medical profession can only be resolved by the setting up of A Royal Commission or a Senate Enquiry, which has as its task to investigate claims made by orthomolecular practitioners and to report on the long-term cost-effectiveness of orthomolecular treatment in medicine and psychiatry.

Table 1 **The results of 1230 patients who gave details of condition treated and personal progress report following Orthomolecular treatment**

Improved	No of patients Reported	Progress: Very good	Good	Fair	No	Worse	%
Concentration	407	90	169	113	33	2	91.4
Less angry/Irritable	331	80	146	80	23	2	92.4
Tense/anxious	327	74	144	84	20	5	92.35
Chronic lack of energy	309	112	118	62	16	1	94.5
Depression	302	111	125	47	17	2	93.7
Memory	291	57	115	85	32	2	88.32
Increased frustration Tolerance	281	56	131	78	14	2	94.31
Change to more pleasant personality	266	78	115	54	18	1	92.86
Motivation	260	80	86	72	20	2	91.54
Learning Difficulties	239	56	91	66	23	3	89.12
Less shy/self conscious	220	50	101	55	14	-	93.6
Confused	220	61	80	48	30	1	85.91
Co-ordination	217	57	90	59	9	2	94.93
Less indecision	216	61	84	56	15	-	93.05
Headaches	215	84	71	37	19	4	89.3
Insomnia	195	61	76	33	22	3	87.3
Tendency to make mistakes	182	38	75	46	20	3	87.3
Fearful	183	49	75	40	16	3	89.62
Behavioural problems	181	42	80	44	12	3	91.71
Hyperactive problems	154	41	72	31	8	2	93.51
Sleep disorders	152	53	58	23	15	3	88.16
Lose things	141	28	50	43	19	1	85.82
Panic attacks	133	45	47	26	15	-	88.72
Irrational fears	113	37	43	20	11	2	88.5
Suicidal ideas/attempts	105	56	24	14	9	2	89.52
Libido/sex drive	100	24	29	21	23	3	74
Obsessional	100	33	20	26	17	4	79
Irrational ideas	85	27	33	15	8	2	88.24
Phobic	81	29	26	17	8	1	88.89
Odd behaviour	80	25	27	19	5	4	88.75
Depersonalisation	77	27	27	13	9	1	87.01
Violence	65	26	23	6	7	3	84.61
Derealisation	54	23	13	15	3	-	94.44
Bedwetting	45	21	9	10	5	-	88.89
Seeing imaginary things	42	24	10	3	4	1	88.1
Hearing imaginary voices	40	19	11	5	3	2	87.5
Autistic problems	31	14	6	6	4	1	83.87
Alcohol abuse	29	13	7	6	2	1	89.66
Drug abuse	24	16	5	2	-	1	95.83

A total of 558 persons returned the questionnair by 1 October 1980
Of that number
353 had seen a General Practitioner about the above problem before being referred here.
110 had seen Paediatricians about the above problem before being referred here.
189 had seen Psychiatrists about the above problem before being referred here.
163 had seen specialists/counsellors about the above problem before being referred here.

Frasier's Book: Coping with food allergies[3]

This book describes the symptoms of "allergic tension-fatigue syndrome' which are listed as: drowsiness and inability to concentrate, fatigue listlessness, confusion, depression, emotional instability and irritability, belligerence, poor coordination, temper tantrums and schizophrenic manifestations. The author implicated various food sources such as milk, wheat, spices and condiments.

Other researchers such as Cheraskin et al.[4], used the MMPI, a type of psychological test, on a group of subjects, before and after taking them off their food allergies. These were diagnosed with the cytotoxic test. The experiment showed significant results with improvement rates as follows: Depression 78.57%, Anger 74.36%, Tension 66.67%, Sensitivity 66.67%, Inadequacy 62.86% Anxiety 60.87%. Of the total of 60 subjects 76.67% showed improvement after having been taken off their food allergies.

Ever since 1980 I have been using the cytotoxic test to determine allergies in my patients. Some criticism of this test comes from the United States who favour the RAST test[5]. The cytotoxic test is magnificent in detecting delayed reactions and it picks up clusters of food allergies.

Food allergies cause malabsorption of vitamins, minerals and amino-acids and also trigger inflammatory substances to be released such as cytokines, prostaglandins, histamines. These cause severe inflammation. They also preferentially absorb toxic metals into the system and they can cause autoimmune disease, including such conditions as Systemic Lupus Erythematosus (SLE), Coeliac disease[6], Scleroderma, Thyroiditis, Pernicious Anaemia, Motor Neurone disease and so on.

Certain blood groups are exposed to risks

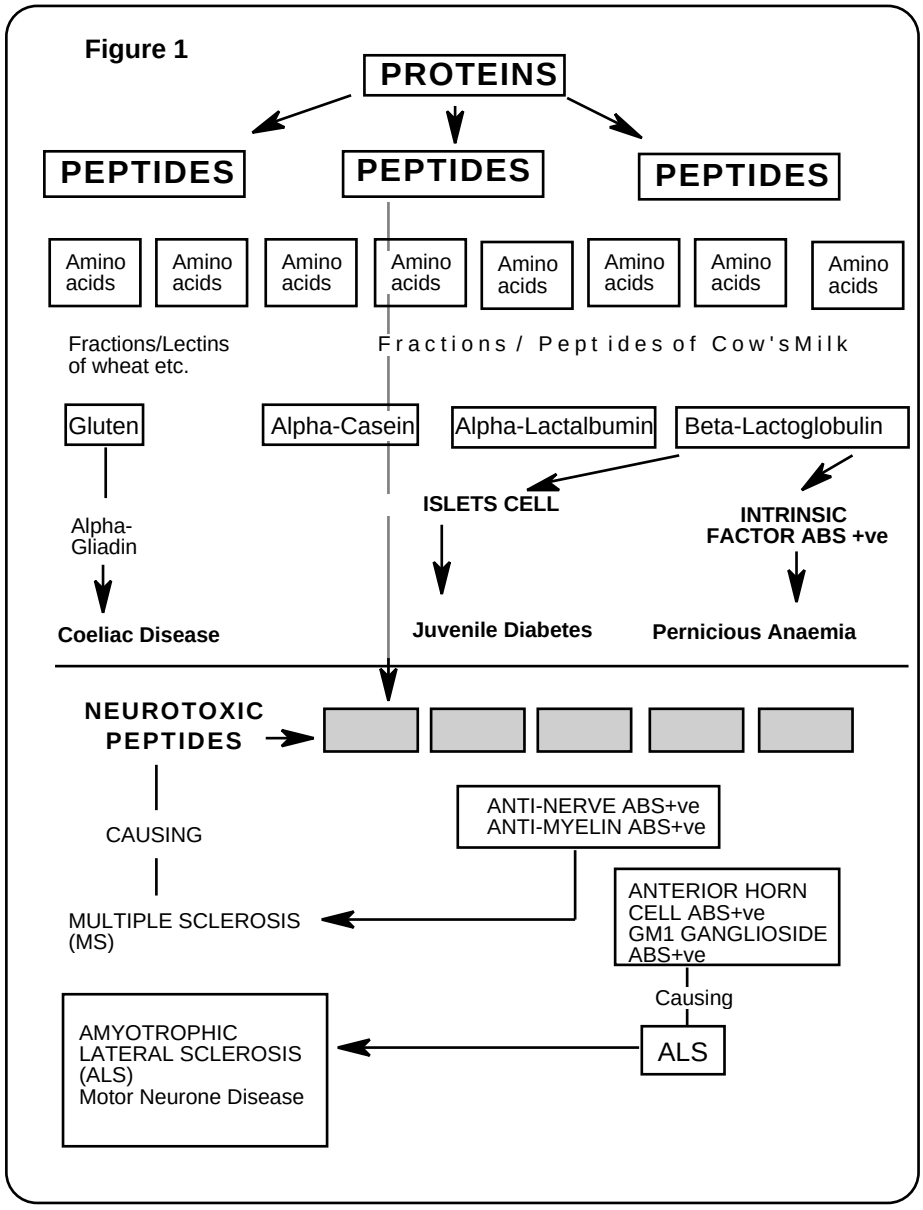
There is an interesting blood group called HLA B8 and HLA DRW3[7]. If a person's blood group belongs to the HLA-B8 then that person has 8 times the risk of developing Coeliac disease. If the patient is in the HLA-DRW3 blood type, there is a 70 times greater risk of developing Coeliac disease. They are also likely to developing Dermatitis Herpetiformis[8] - a severe skin disease - which flares up when you consume wheat and grains. Also these patients are at risk of developing Systemic Lupus Erythematosus (SLE) and they become more vulnerable in case of HIV infection. They are at greater risk of developing eosinophillic myalgic syndrome (EMS)[9] when they consume the toxic tryptophan that was manufactured a few years ago by the Showa Denko company in Japan. If you are in

Spain and happen to consume toxic rapeseed oil you may develop scleroderma[10]. Similarly this blood group, are more likely to succumb to the Coxsackie B virus[11], or to Juvenile Diabetes (IDDM) and may possibly have a beta-lactoglobulin sensitivity intolerance. Other autoimmune disorders such as adrenalitis, haemolytic anaemia are associated with this blood group.

They all have one common factor, namely genetic sensitivity to glycoproteins of gluten containing grains, yeast, bacterial capsules, grass and tree, weed pollens and asparagus. Thus all of the conditions so far mentioned should include a gluten-free diet, free of yeast and any other substances containing glycoproteins.

Antibodies to peptides causes many modern diseases

The orthomolecular psychiatrist uses the detection of a whole host of antibodies to peptides - chemical combinations of one or more amino-acids - which trigger abnormal immune responses not only in the brain area, but also throughout the rest of the body. Abnormal metabolism of gluten, alpha-gliadin, derived from gluten containing grains, grasses and milk products(alpha-casein, alpha-lactalbumin, beta-lactoglobulin) may lead to Coeliac disease, grains insensitivities, Crohn's disease, Sjögren's Syndrome, Ulcerative Colitis, Systemic Lupus Erythematosus (SLE), Cerebral Lupus. Specific antibodies usually attack specific organs, such as anti-prostate antibodies causing prostatitis, anti-ovary antibodies attacking the ovaries (O-Ophoritis), anti-bladder antibodies resulting in allergic trigonitis[12], anti-nerve antibodies and anti-myelin antibodies leading to Multiple Sclerosis and so on. Others in turn may affect other tissues in the body, leading to osteo-arthritis, rheumatoid arthritis, collagen diseases, Myasthenia Gravis, muscle diseases such as Myositis, Myopathies/Muscular Dystrophy (diseases relating to proper functioning of proteins *actin* found in muscle fibre that act with *myosin* to bring about contraction or relaxation). Sensitivity of beta-lactoglobulin (from cow's milk) have been associated with diseases affecting Islets of Langerhans[13] leading to insulin-dependent diabetes mellitus (IDDM). The list goes on and on. The interrelationship between all these antibodies and diseases may perhaps be somewhat perplexing, but modern science is gradually unfolding a better understanding of these otherwise mysterious and degenerative diseases, affecting body and mind.



From proteins to amino-acids pathways

A simple model explaining the orthomolecular approach is represented in **Figure 1.** It shows how ingested proteins are broken down into their constituent amino-acids of about 21 basic chemical units from which the body reconstructs its tissues. Various enzymes split proteins into peptides - bundles of amino-acids - which are then further broken down into simpler units. When the body genetically fails to produce certain enzymes - as in phenylketonuria or coeliac disease - fractions of peptides are absorbed which are then recognised as 'foreign'. Sometimes, deficiencies of coenzymes, such as vitamins and minerals (zinc or selenium) may impair the metabolism. Or the accumulation of toxic substances in the liver because of environmental pollution or of life-style may hinder normal chemical reaction steps. In either case, the body sets up an immune response producing antibodies marking cells for attack by the immune system. Thus neurotoxic peptides produce specific antibodies: anti-nerve ABS+ve and anti-myelin ABS+ve resulting in multiple sclerosis.

Diet to reverse the actions of antibodies

Most of these antibodies can be reversed by diet. By avoiding certain allergies and food stuffs (sometimes sugar, milk, wheat or beef), increasing consumption of certain other nutrients such as vitamins, essential fatty acids, amino-acids, or minerals, their cofactors, the orthomolecular psychiatrist/doctor aims at eliminating or at least minimizing symptoms of the underlying metabolic disorder, responsible for the presenting illness. On such a diet these antibodies are halved every three months. Arthritis is not caused by wear and tear, as is popularly believed, but is much more due to low tolerance to food sensitivities and severely low nutrients affecting the cartilage and synovial membrane.

We can track down antibodies with the aid of often complex diagnostic tests, enlisting the ever-expanding knowledge of allied scientists in biology. Of course, we pick and chose the kind of test depending on what we suspect or doubt may be causing the disease.

This is very much unlike the old psychiatrist who relies mainly on categorising a set of symptoms and prescribing drugs associated with that 'diagnosis'.

Hence the cost of treatment of psychiatric illnesses is shifted from psychopharmacology to prevention; that is away from lifelong medication, hospitalisation, community care, subsidies to boarding-houses, communal supervision and Government financial benefits to personal well-being, health and independence.

One section of the community funds medical costs

At present, modern psychiatric treatment

is available only to the well-off in our society, who must fund their own diagnostic tests. Unwittingly, it would appear they are subsidizing the Federal Health Department by saving funds, that would otherwise be spend on long-term psychiatric treatment among that section of the community.

These cost factors are overlooked when the Therapeutic Advisory Committee and Medical Benefits Schedule Revision Committee arbitrarily dismiss claims made by orthomolecular doctors as having "no status in the practice of medicine or of psychiatry".

Some individual case histories

There are many examples I could quote to show how we have been able to help patients who seem beyond help by mainstream medicine. One lady who had flare ups of her Multiple Sclerosis (MS) three times responded well to a change in diet. The last time she told me her leg was dead, she had to give away line-dancing and tennis; and by supplementing her with vitamin B12 together with an allergy free diet she was able to return to line-dancing and tennis.

Another patient presented with Meningioma, a form of brain tumour. She had terrible headaches and her eye was moving over to one side due to intra-cerebral pressure, she had hip pains and had three arthritic conditions. She was told that an operation was out of the question as the tissues were too close to vital organs. At first, I did not think I could help her. We placed her on an allergy free diet, after diagnostic testing and she went into remission. Whenever she would drink milk, symptoms would return.

Another lady had a bone tumour on her face. She was told by her doctor that at the next operation they would have to remove her eye. She actually had bone-antibodies causing inflammation of certain bone cells and by placing her on a special allergy-free diet she has been alright for the last six months. There are many cases to illustrate how orthomolecular treatment can help patients overcome seemingly intractable diseases.

HIV-Positive patients

In an article[14] I mentioned two HIV-positive patients who had been taking 100 mg of AZT, the AIDS drug, for a long time. They showed typical AIDS symptoms, such as emaciation, pallor, soft and flat nails, haemorrhoids, coated tongue, diarrhoea, monilia, dry skin, glare intolerance, leg-feet cramps, painful hips, chronic sinusitis, depression, poor memory, insomnia and so on. They were instructed to avoid foods that might produce adverse reactions and were supplemented with among others B1, B2, B6, phosphate, selenium and zinc. This resulted in dramatic improvements, with relief from most of their symptoms, weight gain, increase in energy and clearing of their depression over the following six months. Unfortunately, their own specialist doctors did not agree with this form of therapy and the patients did not report to me for follow-up tests of their CD4[15] levels.

Antibodies in Down's syndrome & Coeliac disease

This approach is very helpful in cases of Down's syndrome because most of these patients also have Coeliac disease as shown in **Table 2,** which shows their common antibodies. When they are born, even at three months, they have elevated levels of gluten antibodies, alpha-gliadin antibodies, reticulin antibodies, immune complexes, vitamins and mineral deficiencies. Some of these wheat fractions like gluten can be neurotoxic by themselves. High levels of heavy metals have been found among these children. It is sad to see these children with high adult levels of toxic metals. They are also prone later to develop lymphoma and Alzheimer's disease. They are at risk of having an underactive thyroid gland - leading to hypothyroidism - or to become diabetic and develop juvenile SLE. They tend to be low in amino-acids. They are usually low in vitamin B1 (thiamine), B12 leading to pernicious anaemia, folic acid, niacin and zinc, all of which can cause mental retardation. So can the preferential absorption of toxic metals as a result of low levels of zinc and/or selenium and low B1 and B6.

If you treat a Down's syndrome child as a severe Coeliac, you can significantly improve their condition by avoiding allergies and gluten in the diet, supplementing their diet with appropriate nutrients, vitamins, mineral and amino-acids. Supplementation with B1 (thiamine) is especially important in this treatment from my clinical experience. Orthomolecular treatment often results in their becoming slimmer, less prone to infections. They often speak more clearly and it would not be unusual to find that they are the only child in kindergarten that can read. Obviously, nutritional intervention has to be started as early as possible. Very often we find in the same family children that are prone to develop leukaemia or Alzheimer's disease, bowel cancers, ulcerative colitis, Crohn's disease; and all of them may exhibit abnormal palmar creases. They seem to have in common a missed coeliac disease! Hence by correctly diagnosing and treating one member of a genetic family with a gluten-free diet, one may often alert and prevent the development of a latent degenerative disease in another member of that family later on in life.

Micro-psychiatry

I'd like to think of orthomolecular psychiatry as micro-psychiatry, comparable to the concept of micro-surgery where the doctor must know the difference between a vessel and a nerve tissue. Micro-psychiatry, or orthomolecular psychiatry, takes a similar approach. When a patient aged 50 presents with signs of dementia you need to be thorough with your tests, because if you miss one factor that person will still dement. You could give him all the nutrients but miss his folate or zinc deficiency and the doctor will fail to improve his memory or dementia. Initially tests are

Table 2

SIMILARITIES BETWEEN COELIAC DISEASE AND DOWN'S SYNDRON

Immunology	*Coeliac Disease*	*Down's Syndrome*
Gluten Antibodies	+	Present 47% (N=26)
Alpha-Gliadin Antibodies	+	+43%
Reticulin Antibodies	+	+78%
Parietal Cell Antibodies	+	+58%
Thyroid Antibodies	+	+35%
C3, C4, CH50	Low	Low
Immune complexes	+	+
IgM	Low or high	Low or high
IgA	Low or high	Low or high
Vitamin Deficiencies	+	+
Mineral deficiencies	+	+
Female	Prone to spontaneous abortion/miscarriage infertility	Present in mothers of DS patients prior to conception and with DS pregnancy. DS sexual dysfunction
Male	Prone to infertility hypogonadism, impaired hypothalamic pituitary regulation	Fathers of DS children have missed/untreated coeliac disease or gluten/gliadin intolerance (especially with increasing age DS have male hypo-gonadism infertility
Stature	Short Small Head Circumference	Same
Lymphoma Leukaemia risk	+	+
Prone to infections	+	+
Prone to food allergies	+	+
Prone to atopies	+	+
Low ETKA	+	+
Fissured tongue	+	+

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costly, but in the long run you may save a patient from losing his eye-sight or from the debility of Alzheimer's disease. Nobody complains about the costs of having someone's limb sown on in micro-surgery, but somehow people tend to complain about the cost of diagnostic tests in the prevention of mental illness, Down's syndrome, Alzheimer's disease, Multiple sclerosis and so on.

Genetically engineered foods

I have some worries about the proliferation of genetically engineered foods like tomatoes and soya beans. My worry is that by altering the proteins, manufacturers are altering the structures of lectins and peptides, breakdown products of proteins. I expect a host of new lectins to come up. Cancer cells, for instance, have receptors for lectins in peanuts, called glycoproteins of peanuts. If you have a malignant mole and you eat peanut butter, it is broken down into glycoprotein subfractions or lectins. Cancer cells have receptors for these glycoproteins, which are growth promoters. Hence you are literally feeding your cancer cells.[16] Breast cancer cells have receptors for oestrogen and androgens or for food fractions with hormone actions. They may have receptor sites for herbicides and pesticide with oestrogen-like actions. These lectins can be carcinogenic (cancerous), neurotoxic, hepatotoxic, renotoxic, they can flare up arthritis. It is therefore important that we have a choice in food consumption and that genetically engineered food products are labelled. It is to be hoped that enough animal studies will be done before they are being flooded on the market.

Hypoglycemia and feeding the brain

Chronic fatigue syndrome (CFS) is first of all, a missed coeliac disease, and if it is not then it is milk and grain sensitivity without it necessarily being coeliac disease. Very often pesticides and herbicides are involved and more rarely it is a missed systemic lupus (SLE), or even more rarely kryptopyrole in the urine. Food allergies and sensitivities are the main components of it. There may be vitamins and minerals deficiencies. CFS is often accompanied by hypoglycemia as is the case with manic depressive illness and schizophrenia.

I always advise my patients to eat every two hours to make sure the brain is fed the necessary glucose. Normally, people have three meals a day. They go from six o'clock at night till eight o'clock the next morning, thus fourteen hours every day with no food for their brains. This may be alright for a while, but by the time people are fifty, they may look a lot older. Over time they break down muscle tissues into amino-acids to be converted to glucose to feed the brain. This means that people may be aging more rapidly as they use muscle tissues for brain fuel every night of their lives. Thus by having supper late or in the middle of the night you are less likely to wake up in a hypoglycemic dip. Some of the proteins (amino-acids) consumed in this way are not converted to glucose, but rather to neurotransmitters and their enzymes, or for restoration and repair of the body. Fourteen hours brain starvation every day of one's life may result in the shrinking of the brain, and this could well be related to Alzheimer's disease.

Multiple Sclerosis

It appears that there is a genetic abnormality in the development of Multiple Sclerosis (MS). When a person survives a threatened miscarriage in uterus they are more likely to develop MS. Many patients are born with a genetic defect in various tissues in the brain. MS patients often have anti-nerve, and anti-myelin antibodies at the time of their MS inflammation and it is possible to render these antibodies negative by nutritional correction. In one of my patients without anaemia I found seven deficiencies in B1, B6, Vitamin C, B12, folic acid, iron and selenium. Although MS patients may present normal blood counts many of these deficiencies can cause not only MS but also blindness. This goes the same in cases of schizophrenia. Many deficiencies can occur without anaemia.

Being low in B complex vitamins in utero may cause malformation of nerve tissues involved in the development of multiple sclerosis. When later on in life there is a deficiency of these vitamins, then these tissues are the first to break down. In addition, one has to watch out for any heavy metal toxicity.

Depression and manic-depression

People suffering from depression and manic-depression are usually low in the neurotransmitter serotonin as one cause of the disorder. Serotonin and melatonin is produced from the amino-acid tryptophan and often people cannot make serotonin from the tryptophan in the food they eat. Tryptophan is also the precursor of vitamin B3 (niacin) and thus they may be low in that vitamin as well. Any one of these deficiencies can cause serious depression. Serotonin blockers, such as Prozac (fluoxetine), Zoloft (Sertraline) are working on serotonin, but they are not getting at the core of why a person is low in serotonin. One reason may be that they are low in vitamin B6 (pyridoxine), a necessary coenzyme or cofactors magnesium, zinc and manganese in the conversion of tryptophan into serotonin. Thus by supplementing these nutrients over time the person may be able to produce the necessary serotonin which is the cause of depression if low.

Another aspect of depression is that if you are low in B6 there may not only be a blockage in the production of serotonin, but also in other neurotransmitters, such as GABA[17], dopamine, norepinephrine, adrenaline. These are derived from amino-acids in food, such as phenylalanine. Thus either a person is not eating a proper food balance, or can not transform certain amino-acids into neurotransmitters or the necessary enzymes involved in these metabolic processes can't function.

One lady who ate a lot of corn developed a serotonin deficiency and she suffered pain in her hands. Because of the wrong food, inflammatory prostaglandin series 2 (PGE2) may rise and prostaglandins series 1 (PGE1)[18], cAMP may decrease, blocking release of serotonin and other neurotransmitters.

Finally, in depression there may be subfractions of proteins that act like false neurotransmitters, giving you headaches or nightmares and making your mind race. The antidepressant drugs usually block the uptake of these neurotransmitters as with tricyclics, or block the breakdown of them. Prozac, Zoloft and Aropax only work on the serotonin, and not on all the other neurotransmitters involved in depression. I sometimes prefer the old Tofranil (imipramine) and Tryptanol (amitriptyline), because they block the uptake of all the other neurotransmitters as well and you can use tryptophan with them.

Over 80 percent of my manic-depressive patients are low in B1, B6, vitamin C, and most of them were unable to form B3. Vitamin B12 deficiency may also be involved. Simply supplementing B-complex would not be sufficient and additional separate B vitamins will be required. Other useful nutrients are vitamin B5 and choline to calm the brain down. There is a strong genetic association between manic-depressive illness, and colour blindness in the same family which can run through the family. A tendency to get grey hair early and to have pernicious anaemia due to low B12 may also have a genetic component. The X-linked gene for manic-depressive illness is also a X-linked metabolic defect for absorption of B12 in some families.

Conclusion

Orthomolecular psychiatry is a relatively new area in medical science and is closely related to a host of other 'degenerative' diseases. In general, mainstream medicine is failing dismally in helping patients overcome the majority of modern-day illnesses. Medical orthodoxy appears unable to respond to the demand of medical consumers to shift its attention (and medical costs) from heroic high-tech intervention to simple inexpensive prevention based on scientific tests. "Heresy of today" is the "orthodoxy" of tomorrow. Ultimately, well-informed members of the community will force open the Bastille of contemporary medical science.

FOOTNOTES

1) Phenylketonuria - an inborn error of metabolism occurring in about one in 160,000 births, in which the enzyme (phenylalanine hydroxylase) which breaks down the amino-acid phenylalanine is absent and which can impair the development of the nervous system. Although babies with this condition appear normal at birth they show a considerable mental handicap as they grew up.
2) The Minister for Science has now changed 'heavy metals' to 'heavy minerals'. The Principal Medical Officer in his letter of the 18 August 1980 to the Royal Australasian College of Physicians claimed erroneously that Dr Chris Reading asserted that "psychiatric illnesses"...are " the result of excessive or deficient intake of heavy metals...etc".
3) Frasier et al, **Coping with food allergies,** pp 54-55
4) Cheraskin E, Allen JJ, Zavik JS (1985), "The psychotherapeutic implications of cytotoxic testing", **Journal of Orthomolecular Psychiatry,14 (2):** 128-135

5) The RAST test or Radioallergosorbent test is one that uses the technique of radioimmuneassay to identify and quantify IgE (one of the humoral antibodies produced by the body) in blood serum that has been mixed with any of 45 known allergies. For criticism of cytotoxic test see Reisman RE (1981), American Academy of allergy, (1981), Position statement - controversial techniques, **J Allergy, Clinical Immunology, 67:5,**333-338, where 4 out of 7 articles wrongly compared RAST test (immediate), with cytotoxic tests (delayed reactions).
6) **Coeliac disease -** an inborne error of metabolism characterized by the inability to hydrolyze (split) peptides (bundles of amino-acids or protein particles) contained in gluten. *Symptoms:* bloating, vomiting, diarrhoea, muscle wasting extreme lethargy, pale foul-smelling stools. Asscoiated problems are lactose (milk sugar) intolerance. Most patients respond well to a milk-free, gluten free diet, with high protein content. Rice is a good substitute for wheat. Vitamin and mineral deficiencies should be corrected with supplementation. Also called coeliac sprue, gluten-induced enteropathy, nontropical sprue.
7) HLA B is an abbreviation of 'human leukocyte antigen B'. HLA is any one of four significant genetic markers identified as specific loci on chromosome 6. They are HLA-A, HLA-B, HLA-C and HLA-D. Each locus has several genetically determined alleles (two or more alternative forms of genes that occupy corresponding loci on homogolous chromosomes). These genetic markers are further subdivided carrying numbers or letters of the alphabet. These antigens are important in human transplants. If donor and recipient HLA antigens do not match, the nonself antigens are recognized and destroyed by killer T cell.
8) **Dermatitis herpetiformis** is a chronic itching (pruritic) skin disease with located red, pimple-like spots. It is sometimes associated with a malignancy of an internal organ or with coeliac disease. Diet may include a diet free of gluten.
9) Belongia EA, Hedberg CW, Gleich GJ et al. (1990), An investigation of the cause of the Eosinophilia-Myalgia Syndrome associated with tryptophan use, **N Eng J Med 323** (6), 357-365
10) See article in this Newsletter.
11) **Coxsackie B virus** - any of 30 serologically different enteroviruses associated with a variety of symptoms primarily affecting children during warm wheather. They may be responsible for poliomyelitis. They may cause ulcers in the back of the thoat (herpangina), inflammation of the outer covering of the heart (pericarditis), aseptic meningitis, and several skin eruptions (exanthems)
12) **Trigonitis** is the inflammation of the trigone of the bladder, also called the trigonium vesicae. This is the triangular area of the bladder between the opening of the 2 ureters (tubes carrying urine from the kidneys to the bladder) and the orifice of the urethra (small tube draining urine from the baldder).
13) **Islets of Langerhans** are clusters of cells within the pancreas that produce insulin, glucagon and polypeptides. These are scattered throughout the pancreas; the beta cells secrete insulin and the alpha cells secrete glucogon. Glucagon stimulates the conversion of glycogen (stored glucose) to glucose.
14) Reading CM (1992), **Journal of Nutritional Medicine,3,** 145-148
15) CD4 - symbol for glycoprotein expressed on the surface of most thymocytes and lymphocytes, including Helper T-cells. Human CD4 is the receptor that serves as a docking site for HIV viruses. The level of CD4 Helper T-cells in the blood is an indicator of the progress of the infection.
16) Berthier-Vergenes O, Zebda N, Bailly M, et als (1993), Expression of peanut agglutinin-binding glycoconjugates in primary melanomas with high risk of metastases, **The Lancet, May 15, 1993.**
17) **GABA** - gamma-aminobyturic aicd, an amino acid with neurotransmitter activity found in the brain and also in the heart, lungs, kidneys, and certain plants.
18) **Prostaglandins** are potent hormone-like unsaturated fatty acids that act in exceedingly low concentrations on local target organs. Prostaglandins series 2 (PGE2), derived mainly from meat and milk products have a powerful inflammatory reactions, whereas the prostaglandins series 1 (PGE1) have anti-inflammatory effects. For a fuller discussion of essential fatty acids see Plesman, J (1996), Hypoglycemia and essential fatty acids, **Hypoglycemic Health Newsletter, Sept 1996,** 7

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New Treatment for Anorexia and Bulimia

A summary of a report and comments by

Jurriaan Plesman

A RECENT RESEARCH paper by Holden, RJ, Pakula IS (1996), *The role of tumor necrosis f actor−α in the pathogenesis of anorexia and bulimia nervosa, cancer cachexia and obesity*, **Medical Hypotheses 47,** 423-438, (Refs: 148).[1], throws a new light on the treatment of anorexia and bulimia.

The prevalent view is that this eating disorder, characterised by obsession of food contributing to obesity, is a modern Western disease. It is said to be influenced by contemporary fashion which promotes an ideal female body form. (424)[2] This fixation about being overweight may affect one in every 200 women between the ages of 13 and 30 in Australia[3] and the rate is increasing. Anorexia carries a mortality rate of 6%. Holden and Pakula refer to studies during the period of 1500 to 1939, when the ideal female form was radically different. The 'illness' was frequently precipitated by a stressful social event. These studies differed in that recorded symptoms of 'distorted body image' and 'self-induced vomiting' were absent, which suggest these symptoms are a comparatively recent innovation. One woman suffered the classical symptoms of anorexia who had been blind since the age of nine months.(424)

The authors present a new model of anorexia and bulimia based on the interconnection between cytokines of the immune system, neuropeptides and neurotransmitters, all of which become highly dysregulated. In this model, a sustained elevation of one of the inflammatory cytokines, *tumor necrosis factor−α* (TNF−α), plays a pivotal role in the development and persistence of anorexia and bulimia nervosa. (424) Tumor necrosis factors are natural body proteins in the immune system with anticancer effects. These inflammatory chemicals are produced in response to toxic substances such as bacterial toxins and has cytotoxic effects on some tumor cells. They also stimulate production of other lymphokines, secreted by macrophages and others. Lymphokines are chemical factors released by T lymphocytes (white blood cells involved in the immune system) that attract macrophages to the site of infection and prepare them for attack. These cytokines (including interleukin 1β (IL-1β)) are believed to be involved in disease processes of a number of

chronic diseases. Thus anorexia and bulimia are seen as aspects of an autoimmune disorder.

Anorexia and bulimia is often associated with other manifestations of personality disorder, such as obsessive-compulsive disorder, self-mutilation, depression, relationship difficulties, impulsivity, poor anger control, inability to express feelings (alexithymia), suicidal ideation, somatic anxiety, abnormal menstruation. Of 112 patients attending an eating disorder clinic, 41% had as history of theft, 28% drug abuse and 26% alcohol abuse. (425) A common link connecting bulimia and other personality aspects is that they respond positively to the administration of *specific serotonin re-uptake inhibitors* (SSRIs)[4] suggesting an impairment of the tryptophan to serotonin biochemical pathway[5]. Alcohol consumption may stimulate an initial upsurge in tryptophan, explaining the association of alcohol abuse and various psychiatric disorders including anorexia and bulimia. Other abnormal levels of neurotransmitters - dopamine, norepinephrine (NE), cholecystokinin[6] (CCK) endogenous opiate peptides such as β−endorphins and neuropeptides - were often found with elevated TNF−α levels.(425) These dysregulated neurotransmitters would affect a range of bodily functions. For example, dopamine inhibits luteinizing hormone secretion which is related to oestrogen depletion and amenorrhea (absence of menstruation). Excess cholecystokinin has anorectic effect by inducing a false sense of satiety. β−endorphin plays a role in the regulation of insulin secretion and stimulates production of various interleukins[7] - proteins with various functions in the immune system.

Naloxone is essentially a pure narcotic antagonist and normally would be pharmacologically active only in the presence of narcotics. However, its administration to hospitalized anorexia nervosa patients substantially improved the weekly weight gain, although there was no change in food consumption during a trial.[8](426) Large doses of naloxone also induce weight loss in massively obese humans. It also has suppressed compulsive behaviour in obsessive-compulsive patients. It is suggested that naloxone down-regulates the inflammatory cytokines IL-6, β−endorphins and TNF−α [9]. Naloxone increases luteinizing hormone concentration in anorexic women. TNF−α is also slightly elevated among diabetes type II (NIDDM). Obesity is associated with insulin resistance caused by mildly elevated TNF−α which naloxone down-regulates. Thus naloxone reverses insulin resistance resulting in weight loss.

Essential fatty acids (EFAs) play a role in bone-demineralization[10] found in anorexia nervosa patients, who have generally low levels. EFAs are essential in maintaining the fluidity of cell membranes, allowing passage of glucose and mineral transporters. When membranes are composed of saturated fatty acids, glucose is converted to fatty acids - instead of being converted to energy - and then deposited in adipose tissues.(428) Thus EFA deficiency is seen as a major cause of obesity, especially diabetes-obesity. It is suggested that elevated TNF−α inhibits the delta-6-desaturase enzyme (D6D), responsible for converting linoleic acid to gammalinolenic acid, the first step in the biochemical pathway to the anti-inflammatory substances called prostaglandins series 1. EFA deficiency also causes non-absorption of calcium into the bone. This points to a self-perpetuating cycle as follows: (428)

> Elevated TNF-a (and IL-6) —> EFA deficiency —> cell wall saturated fats —> insulin resistance —> glucose converted to fatty acids —> obesity —> causes EFA deficiency —> increase TNF-a. (428)

It is speculated that another self-perpetuating cycle in anorexia arises from the consequence that elevated TNF−α lowers β−endorphins production, which in turn lowers interleukin-4. The latter IL-4 inhibits the production of TNF−α. Naloxone will increase β−endorphins and IL-4, which will then down-regulate TNF−α. (429).

In cancer there is a high level of TNF−α and/or IL-1β which is the primary cause of weight loss and loss of body protein and this is compared with the situation arising in anorexia nervosa. Furthermore, TNF−α stimulates the production of prostaglandins series 2, which in turn induce the release of *corticotropin releasing factor* (CRF)[11], which is a neuropeptide that has an anorexic effect. (429) Anorexic patients have elevated levels of CRF.

The authors point out similar dysregulation of hormones and/or neurotransmitters in schizophrenia, depression, arthritis, SLE, leukaemia and insulin dependent diabetes mellitus (IDDM). Since IDDM may occur following postviral complication of mumps or measles approximately 10 years after infection (430) stress may not be the primary precipitating factor in the development of anorexia nervosa. (429).

The cytokine, neuropeptide and neurotransmitter pattern in anorexia and bulimia nervosa shows that

1) **Anorectic patients** have *elevated* levels of TNF-α, TGF-β[12], vasopressin, neuropeptide Y, cholecystokinin, corticotropin-releasing factor: *Down-regulated* levels of interleukin-2 CD4+/CD8+, serotonin, β−endorphin
2) **Bulimic patients** have *elevated* levels of norepinephrine. cholecystokinin, peptide YY. *Down-regulated:* CD4+/CD8+, serotonin, β−endorphin

Treatment

The authors suggest that intervention in anorexia nervosa should be directed at down-regulating TNF−α and they mention a number of drugs that show some promise: such as naloxone, pentoxifylline, dexamethasone (sodium phosphate), fusidic acid (sodium salt), pentamide (isethionate), R−phenylisopropyladenosine and chlorpromazine. Additionally, they recommend the supplementation of *magnesium*, which in one animal study has shown to reduce inflammatory cytokines. Supplementation of n-3 and n-6 essential fatty acids found in fishoil (Max-EPA) and evening primrose oil (EPO) were found to reduce total serum IL-6b, IL-6 and TNF−α after about 6 months of administration. To these should be added *specific serotonin re-uptake inhibitors* (SSRIs) mentioned earlier.

The authors place their hope on the development of appropriate pharmacological intervention for anorexia nervosa and bulimia. No doubt a chemotherapeutic approach is going to play a pivotal role in the treatment of this disease, especially in the early stage.

COMMENTS

Psychological aspects

Nevertheless, it may be a mistake to underestimate the emotional aspect of the disease. For example in one report the perception of food size was significantly different in a group of anorexics as compared to control and researchers suggested that anorexic patients be offered small frequent meals on larger than normal plates.[13] This surely indicates perceptual distortion as part of the disease. Most reports point to a stressful event preceding the onset of the disease.

From a psychological point of view there is also a parallel self-perpetuating cycle starting and ending in stress, as follows;

> Stress+obesity —> lowers self-esteem -> raises defensiveness —> elevates negative feedback from significant others —> lowers self-esteem —> intensifies stress

Most psychological counsellors are acutely aware that anorexics have a seriously damaged ego, often shielded behind a quasi-aggressive exterior. They appear to be in - what I call - a perpetual "child-parent ego state"[14]. This is reenforced by the experience of many young women when they move from a childhood state of dependence to a more self-reliant and independent life-style. Thus parents are perhaps least likely to be in a position to help, because of their daughter's struggle for independence - especially from the more autocratic (and secure) family environment. It requires a skilled counsellor to establish rapport with an anorexic client and to help her to differentiate her low self-esteem from her perceived obesity, which logically are two separate issues[15]. Like alcoholism and other addictions the minimum requirement for successful psychological treatment is that the client has some "insight" - a recognition that not all is well and that she is willing to seek advice.

We should not dismiss out of hand the patient's pre-occupation with obesity, because this could have been an important factor in the initiation and development of the disease. Dissatisfaction with one's natural weight and shape may be at odds with the idealized body weight as promoted by the media.

Excess opiates theory

It is interesting to note that in 1989 Margaret et als. (1989)[16] mention reports by Gerner and

Sharp[17] and Kay[18] that endogenous opiates, endorphins are elevated in anorexia. This was supported by Luby and Marazzi[19] who postulated that anorexia was caused by an overdose of endorphins which acted like opiates and responded to administration of opiate antagonists. Margaret et als. believe that anorexia is an addiction to the body's endorphins and that it can be cured like alcohol and drug addiction. They believe that nicotine adenine dinucleotide (NAD) is a natural ligand for the opiate receptors. Their clinical experience demonstrates that high levels of niacin (300 mg to 500 mg daily) or NAD (500 mg to 1000mg) is needed to initiate the inhbition of the endorphin production and allow recovery.[20] Another reason why niacin supplementation may benefit the patient is that it will free the conversion of tryptophan to serotonin as explained below.

This is in contrast to Holden's and Pakula's hypothesis, who claim the opposite, namely that beta-endorphins are down-regulated in anorexia. They maintain this on the basis of later studies by Kaye and Weltzen[21] who claim that β−endorphin is down-regulated in bulimia.[22] Holden and Pakula explain that naloxone - an opiate antagonist - "can reverse both marked weight loss in anorexia nervosa and marked weight gain in obesity, since TNF−α appears to have an important role in both conditions. In anorexia, TNF−α is highly elevated: naloxone down-regulates TNF−α and, hence the patient gains weight without any increase in food consumption."[23] Whatever the true position both agree that there are multiple endocrine abnormalities.

Ideally, treatment should be by a team consisting of a doctor, psycho-therapist and a nutritionist. Depending on the severity of the disease, initially drugs such as naloxone or SSRIs (and others mentioned above) may be helpful, but ultimately the underlying metabolic dysregulation needs to be addressed. Nevertheless, the association between anorexia, diabetes, obesity, hypoglycemia[24] - and EFA deficiency is well established.[25]

The bottle-feeding connection

The first stage of these conditions may well have been brought about, depending on whether the client was bottle-fed or breast-fed. Milk formulas deficient in EFAs have been found to cause obesity in infants.[26] Alternatively, there may be evidence of a diabetic gene running in the family[27] or a close family member being a heavy drinker or known to have a psychiatric condition. All these may have in common unstable blood sugar levels. Fortunately, adverse genetic dispositions can often be corrected by appropriate nutritional intervention.

N-3 & N-6 essential fatty acids are forerunners of prostaglandins series 3 & 1 (PGE3 & PGE1,), which among the many benefits *prevent obesity and enhances the effects* of insulin. There is much evidence to suggest that obese people (diabetic, pre-diabetic or not) may have a defective delta-6-desaturase (D6D), the first enzyme in the break-down of beneficial EFAs into PGE1.[28] A defective D6D is a major cause of obesity. Among the sources rich in both N-3 & N-6 EFAs are flaxseed oil (edible linseed oil), pumpkin seeds, walnuts, green vegetables, fish oils.

If the disease has not advanced too much the patient should undergo a **Glucose Tolerance Test** (GTT) by a doctor.[29] If the results show a drop in glucose levels exceeding 2.8 mmol/L (50mg per 100 ml) in any one hour or over 1.9 mmol/L (35 mg per 100 ml) in any half an hour, there is strong evidence that the patient has a "hypoglycemic condition" which is indicative of a pre-diabetes.[30] Avoidance of sugar (sucrose) is the most important element in the treatment of both these conditions. Sugar cravings and bingeing is a common symptom, which can be allayed by recommending either glycerine (mixed with water and a dash of lemon to make it more palatable) or substituting fructose for sugar (sucrose). Glycerine and fructose by-pass the insulin reaction as they are metabolised in the liver to glyceraldehyde 3-phosphate, thus contributing to a more stable blood sugar level. However, they may cause elevated levels of triglycerides if taken in excess.

The treatment for hypoglycemia is similar to the treatment of diabetes and consists of avoidance of sugar, frequent high protein snacks supplemented with a full complement of vitamins and minerals.

Milk allergies

Another aspect of bottle-fed babies is that they may have been exposed to metabolites of cow's milk products, setting in train a range of food sensitivities and allergies. Lactose intolerance may lead to malabsorption of other food fractions within the intestines, thus snowballing to other food intolerances.[31] This may account for the co-diagnosis of anorexia with so many other immune disorders. One way of detecting allergies is by abstaining from a suspected allergen for some time and then re-introducing it. If you abstain from milk products for a week and then re-introduce them in sufficient quantities one can expect a strong 'allergic' reaction, when there is an intolerance to milk products. Other food sensitivities may be revealed using the same method. This may take some time and perhaps a cytotoxic test or RAST test - although not always accurate - could be less time consuming.

Tryptophan-serotonin connection

Feeling bad about oneself is often related to low serotonin levels. Thus SSRIs - chemical inhibitors of serotonin re-uptake by the body - have been found to benefit anorexia and bulimia patients. In the end, treatment should aim at the body being able to produce sufficient endogenous serotonin to lift the patient out of depression. Thus the tryptophan to serotonin biochemical pathway should be looked at.

Tryptophan - an essential amino acid derived from food sources such as turkey, fried liver, soya flour, pumpkin seeds, bananas and *skim milk,*[32] cottage cheese etc. - is also the precursor to vitamin B3 (niacin). The conversion of tryptophan to B3 takes precedence over conversion to serotonin.[33] Hence, low serotonin levels may be caused by a vitamin B3 deficiency. Food sources of tryptophan are often also sources of vitamin B3. Vitamin B6 and zinc are essential cofactors in the conversion of tryptophan to serotonin.

Tryptophan supplementation was freely available, until the Australian government banned it when the Showa Denko company in Japan produced a toxic batch of tryptophan tablets a few years ago. It is now available only on doctor's prescription. [34]

Another nutrient that should be considered is the essential amino-acid, ***phenylalanine***. It is found in foods such as in soy products, dried skim milk, cottage cheese, fish, meat, poultry, almonds, peanuts, pumpkin seeds, sesame seeds etc. It is known as a mood elevating nutrient, with some analgesic effects and known to suppress appetite. Hence this amino-acid is often used by obese dieters. It is the fore-runner of tyrosine (involved in thyroxine production in the thyroid gland), and the so-called catecholamines such as dopa, dopamine, norepinephrine (noradrenaline) (NE), and epinephrine (adrenaline). Note that elevated levels of NE are found among bulimic, and that anorexics have elevated levels of cortico-releasing factor (CRF). The latter is a polypeptide secreted by the hypothalamus into the blood stream, which triggers the release of adrenocorticotropin hormone (ACTH) from the anterior pituitary gland. ACTH stimulates the release of other hormones by the adrenal cortex including adrenaline. Norepinephrine is secreted by the adrenal medulla and sympathetic nerve endings in response to low blood glucose levels.

Phenylalanine can inhibit appetite by the brain's production of NE and also cause the brain to release cholecystokinin (CCK) which has been shown to inhibit eating in experimental animals.[35] Norepinephrine is also the transmitter at smooth-muscle junctions. Dopamine and dopa are brain neurotransmitters, which play a role in body movement, motivation, primitive drives (sex) and immune function.[36] Thus catecholamines play essential roles in anorexia and bulimia, and it would appear that supplementation of phenylalanine should be viewed with caution in case of anorexia and bulimia. If we want to limit the intake of phenylalanine in anorexia and bulimia, we should warn against the use of some alternative sweeteners such as aspartame which contains phenylalanine and which would have the effect of raising norepinephrine levels.

Moreover, phenylalanine can raise blood pressure and therefore should not be taken by hypertensives, except under strict medical supervision. It should be avoided in phenylketonuria patients and by those having pigmented malignant melanoma, who should have diets low in phenylalanine and tyrosine.

In **conclusion** although much further research is required to clarify the cause of anorexia and bulimia, treatment under the supervision of an doctor, nutritionist and perhaps a

psychotherapist should aim at maximizing those nutrients that appear to have a beneficial effect. The following steps may be of assistance:

- A Glucose Tolerance Test to detect a diabetic or pre-diabetic (hypoglycemic) condition
- Depending on the above test, a hypoglycemic/diabetic diet, plus full complement of vitamins and minerals
- An allergy-free diet following isolation of allergens as a result of cytotoxic testing, RAST test or via a course of elimination diets
- *Specific serotonin re-uptake inhibitors* (SSRIs) and/or
- Supplementation with *tryptophan*, together with vitamin B3 (niacin 300 -500 mg daily), B6, magnesium (550-1000 mg daily), zinc. Consumption of foods high in tryptophan should be encouraged.
- Essential fatty acids in the form of *MaxEPA* (fishoils) and *evening primrose oil*
- Although phenylalanine (or tyrosine) may be helpful in lifting depression and to control appetite in obese people, in patients with anorexia or bulimia excess NE (products of phenylalanine) may possibly aggravate the dysregulation of the immune system. Perhaps restriction of phenylalanine food sources may assist.

FOOTNOTES

1) *Medical Research Unit, University of Wollongong, Northfields Ave, Wollongong, NSW 2522 (Fax: (042) 21-3486 and Illawarra Area Health Service, Shellharbour Hospital, PO Box 52, Shellharbour Square NSW 2529, Australia*
2) Numbers in brackets refer to page of Holden & Pakula's article.
3) Carter W & Bowen J (1991), **Home guide to health & medicine,** The Macquarie Library, 258
4) **Specific serotonin reuptake inhibitors** are drugs (such as Prozac or Zoloft) that block the degradation of serotonin, thus prolonging its effects in the body. They are used as anti-depressants.
5) **Serotonin** - neurotransmitter produced from tryptophan (an essential amino-acid derived from food) in the presence of vitamin B6, magnesium and zinc. Serotonin is released from platelets on damage to blood vessels, in intestinal tissues it acts as a smooth muscle contractor, in the central nervous system it acts as calming, analgesic-like substance.
6) **Cholecystokinin -** a hormone produced by the mucosa of the upper intestine stimulates contraction of the gallbladder and secretion of pancreatic enzymes associated with a feeling of satiety.
7) **Interleukins** are a number of individual chemicals produced by cells of the immune system that act as messengers between white blood cells or leucocytes, and which are identified by numbers such as IL-1, IL-2 etc. with slightly different functions.
8) Moore R, Mills IH, Foster A (1981), Naloxone in the treatment of anorexia nervosa: effect on weight gain and lipolysis, **J R Soc Med 74:** 129-131
9) **Endorphins** are neuropeptides, composed of many amino-acids, released by the pituitary gland which act on the central and peripheral nervous systems to reduce pain. There are several endorphins - alpha, beta, gamma-endorphins - which all resemble the structure of morphine. Significantly in connection with anorexia, β–endorphin has been isolated in the brain and gastrointestinal system and appears the most potent of the endorphins.
10) **Bone demineralization** may be due to a combination of calcium and estrogen deficiency.
11) **Corticotropin-releasing hormone** is secreted from the hypothalamus - thus influenced by stress situations - and sent to the anterior pituitary gland in the brain, which stimulates the release of corticotropin into the blood. The latter hormone targets the adrenal cortex, stimulating about 30 corticoids. Among these are glucocorticoids, of which cortisol is the most important, and which oppose the action of insulin. Hyperglycemia may be caused by glucogon, somatotropin, glucocorticoids and adrenaline all produced in the adrenal gland.
12) **TGF–**β means *transforming growth factor-beta* which refers to a group of proteins produced by the cells of a tumour that, when inoculated into a normal cell culture, cause a disorderly increase in the number of cells in the culture. Both TGF−β and IL-6 were elevated during periods of starvation in anorexia nervosa patients (429).
13) Yellowlees PM, Roe M, Walker MK et al. (1988), Abnormal perception of food size in anorexia nervosa, **British Medical Journal 296,** 1689-1690
14) For an explanation in terms of Transactional Analysis of personality see chapters 3 & 4 of Plesman, J (1986), **Getting off the hook,** available from most public libraries. Chapters have references to further readings. In brief, a "child-parent ego state" refers to hypersensitivity to a *perceived* authoritarian statement by others characteristic of a 'rebellious' child.
15) Plesman (1986) p 73, who discusses hangups about one's physical features. Many people blame their low self-esteem on certain 'undesirable' physical features, without realizing that they are sitting in judgement on all people with such features. "I have a wooden leg", therefore "I am unlovable", implies that "all people with wooden legs are unlovable" (false!)
16) Margaret J, Cleary BS, Cleary JP (1989), Anorexia nervosa: A form of subclinical pellagra, **International Clinical Nutrition Review, July 1989, 9(3):** 137-143 (Refs: 43)
17) Gerner RH, Sharp H-CSF (1982) Beta endorphin immunoreactivity in normal, schizophrenic, depressed, manic and anorexic subjects, **Brain Res 237,** 244-7
18) Kaye WH et al. (1982), Cerebrospinal fluid opioid activity in anorexia nervosa, **Am J Psychiatry 139,** 643-5
19) Luby ED, Marrazzi MA, Kinzie J, (1987), Treatment of chronic anorexia nervosa with opiate blockade, **J Clin Psychopharmacol 7,** (Feb 87)
20) Margaret J, Cleary BS, Cleary JP (1989), 138
21) Kaye WH, Weltzin TF (1991), Neurochemistry of bulmia nervosa, **J Clin Psych 52:,** 21-28
22) Holden RJ, Pakula IS (1996), The role of tumor necrosis factor−α in the pathogenesis of anorexia and bulimia nervosa, cancer cachexia and obesity, **Medical Hypoptheses 47,** 426
23) Holden RJ, Pakula IS (1996), The role of tumor necrosis factor−α in the pathogenesis of anorexia and bulimia nervosa, cancer cachexia and obesity, **Medical Hypoptheses 47,** 427
24) More fully discussed in Plesman (1996), Hypoglycemia and essential fatty acids, **The Hypoglycemic Health Newsletter, Sept 96,** 7-13.
25) Holden RJ (1995), The estrogen connection: the etiological relationship between diabetes, cancer, rheumathoid arthritis and psychiatric disorders. **Med Hypotheses 45:** 169-189
26) Hansen AE (1957), Role of unsaturated dietary fat in infant nutrition, **Am J Pub Health 47:** 1367-1370, Hansen AE et al. (1958), Essential fatty acids in human nutrition, **J Nutr, 60:** 565-576
27) Macleod, J (Ed)(1984) **Davidson's principles and practice of medicine,** Churchill, Livingston, 459
28) Holden RJ (1995)
29) A GTT may be too stressful for a person in the midst of an anorexic or bulimic episode, but the initial perception of obesity may have been related to either a underlying hypoglycemic condition (pre-diabetes) or unrecognised diabetes. The doctor should weigh up the advantages against disadvatages considering the patient's present condition.
30) Samra, George (1984), **The hypoglycemic connection,** MINT, Sydney, 19
31) See Reading, C (1997), Advances in orthmolecular psychiatry, **The hypoglycemic Newsletter, March 1997,** 2-8
32) Because of a patient's intolerance to milk products, food sources of tryptophan may have been limited, contributing to either low vitamin B3 or serotonin.
33) It takes 60 mg of tryptophan to produce 1 mg of B3, and hence B3 deficiency would seriously compromise tryptophan availability for serotonin production. Kirshman JD (1979), **Nutrition almanac,** McGraw-Hill Book Co NY, 36
34) One would have thought that the Therapeutic Goods Act is sufficiernt safeguard to protect the public and that this non-patentable nutrient (tryptophan) should be made available again to the public as a step in the direction of preventive medicine.
35) Amphetamines (often used in diet pills) cause the brain to deplete its NE stores causing depression, but phenylalanine, unlike amphetamines, replenishes NE stores.
36) The autoxidation of dopamine results in hydrogen peroxide and free radicals which have been implicated in damage to receptors for dopamine, responsible for conditions such as "burnt out" schizophrenia and Parkinsonism. Dopamine is hydroxylated to [illegible] by the brain-specific enzyme, hydroxylase.

High blood pressure. The salt story

by CSRIO
Division of Human Nutrition
Contact: Dr Peter Howe
(08) 303 8807

One of the most extensively debated nutritional issues is the need to reduce our intake of sodium chloride, or common salt. Salt is an important determinant of the texture and flavour of food and traditionally it has played such a major role in our diet that sectors of the medical profession, food industry and general public alike have questioned the need to limit its use, even tough it is recognised that the average sodium content of Western diets substantially exceeds basic requirements.

A common argument against salt restriction is that only a small proportion of people stand to benefit and the benefit is too small to justify the efforts.

Whilst it is true that not everybody will show a blood pressure response to lowering salt intake, research conducted at our Division

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THE CURIOUS LINK BETWEEN HEAVY METALS, CHEMICALS, AND PARASITIC INVASION

By Anna Priest

"Health isn't just being free of sickness. Health is feeling great, feeling like laughing at funny things. Health is feeling grateful to be alive. It is feeling happy to see the sky and to see growing things and to feel confident in human society's progress. Health is remembering the good parts of childhood and believing you still have a lot of them."
Hulda Regehr Clark, PhD, ND
The Cure For All Diseases.

In light of recent developments in the wholistic and environmental medical field, it seems that internal pollution from chemicals and heavy metals may not be the only factor in determining an individual's health, or lack of it. The very thought of toxic metals and environmental chemicals lodging in our cells is daunting enough. The vision of pathogens such as viruses, fungi, bacteria or worms of several types running rampant in our organs is absolutely appalling. According to Dr Hulda Regehr Clark's clinical and scientific evidence over several years, this appears to be unblemished truth for many people. (Like many others, I believed the parasite theory to be a bit weird - until I read her books.) Dr Clark's extraordinary achievements and breakthroughs reveal that the truth certainly is stranger than fiction!

Dr Regehr Clark, PhD, ND, is one of the great innovative scientific thinkers of our time. An independent research scientist, specialising in biophysics and cell physiology, and later naturopath, Dr Regehr Clark has outlined her unconventional approach in three books: *The Cure For All Diseases*, *The Cure for HIV and AIDS*, and *The Cure for All Cancers*. These books expose the role that widespread **chemicals** (including formaldehyde, chlorofluorocarbons/CFCs, and polychlorinated biphenyls/PCBs), **solvents** (such as benzene, propyl alcohol, xylene and trichloroethylene), and **metal pollution** (dental amalgam metals, lead, cadmium, nickel and aluminium) - play in conjunction with pathogens in the destruction of human health. Dr Clark explains that the presence of metals and other environmental pollutants in our cells compromise our immunity, allowing viruses, bacteria, flukes and other pathogens to invade and flourish. These in turn lower immune function and cellular integrity even further, paving the way for organ malfunction and patterns of disease, according to which organs or body systems are affected. She has found that specific combinations of toxins and pathogenic invaders play determining roles in different diseases. These books provide disturbing - yet inspirational reading. Her findings will undoubtedly cause many ripples throughout the world - in science, medicine, dentistry, and the chemical and pharmaceutical industries.

After several years research and fine tuning her methods, Dr Clark's unconventional technique of diagnosis and treatment of human disease, appears to be highly successful - if instructions are rigorously followed. Her astonishing methods may result in altering the way we approach health disorders; perhaps even revolutionising diagnosis and treatment of diseases into the next century. Her success rates with cancer, AIDS, CFS, diabetes, multiple sclerosis, high blood pressure, weight problems, depression, Alzheimer's disease, infertility and practically every other malady known to mankind, are remarkable. Her methods for treating "incurable" mysterious conditions ultimately are reduced to pure common sense; in other words 'cleaning up our act' both inside our bodies and our immediate world environment.

The claim that "*All illness comes from two causes: parasites and pollution"* may seem extremely simplistic, until you become familiar with her philosophy and methods. She writes:

"No matter how long and confusing a list of symptoms a person has, from chronic fatigue to infertility to mental problems, I am sure to find only two things wrong: they have in them **pollutants** and/or **parasites.** I never find any lack of exercise, vitamin deficiencies, hormone levels or anything else to be a primary causative factor. The solution to good health is obvious:

Problem	Simplest cure
parasites	electronic and herbal treatment
pollution	detoxification and avoidance

It's a valiant quest: the quest for health. With optimism in one hand and determination in the other, you too can work the miracles for yourself that my clients accomplished in the case histories."

Dr Clark has discovered a simple, inexpensive electronic technique (using radio electronic principles) for scanning and destroying parasitic invaders in our organs and tissues - by selectively electrocuting them. She has found that all pathogens, from moulds, viruses, bacteria, flat-worms and tape-worms to flukes and mites - are destroyed by this method, with just a few minutes treatment. She writes that "given sufficient voltage (5 to 10 volts), duration (seven minutes), and frequency (from 10 Hz to 500,000 HZ) any positively offset frequency kills all bacteria, viruses and parasites in the body simultaneously. Fortunately for us we can work on zapping pathogens in the lower ranges without affecting humans in the upper range." Dr Clark stresses that this method is safe, without side-effects, and does not interfere with other treatments. She writes:

These (parasitic) invaders have been increasing exponentially due to lowered immunity in recent decades. Possibly this is true for all species on our planet. The pollution of the entire biosphere has been increasing and with it the prospect of acquired immune deficiency syndrome (AIDS) for all of us.

Could these parasites living in our organs and tissues be the missing link many of us have been searching for? Could the combination of environmental chemicals, solvents and heavy metal pollution (dental amalgam being a major one) - provide*ANY ANSWER TO THE INCREASE IN IMMUNE FUNCTION DISORDERS, AND THE RAPID HEALTH DECLINE OVER THE PAST FEW DECADES?*

I believe Dr Regehr Clark has provided the human race with and unprecedented chance to turn our lives around and reverse a steady descent into toxic collapse, such as chronic fatigue syndrome, or the worst case scenario of multiple chemical sensitivity (MCS). Individuals with these distressing conditions are the harbingers of our future if we do not pay attention to the warnings. This internal pollution, in combination with various parasites, could well explain why some of us try just about every therapy under the sun - and still only regain partial good health. Varying populations of invading pathogens, and accumulations of toxic encounters - may also be an explanation for relapses in health from time to time.

We can only speculate how long it will be before orthodox medicine has the courage to investigate her theories and treatment regarding chemicals, heavy metals and pathogen invasion. Perhaps their mental blocks against anything other than pharmaceutical drug treatments will prevent this happening for some time. Nevertheless, Dr Clark has generously made her findings and regimens available to anyone who wants to use them, including detailed instructions on how to build a simple electronic device (her "zapper") for widescale parasite destruction. She also tackles the enormous problem of heavy metal removal (including dental amalgam) and the chemical contamination of almost everything we eat, drink and breathe. I believe ordinary people will take their health into their own hands long before conventional medicine catches up with this one.

Dr Hulda Regehr Clark's books are published by ProMotion Publishing, California and are available from some bookstores. The books and some of her recommended therapies are also available from:

Natural Therapy Products, PO Box 252, Turramurra, 2072 ph: 02-9983 1299, Fax: (02) 9983 1686

SELENIUM:

An important element in health and disease

By Dr Joachim Fluhrer

Selenium was discovered in 1817 by Berzelius and named after the Greek goddess of the moon - Selene.

Elemental selenium has metal-like as well as non-metal properties. It's first use was in the electrotechnical industry, where it caused toxic reaction through inhalation of large quantities. It was therefore introduced into the medical literature as a highly toxic substance.

The attitude towards selenium changed totally in 1957 when it was discovered that selenium is essential to our health and deficiency causes malfunction and diseases. Selenium is essential as a factor for the enzyme glutathione peroxidase. This enzyme plays an important role in the immune system, the detoxification system, the prevention and treatment of cancer.

Some areas in the world, especially in China, have very low selenium concentration in the soil. Consequently, its population is deficient and this results in the Keshan-disease, which usually causes death by congestive heart disease. Simple supplementation of selenium can prevent this disease.

In 1982 the first death directly related to selenium deficiency was described in a patient who received his nutrition through intravenous feeding. Since then selenium is an essential part of all so called 'parenteral nutrition'.

Large epidemiological studies including those done by the CSIRO in Australia have demonstrated a direct link between selenium deficiency and the incidence of cancer, heart disease, rheumatoid arthritis and pancreatitis. That means, the lower the intake of selenium, the higher the risk and incidence of those diseases.

Since the intake of selenium in the Australian diet is only one third of the recommended amount, supplementation of selenium is recommended. Selenium is naturally found mainly in garlic, seafood, grains, nuts and seeds.

Selenium is important as an anti-oxidant, essential in detoxification during the process of metabolism by scavenging free radicals. Free radicals are highly reactive atoms or molecules with an unpaired electron. They are produced in the course of normal metabolism in the breakdown of peroxidized fats in the body, in ozone interactions with lipids, in the attack of oxidizing agents on fatty acids (especially unsaturated fats). They are a major source of damage to healthy cells, causing aging, cardiovascular disease, and cancer. Free radical scavengers, such as glutathione peroxidase that is dependent on selenium, block free radical chain reactions.

These free radical scavengers are important to our body and are used to destroy viruses, bacteria and malignant cells, thus protecting healthy cells from the onslaught of free radicals. Our body has a natural anti-oxidant system which is based mainly on vitamins C, A and E, as well as zinc and the enzymes glutathione peroxidase, superoxide dismutase and catalase. If this anti-oxidant mechanism malfunctions, then chronic disease can occur. Another term for these chronic diseases could be "free radical disease" which include inflammatory bowel diseases, pancreatitis, autoimmune diseases and cardiovascular diseases. The increased incidence of cancer can be explained by the genetic changes through free radical damage, which will lead to malignant changes of cells.

Selenium is important to the appropriate functioning of the immune system. Supplementation will lead to improved effectiveness, including the activity of natural killer cells, increased production of cytokines and synthesis of antibodies.

The general recommendation for selenium intake is 60-200mcg per day. In certain circumstances, the dose can be increased up to 1000 mcgs under the guidance of a medical practitioner. One example is the use of high dose selenium in reducing the side effects of anti-cancer drugs, cisplatinum and adriamycin, which can cause toxicity to the kidneys and the heart.

The signs of selenium toxicity are garlic-breath, discolouration of fingernails, hair loss and changes in the clotting mechanisms. All these conditions are reversible if the dose is reduced.

Selenium

Essential trace element

1817 discovered by Berzelius and named after Greek goddess, Selene

1934 Selenium as toxic substance
1957 Discovery as essential element
1960 Selenium as an anti carcinogen
1963 Selenium as an anti-inflammatory
1973 Selenium as part of GSH
1975 Selenium as cytotoxic in high doses
1984 Molecular structure of GSH
1985 Selenium dependent phospholipid - hydroperoxide - GSH
1990 Selenium as part of T4 - T3

Selenium Clinical Application

1936 Selenium as toxic substance
1947 Selenium as occupational hazard
1966 First acute Selenium poisoning
1969 USA Frost: Inverse correlation Se - Cancer
1974 Selenium deficiency - Keshan disease
1979 Selenium deficiency - Kaschin-Beck-Disease and successful supplementation
1980 RDA 50-200 ug/day (National Academy of Science)
1982 First mortality as a result of Se-deficient cardiomyopathy after long PTN Se-level predictable risk factor for malignancies
1991 Decreased mortality in acute pancreatitis with NaSE
1991 Anti carcinogenic effect of NaSe in primary liver cancer. Prospective controlled study of 20,000 compared to 80,000 controls

Selenium

- essential element of GSH
- GSH (like Catalase and SOD) as part of anti-oxidant protection
- Protects mainly RBC's, platelets, Peroxide- and free radical formation. Various metabolic reactions plus exogenous factors.
- Heavy metals form metal-selinides, further reduces Se availability. Us in heavy metal detoxification.
- Many degenerative diseases are associated with Se-deficiency. Supplementation is normalising.

Therapeutic use

- Sodium selenite
- Organic L-Selenomethionine, yeast bound

Oncology

- Prevention - Many studies show inverse correlation Se-Cancer
- Inhibits growth of malignant tumour in vitro and in vivo
- Can break resistance to chemotherapy
- Decreased cardiotoxicity of adriamycin, decreased nephrotoxicity of cisplatinum without decreased effect on tu cells
- Increase g-Interferon and TNF
- Increased phagocytic activity and chemotaxis

Cardiology

- Inverse correlation Se - Cardiomyopathy, CAD, AMI, Hypertension, Prostaglandin synthesis.

The Association wants to thank **Gloria Pecotic** for having donated placemats and **Barbara Wright** for having donated a hand-made doll for the raffle at our last public meeting on Saturday, the 7th December 1996.

Donations like these financially help the Association to carry out its mission of informing members of the latest in complementary medicine.

Again thanks a lot!!

INTERNATIONAL CLINICAL NUTRITION REVIEW

By Editor

Dr Robert Buist, Editor in Chief of the ICNR, has indexed the **International Clinical Nutrition Review** which will be updated in the last issue of each year.

This makes the series of International Clinical Nutrition Review a valuable commodity in one's private library for anyone who is interested in the scientific basis of clinical nutrition.

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High blood pressure - The salt story

Continued from page 11

shows that the benefits for those either with or at risk of developing high blood pressure may be substantial.

At least 350 volunteers, male and female, young and elderly, with normal or high blood pressure, have taken part in strictly controlled dietary intervention trials to test the effects of halving their salt intake. The results confirm that salt restriction will lower blood pressure to a greater extent in the elderly and in those with high blood pressure. They also reveal that women are more likely to respond than men - a very significant finding when one considers that blood pressure tends to rise rapidly in postmenopausal women and that more than half will reach a level requiring treatment.

Since elderly people often need to take several medications continually, reducing salt intake may offer an attractive alternative to drug treatment. Even for those whose blood pressure is too high to be controlled by salt restriction alone, our research confirms that the change of diet may still be worthwhile because, depending on the particular type of blood pressure lowering drug being taken, salt restriction can have an added effect which may permit a reduction in the dose of the drug needed to maintain normal blood pressure.

The case of salt restriction has focussed on blood pressure. However, it is recognised that excessive salt can contribute to the damage of cardiovascular organs, particularly the kidney, which may occur in people with high blood pressure. Moreover, recent research indicates that the degree of damage does not necessarily depend on the extent to which salt affects blood pressure. Thus, even those individuals whose blood pressure show little response to dietary salt restriction may still stand to benefit through an overall reduction in cardiovascular risk.

Unfortunately, early attempts by the food industry to respond to perceived need for low salt alternatives to bread, cereals, cheeses and other processed foods (our main sources of dietary salt) were met with relative indifference by consumers. However, when we supplied a range of low salt foods to volunteers in our intervention trials, they were well received. Increasing awareness by both doctors and their patients of the value of low salt diet in the management of high blood pressure may be expected to re-establish a market demand.

Fortunately, with the availability of new sodium chloride substitutes for use in food manufacture, it should now be possible to produce a wide range of palatable low salt products to satisfy this market. Our Division expects to play a continuing role in evaluating the cardiovascular health benefits to be derived. from this important dietary strategy.

THE HYPOGLYCEMIC HEALTH ASSOCIATION
P.O.Box 8, SYLVANIA SOUTHGATE NSW 2224

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Please tick √

RENEWAL ☐

NEW MEMBER ☐

Occupation _____

Do you have hypoglycemia? YES/NO Does a family member have hypoglycemia? YES/NO

1*997 MEETING DATES*

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