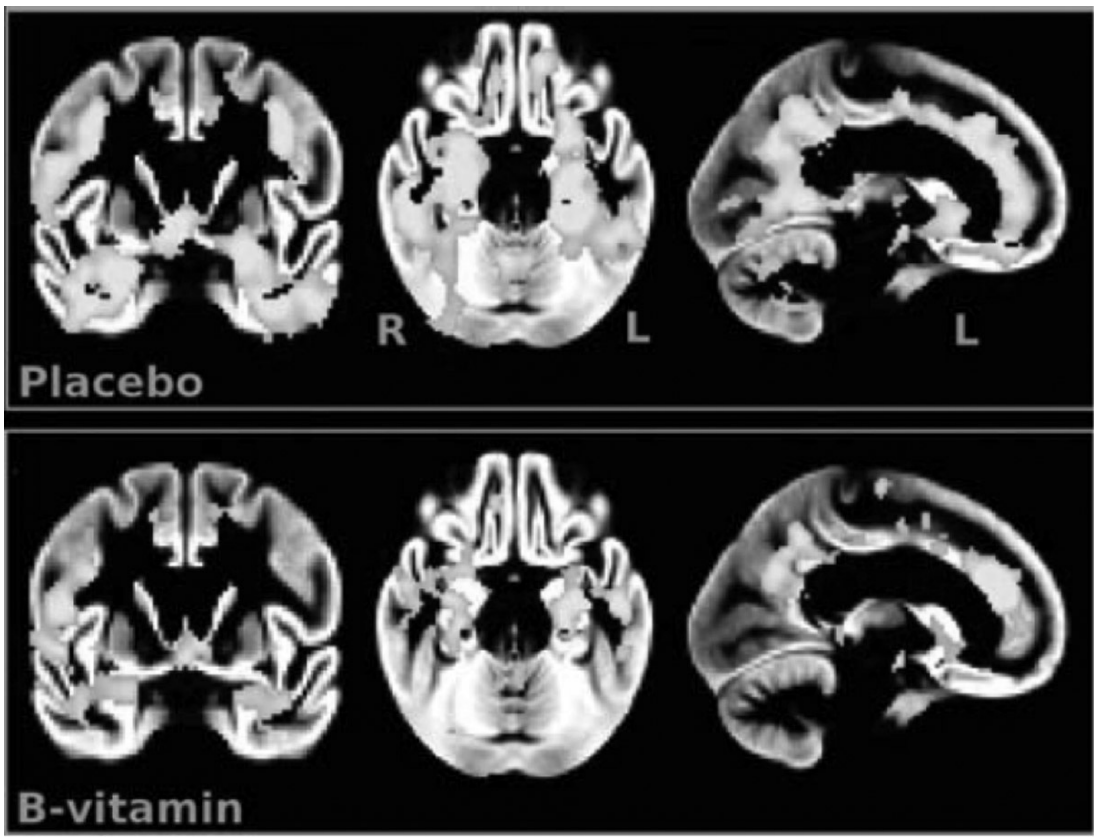
B Vitamins Stop Alzheimer's Brain Shrinking – Breakthrough in Prevention

Ground-breaking research from Oxford University was published in the Proceedings of the National Academy of Sciences,[1] showing that inexpensive B vitamins stopped shrinkage in the area of the brain that defines Alzheimer's disease (AD), called the medial temporal lobe. While most people diagnosed with dementia have AD the actual diagnosis of AD requires confirmation with a brain scan that shows degeneration of this specific area of the brain. The discovery that the medial temporal lobe virtually stops shrinking in people with therapeutic B vitamins is a highly important and convincing breakthrough in understanding what causes and can prevent AD.

The study, led by Professor David Smith from the University of Oxford, gave a combination of daily vitamins B_6 (20 mg), B_{12} (500 mcg) and folic acid (800 mcg) or placebo pills to people with mild cognitive impairment, the stage before a diagnosis of dementia or AD. "In those with high homocysteine levels, the specific areas of the brain associated with Alzheimer's disease shrank eight times more slowly in those taking B vitamins than in those on the placebo. This is strongly indicative that the B vitamins may be substantially slowing down, or even potentially arresting, the disease process in those with early stage cognitive decline. This is the first treatment that has been shown to do this." said Professor David Smith.

In a previous paper the Oxford research group had shown that the higher a person's blood homocysteine level, which is a reliable



(Reproduced with permission from: Douaud G, Refsum H, de Jager CA, et al: Preventing Alzheimer's disease-related gray matter atrophy by B vitamin treatment. *Proc Natl Acad Sci USA*, 2013;110:9523-9528. Grey denotes area of significant atrophy in 2 years)

marker for AD risk, the greater was the rate of shrinkage of the whole brain, and that lowering homocysteine with B vitamins markedly slowed any further memory decline in those with raised homocysteine levels.[2,3] Half of all people over 65 have a level of homocysteine above 10 μmol/L, which is the level associated with accelerated brain shrinkage which means that, according to this research, it may be possible to prevent half of all cases of AD or at least considerably slow down its development providing those at risk are identified early. AD costs an estimated $604 billion per annum[4] so, effectively, this cost could be halved by early screening, homocysteine testing and B vitamin supplementation. Other diet and lifestyle interventions could further cut the burden.

But these levels cannot be achieved by diet alone; you have to supplement. For example, the basic recommended daily amount of vitamin B_{12} is 1 mcg while the level that stops accelerated brain shrinkage in those with cognitive impairment is 500 mcg. This dose is considered safe, but means taking specific homocysteine lowering supplements, not just any multivitamin or B complex.

The reason for the need for such high doses of vitamin B_{12} is not fully understood, but is thought to be largely due to declining absorption with age, a factor that is made worse by certain medications including the diabetes drug metformin[5] and commonly prescribed antacid "proton-pump inhibitor" drugs such as omeprazole.[6]

Another supplement that is worth taking to protect your memory is docosahexaenoic acid (DHA). A trial last month found that fish oil supplements giving 1.1 g of DHA, taken over six months improved memory in adults without memory problems but not eating much fish,[7] while previous research found it improved memory in those with age-related memory decline.[8] These levels require daily omega 3 fish oil supplementation, as well as eating oily fish regularly. For example, having three servings of oily fish a week, a serving of cod roe or taramaslata and supplementing 250 mg of DHA a day would give you about 1,000 mg a day on average.

Other key factors that may reduce risk include increasing antioxidants, especially polyphenols found in vegetables, berries, tea and chocolate, blood sugar control (diabetics have increased risk), lowering blood pressure, keeping physically, mentally and socially active. Coffee raises homocysteine considerably.

In the UK no money is being spent or offered, either by the government funded NHS National Institute for Health Research[9] or by the leading Alzheimer's research charity ARUK[10] to further research into any nutritional prevention factors, B vitamins or homocysteine. Most is being given to research about "amyloid protein" and "tau protein." The idea is that the tangles found in the brains of those with Alzheimer's are enriched in these rogue proteins so we need a drug that blocks their formation. A nice idea but why not go downstream since it is already established that faulty methylation, indicated by raised homocysteine, resulting from a lack of vitamins B_6, B_{12}, folic acid or zinc, leads to the formation of amyloid and tau protein? But if you correct this with nutrients who will need drugs? There lies the rub.

There have been so many failed trials of amyloid blocking drugs. In a recent one the patients got worse with accelerated cognitive decline.[11] "One interpretation is that the formation of β amyloid might be the brain's protective mechanism against the disease process" proposes Professor David Smith from Oxford University. "But this view is regarded as pure heresy. Is that because so much research funding and such large drug development budgets are at stake?" he asked in a letter in the *Lancet*.[12]

The key is early screening from age 50 to effect prevention steps since the brain damage in Alzheimer's is not reversible. Many people who think their memory is getting worse are fine, while some who have no concerns are not. The only way to know is to objectively test yourself. That's why we built the Cognitive Function Test which is an online 10-minute screening test anyone can do to check your memory, offered for free by www.foodforthebrain.org. The Cognitive Function Test has been compared to existing

paper and pencil tests with significant correlations.[13] Over 150,000 people have taken the test. If a person's results are not good they receive a letter to take to their family doctor or healthcare provider recommending homocysteine testing.

We have also launched a highly informative film on Alzheimer's prevention showing a man who had lost the ability to do more than one clue in the Guardian crossword and can now, after taking B vitamins, at age 86, do the whole thing! There's also a downloadable "Six Alzheimer's Prevention Steps." Please tell all your friends and family over 50 to take the test.

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Three Cases of Schizophrenia

Case 1

A young man became psychotic some years ago. He suffered from severe anxiety, self-destructive thoughts and paranoia. He spent two months in hospital and was given a diagnosis of schizophrenia. Following discharge, his mother brought him to my clinical practice.

The first time I saw him I could not connect with this young man. He was medicated with Zyprexa (20 mg/day) and Mirtazapine (30 mg/day). The mother provided details of her son's medical history. She was very upset.

I requisitioned a comprehensive battery of routine tests including vitamins, minerals and fatty acids. The only notable findings were that the vitamin D, selenium and zinc levels were relatively low, which is often experienced the north latitudes.

After prescribing an orthomolecular nutrient program including 500 mg of niacin with each meal, the patient started to improve. Then the dose of niacin was increased to 3 g/day and later to 4.5 g/day.

After one year the patient was back to working to his full capabilities as a truck driver. He has enjoyed a good time with his friends and family, but still struggles with some concentration difficulties and an in-

creased feeling of fragility.

His psychiatrist considers him to be a miracle, but has not investigated why our mutual patient improved. The patient's mother is too intimidated and afraid to tell the psychiatrist that her son used (and continues to use) orthomolecular medicine. Mainstream psychiatry in Finland is mainly negative or even hostile against the use of nutrients.

Today, some three years later the patient is still getting better. He has worked fulltime since the orthomolecular plan was instituted. Last summer there was an incident. The patient suddenly started to feel bad and vomited. His liver tests were normal as they had been throughout treatment. When I stopped giving him niacin for several days, the patient became reluctant to take all the nutrients. His brother and the father also expressed negative sentiments about the use of nutrients, even though his mother continued to feel they were of great help. Even though a new psychiatrist ordered the patient to stop the orthomolecular plan, I was able to convince the patient that there was value and merit in proceeding with reduced amounts of vitamins. After a long discussion with the family the patient agreed to remain on 3 g/day of both niacin and vitamin C. The patient continues to remain well.

Case 2

A middle aged woman, diagnosed with schizophrenia at the age of 16, consulted with me. She came to my clinical practice with her brother. She hears evil voices daily. The medication has not helped. Her exhaustion makes her stay in bed all day long and she needs continuous help to complete her domestic responsibilities.

At the first visit in my practice she was barely communicative. I initiated an orthomolecular programme, beginning with 500 mg of niacin three times each day. Three months later the patient improved rather markedly. She was able to keep busy all day long. She was more joyful and communicative, and noted taking a more active role in household activities. Only the threatening vicious voices remained present.

I increased her dose of niacin to 3 g per day. Over the course of three months the voices disappeared. Initially, they became more friendly and less evil, and finally they completed remitted. The patient now lives a nearly normal life, and is also taking care of her aging mother. She relies very little on the mainstream psychiatric establishment. The tranquilizer prescriptions are renewed once a year. The patient has reduced her medications on her own without incident. Upon reducing the medications, the voices came back for two days, but then disappeared completely.

Case 3

A woman in her forties consulted with me. She has been dealing with her schizophrenia diagnosis for the past 20 years. As teenager she had many dental amalgam fillings (containing 50% mercury). Since childhood she has suffered from weakness, and in her teens she developed difficult body pain.

In my office the patient was visibly very tired and needed to lie down. After a careful examination, I prescribed an orthomolecular programme with 3 g per day of niacin as the main component. After half a year of treatment, the patient became much stronger and went to visit the late Dr. Abram Hoffer, who had his clinical psychiatric practice in Victoria, BC, Canada. Hoffer made small adjustments to her program, and informed her that she would be well within two years.

A few months following the visit, she developed a sudden and unexpected severe psychosis. What had happened? She was taken to the hospital where she was not allowed to take her nutrients. Five months later she left the hospital, and was shaky, weak and heavily medicated. I learned that the day before the sudden psychosis she had visited her dentist. He performed several dental procedures including the provision of a gold bridge. Could that be the reason? I explained to the patient that some patients can be very vulnerable to dental procedures, especially dental amalgam fillings in the presence of gold, which can cause a well-known oral galvanic effect.

The patient started to recover once again on the orthomolecular program. Her

schizophrenia eventually remitted and she normalized. Several months later she became severely psychotic again. Like before, she had visited her dentist the day before relapsing, and was fitted with a gold bridge. After many months in the hospital, she lost interest in the orthomolecular approach. Her relatives were also negative all the time and so was her psychiatrist, with whom I tried in vain to discuss the specific triggers of each psychotic episode as well as the merits of the orthomolecular approach.

Discussion

These three patient cases are different in several aspects. The first patient was treated very early in the course of his schizophrenia due to his caring and well informed mother. He recovered quickly and continues to improve as of this writing. Hopefully, his father will not succumb to the negative pressures expressed by mainstream psychiatry and hinder his son's progress. He appears to be on track to fully recover from his mental illness. The second patient was chronically ill for a long time. The tranquilizers were unable to quell the harassing auditory hallucinations. Daily dose of niacin seemed integral to her recovery. A positive and supporting brother also made it possible to effectively treat this patient. The third patient was severely ill for decades. In her case, the dental procedures (possibly the mercury, gold and other materials) appeared to be involved in her mental illness.[1-4] Each time she was recovering and doing markedly better with niacin, she succumbed to psychosis following dental work. Her difficult social circumstances and a rigid psychiatric system robbed her of the needed hope and motivation to continue the orthomolecular programme.

Abram Hoffer worked with these problems for nearly 60 years. He and his team were the first ever to complete double-blind experiments in psychiatry. They tested niacin and niacinamide and compared these treatments to placebo among new-onset schizophrenic patients, or among patients with acute psychosis. The recovery rate rose from 35% to 75% in favour of either form of vitamin B_3.[5-8] Hoffer's adrenochrome hypothesis[9-11] has been debated inside and outside of the orthomolecular movement.[12-14] I cannot see why different conditions, perhaps leading to psychotic illness–such as down-regulated niacin receptors, thyroid problems, gluten intolerance, heavy metal toxicity, pyroluria, and many other conditions–would rule out the possibility or even likely involvement of adrenochrome. Not every thyroid patient is psychotic. Not every patient with heavy metal intoxication becomes psychotic. There must be something more, and perhaps it is the tendency to form adrenochrome and other chrome indoles that underlies the expression of psychosis in vulnerable patients.

I have worked clinically as a general practitioner for more than 35 years. I have 15 years of experience exclusively in health care centres and hospitals. Once I started to work in an integrative orthomolecular fashion, I was able to compare my experiences with both medical paradigms. Today, my opinion is that the orthomolecular paradigm should be the first treatment of choice especially for patients diagnosed with first-episode psychosis or schizophrenia. If this were true, we would largely avoid the significant adverse consequences of toximolecular medicine, and more patients would lead more fulfilling and functional lives.

Let me finish my correspondence by returning to the words of Dr. Abram Hoffer himself, in an unpublished interview I did with him in Ottawa in 2005.

AH: About adrenochrome…I think it is a good hypothesis. You understand that no hypothesis ever is completely true as our knowledge always changes. What is true today may not be true after ten or twenty years. And that's not its function. The meaning of a hypothesis is to help you to know in which direction you should go.

KM: Do you still call it a hypothesis?

AH: Yes, it is, but now much stronger than it was. We now know for sure that adrenochrome is formed in the body and we know

for sure that adrenochrome is a hallucinogen. I have described this in our book, *The Hallucinogens*, (1967). And as you also know when you give your patients niacin and vitamin C the vast majority recover. We were right on all three points. Dr. John Smythies, who is still alive, published a series of articles on this some two to three years ago in the British psychiatric literature. The hypothesis is alive and it will be stronger because now it is generally accepted that adrenochrome is very important. Not only in schizophrenia, but also in many age-related diseases. It generates some sort of tardive dyskinesia, but not exactly that. The neurologists accept that it exists.

Later, at the end of the interview:
KM: So you are convinced that vitamin B_3 is the most important factor as well in prevention as in treatment of schizophrenia?

AH: Yes, that's true.

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