

**Micronutrients
Help Improve
Immune
Deficiencies**

• The Scientific Evidence •

MICRONUTRIENTS AS A SCIENCE-BASED NATURAL APPROACH TO IMPROVING IMMUNE FUNCTION AND FIGHTING IMMUNE DEFICIENCIES

The pathological basis of AIDS is a dysfunctional immune system clinically indicated by abnormally low levels of white blood cells. It is an established scientific fact documented in science that the following micronutrients are essential and indispensable for blood cell formation: vitamin B-3, vitamin B-5, vitamin B-6, vitamin B-12, vitamin C, folic acid, iron and others.

By questioning these scientific facts throughout this Application, the current leadership of South African Medical Association openly defies basic scientific knowledge documented in the textbooks of biology, biochemistry, cell physiology and other biological sciences.*

This is even more worrying, since it is an established medical fact that vitamin deficiency is not only compromising the formation and function of white blood cells, but also those of red blood cells. More than half a century ago, vitamin deficiency has been established as a primary cause of anaemia, the inability of the bone marrow to produce enough properly functioning oxygen-carrying red blood cells. For decades doctors have used vitamin supplements to correct this imbalance and even to treat severe disorders such as megaloblastic anaemia.*

In the course of the 20th century, no less than nine Nobel Prizes have been awarded for the discovery of vitamins and in particular their role in providing optimum immune function in the body. Until this day, the Nobel Prize committee considers this fact so significant that it maintains a separate web site documenting the Nobel Prizes in biology, chemistry as well as physiology and medicine awarded for elucidating the role of vitamins in health and disease.*

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



Albert Szent-Györgyi

Nobel Prize in Physiology or Medicine 1937
“for his discoveries in connection with the biological combustion process, with special reference to **vitamin C**”.

Christiaan Eijkman

Nobel Prize in Physiology or Medicine 1929
“for his discovery of the antineuritic vitamin” (**Vitamin B1**).



Walter Norman Haworth

Nobel Prize in Chemistry 1937
“for his investigations on carbohydrates (Sugars) and **vitamin C**”.

Moreover, the online service of the US Library of Medicine, the world’s largest medical online library, lists more than 8000 references documenting the essential role of micronutrients for optimum function of the immune system.*

It is a remarkable fact that this basic knowledge of biology – and life itself – has been largely barred from entering the textbooks of medicine and its various disciplines including internal medicine, immunology, tropical medicine and others.

This censorship of life saving information obviously did not happen in the interest of patients or doctors. It happened primarily in the interest of the pharmaceutical investment business, for which

these highly effective but non-patentable therapeutic approaches represent a debilitating economic threat.

Contrary to the 640 page long efforts by the SAMA functionaries and the TAC to question an entire century of biological and biochemical research – including 9 Nobel Prizes – the connection between micronutrients and optimising immune function is firmly established and no credible scientist can challenge it without risking their reputation.

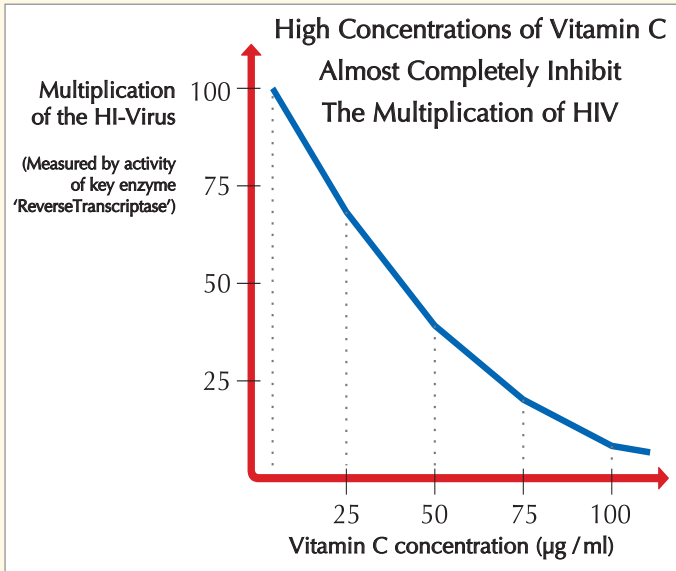
It therefore comes as no surprise that micronutrients effectively improve the immune function and well-being of people living with AIDS. Our Foundation – the second Respondent – has supported a community health programme in South Africa during which micronutrients were given by community representatives to people affected by AIDS. During the course of this nutritional programme the reversal of AIDS-symptoms including such severe conditions as advanced skin ulcers and lymph node swelling was observed.* The details of this community health programme will be discussed below in detail.

Micronutrients are not a cure for AIDS. But in the absence of an effective cure or a vaccine for this epidemic – and in face of the extreme toxicity of ARVs – they are an effective and affordable way to halt progression and even reverse the symptoms of the AIDS disease and to improve the quality of life of AIDS patients. Moreover, the implementation of micronutrients as public health strategies will allow the international research community to win decisive time until a cure is found.

In addition to the scientific documentation about the general role of micronutrients in improving immune function a growing number of studies have been published documenting the health benefits of micronutrients in the fight against HIV and AIDS.

Following is a selection from these studies:

VITAMIN C BLOCKS HIV MORE THAN 99%



In a landmark study published in the official journal of the U.S. Academy of Sciences, Dr Harrakeh, Dr Jariwalla and Dr Pauling showed that high-dose vitamin C was able to block the multiplication of HIV by more than 99%!

These dramatic results obtained with natural and affordable approaches were published one and a half decades ago – but were ignored and even suppressed in the interest of the multi-billion Rand business with patented ARV drugs.

Dr Pauling was the recipient of two Nobel Prizes. He died in 1994. Dr Jariwalla is today the head of virology research at the Dr Rath Research Institute.

Vitamin C can block the multiplication of HIV by more than 99%!



Dr R. Jariwalla

More than a decade ago, a study by the research group of Dr Raxit Jariwalla and co-authored by two-time Nobel Prize winner Linus Pauling, was published in the “Proceedings of the National Academy of Sciences, USA,” the official journal of the US National Academy of Sciences. The study, established that vitamin C alone can block the replication of HIV by 99%.*

- The relevance of this study in the fight against HIV and AIDS cannot be overestimated. No chemical substance and certainly no currently promoted ARV drug has been shown to have such a pronounced effect on inhibiting the key enzyme for the multiplication of the HIV virus namely reverse transcriptase.
- The clinical relevance of this landmark research is supported by the fact that the vitamin C concentrations effective in blocking HIV replication are attainable in human blood by an optimal daily intake of this vitamin.*
- Even more significantly, further studies showed that – as opposed to ARV drugs such as AZT – vitamin C can prevent HIV infection and also decrease the viral load in chronically HIV infected cells. In contrast, AZT is unable to inhibit virus production in chronically HIV infected cells.*

Dr Jariwalla, the principal investigator of this study, today heads the virology research at the Dr Rath Research Institute which is being headed by Dr Alexandra Niedzwiecki, who had co-authored some of this early research on micronutrients and AIDS. Dr Jariwalla has dealt with this and other evidence in his affidavit in more detail.

Similar significant results were obtained with the nutritional supplements glutathione and N-acetylcysteine (NAC) which are biologically active antioxidants. These findings are particularly relevant because the SAMA and the TAC challenge both the health benefits and the safety of NAC as a core argument of their Application. The research data published in leading international scientific journals show exactly the opposite



Dr A. Niedzwiecki

- In a study published in the official Journal of the US National Academy of Sciences, a research group from the Stanford University in California showed that NAC inhibits the multiplication of HIV. The researchers summarise their findings that NAC “can be administered orally without known toxicity in humans.”*
- In a similar study researchers from the US National Institutes of Health also published in the “Proceedings of the National Academy of Sciences” concluded about the nutritional supplements glutathione and NAC that – based on their research findings – they “may be of value in the treatment of HIV.”*

It is inconceivable, that the “TAC” and the board of the “South African Medical Association” are filing this Application to essentially prohibit the people of South Africa to take advantage of NAC, a substance that is effective and safe, all the while they are continuing the promotion of toxic, and controversial ARVs.

Daily Doses of Multivitamins Slow Down the Risk of Developing AIDS

A clinical study documenting the effectiveness of multivitamins in fighting the AIDS epidemic has been published in the “New England Journal of Medicine” on July 1, 2004, and reported in the “New York Times” the very same day.*

The fact that this clinical study was prominently featured in the “New York Times” reflects the global implications of this study for improving human health and its potential to save millions of lives.

The Harvard study, conducted in Tanzania over a period of eight years, involved more than a thousand HIV-positive pregnant women. It was a double-blind, placebo-controlled trial conforming to the highest standards for clinical studies. The study showed that inexpensive multivitamin treatment is effective in staving off the development of the AIDS disease among HIV-positive women.

BENEFICIAL VITAMINS IN HIV AND AIDS

The following vitamins and other micronutrients have been shown in research and clinical studies to have benefits for patients with HIV and AIDS:

- Vitamin C
- Vitamin B
- Folic acid
- Vitamin E
- Beta-Carotene
- N-Acetylcysteine
- Glutathione
- Certain mineral and trace elements
- Multivitamin composition

The key findings documented in the “New England Journal of Medicine” from this large scale study with micronutrients in HIV / AIDS patients are:

1. The progression of AIDS to stage 4 (according to the World Health Organisation grading), which corresponds to full-blown manifestation of the disease, was reduced by 50 % in patients receiving multivitamins.
2. The relative risk for patients to die from AIDS was lowered by 27 % in patients receiving multivitamins.
3. The study found that "Multivitamins also significantly reduced all signs of complications" including:
 - Oral lesions (ulcers) reduced by 48 %
 - Lip infections reduced by 56 %
 - Difficult, painful swallowing reduced by 53 %
 - Diarrhoea reduced by 25 %
 - Fatigue reduced by 24 %

The most important findings of this study were summarised by major news agencies around the world. MSNBC wrote: “The study found that daily doses of multivitamins slow down the disease and cut the risk of developing AIDS in half.”*

Moreover, an editorial accompanying the publication of this important clinical study in the “New England Journal of Medicine” stated: “The credibility of these data is supported by sound study design and methods, appropriate analyses, and compatibility with the limited existing data, such as those showing decreased mortality among HIV-infected Thai adults who received multivitamins.”*

We have repeatedly quoted this study conducted by Harvard researchers. After one such quote published in "The New York Times" the Harvard researchers – apparently under pressure – decided to distance themselves from the reference to their study. This remarkable fact was eagerly picked up by the Applicants in their continued effort trying to discredit us and was made part of this Application.

The fact is, however, that the above statements are taken directly from this publication in the "New England Journal of Medicine" and – however great the pressure on the Harvard researchers – any attempt to distance themselves from their own published records will inevitably destroy their credibility.

This accompanying editorial in the "New England Journal of Medicine" leaves no doubt about the global implications of this study for human health. Acknowledging the dramatic situation in Africa specifically, the editors stated: "Nutrition will have to be addressed in the treatment of HIV disease and AIDS."

Finally, the following fact deserves particular attention: The above-mentioned study was conducted over eight years and it is the only long-term clinical study available to this day – whether with multivitamins or ARVs – that shows any extension of survival of patients infected with HIV / AIDS.

The same group of researchers published a similar report entitled: "Randomized trial of the effects of vitamin supplements on pregnancy outcomes and T-cell counts in HIV-1-infected women in Tanzania" in the medical journal "The Lancet". This study showed the effectiveness of a micronutrient combination composed of vitamin A (Betacarotene), vitamin B-complex, vitamin C as well as folic acid on pregnancy complications such as miscarriage, still-birth, fetal death, preterm birth, low birth weight and others. This clinical study concluded: "Multivitamin supplementation is a low-cost way of substantially decreasing adverse pregnancy outcomes and increasing T-cell counts in HIV-1-infected women."*

N-acetylcysteine (NAC) as a Safe and Effective Nutritional Supplement for HIV-Infected People

An international clinical study using the biologically active form of the natural amino acid cysteine, N-acetylcysteine (NAC) in HIV infected people entitled “N-acetylcysteine replenishes glutathione in HIV infection” was published in the “European Journal of Clinical Investigation” in 2000. Following are the significant facts about this important study:*

The study established that: “NAC treatment for 88 weeks safely replenishes whole blood GSH [the natural antioxidant Glutathione] and T cell GSH in HIV infected individuals. Thus NAC offers useful adjunct therapy to increase protection against oxidative stress, improve immune system function and increase detoxification of acetaminophen and other drugs.”

This study was conducted by an international group of doctors and medical scientists from such renowned institutions as Stanford University Medical School (USA), University of California, Berkley (USA), National Institutes of Health (USA), Medical Institute (India), University of Tokyo and Institute of Viral Research, Kyoto (Japan).

The nutritional supplement used in this international study was N-acetylcysteine, the biologically active form of the natural amino acid Cysteine and the precursor of an important antioxidant, Glutathione – precisely the micronutrient that plays a specific role in the argumentation of the SAMA functionaries and the TAC.

While they try to portray the NAC supplement as an allegedly “dangerous drug”, the researchers of this international study come to a completely different conclusion: “N-acetylcysteine (NAC), the commonly used source of cysteine in clinical settings, safely replenishes GSH in GSH-deficient HIV-infected subjects [emphasis added].”

With respect to the safety of NAC – another point raised by the SAMA and the TAC – this international research team established: “We found no adverse consequences of NAC ingestion at high

doses even for relatively long periods (larger than 5 grams per day for 14 to 24 weeks). Five grams of NAC is an amount of NAC equalling more than 330 times the amount of NAC in one tablet of the vitamin formula "Vitacell."

Other Clinical Studies Documenting the Health Benefits of Micronutrients in HIV/AIDS Patients:

The clinical relevance of vitamins and micronutrients in the fight against immune deficiencies and AIDS has been established beyond doubt. Following is a selection of the available clinical studies documenting the value of micronutrients in the prevention and treatment of HIV / AIDS:

- "A randomized trial of the impact of multiple micronutrient supplementation on mortality among HIV-infected individuals living in Bangkok" was published in one of the leading AIDS research journals "AIDS" by Dr Jiamton and his colleagues. This clinical study showed that multivitamin supplementation significantly lowered the mortality rate among HIV-infected patients by up to 74%.*
- A clinical study report "Effects of micronutrient intake on survival in human immunodeficiency virus type 1 infection" was published in the prestigious "American Journal of Epidemiology" by Dr A. Tang and colleagues. This clinical study found that supplementation with various forms of vitamin B in HIV infected patients was associated with a significantly improved patient survival of up to 55%.*
- A clinical study report entitled "Effects of Vitamin E and C Supplementation on Oxidative Stress and Viral Load in HIV-Infected Subjects" published in the scientific journal "AIDS" in 1998 found that "Supplements of vitamin E and C reduce oxidative stress in HIV and produce a trend towards a reduction in viral load."*

Scientific Reviews Related to the Health Benefits of Micronutrients in HIV/AIDS Patients

The specific effects of micronutrient deficiency on the immune system and its clinical implications with a focus on HIV and AIDS are also summarised in various scientific reviews:

- “Vitamins and Immunomodulation in AIDS” by Dr Chandra et al. This scientific review describes in detail the impact of micronutrients on immune cell activity, their growth, differentiation, proliferation and on optimum release of cytokines and growth factors. This review also highlights the important fact that deficiencies of vitamins A, B-3, B-6, B-12, and C occur despite consumption at or above the levels established by so-called “official guidelines.”*
- Another review article entitled “Micronutrients and the Pathogenesis of Human Immunodeficiency Virus Infection” was published in the “British Journal of Nutrition” in 1999 by Dr Semba and Dr Tang from the John Hopkins University Medical School in Baltimore, USA. They summarised their review as follows: “Low levels or intakes of micronutrients such as Vitamins A, E, B6 and B12, Zn [Zinc] and Se [Selenium] have been associated with adverse clinical outcomes during HIV infection, and new studies are emerging which suggest that micronutrient supplementation may help reduce morbidity and mortality during HIV Infection.”*

Further reviews and recommendations about nutrition and micronutrients for HIV and AIDS are discussed in the next chapter.

The promoters of the ARV drug business argue that the United Nations and its sub-organisations FAO, WHO, UNICEF are opposing vitamin supplementation and nutritional medicine in the global fight against AIDS.

The facts on the following pages correct this myth.