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ORTHOMOLECULAR VITAMIN INFORMATION CENTRE Inc.

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Disclaimer: The information presented here is for educational purposes only.

Mission Statement

The mission of the Centre is to provide accurate, unbiased information in a non medical setting about the properties and uses of vitamins.

“Man will occasionally stumble over the truth, but usually manages to pick himself up, walk over or around it, and carry on.” Winston S. Churchill.

Why Needed

By 1950 the vitamins had been discovered, synthesized and had come into general use to maintain health. They are very important natural chemicals and the body cannot function without them. But their use had been restricted to preventing a few classical deficiency diseases like pellagra, rickets, and scurvy. Since 1950 these same vitamins have been shown to be effective in amounts much larger than those needed to prevent these vitamin deficiency diseases. But this information has been hard to obtain and the public must be totally confused by the positive and negative claims that have been made and are continuing to be made about their value in health maintenance. For this reason we need an accurate and unbiased centre to which any one can come in order to obtain the information they are not able to get by reading the literature on their own. With this information they will be in a much stronger position to discuss the use of vitamins with their doctors.

What Kind of Information

This will be similar to information which is now available in hundreds of books that are freely available. This means that the Orthomolecular Vitamin Information Centre Inc (the Centre) will provide information from the literature about classes of people with different problems, but it will not be given as medical advice specific to the person obtaining that information. For example, if the person seeking information is interested in the connection between some forms of arthritis and certain vitamins, information will be given as a general outline as it applies to the group of arthritics but will not be given to that individual as personal advice with respect to treatment. Nutritional information

about arthritis will be provided, but not as a prescription to people who have arthritis. Medical treatment will not be discussed at any time.

Information will be given only to clients of the Centre.

Definitions

Orthomolecular: This refers to the use of substances which are naturally present in the body. It does not include compounds found in plants which may be safe and effective as treatment but which the body can live without.

Megavitamins: This was a term first used to describe large doses of vitamin C by Dr I. Stone. It has no useful meaning and should not be used.

Optimum daily intake: Each nutrient is needed in optimum amounts. The range of requirement varies enormously for different vitamins. This also applies to amino acids, fatty acids and sugars.

Toxicity: Vitamins are non toxic. The number of people who have died from using vitamins is almost zero, but they do have non toxic side effects which are not life threatening and must be known by any one taking them. When there are undesirable effects from any vitamin tablets it may be an allergic or other such reaction to any of the fillers with which these products are made.

Dr. John N. Hathcock¹, Council for Responsible Nutrition, Washington DC, and thirteen colleagues examined the world wide literature on the issue of the safety of vitamin C and E. They agreed with “the consensus of published studies that vitamin E doses up to 1000mg/day and vitamin C doses up to 2000 mg/day are safe for use by the general population.” These are the upper safe limits. But the literature on these two antioxidant vitamins described only these doses ranges. There are few published studies using the much large doses that orthomolecular therapists recommend. Many have appeared in the Journal of Orthomolecular Medicine but Medline has refused to list this journal since its inception thirty-three years ago. In my opinion, these vitamins are safe even at much higher doses. This is an extremely important report because it expands the safety range of these two vitamins and destroys the factoids that are so widely held.

Supplements

Unprocessed foods such as whole grain rice or wheat are very complex dormant living organisms which can be broken down into the major components: protein, carbohydrate and fats, and a large number of minor (in terms of how much is present) nutrients such as vitamins, essential fatty acids and minerals, but they are all equally important for life. These components present in small amounts are called supplements, but in the same way that one cannot live just on the three major components, one also cannot live just on the supplements. They all have to be provided. This means that supplements can

only partially repair some of the damage caused by a poor diet but can never totally make it a good diet. The word supplement means exactly that. They are used to make up for special deficiencies in the food which have been created by food industrialization, or should be used to make up for the special needs of individuals. A typical North American diet as represented by doughnuts and soft drinks (20percent of North American caloric intake is from the sugar in soft drinks). The diet should be improved as much as is possible and then the supplements added to make it even better for each person.

How Do Vitamins Maintain Health?

For more than 100 years it has been known that one could not be well on food that provided only protein, carbohydrate and fats. It was known that if iodine was lacking in the diet it would cause exophthalmic goiter and for that reason iodide was added to salt. But even then there was a conflict between the views that the three major food components were not adequate and the view that they were. In the early 20th century the English Nobility paid a heavy price in loss of children, who died because they were fed formula that only provided these three constituents and wet nurses were no longer deemed essential. A famous pathologist, Dr. Virchow, declared "No disease was ever caused by a deficiency of anything." He believed that only infections caused disease. His view was a major factor in preventing the new concept that more nutrients than these three were essential.

By 1930 the vitamin concept was well established in medicine and over the next ten years major discoveries were made about how to synthesize these vitamins, why they were needed, and how to use them to prevent the known major deficiency diseases. This first paradigm of vitamin use enshrined the belief that vitamins, which were needed in very small amounts, were required merely to prevent these diseases from occurring. It is called the vitamins-as-prevention paradigm. These deficiency diseases were beriberi, pellagra, scurvy, rickets, and exophthalmia and they were prevented by making sure the food contained enough of the vitamins, thiamin (B-1), niacin (B-3), ascorbic acid (vitamin C), vitamin D and vitamin A. It followed that these nutrients were never needed for any other conditions and never in amounts more than would be normally present in our food. By 1950 this paradigm was as well established as the Commandments written in stone. One result was that the medical profession fell for the hypothesis that anyone eating a good diet would never need to take any extra vitamins. This is still an article of faith in the healing professions and especially in the holy Recommended Daily Allowances pushed and enforced by governments worldwide.

But there were major positive developments. Recognition of the role played by vitamins was the major public health measure that eradicated one of the major physical and mental health pandemics. At one time in southeast United States pellagra brought down as many as 200,000 patients each year, and some years, especially when the price of cotton was very low, up to one-third of admissions to mental hospitals were suffering from the pellagra psychosis, which is a form of schizophrenia. Dr. Joseph Goldberger, by his discovery that pellagra was caused by a deficiency of food which did not provide

enough vitamin B-3, prevented more mental disease than the whole profession of psychiatry ever has. As a result of his findings the United States government made the brilliant decision to mandate the addition of niacinamide to white flour.

But the general public was many years ahead of the medical profession and still is. Even the negative attitudes of government and the profession did not prevent the gradual increase in the number of people who on their own initiative take these vitamins. Today in Canada they are available in almost every store: health food stores which led the field, supermarkets, and drugstores - which used to lag behind but do so no more. If the advertising budgets for vitamins were only ten percent of what it is for drugs almost everyone would be taking these essential nutrients.

At the same time, a very few dedicated physicians reported that some vitamins were very effective for a large number of patients: Drs. Evan and Wilfred Shute in Ontario described their excellent results when using vitamin E in large doses for cardiovascular disease and for burns; Dr. William Kaufman reported the amazing responses of patients with arthritis to vitamin B-3; Dr. Fred Klenner reported great success in giving enormous daily doses of vitamin C by mouth and intravenously for serious infections including poliomyelitis, and Dr. Irwin Stone did the same with his enormous review of the vitamin C literature. Their clinical findings were ignored by establishment medicine because vitamins cannot be given use patents.

The work my colleagues and I reported, that niacin lowered cholesterol levels could not be ignored². In 1955 drug companies were looking for compounds they could patent that would lower cholesterol levels. Most important was the fact that Dr. William Parsons Jr.³, then senior resident at the Mayo Clinic, confirmed our findings. Yet in spite of the fact that there have been no negative studies and thousands of positive reports, even today niacin is not used as it has no advertising to promote it. Drugs today are made popular, not by the quality of their activity and freedom from side effects, but by the size of the advertising budget (think Vioxx). These reports and ours initiated the new paradigm now called vitamins-as-treatment. With this paradigm we accept that there are many more conditions than the classical deficiency diseases that will respond when given vitamins, and that the doses may be much larger than are called for by the original vitamin concepts. For example high blood cholesterol is not a deficiency disease, and yet it is lowered by large doses of niacin. All blood lipid constituents are normalized by niacin⁴. It is the gold standard, more effective than the statins, much safer, but much less used even though it is much more affordable. Vitamin B-3 also is one of the most effective treatments for schizophrenia, but in psychiatry there has been no one equivalent to Dr. Parsons.

Dependencies and Their Causes

Irwin Stone first used the word megavitamin to describe the large doses of vitamin C that had been reported in the medical literature as effective. It is not an appropriate term because it has never been defined, and contrary to what many think there is no

“megavitamin”. But it is clear that some individuals do need enormous amounts of some of the vitamins. The term vitamin dependency was coined. It was first used to describe the use of large doses of pyridoxine, vitamin B-6. I have extended the term to include all the vitamins which have been shown to be effective in larger than the usual vitamin doses. A vitamin deficiency classically is present when the amount normally present in food is much less than needed to prevent the deficiency disease for most people. For example, when Japanese sailors were fed polished rice they got beriberi. The polished rice did not contain enough thiamin to prevent beriberi. When people lived on subsistence diets high in corn and very low in animal foods they got pellagra. Just adding milk and meat to these diets cured their pellagra. Thus, a deficiency is present when normal needs for nutrients are not met by the diet. However, there are many reasons why individuals need more of some of the vitamins than they can get in their food. These are called dependencies, meaning that they have become dependent or need much large amounts of these nutrients. Heaney⁵ considers these conditions a long-latency deficiency disease.

Using these vitamins in optimal or large doses was called orthomolecular medicine and orthomolecular psychiatry by Linus Pauling in his famous Science report in 1968. Orthomolecular theory and practise emphasizes the use of optimum doses of substances that are normally present and needed by the body including vitamins, minerals, amino acids, essential fatty acids and probably many other substances, but excludes herbs and their constituents.

Individuality

Roger Williams showed that humans are not alike biochemically and that their nutritional needs are not identical. He showed scientists what we all knew: that we are all individual. We do not have the same fingerprints, the same blood types; we do not look alike, think alike or suffer alike. Why, then, would the early nutritionists think that we are alike in terms of the nutrients we need? The RDAs recognized that we are not alike and made a minor provision for this by recommending slightly higher doses than they actually thought we needed. But the range of doses they recommended were altogether too restricted as they were not based on large population studies but were arrived at from animal studies and by guess, using normal amounts in food as the basic guide. In reality, the range of need is much greater than was recognized, and is much greater than is recognized by the health professions today.

Essentially genes determine what our nutritional needs are. We cannot turn our genes into new ones and so have to be content with what we have, but we can feed them much more effectively. As I see it, there are no defective genes in individuals who are born normal and are normal for some time; if the genes really were defective they would have been eliminated long time ago by the process of evolution. If a person has been healthy and productive for 70 years and then develops Alzheimer's disease, how can one blame the genes that had served so well for such a long time? But something has happened. Genes must have the correct internal biochemical environment, and if this is

not provided they will not function properly. This suggests that any disease which develops later in life is caused by genes that are no longer being looked after properly; by this I mean they are not being fed properly. Diseases which are apparently genetic, like Huntington's disease, are therefore not untreatable. We still have not looked for the factors in the gene's environment that are lacking. The few patients I have treated with this disease recovered when given large doses of vitamin E and niacin. I have suggested that families with the gene ought to take these vitamins as a measure to prevent the development of the disease. One day we will have laboratory tests that will determine what the genetic needs are.

Bruce Ames in his wide ranging review of enzymes and the need for increased vitamin intakes concludes that as many as one-third of mutations in a gene result in the corresponding enzymes having a decrease in binding affinity of a coenzyme resulting in lower rates of reactions. These defects can be helped by high doses of the correct vitamins. He listed more than fifty genetic diseases successfully treated with high doses of vitamins. The high doses of the vitamins forces the reaction that is being catalyzed by too little coenzyme. He estimated that a very small proportion of all these genetic disorders have been discovered.

It is very unlikely that all single vitamin dependencies have been recognized. But as the modern foods become more and more deficient in overall nutrients, these will begin to show more and more. In 1950 when I first started to practise psychiatry there were very few children recognized as being hyperactive or having a hyperactivity/learning disorder, one of the forty modern diseases described by psychiatry in DSM IV. Today up to 10 percent of the children of any classroom may carry this diagnosis. The main change has been the gradual deterioration of our national diets.

There is no reason why some individuals will not have multiple dependency conditions. Huntington's disease is an example of a double dependency on niacin and on vitamin E. I thought that multiple dependencies (more than two) will be even rarer but I was wrong. There is one condition which is dependent on four nutrients. This is AIDS. HIV/AIDS is treatable by four important nutrients, the mineral selenium and the three amino acids tryptophan, cysteine and glutamine. These are components of glutathione peroxidase the essential compound that is lacking.

Causes of Dependency

Long Term Deficiency

This was first recorded about 70 years ago in the literature on pellagra. The pellagrologists noted that in sharp contrast to patients who had been sick for a short time, those who had been sick for a long time did not get well on small doses of vitamin B-3; chronic pellagrins might need as much as 3000 milligrams daily before their symptoms cleared. This was an enormous dose when early cases only needed a few milligrams each day. This was also observed in canine pellagra (black tongue). Dogs

kept on a deficient diet for only a few months recovered very quickly when given the vitamin, but if they were kept on the diet more than six months they also needed larger doses. What had been a simple deficiency disease was converted to a vitamin dependency.

This also occurred to soldiers who were prisoners in the Japanese prison of war camps during the last world war. Canadian soldiers were kept in these camps for forty-four months and were subjected to very severe malnutrition and deficiency of almost all the vitamins. One-third died in camp, and the ones who returned were almost dead. The Hong Kong veterans never did really recover fully and they suffered severe physical and mental disorders with a high death rate. However, about fifteen of the veterans were started on large doses of niacin and in every case they recovered in a few weeks. They had developed a niacin dependency.

There is no doubt that populations of the world exposed to dreadful stress and malnutrition will suffer serious disease over next decades. Most of the survivors will suffer from one or more dependency conditions. People dependent on a vitamin or vitamins will need much larger doses, perhaps forever. The longer they remain in the condition that created the dependency, the greater the need will be. The small amounts needed if they had not become dependent are not a guide to what they need and should never be used as a guide, nor should blood levels be used as a basis, as there is not a close correlation between blood levels and the need for these large amounts. Gastro intestinal surgery may cause a vitamin dependency. Medical Post, Toronto, for February 14, 2006, reports one case of a woman who had a gastric bypass and developed severe thiamin deficiency symptoms. She needed 100 milligrams every eight hours before her muscles returned to normal and her confusion decreased. These are the amounts needed by patients with chronic alcoholism who develop the psychosis called Wernicki Korsakoff disease.

Aging

Soon after I began to study niacin I saw that it was particularly helpful for aging people. In my book, "Niacin Therapy in Psychiatry"⁶, I summarized the literature showing that niacin might be helpful, and referred to a physician who had suggested that niacin might prevent senile changes. It did, and I described fifteen elderly patients who had been treated: ten became and stayed well, three were a lot better, and two showed no response at all. I concluded, "These few case reports as well as those of others support the suggestion that nicotinic acid can prevent or reverse senile mental and physical changes. The best responses are obtained when massive doses of the vitamin are started before the senile changes are well established, probably because the irreversible damage occurs in the brain cells. Gregory's suggestion that results were much better when the nicotinic acid was given to patients who were under sixty-five and in whom signs of senility had been present for six months or less is supported. It follows that since nicotinic acid and its amide are very safe and have few side effects, none serious, it seems reasonable that all patients diagnosed as "senile" or arteriosclerotic

should be given a fair trial with those two substances.” I wrote that in 1962. It was like tossing a pebble into the middle of the Atlantic and expecting a ripple in New York City.

The Canadian Hong Kong veterans aged four years for each year they were incarcerated. The only ones who recovered were the few who started taking niacin. A handful of American prisoners of war also started on niacin and they too were much better after that.

There are many reasons why niacin should be so helpful. One of the recent ideas is that high HDL cholesterol protects against dementia⁷. Niacin is the only cholesterol lowering substance that also elevates HDL. None of the statins do so. Ames⁸ suggests that optimum intake of nutrients will increase longevity.

In our book, “Feel Better, Live Longer”, Hoffer and Foster⁹ write, “The ideal substance for preventing the effects of stress and pathological blood lipid levels should have the following properties: (1) It must be effective, (2) It must be safe with long continued use, (3) It must be inexpensive, and (4) It must be readily available and (5) It should have other desirable healing properties. Only niacin had all these properties. It lowers low-density lipoprotein cholesterol, lowers triglycerides, lowers Lipo-A and elevates HDL. The elevation of HDL may be its most important property. It is safe. Dr. Hoffer has been taking 3 grams daily for 50 years. It is cheap compared to any and all drugs. It is readily available and will continue to be so unless governments under pharmaceutical pressure place an embargo on its use in correct concentrations”.

In our book on niacin we wrote, “Alzheimer’s disease has traditionally been considered untreatable, except by a few drugs which, at best, may slow the degenerative process a little. Niacin does not help fully developed Alzheimer’s disease either. Dr. Hoffer has tried niacin on several Alzheimer’s patients with no response whatever. But there is growing evidence that it can be prevented by the proper use of nutrients. Foster¹⁰, for example, has argued at length that this disease is caused by an excess of monomeric aluminum in people who are calcium and magnesium deficient.”

“Nevertheless, there appears to be a statistically significant link between a low dietary intake of niacin and a high risk of developing Alzheimer’s disease. Morris and coworkers,¹¹ for example, conducted a prospective study of the niacin intake of 6,158 Chicago residents 65 years of age or older. This established that the lower the daily intake of niacin, the greater the risk of becoming an Alzheimer’s disease patient. Specifically, the quintile with the highest mean daily intake (45 milligrams) had a 70 percent decrease in incidence of this disease compared to the quintile with the lowest mean daily niacin consumption (14 milligrams)”.

Allergies

I think this also applies to patients who have major food allergies of their gastrointestinal tracts. They suffer the leaky gut syndrome, allowing polypeptides to enter the blood, and

are not able to absorb nutrients adequately. That is why so many of these patients must be given extra nutrients in addition to eliminating the foods to which they are allergic. This is also the case for children. I have found that even when the foods these children are allergic to are eliminated, they still become healthier when they are supplemented with the correct B-complex vitamins, and of these, B-3 may be the most important.

Stress

We live in an atmosphere with about 21 percent oxygen. Oxidation of our foods provides the energy we need to live, but there is a price. You can see the effect of oxidation if you watch your cut apple turn brown after it has been cut. The apple tissue is being slowly burned by combining with oxygen from the air. Too much oxidation is not as bad as being burned with a flame, but in the long run unless it is kept under tight control the end result will almost be the same. It is now believed by most research scientists that oxidative stress plays a major role in many diseases and in aging. Osmond and I pointed out that it probably also plays an important role in the etiology of schizophrenia. We suggested that the oxidation of adrenalin leading to adrenochrome was one of the factors, and the first treatments we used were niacin and niacinamide in large doses, and ascorbic acid in large doses; both are antioxidants. These early therapeutic trials led to our modern concept of orthomolecular psychiatry and medicine.

Adrenalin is discharged under any stress, unpleasant or pleasant. In Sweden Carlson showed that the discharge of adrenalin into the urine is the same whether normal subjects were shown horrible or humorous films. As part of the fight or flight mechanism adrenalin is needed: if a wolf chases a rabbit, the animal without enough adrenalin will lose the race. The rabbit will become a meal, or the wolf will miss a meal. However, adrenalin is very toxic and will kill by elevating blood pressure and therefore the body has several mechanisms for getting rid of it as fast as possible. One of the mechanisms is to convert it into adrenochrome. Under severe shock some men, but more often women, will have a massive heart attack and may die, even though their cardiovascular system was normal. This is due to the massive discharge of adrenalin converted into adrenochrome in the heart muscle, where the adrenochrome causes ventricular fibrillation. Adrenalin is intimately associated with oxidative stress.

Antioxidants are very reactive molecules that protect the tissues of the body against too much oxidation. They are called antioxidants. If you soak that piece of apple in vitamin C solution and then expose it to air it will not turn brown nearly as fast. The antioxidants combine with the products of oxidation, called free radicals, and protect the tissue against their toxic effect. The best water soluble antioxidant vitamin is vitamin C and the best fat soluble antioxidant is vitamin E, but many others are needed such as glutathione and selenium, and many are present in fruits and vegetables - the bioflavonoids. It should not be surprising that these antioxidants should be very valuable in protecting us against the ravages of oxidant stress and therefore ought to be helpful in helping the body cope with stress.

There is a definite relationship between the need for vitamin C and stress. In a series of elegant experiments Dr. Hugh Riordan found that policemen on night patrol used up massive amounts of vitamin C during their hours on night patrol. He gave them 10 grams before they went on patrol and when they came back he measured the amount of vitamin C in their blood. It was completely used up. He also found that it took many weeks of the same dose before they began to show they still had some after the stress of their work. Many years ago the amount of vitamin C in the adrenal glands of animals was used as a measure of the stress to which they had been exposed; under stress the amount decreased. When the stress was great the amount of C that was lost was also much more, and as Linus Pauling pointed out so many years ago, animals under severe stress make much more vitamin C in their bodies. Humans cannot make any vitamin C and they cannot therefore naturally increase it under stress. They are dependent on their food. However, few people realize that they should take more vitamin C when they are under any kind of stress. I consider vitamin C one of nature's best anti stress factors. The impact of stress on vitamin C needs is described by Hickey and Roberts¹².

Google on the Internet contains huge numbers of references to stress and vitamins, but on looking many of them over it is clear that there is no consensus. The vitamin companies produce the information that vitamins are needed to cope better with stress, and the antagonists of the need for extra vitamins including some of the universities proclaim that there is no need for extra vitamins with stress. My clinical experience over the past fifty years puts me on the side that is convinced that they are needed. I have seen too many patients recover and thereafter cope with severe stress when they are following a good nutrient program. There are no large-scale control studies; at least I did not see any. It is likely they will never be done as they would be too expensive.

Stress includes all the toxic factors that may damage us, from the infections: viruses, bacteria, protozoa, fungi; to malfunctioning endocrine systems, to trauma, to surgery, to wear and tear, and to a whole host of environmental poisons that nature never had to protect us from. And yet not only have we survived, we live longer. Each form of stress demands a different response. And I suspect that each form of stress has a different effect in increasing the demand for nutrients. How can we know that this is the case? Very simply, by studying what happens to the body under stress when the vitamins are supplied in optimum amounts; for example if a person is starving, suffering from calorie deficiency, it is logical to conclude that he needs more calories because only when he's supplied will he or she become normal again. If a person with pellagra is close to death, only by giving him the correct dose of vitamins will he recover, and we conclude that his body needed that amount of vitamin. If a person has Huntington's disease and recovers when given two vitamins, E and B-3, then it is logical to assume that he needed these two particular vitamins. One no longer needs to assume that vitamins treat any disease. We need only to assume that when the deficiency of that vitamin is repaired by supplementation the body will be better able to fight that disease.

HIV/AIDS¹³ appears to be due to a deficiency of glutathione peroxidase, which contains selenium and three amino acids. If a person with AIDS is given these four essential nutrients and recovers, it is logical to assume that the deficiency of these factors

induced by the virus has been corrected, and even though the virus is still present it no longer has the same pathological effect on the body. In other words, the symptoms of AIDS may be due more to a deficiency of the essential nutrients like selenium than they are to the presence of the virus.

The degree of deficiency can be determined by the amount of vitamin that is needed to restore the body's ability to deal with the stress. Vitamin C has been studied the most. The amount of vitamin C that is called for by each type of stress varies enormously. Cathcart's principle is helpful: he said that the dose should be increased until the vitamin acts like a laxative. The more severe the level of stress, the more of the vitamin can be tolerated without this occurring. For the serious infections the late Dr. Fred Klenner used up to 100 grams or more daily by mouth or by intravenous injections. For minor infections not nearly as much was needed. For the cancers, which are extremely stressful, especially when treated with radiation or chemotherapy, there must be an almost total loss of vitamin C. I expect that patients receiving chemo will have almost no vitamin C in the blood. For best results large doses of intravenous ascorbate are needed. But with these very large doses there is an additional therapeutic effect - the vitamin C also kills cancer cells without destroying normal cells.

Life threatening stresses deplete the body's stores of vitamin C rather quickly, and I suspect the same occurs with the other nutrients. Patients require very much larger doses than they do when they are well, not under stress, but they are also more apt to become dependent and for this reason will need larger maintenance amounts to remain well.

Mental Disorders

These diseases are equally stressful. I cannot imagine anything more stressful than having to cope with horrible voices and visions for decades, and not surprisingly they also require very large doses of vitamins and minerals to repair the loss generated by the disease. This applies to schizophrenia¹⁴ and also to infantile autism¹⁵.

Neuropsychiatric Disorders

Parkinson's disease remains a very difficult condition. The only partially successful treatment was orthomolecular. Based upon the hypothesis that it was caused by a deficiency of dopamine, l-dopamine was tried, but the first double blind controlled trials proved that it was not effective; but patients had not given nearly enough to do any good. This is like what happens when the establishment tries to test vitamins and uses small vitamin-like doses, when the early positive results were all obtained with much large orthomolecular doses. Larger doses of l-dopa were successful. But in contrast to vitamins, the side effects of this neurohormone are very dangerous. L-dopamine is oxidized into dopachrome in the brain; this is toxic to cells and is an hallucinogen. Many patients given too much became psychotic. And because it is toxic to brain cells, it also hastens the onset of more degeneration and even death¹⁶. Therefore it is not surprising

that like adrenochrome, it can cause psychotic reactions. Niacin protects the body against the toxic effect of adrenochrome. For this reason I have used it in conjunction with the l-dopa to protect these patients. The presence of dopachrome increases the need for niacin, which must be replaced. The other nutrient that is now standard treatment is coenzyme Q10, using up to 1200 milligrams daily.

Thorne¹⁷ reported that a prominent divorce lawyer was disbarred after taking more than \$600,000 from her client's trust funds. She has been prescribed medication for her Parkinson's disease, which made her paranoid and changed her behaviour. She became a compulsive shopper, thought that her husband was having an affair and had tried to kill herself. Her doctor reported to the disbarment hearing that she had been changed by her medication. The medication is not listed but I assume that it was l-dopa since this is the accepted universal treatment. Had she been under my care she would have been on niacin as well and this would have protected her against the psychosis induced by the l-dopa, which was oxidized in her body to dopachrome. This unfortunate lawyer was destroyed by her disease and by the side effect of the treatment that she was given.

Conclusion

Optimum homeostasis is needed if the body is to cope well with stress. Stress increases the need for nutrients including vitamin C and the B vitamins, and perhaps others. When under stress, these deficiencies and dependencies have to be met by increasing the intake of the missing nutrients and must be given in optimum quantities. This will improve the ability of the body to deal with and to recover from stress.

Nutrients

Vitamin B-3

There are two main forms: nicotinic acid, known medically as niacin, and nicotinamide which is known medically as niacinamide. The term vitamin B-3 refers to these two and to the nicotinamide adenine dinucleotide system, NAD and NADH. NADH is the reduced form and more active than NAD. The term vitamin B-3 deficiency means a deficiency of niacin, or of niacinamide, or of nicotinamide adenine dinucleotide (NAD) or its reduced derivative NADH. No flush niacin is inositol niacinate. It does not cause any flushing and is used as if it were niacin.

Niacin is not toxic to the liver. The notion that it is, is based upon a few observations, some of which were dead wrong. Between 1940 and 1950 when the toxicity of niacin and niacinamide was studied, the LD-50 on animals was determined. The LD 50 is the amount of compound that will kill one-half of the population of animals used to test

toxicity. If 100 mice are given the drug and half die that dose is the LD50; for niacin it is very high, about 4.5 grams per kilogram. This is equivalent to 225 grams (nearly half a pound) for a 110 pound female and 360 grams for a 176 pound male, or approximately 100 times as much as is normally recommended. At autopsy the animals showed elevated fatty acids in the liver.

Using the electron microscope the Mayo Clinic examined the livers of a series of their patients on niacin being treated for high blood cholesterol, and they found no evidence of pathology. This was first reported by Dr. William Parsons Jr¹⁸ (www.cholesterolnodiets.com). Dr. Parsons points out that increase in the liver function tests, unless they are very substantial i.e. over threefold, do not indicate liver pathology. There are many compounds that elevate liver enzymes including all the statins. In most patients with elevated liver function tests the values become normal in a few days even if the niacin is not discontinued. We advise all doctors that they should stop the niacin for at least five days before doing the test. With real liver pathology they will not be normal in five days, but when they are elevated with niacin they are normal within these five days

There are a few side effects which may be a nuisance, but these are not toxic reactions. Apart from a very few subjects who are allergic to the pills, either the active component or some of the fillers, most of these reactions are dose related. People must not take niacin unless they are informed of the possible side effects, both positive and negative.

Negative Side Effects

All side effects are dose related. They occur very infrequently at the smaller dose levels and become more common with higher doses. If one wanted to enrich food with 100 milligrams niacinamide daily, it would not even be noticed by the average consumer. Smaller amounts are now being added to flour and this eradicated pellagra, the classical deficiency disease.

Niacin Flush or Vasodilatation

Niacin usually causes a flush a few minutes after it is taken. A few people will flush with 25 milligrams, more with 50, and most with 100 milligrams. The flush begins in the forehead and works its way down the body, rarely affecting the toes. The higher the initial dose, the greater is the initial flush, but if any dose causes a maximum flush, a larger dose taken later will not cause any greater flush. The capillaries are dilated and the blood flow through the organs is increased. There is an internal increase in blood flow as well as in the skin that may last up to several hours. Patients must be warned this will happen. If not, they may be very surprised and even shocked. Patients can be started on lower doses until they have adjusted to the lower intensity flush; then the dose may be increased gradually.

Each time the niacin is taken the flush is repeated, but to a much lesser degree and in most cases after a week or so it is almost all gone or is a minor nuisance at worst. However, some people do not tolerate the flush and they will have to discontinue the niacin. If the niacin routine is interrupted for several days and then resumed the same sequence of flushing will occur, but the initial flush will usually not be as strong as the original one was. Non flush preparations are available for people who cannot tolerate the flush. The intensity of the flush is minimized by taking the pills after meals and by taking them regularly three times daily. I have been taking it for fifty years and at the maximum have very minor flushes. It is a dry flush, not like the wet menopausal flush, or the flush suffered by male hormone blockers used in treating prostate cancer.

Niacinamide does not cause flushing, except in about 1 percent of the subjects in whom it will cause a very unpleasant flush, and for these people it can not be used. Probably they convert the niacinamide too rapidly into niacin.

Vasodilatation is sometimes very helpful. Many patients, particularly arthritics, have reported that they feel much better when their joints are warmed up by the flush, and some will stop taking niacin for a few days in order to once more experience the flush, but for most people the sensation is not pleasant. It is tolerable if the patient knows what to expect and is properly prepared for it by the physician. Bill Parsons wrote that only physicians who KNOW niacin should use it.

Non flush and slow release preparations, which are also no flush, are available. The best know no-flush product is inositol hexaniacinatate, which is an ester of inositol, a vitamin, and niacin.

Other uncommon side effect are increased gastric acidity, probably because niacin does stimulate secretion of gastric juice, and increased brown pigmentation of certain areas of the skin, usually the flexor surfaces; this is not acanthosis nigricans, a very serious condition, even though it has been erroneously labeled as such. This is never a problem for patients if they are told the truth, but is a problem for some doctors who are not familiar with it. Acanthosis nigricans is a very serious, almost cancer-like condition. Parsons correctly called the increased skin pigmentation a skin change which resembles acanthosis nigricans. The similarity is only in color, not in pathology. The browning effect of niacin on a very few subjects is entirely different. It is transient, usually lasting only a few months, and when it clears the skin is perfectly normal; like an old tan, it washes off if the skin is rubbed when moist. It never recurs even with continued use. I think it is due to the deposition of melanin-containing indoles from tyrosine and adrenalin. It occurs most commonly in schizophrenic patients and is part of the healing process.

Positive Side Effects

If a person takes niacin to normalize blood lipids and as a result of the vitamin activity feels very much better in other areas such as more energy, faster healing, etc, this is a

positive side effect. There are other positive side effects that often occur. For example if the person takes niacin to deal with his arthritis and at the same time his cholesterol levels decrease, this result would be a major positive side effect or, better still, side benefit. Niacin lowers C-reactive protein. This is one of the markers of inflammation. The statins also lower CRP, but in contrast to the statins, niacin is not toxic.

Clinical Use of Vitamin B-3

Niacin is also called nicotinic acid, and niacinamide is called nicotinamide. For most conditions the two forms are interchangeable. But niacin normalizes blood lipid levels and niacinamide does not. Niacin lowers low density lipoprotein cholesterol in blood; the amount of decrease depends upon the initial level. The higher the baseline level, the greater is the percentage decrease. It also lowers triglycerides, lowers Lipo-A and most important of all it elevates high density lipoprotein cholesterol (HDL). The amount of HDL in blood is the most important single measure of cardiovascular risk. Niacin may be taken together with the statins. A combination of a statin and niacin is already available. Niacinamide has no effect on blood fats. The modern slow release or non flush forms may be used when there are side effects patients find intolerable.

Niacin was the first nutrient released by the FDA to lower cholesterol levels. This was very fortunate because this made it legal for any physician to use it for other indications as well. Another unique aspect to the history of niacin is that it was not patented, cannot be patented, and its use in orthomolecular medicine was discovered with minimum funds; is one of the few compounds with this history. Usually the total cost of a drug from conception until it is available in every drug store has been estimated at several hundred millions of dollars. And finally, our niacin-cholesterol finding is credited as the first major assault on the vitamins-as prevention paradigm.

For all other conditions either form may be used. The decision which one to use depends upon a large number of factors such as age, the cosmetic effect of the flush, whether cardiovascular problems are present and the dose needed. Some people cannot tolerate one form and may then be given the other. If the tolerance level for both forms is very low one can use both together since the therapeutic effect is additive. If patients can not tolerate more than 1.5 grams of each daily they can take 1.5 grams of each form and the total dose becomes 3 grams and is tolerable. Many patients do well with lower doses. There is no way of determining in advance how much will be needed. Fortunately, it is so safe that one can depend upon trial and error to determine the best dose, and often patients will do that themselves.

The usual starting dose of niacin is 500 to 1000 milligrams taken immediately after meals, three times daily. If one is worried about the intensity of the flush one can start with 100 milligrams and increase it slowly. A few find this much more pleasant.

The dose of niacin seldom needs to go above 2 grams taken three times daily. It may be increased, but eventually the subjects will develop nausea and later vomiting if the

dose is too high and is not decreased or stopped. The optimum dose range is very wide. The same doses are used with niacinamide but the tolerable dose range is narrower; more people develop nausea with niacinamide above 6 grams daily than with niacin. Children are more tolerant to these doses. The dose is not related to size, age or body weight. Some children will not complain of nausea. They simply lose their appetite. Vitamin B-3 must be given at least three times daily. It is water soluble and very quickly excreted, making it very safe as the levels cannot build up, but also means it has to be taken frequently and regularly.

Usually the vitamin will have to be taken forever. That is why it is so important that it is safe, tolerable and economical. The indications are both psychiatric and physical. The psychiatric indications include the schizophrenias, some schizoaffective patients, most children with learning and/or behaviour disorders, and those with early senility. The common physical indications include arthritis and high blood cholesterol.

Nature loves to use fail-safe mechanisms. We have two kidneys, two lungs and I suppose if it were mechanically possible we would also have had two hearts. In the same way, nature uses its nutrients in many ways. Another example is the fact that ascorbic acid protects against the deposition of plaque, against the development of atherosclerosis, even in the presence of high blood cholesterol. This was first reported by Linus Pauling and was of course rejected by the medical professions. One cannot patent vitamin C for this. A recent report by a group of workers¹⁹ in New Delhi showed that rabbits made hypercholesterolemic and given enough ascorbic acid did not develop atherosclerosis. My co-worker Professor R. Altschul at the University of Saskatchewan in 1955 was the first to find that niacin lowered cholesterol in rabbits. He used the niacin I gave him from the supply I had for treating schizophrenia. By combining niacin and ascorbic acid we not only make normal all the blood lipid levels but we also ensure that even if the cholesterol remains a bit too high it will cause no harm because of the ascorbic acid.

Niacin and Other Medications

In common with all water soluble nutrients, niacin is compatible with all foods and with medication. It reinforces the therapeutic effect of the anti psychotics so that the dose of these powerful drugs can be reduced. It reinforces the effect of the statins in lowering cholesterol and increasing high density lipoprotein cholesterol (HDL). In 2001 the University Of Washington School Of Medicine, Seattle, reported that Simvastin plus niacin provides marked clinical and angiographically measurable benefits in patients with coronary disease and low HDL levels.

On November 11th 2004, the Walter Reed Medical Center reported to the American Heart Association's meeting in New Orleans results of a study they had completed. They found that giving a combination of Niaspan, an extended-release niacin preparation, with a statin, increased HDL by 23 percent in one year in a group of patients on statins alone for 4.5 years. This study marks a shift in interest from just

lowering total cholesterol to increasing HDL. There is a much closer correlation between low HDL levels and cardiac episodes than with any other lipid in the blood. There is no reason why the statins and niacin cannot be combined, but if the statins are used it is wise to also add coenzyme Q10 up to 100 milligrams three times a day. The statins inhibit the formation of coenzyme Q10, a very important heart muscle enzyme necessary for heart muscle activity.

Vitamin B-6 - Pyridoxine

The dose ranges from 100 milligrams daily to 1000 milligrams. Early in the development of orthomolecular psychiatry the pioneer physicians freely used up to 3 grams daily and did not see any complications. But this vitamin was given a bad reputation following a survey in which the authors located six patients in several medical schools who were taking between 2000 and 6000 milligrams daily. These six suffered from neurological changes in their feet from which they recovered fully after this vitamin was stopped. The standard medical literature incorrectly considers it one of the dangerous vitamins. The doses seldom need to be larger than 250 milligrams taken three times daily.

It is probable that these six were not taking any other vitamins and they were suffering from an excess of this vitamin due to the mass of dosage. The reaction against vitamin B-6 has become so irrational and extreme that several years ago in England an attempt was made to limit the upper dose to 10 milligrams daily. Pyridoxine may increase hyperactivity in some children. However, having the child take magnesium prevents this.

The main indication is for those patients who excrete too much kryptopyrrole in their urine. This factor was discovered in Saskatchewan in 1960. When it was identified in collaboration with Carl Pfeiffer, the term mauve factor was changed to kryptopyrrole. They are close but not identical. It is closer to OHHPL (hydroxyhemopyrrolin-2-one). It is a member of the pyrrole family, and may be correctly referred to as "urinary pyrrole". It is found in a very few healthy people under stress and is present in about one-third of all non psychotic patients no matter what the diagnosis is. About half of the children with infantile autism excrete this chemical.

Carl Pfeiffer showed that the mauve factor combined with pyridoxine and zinc produced a double deficiency of pyridoxine and zinc. Therefore both of these nutrients were needed in the treatment program. Before this discovery patients with this factor were treated in Saskatchewan as schizophrenia depending mainly with vitamin B-3, but the addition of these two nutrients greatly improved the treatment results and decreased the need for as much vitamin B-3. The dose is less than one gram each day. It is also useful for some patients with severe premenstrual tension. Pfeiffer found that patients with this condition had clear signs such as white areas in their fingernails, stria, pain in their knees, changes in their skin, and PMS. Very few laboratories are doing this test. If patients improved the amount of kryptopyrrole went down to normal very low levels.

Ascorbic Acid, Vitamin C (mineral ascorbates)

This vitamin is the most important water soluble nutrient antioxidant. Its structure was determined by Nobel Laureate, Dr. A. Szent-Gyorgyi, who became a strong supporter of Dr. Linus Pauling in his views about the importance of this water soluble vitamin. According to Irwin Stone it should be considered an essential nutrient and that all humanity suffers from the deficiency disease he called hypoascorbemia. The amount present on our food is very low. There is enough so that we do not suffer scurvy. This does not mean that these small amounts will keep us healthy. The optimum amount may be much larger and this is the reason we have had the major controversy about this vitamin for the past forty years. The debate rages between those who believe that only tiny doses, less than 100 milligrams each day, are adequate, and those who believe that the optimum amount can be much larger depending upon many factors such as age, disease, and level of stress. The vitamin-as-prevention school believes that only people with scurvy should be given vitamin C supplements, while the vitamins-as-treatment school believes that this view is altogether too narrow and that each person should determine their optimum. Over the years the first school is slowly losing its inflexibility as more and more is learned about this very important vitamin.

Dose Range

The orthomolecular literature suggests that the more common dose range should be between one and three grams daily taken after meals; but for many diseases much more is recommended. The best way of determining one's optimum dose is to increase the dose until it causes loose stools and then to decrease it. It is a very good laxative and since at least one-third of any population over 65 suffer from constipation, this may be a very effective and safe way of dealing with that.

Vitamin C can be taken as pills, capsules or the free powder dissolved in juice. It should not be stored in pure water as the copper in water will destroy some of it. It can also be used intravenously in doses going as high as 100 grams given over a 4 to 6 hour period.

The use of vitamin C was given a very powerful impetus by Dr. Linus Pauling, twice Nobel Laureate, after he published his book "Vitamin C and The Common Cold". Following these books there was an amazing increase in sales of this vitamin, but at the same time an amazing increase in hostility toward him and his use of the word orthomolecular, which he used in his famous report in Science Magazine in 1968. More misconceptions were developed about vitamin C than about any other single nutrient. These factoids (in plain language, lies), are based upon hypotheses. There is no clinical data to support any of them and almost all studies show that they are not true. They are not supported by research.

Factoids About Vitamin C

- causes kidney stones,
- causes kidney damage,
- causes pernicious anemia,
- decreases fertility in women,
- causes liver damage,
- causes iron overload and toxicity,
- is dangerous for diabetics by interfering with glucose tests,
- causes cancer,
- inhibits chemotherapy,
- prevents radiation from being effective
- prevented Linus Pauling from living longer
- prevents surgical scars from healing
- causes arteriosclerosis

I should have used weasel terms: instead of causes, I should have written **may cause**. Because using the word **may** allows the proponent of the factoid to suggest that these factoids are true, but leaves an escape path in case they turn out not to be true. The author can then claim, "Well, I did not say that these factors **were** true. I merely suggested that they might be true." There is the usual confusion of probability and possibility. If a phenomenon occurs once out of a million times the probability is one out of a million, but there is no value attached to the possibility. It is indeed possible. The enormous sale of lottery tickets depends upon confusing the public in this way. Or, looked at in another way, if the probability of winning a lottery is one in ten million if one buys one ticket, and the probability is zero if one does not buy the ticket, then one can say that dividing the ratio one in ten million by zero yields the enormous probability of infinity that one will win the lottery. Any number divided by zero yields infinitesimal large values. Critics of megavitamin therapy never give any probability values since they know they are close to zero.

Vitamin D-3

Vitamin D's role in health has been re-examined seriously over the past few years, and it is clear that the usual recommended doses are totally inadequate. The major students of vitamin D report that up to 10,000 IU daily is safe and that most people will need between 2000 and 4000 IU per day, except in the summer when there is some ultraviolet, and in warm sunny climates. Initial evidence suggests that it may be one factor in the genesis of Seasonal Affective Disorder (SAD). Many mothers have been frightened of the sun because of its supposed effect in causing skin cancer. As a result 80 cases of rickets were reported in Canada over the past two years. This is a disease that was prevented for many generations because mothers consistently gave their children cod liver oil.

Folic Acid

Psychiatric interest in folic acid has developed over the past three years. Small amounts are added to flour in order to prevent the development of spina bifida in babies. People with depression tend to be low in folic acid, and when taken in large doses of 25 milligrams per day and over it has anti depressant properties. The fear that it will mask pernicious anemia is unjustified but pervasive, and it is the reason why the five milligram tablets are available only on prescription. Over the counter 1 milligram pills are available. Any of the current B-complex preparations will provide enough B-12 to assure anyone that pernicious anemia will not develop.

Hunter, in reviewing the need to add folic acid to flour to prevent spina bifida wrote, "Concerns about vitamin B12 originate from findings in the late 1940s that while pernicious anemia responded well to folate, the neurological signs of B12 deficiency neither responded nor were prevented". Indeed, it became part of medical dogma that folate could precipitate more severe and aggressive neurological complications. Dickinson did a comparison of case studies and series of patients with B12 deficiency, before and after the introduction of treatment with folic acid, and found no evidence that folate increased the rate or the severity of the neurological presentation of B12 deficiency. About 28 per cent of cases of B12 deficiency present neurologically, and practicing physicians should always consider this diagnosis in a patient with paresthesia, weakness, or ataxia. Dickinson considered it absurd to withhold supplements because some patients with pernicious anemia might not be sick enough to be diagnosed by their physician."

Diseases

Arthritis

The prevalence of arthritis is increasing in both Canada and the United States. In the former country, for example, it rose from 12.7 percent in the period 1994-1995 to 19 percent in 2000-2001. It is typically more common in both females and the elderly. At age 15-24 only 2 percent of the Canadian population has arthritis, but this figure rises steadily with maturity to 4.7 percent at age 25-34, 8.8 percent in those aged 35-44, 17 percent in those between 45-54, 29.8 percent in 55-64 years old, and 39.9 percent at ages 65-74. In the elderly, that is those 75 years older or more, this figure reaches 47.5 percent. Almost half the Canadian population older than 75 years, then, has arthritis, and this illness is the third most common cause of disability in the country, costing some \$4.8 billion each year. Arthritis is even more of a problem in the United States, where its prevalence is roughly 35 percent. By age 18-44, 19 percent of the American population has arthritis; this figure rises to 42.1 percent at ages 45-64, while more than half, 58.8 percent, of Americans 65 or over suffer from the ailment. Arthritis cost the USA \$82 billion in 2001.

In 1954, a 67-year-old woman was not well. She described her health problems: an inability to see from her left eye, painful arthritis in her hands, tiredness, and generally feeling unwell. Hoffer “knew” that these were all old age changes and that there was nothing anyone could do about it. However, he also “knew” that one should offer some hope; that is offer a placebo if nothing else. By this time he had several years experience with niacin and niacinamide, had taken them himself and knew they were safe. He also felt that the initial flushing would give greater credibility to the placebo and could not do her any harm.

At his urging, she agreed to take 1 gram of niacin three times daily after meals. About one month later, she wrote that she was very much better, could see again, that the arthritis was leaving her hands and “those little bumps on her finger joints (Heberden’s nodes) were going away”. Hoffer was delighted but “knew” that none of this could be true as Heberden’s nodes never went away, and that there was no treatment for old age and its associated changes. But when she was seen again she was very much better. Her mind was clear and the arthritic nodes were flattening out and not as prominent. She remained on high dose niacin until she died in 1975 at age 88.

Bill Kaufman^{20 21} was the first to report that niacinamide in large doses, starting from 250 milligrams taken four times daily, was useful in reversing the changes normally associated with old age. His primary interest was in reversing arthritic symptoms, but he observed significant associated improvement in other functions. Kaufman wrote, “Ever since 1943 I have tried to call my work on niacinamide to the attention of leading hematologists, nutritionists and gerontologists through conversations with them, by sending them copies of my monograph and paper on this subject and by two talks given on the usefulness of niacinamide and other vitamins which I gave at International Gerontological Congresses in 1951 and 1954. I think two factors have made it difficult for doctors to accept the concept that continuous therapy with large doses of niacinamide could cause improvement to joint dysfunction and give other benefits; (a) the advent of cortisone and (b) the fact that my use of the vitamins was such a departure from the recommended daily allowance for vitamins by the National Research Council”.

Dr. Hoffer then prepared a brief report of his work supported by the results of six cases²². One patient with osteoarthritis became normal, another with rheumatoid arthritis became much better, two arthritis cases became normal, one patient with both schizophrenia and arthritis became completely well, while the last, who suffered from vascular nodulitis, was much improved.

Since then many patients with arthritis have recovered or become much better when they took vitamin B-3. A most dramatic case came for help in a wheelchair, pushed by her very tired and sick-looking husband. She was sitting on her legs crossed over as she could not extend them. She had been sick for the previous 20 years and had had every known treatment for arthritis including hormones and gold injections. Nothing had helped. Her hands were totally useless and she was crippled. Her husband had to carry her around the house, even to the bathroom. He provided her with the equivalent

care of four nurses, around the clock. No wonder he was totally exhausted and sick. Hoffer “knew” she could not be helped, since such very chronic deteriorated arthritis cases generally did not do well. She said to her doctor, “I know that you cannot help my arthritis, but the pain in my back is terrible. All I want is some relief from it”. He started her on a vitamin program of which the main constituent was niacin, but he did not really expect to see much improvement. She returned a month later in her wheelchair, again being pushed by her husband. This time, however, she was sitting in her chair with her feet dangling straight down. Her husband looked relaxed and had lost his dreadful sick look. She immediately said “THE PAIN IS GONE”. She was so much better that Hoffer began to think that maybe, with skillful surgery, some function might be restored to her hands.

Six months later she telephoned. She called about her husband who had a cold. She was able to get around in her home with her wheelchair. She wanted some advice about how to help him. This woman died several years later, having achieved her goal of a pain free existence.

A November 1999 Nutrition Science article by Dan Lukaczer²³ ND reported, “A few years ago, Wayne Jonas from the NIH Office of Alternative Medicine in Bethesda, Md., conducted a 12-week, double-blind, placebo-controlled study of 72 patients to assess the validity of Kaufman’s earlier observations that niacin was of great benefit to the elderly, reducing arthritis. Jonas reported that niacinamide at 3 g/day reduced overall disease severity by 29 percent, inflammation by 22 percent and use of anti-inflammatory medication by 13 percent.” Patients in the placebo group either had no improvement or worsened.

Although these may be considered only modest changes, Kaufman noted that improvement among his patients started after four to twelve weeks - the time at which Jonas’ study stopped. He also found that people might continue to improve for up to a year before they plateau. Jonas’ recent study identified no significant side effects, but to be safe, those who opt for long-term niacinamide therapy should have their liver enzymes periodically assessed by a doctor. Dan Lukaczer ND, the author of the article in Nutrition Science, is the director of clinical services at the Functional Medicine Research Center, a division of HealthComm International Inc., in Gig Harbor, Washington.

Schizophrenia and Schizoaffective Disorders

The problem with psychiatry is that it does not treat the schizophrenias successfully. This is the conclusion of almost every published analysis.

The late Sen. Hubert H. Humphrey had a keen perspective on what government should be doing. In a 1977 speech, he said, "The moral test of government is how that government treats those who are in the dawn of life, the children; those who are in the twilight of life, the

elderly; and those who are in the shadows of life, the sick, the needy and the handicapped."

Unfortunately the same judgment must be made about the way modern psychiatry treats its schizophrenic patients. To paraphrase Senator Humphrey "The moral test of a healing profession is how that profession treats those who are schizophrenic or schizoaffective." The consensus of outcome studies is that they are not being treated very well at all. Fewer than ten percent become well during and after treatment (pay income tax).

Double blind controlled therapeutic trials in Saskatchewan in 1952 showed that adding vitamin B-3 to the treatment then available, which was electro convulsive therapy, doubled the recovery rate. From this start, and corroborated by a large number of clinical studies and by one double blind corroborative study that was sponsored by National Institute of Mental Health Washington, this early treatment has been refined and expanded. There are no negative studies. It now includes examination of the diet for possible food allergies; includes using optimum doses of vitamin B-3, which range from 3 to 12 or more grams daily; includes the use of vitamin C as an important antioxidant and other vitamins if needed, plus the best medication. As patients respond, the doses of medication and the nutrients are adjusted until the optimum doses of all nutrients and drugs is achieved. This treatment should be under medical control.

Nutrients Most Commonly Used For Schizophrenia and Schizo-Affective Disorders (under medical supervision)

Vitamin B-3
Vitamin C
Vitamin B-6
Zinc
Vitamin B complex
Selenium

Children With Learning and/or Behavioral Disorders

Since 1955 I have treated over 2000 children under the age of 14 with orthomolecular therapy. In my books "Hoffer's ABC of Natural Nutrition for Children", Quarry Press, Kingston, ON, 1999, and "Healing Children Attention and Behavior Disorders, CCNM Press, Toronto, 2005, the results of treatment are reported. I have found the DSM IV published by the American Psychiatric Association of little value. Surely we do not have 45 different psychiatric diseases with their individual numbers for this general class of children. They fall into two main classes: the food allergies and toxins, and those without, but both groups need supplementation with the correct B vitamins. I am not alone in my view about the value of modern psychiatric diagnosis. Professor I

Savodnik²⁴, psychiatrist and philosopher who teaches at UCLA wrote, “As it turns out, the American Psychiatric Association has been turning out mental illnesses for the last fifty years. The original manual in 1952 contained 107 diagnoses, the second in 1968 180, in 1981 it had increased to 226, and in 1994 it leaped forward to 263 conditions: A 340 percent increase in diagnostic labels in fifty years. Nowhere in the rest of medicine has such a proliferation of categories occurred.”

Children with fetal alcohol syndrome also respond to the same treatment. This condition is considered untreatable. Dr. D. Herrera²⁵, Weil Medical College, Cornell, found that in mice niacinamide reversed the pathological effects of this syndrome.

RL, female, born May 25, 1994, first seen September, 2004. Referred with diagnosis of fetal alcohol syndrome

RL came with her foster mother who had been caring for her for the past three years. Before that she was neglected, and had been molested, for which she received a fair amount of counseling. She found it very difficult to focus and questions would have to be repeated several times. She suffered mood swings, was learning disabled, and was getting extra tutoring. Her relations to her younger sister were ambivalent sometimes too aggressive and domineering, sometimes kind. Physical aggression to her sister had moderated over the years. On Dexedrine she suffered severe side effects including severe nightmares and visual illusions. Ritalin was not quite as toxic for her but was not very helpful. Since being taken in by her foster mother she had been placed on a very good diet, dairy free and she had improved a lot. I started her on a diet which was also sugar free and supplemented with niacin 100 mg after each meal, ascorbic acid 500 mg after each meal, essential fatty acids 1 to 2 grams daily and a children's multivitamin preparations. By July 2005 she was nearly normal, very athletic and it was planned to continue with special education for her.

Her sister, born March 1, 2001, came with her. She was normal but her foster mother was very worried that she too might develop the same syndrome. Her mother drank for first five months of her pregnancy, not knowing that she was pregnant. She was started on a similar program in order to ensure that she would remain well. By July 2005 her foster mother reported that she was much better in preschool. These two children's foster mother had been treated with a similar approach some months previously and had recovered. She was aware of the importance of nutrition and proper supplementation.

For a disease considered untreatable one case does not prove that the program will help every child, but it does suggest that it should be tried as it is totally safe.

Nutrients Commonly Use for Children with Learning and/or Behaviour Disorders (under medical supervision)

Vitamin B-3

Vitamin C
B-6
Magnesium
Zinc
Essential fatty acids

Mood Disorders: Anxiety, Bipolar or Depression (under medical supervision)

The following nutrients are helpful in controlling mood disorders:

Niacinamide
B complex
Vitamin C
Folic acid
Vitamin D
Vitamin B-6
Zinc citrate
Essential fatty acids

In contrast to anti depressant medication I have not yet seen the type of warning issued by Professor Lana Watkins PhD, Duke University, who told the Annual meeting of the American Psychosomatic Society held in Denver, March 4, 2006, that current anti depressants increased the risk of dying from heart disease by 55 percent.

Parkinson's Disease

This condition is believed to be caused by a deficiency of l-dopa, a neurohormone. This hypothesis is bolstered by the therapeutic effect when these patients are treated with l-dopa. Since this is a product normally present in the body, it is correctly looked upon as an orthomolecular treatment, but unlike nutrients it is much more apt to have serious side effects such as making the patients psychotic and by destroying brain cells thus shortening their lives. Vitamin B-3 protects the cells against the toxic effect of dopachrome which is the oxidized derivative of l-dopa. When I was still practising psychiatry (over 55 years) I always used this vitamin in doses of three grams each day to prevent the psychosis and hopefully to prevent cell death²⁶.

Coenzyme Q10 is the other nutrient I used, starting with 200 milligrams after each of three meals. It is now standard treatment for this condition. I started using it after it was shown that factor A was deficient in the cells of Parkinson's disease patients. Factor A contains both niacin and Q10.

Recommended Reading

Schizophrenia:

Healing Schizophrenia by A. Hoffer

Vitamin B-3 and Schizophrenia by A. Hoffer

What Really Causes Schizophrenia by H. D. Foster

Aging:

Smart Nutrients by A. Hoffer and M. Walker

Children:

Healing Children's Attention and Behavior Disorders by A. Hoffer.

General Health:

How to Live Longer and Feel Better by Linus Pauling

HIV/AIDS:

What Really Causes AIDS by H. D. Foster

Niacin and Cholesterol:

Parsons WB Jr. Cholesterol Control Without Diet. The Niacin Solution, Revised, Expanded, Second Edition, Lilac Press, Scottsdale, Arizona 85252-1356

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