

The Vitamin Community Programme in Khayelitsha

This chapter summarises the results of the community vitamin programme conducted by the South African National Civic Organisation (SANCO) in Khayelista. This report is also an official part of the court proceedings.

MICRONUTRIENTS AS AN EFFECTIVE, SAFE AND AFFORDABLE APPROACH TO HELP CONTROL AIDS

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INTRODUCTION

Vitamins and other micronutrients are essential for the adequate production and optimum function of white blood cells, hormones and other factors essential in determining optimum immune response. In particular the critical role of vitamin C, vitamin A, vitamins B-5, B-6, B-12, folic acid as well as certain trace elements such as iron, zinc, selenium, copper and others have been an integral part of textbook knowledge in all fields of biology for decades.*

Amazingly, this basic scientific knowledge has not been promoted by health policy makers to fight immune deficiencies, including the AIDS epidemic. Thus far, only a limited number of clinical studies have been conducted to test the health benefits of micronutrients in AIDS patients. Despite the fact that several of these micronutrient studies showed encouraging health benefits, none of them has been translated into public health policies to fight the AIDS epidemic.*

The neglect of micronutrient research in relation to developing global strategies to control AIDS is even more remarkable, since from the beginning of the AIDS epidemic, researchers noticed micronutrient abnormalities in AIDS patients. This was not surprising since chronic diarrhoea, anorexia, malabsorption, impaired

* For further reference please check annexures of the affidavit at www.dr-rath-foundation.org.za



In Khayelitsha, the biggest township just outside Cape Town, around 2 million people live in the most impoverished conditions. Many of them are affected by AIDS. It is here that the micronutrient programme was implemented.

nutrient storage, increased energy demands – all of which are symptoms occurring in AIDS – are known to be associated with and further aggravate these nutritional deficiencies.*

An additional reason why micronutrients should have been used long ago in the fight against AIDS is the fact that the cellular mechanisms by which they strengthen the immune system are well understood. Beside the basic scientific fact that micronutrients are essential for optimising white blood cell production and immune function, specific cellular mechanisms have been identified on how micronutrients can help fight AIDS.

One of the theories about AIDS is that this disease is caused by the human immunodeficiency virus (HIV). A combination of vitamin C and the natural amino acid lysine represents a therapeutic option to block viruses from spreading through the connective tissue of our body by inhibiting the secretion of collagen-digesting enzymes. In addition, vitamin C and other nutrients can almost completely inhibit the multiplication of HIV and induce cell death (apoptosis) in virus-induced malignant cells.*

These findings are significant, since they establish micronutrient supplementation as an effective approach to fight AIDS – irrespective whether AIDS is caused by HIV or not. Thus, while the scientific debate about the causes of AIDS continues, the lives of AIDS patients are no longer compromised by it.*

The need for effective, safe and affordable public health approaches to the AIDS epidemic is particularly compelling given the failure of pharmaceutical options. Despite representations by the manufacturers of ARVs and some media, these drugs can not cure AIDS. In fact, nowhere in the world have ARVs been allowed to be registered as a cure for AIDS. While ARVs are known not to cure AIDS, they are associated with severe side effects. One of the target organs of ARVs is the bone marrow where they exert direct damage to the production site of immune cells, causing or aggravating immune deficiencies. As a direct result, patients taking ARVs are prone to other infectious diseases, including tuberculosis and opportunistic infections. These diseases develop in addition to other frequent side-effects of ARVs related to their cytotoxicity, including failure of the liver, heart, kidneys and other organs.*

Particularly in sub-Saharan Africa and other developing regions of the world, the neglect of micronutrients as an effective, safe and affordable approach in the fight against AIDS continues to threaten the lives of millions of people and the economies of entire nations.

Given the urgency of this situation, a comprehensive approach utilising a nutritional intervention is required to help control AIDS and – if possible – improve the health and life-expectancy of AIDS patients. Therefore, our objective was to evaluate the efficacy of a science-based micronutrient programme as the foundation of an affordable public health strategy to combat AIDS. We were particularly interested in the potential health benefits of micronutrient supplementation in people with AIDS who were HIV positive and who did not take ARV medication.



The improvements in the well-being of the participants in the community vitamin programme was so significant that many of them wanted to speak out publicly. On June 15, 2005, they decided to share their experiences with the national and international press at a press conference in Cape Town, in the hope of helping others affected by this epidemic. The picture shows some of the participants with the representative of SANCO, Mzwanele Ndibongo.

Here we document the comprehensive health benefits of people living with AIDS from short-term micronutrient supplementation provided as part of a community health programme in South Africa.

MATERIALS AND METHODS

Programme settings. In the community health education programme conducted by the South African National Civic organisation (SANCO) in Khayelitsha, a township of Cape Town, HIV positive people with AIDS were identified by community health professionals.

One hundred HIV positive men and non-pregnant women were included in the programme. They were over 13 years of age, had advanced AIDS symptoms (CDC stage 2 or 3) including ulcers, lymph swelling, skin rashes, joint pain, wounds and sores, colds and flu, nausea or vomiting, fatigue, depression, headache and numbness or tingling in the hands or feet. People who were currently taking or had been taking ARVs in the past were not included in this evaluation because their immune system was already compromised by the immune-suppressing effect of these drugs.

Of the 100 participants who initially started this programme, 56 completed all three examinations and questionnaires. This is a remarkable number considering the obstacles of conducting such documentation as a part of an open community health programme in a township. Specific challenges came from special interest groups promoting ARV drugs who tried to dissuade the patients from participating in this health programme.

The community health programme conducted by SANCO Khayelitsha is based on a broad educational approach about the role of nutrition and micronutrients in helping to improve health in general and immune function in particular. Those members of the community affected by AIDS were offered a micronutrient programme that had been donated to SANCO Khayelitsha by the Dr Rath Health Foundation. In addition to the general educational material the participants received an information sheet detailing the role of micronutrients in the body.

Micronutrient programme. The nutritional supplement programme consisted of a defined combination of micronutrients: vitamins: vitamin C (ascorbate), vitamin B-1 (thiamine), vitamin B-2 (riboflavin), vitamin B-3 (nicotinate), vitamin B-5 (pantothenate), vitamin B-6 (pyridoxine), vitamin B-12 (cyanocobalamin), folic acid, biotin, beta-carotene, vitamin D (cholecalciferol), vitamin E (alpha-tocopherol); minerals and trace elements: magnesium, calcium, potassium, phosphate, zinc, manganese, copper, selenium, chromium, molybdenum; amino acids: L-lysine, L-proline, L-arginine, L-carnitine, L-cysteine, N-acetylcysteine, taurine; as well as

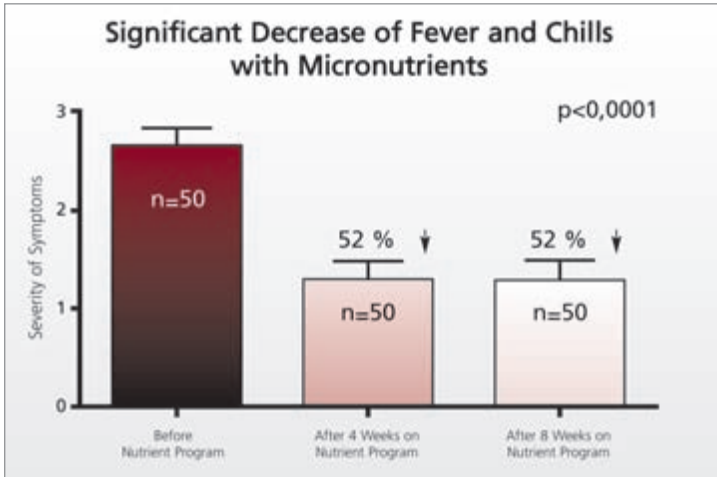
other micronutrients: green tea leaf extract, citrus bioflavonoids, inositol, coenzyme Q-10.

Health and nutritional assessment. Upon entry into the nutritional programme, the participants were examined by a physician. In addition, their health status was further assessed with the aid of a bi-lingual questionnaire grading their symptoms on a scale of 0 to 4 (0 = no symptoms, 1 = mild, 2 = medium, 3 = advanced, 4 = severe). The symptoms included fever, diarrhoea, cough, weight-loss, TB, and opportunistic infections associated with AIDS-defining diseases for Africa. Among other physical symptoms assessed were: swollen glands, joint pain, numbness in the hands or feet, nausea or vomiting, headache, bloating, irregular heart beat, oral sores and discomfort, gum bleeding, loose teeth, eyes burning or itching, eyes sensitive to light, blurred vision, wounds that would not heal, dry or itchy skin, skin bruises, muscle cramps, cold hands or feet, sweating without work or exertion, unusual thirst, and colds. Indicators of general well-being recorded were: nervousness, irritation, anxiety, depression, insomnia, loss of appetite, fatigue, dizziness, memory loss.*

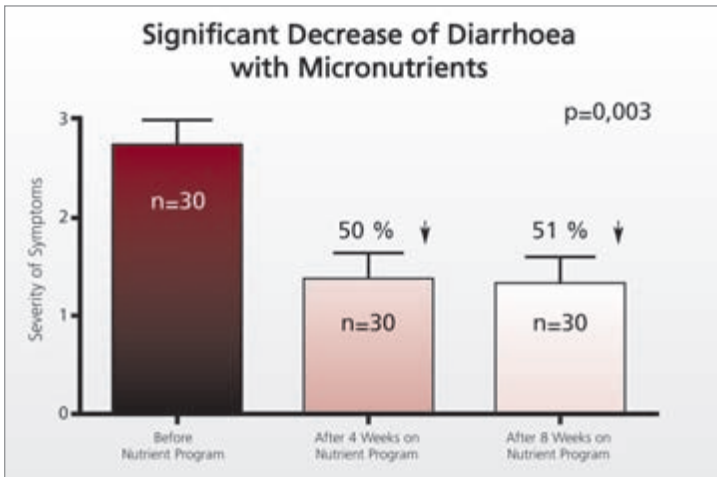
At 4 and 8 weeks participants were re-examined by a physician. Their current health status was reassessed on the graded questionnaire described above. The participants were also questioned about the composition and frequency of their daily meals. These included among others corn, white bread, brown bread, rice, noodles, milk, fish, chicken, red meat, cereals, hot chips, sweets, sweet potatoes, green peppers, salads, lemons, oranges, tomatoes, bananas, apples, grapes and nuts.

RESULTS

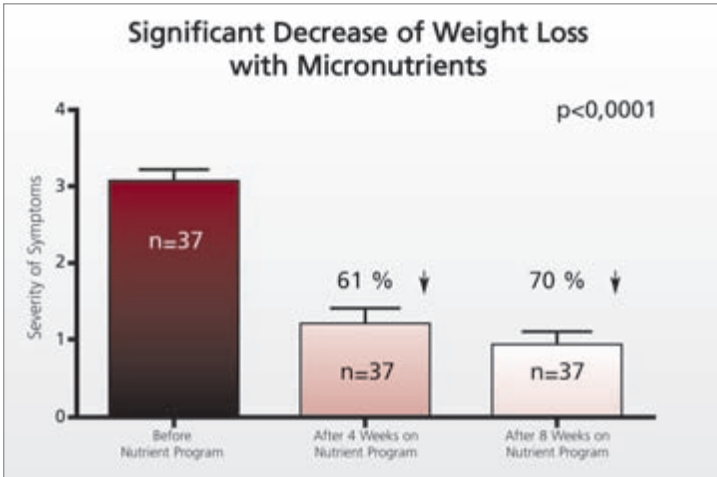
The daily micronutrient supplementation was associated with a statistically significant decrease of fever, diarrhoea, persistent cough, weight loss and TB symptoms. This is a highly significant fact since these five symptoms were defined by the 1985 WHO reference conference in Bangui, Central Africa, as "AIDS-defining".*



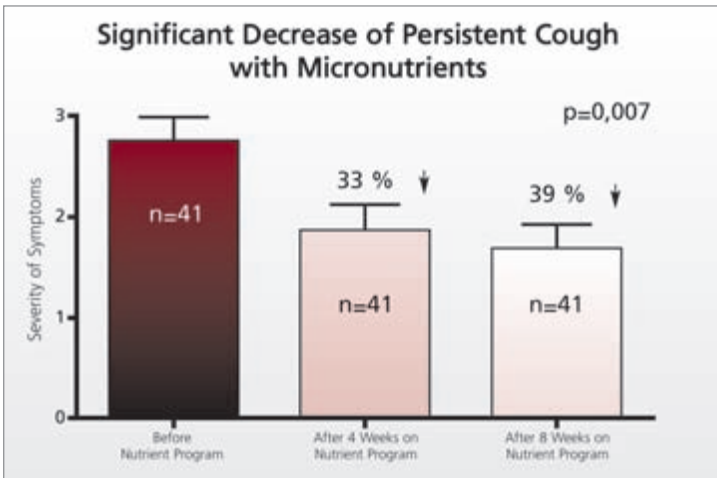
Micronutrient supplementation was associated with a rapid and statistically significant reduction ($p=0.0001$) in the severity of fever, chills and excessive sweating which decreased by 52% after 4 weeks and continued throughout the 8 week period. These findings are summarized in Figure 1.



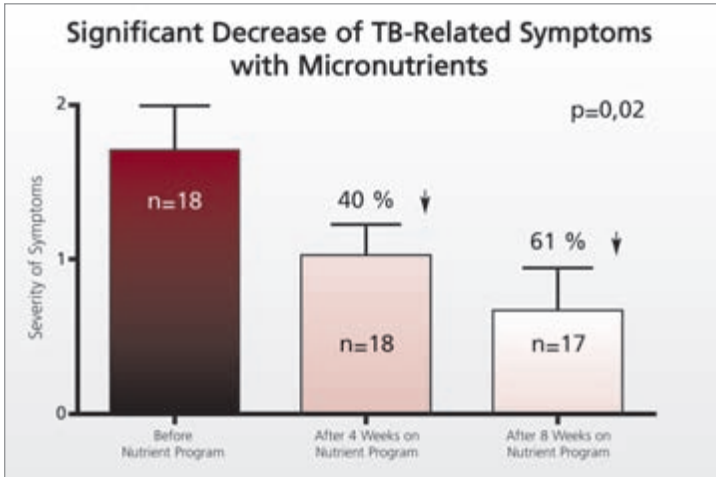
Daily intake of micronutrient supplements decreased diarrhoea by 50% after 4 weeks and 51% after 8 weeks, which was also statistically significant ($p=0.003$). These results are documented in Figure 2.



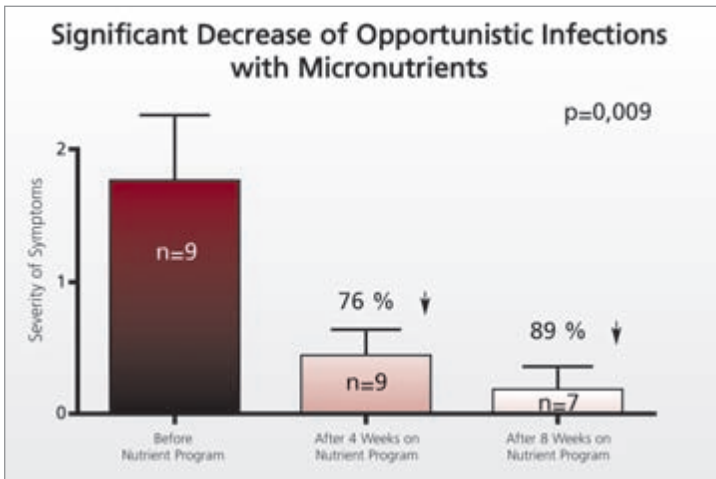
As shown in Figure 3, weight-loss in people with AIDS who supplemented their daily diet with micronutrients was significantly reduced by up to 70% after 8 weeks of intake ($p = 0.0001$).



Micronutrient supplementation was associated with a significant decrease in the severity of coughs by 33% after 4 weeks and by 39% after 8 weeks ($p = 0.007$) as presented in Figure 4.



In those participants who were also infected with TB (18 patients), the daily intake of micro-nutrients decreased the severity of TB-related symptoms by 40% after 4 weeks and 61% after 8 weeks (Figure 5), which was also a statistically significant result ($p=0.02$).



In addition, fungal and other opportunistic infections frequently accompanying AIDS were present in 9 participants of the micronutrient programme. Severity of these opportunistic infections was 76% lower after 4 weeks and 89% lower after 8 weeks of micronutrient intake. This result too was statistically significant ($p= 0.009$), as represented in Figure 6.

The specific results for each of these symptoms were as follows:

The severity of colds decreased by 45% after 4 weeks and 35% after 8 weeks of vitamin intake ($p=0.001$). Lymphadenopathy (swelling of lymph nodes) decreased by 57% after 4 weeks and by 67% at the end of 8 weeks of nutritional supplementation. This change was statistically significant ($p= 0.006$).

AIDS is also accompanied by mental health problems, especially depression, fatigue, as well as frequent headaches. The results presented in Table 1 indicate that all these symptoms improved after 4 and 8 weeks on the vitamin programme. After 4 and 8 weeks of micronutrient supplementation the severity of depression decreased by 48% and 47% respectively ($p< 0.0001$). Occurrence of fatigue decreased by 60% after 4 weeks and 68% after 8 weeks on the micronutrient programme. These results were statistically significant as well ($p<0.0001$). Headaches decreased by 38% after 4 weeks and 35% after 8 weeks on the micronutrient programme.

Signs of neuropathy, such as pain and numbness in the fingers and feet was scored lower after 4 and 8 weeks on the micronutrient programme (54% and 56% respectively) compared to the programme entry ($p<0.0001$). Also joint pain score was lower by 49% and 54%, respectively after 4 and 8 weeks of vitamin supplementation and these changes too were statistically significant ($p<0.0001$).

During micronutrient supplementation there was a notable effect on the healing of wounds and sores that had persisted for months prior to entering the vitamin programme. The severity of these lesions decreased after 4 weeks of taking micronutrients by 59% and after 8 weeks by 84%, which was a statistically significant difference ($p=0.004$). In addition, the severity and appearance of skin rashes decreased by 37% already after 4 weeks and by 64% after 8 weeks on the programme, which also reached statistical significance ($p=0.04$).

Table 1:

Changes in Severity of Other AIDS-Related Symptoms Before, After 4 Weeks and 8 Weeks of Taking Nutritional Supplements

Symptom	Number of Participants Affected	Symptom Severity Before Taking Nutritional Supplements	Symptom Severity After Taking Nutritional Supplementation of		p-value
			4 Weeks	8 Weeks	
		Score %	Score %	Score %	
Colds and Flu	39	2,25 100	1,25 45	1,50 35	0,001
Swollen Glands	13	2,24 100	1,50 57	1,43 67	0,006
Skin Sores	6	3,00 100	1,75 59	1,42 84	0,004
Skin Rashes	13	1,92 100	1,51 37	1,25 64	0,04
Depression	47	2,65 100	1,30 48	1,41 47	< 0,001
Fatigue	45	2,75 100	1,18 60	0,90 68	< 0,001
Headache	44	2,45 100	1,55 38	1,62 35	0,06
Numbness in extremities	43	2,70 100	1,23 54	1,20 56	< 0,001
Joint Pain	37	2,80 100	1,40 49	1,31 54	< 0,001

Other AIDS related symptoms – outside those of the Bangui definition – also significantly improved under the micronutrient programme. These results are summarized in Table 1.

Column one documents the number of participants associated with each symptom. **Column two** reflects the average severity of these AIDS related symptoms expressed as the average values of the symptom scores as assessed in the questionnaire and described in the section Materials and Methods. **Column three** shows the percentage decrease in severity of AIDS-related symptoms after 4 weeks and 8 weeks of taking nutritional supplements. **The last column** shows the statistical analysis from the evaluation of the improvements of symptoms from the beginning of the programme to week 8. Values with $p < 0.05$ were considered statistically significant.

The healing of AIDS related wounds during the micronutrient programme was a particularly obvious and objective observation. Figure 7 documents the changes of such an AIDS-related wound – an infected ulcer on the neck of a woman living with AIDS – before and after 4 weeks of vitamin supplementation.

DISCUSSION

The results of the community nutrition programme presented in this report show that a daily supplementation of vitamins, minerals and other essential nutrients significantly reversed all the symptoms that define AIDS, namely fever, weight loss, diarrhoea, and persistent coughs, and it decreased the severity of tuberculosis.

This nutritional health programme also helped to improve other AIDS related symptoms including fungal and other opportunistic infections, sores, colds, nausea, fatigue, depression, headache, skin rashes, swollen glands, joint pain and numbness in hands or feet.



Figure 7:

Micronutrient supplementation and wound healing: These pictures document the neck ulcer of a young woman living with AIDS before (left) and after 4 weeks (right) on the micronutrient programme. The wound infection (white area in the left picture) had completely disappeared after 4 weeks of vitamin intake. The wound itself, visible as a deep hole (left), had almost completely closed (right). No such effect has been documented with antiretroviral drugs (ARVs).

Previous intervention studies with vitamins and other micronutrients in AIDS patients have used single vitamins or a combination of a few micronutrients. Notably, in certain studies a combination of vitamins C and E was shown to reverse the damaging effects of ARVs in HIV infected adults. The same combination of vitamins was shown to reduce viral load and the damage from oxidative stress in AIDS patients.*

In another nutritional study, vitamin C in combination with N-acetyl cysteine – a bio-available form of the amino acid cysteine – was reported to improve the immune response and lower the viral load in patients with advanced AIDS.*

Other studies conducted in Durban, South Africa examined the effects of vitamin A supplementation on the morbidity and mortality of HIV infected mothers with AIDS and their children. Among all children, those receiving vitamin supplements had a 30 % lower overall morbidity – i.e. a 30 % lower risk to develop diarrhoea, lower and upper respiratory tract infections and rashes – compared to the control group (5).

The health programme documented here differs from the above studies in the use of a defined combination of micronutrients targeting AIDS-defining symptoms. Since these symptoms determine the quality of life of people living with AIDS as well as their life expectancy, the findings reported here have a potential to halt the otherwise deadly course of this disease.

The findings of this community health programme are even more important, since no study with ARVs or any other pharmaceutical drug has ever shown the reversal of AIDS-defining symptoms. Thus, in the absence of pharmaceutical drugs that can cure AIDS, the encouraging health benefits of this pilot nutrient programme have important implications for the control of AIDS.

CONCLUSIONS

Micronutrient supplementation offers an effective, safe and affordable approach towards the global control of AIDS. In developing countries micronutrients combined with general food programmes should form an essential part of public health strategies to successfully fight immune deficiencies, including AIDS.

The immediate implementation of these findings by national governments as well as the WHO and other international organisations will save millions of lives – and it provides valuable time for the international research community to find a lasting solution to end AIDS.



This report about the community vitamin programme in Khayelitsha is – necessarily presented as a summary report. But behind every number and every graph are human lives that have benefitted from this programme. On the following pages two of the participants will tell their story – on behalf of many others.



**Boniswa,
Khayelitsha**

"My name is Boniswa. I am from Khayelitsha. I was pregnant in 2000. That's when I discovered that I am HIV positive.

I was taken to the medical centre and I was given vitamin B. When they tested it, they discovered that my CD4-count has gone down dramatically.

At that particular stage I felt so sick I started to wonder what is best for me, but I was already totally afraid of ARV's. Fortunately for me I got information from friends that there is another way of getting better. When I started to use the vitamin pills, things started to improve.

As I can tell you right now, all those symptoms diminished and I am continuing with my vitamins and I am feeling better. I am not saying I am cured but I am feeling better. I want to deliver this message to the community around me who know that I am a person who is suffering from HIV/AIDS.

In fact I will continue to preach in my community the fact that they need to take the right route and not being intimidated by the hooligans that are being paid by the TAC.

EXCERPTS FROM LETTERS RECEIVED FROM PEOPLE LIVING WITH AIDS

L. N.

I was HIV positive when I took vitamins and my health has improved. I had a running stomach and I was weak and did not have strength, but now I am feeling better. Skin problems (rash) that was all over my body have decreased and fading and I am feeling much better. Even the terrible headache I had is gone.

I did not have appetite, but after using vitamins, I started eating again till to date. I lost weight but after taking vitamins I am beginning to recover my weight now.

P. M.

I was having a skin problem, having rash all over my body. I had problems with my eyes, couldn't see something that is far but now I am feeling much better, I can even write.

I used to feel tired and my body was sore but now there is a big difference. I was sweating at night when I am sleeping. I had headache that does not stop.

Now, I can walk a long distance and don't get tired easily. In all, I am feeling much better. Vitamins are very helpful to us.

S. N.

I was having a problem of sweating at night but now I feel much better.

I had a problem of headache. Even walking a long distance is okay for me, I do not even sleep during the day, I used to feel tired but now I feel very much better than before.

I have also regained my appetite.

The promoters of the ARV drug business argue that natural vitamins and nutritional medicine have no scientific basis and should be outlawed.

The facts on the following pages correct this myth.