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Supplement to
The Art of Getting Well
Calcium and Vitamin D Deficiency:

The Clinical Work and Theory of Carl J. Reich, M.D.

Sources are given in references.

Authors of contributions\quotations are alphabetically arranged; major author, if any, is underlined.

Robert Barefoot, Dr. Harold Buttram, Dr. C. Garland, Warren Levin, M.D., E.W. McDonagh, D.O., Theron Randolph, M.D., Carl J. Reich, M.D., Dr. Hans Selye, Dr. David Trump, Dr. Otto Warburg/Responsible editor/writer Stephan Cooter, Ph.D.

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AKA The Arthritis Trust of America ®

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Canadian Dr. Reich was a founding member of The Rheumatoid Disease Foundation (The Arthritis Trust of America).

Permission to publish granted by Carl Reich, M.D..

Origin of Research

Over 40 years ago, Carl J. Reich, M.D. believed that many of the symptoms and diseases of civilization could be accounted for on the basis of chronic calcium and vitamin D deficiency created by specific defects in lifestyle, including diet.

In the beginning of his private practice in the 1950s, he saw patients exhibiting all the physical signs and symptoms of an overstimulated autonomic nervous system that all too often had been relegated to psychosomatic or all-in-the-head complaints: chronic fatigue, physical weakness, anxiety, sleep disturbances, headaches, cramping of toe, foot, and calf muscles, muscular aches, restless legs, pins and needles sensations of the hands at night time or hands and legs during the day time, bloating and indigestion, chronic diarrhea or chronic constipation, night sweats, and chronic allergic nasal congestion.

An example of the interrelationship of those findings may be seen in patients complaining of chronic fatigue and chronic anxiety who also frequently show a pattern of physical signs that sometimes involve irritable and spastic skeletal muscle and intestinal muscle, ridged, or soft, or easily broken finger nails, coated tongues, and an acidic saliva.

In 1954-55, four case studies during the same two week period led Dr. Reich to see that common diet and lifestyle patterns might account for apparently different diseases.

A dairy-man's wife complained of chronic allergic nasal congestion and diarrhea that became aggravated during the spring. Assuming an allergy association, she was placed on a milk free diet, only to find that leg cramping in a polio-damaged leg became worse. Ten cubic centimeters of calcium gluconate injections were then given intravenously to correct the calcium deficiency created by elimination of dairy products in her diet. Within days, the leg cramping was resolved. At the same time, her bowel activity, nasal congestion, and sneezing were unexpectedly and markedly improved. Resolving calcium deficiency easily explained the nor-

malizing and relief of leg cramping, but improvements in apparently allergy related nasal problems was puzzling to Dr. Reich. It was clear, though, that calcium had altered the "allergic" reaction. [Warren Levin, M.D., reminds us that Theron Randolph, M.D. has observed, "allergic reactions produce acidity and relief of symptoms requires alkalization."]

An 18-year-old female bank clerk who subsisted on a very greasy and milk-poor diet complained of chronic constipation. Using his experience of relieving the overstimulated muscle spasms creating diarrhea, Dr. Reich attempted the same calcium injections on the bank clerk to find that in only a few days, her constipation was greatly relieved.

Dr. Reich had been treating a middle-aged woman who experienced chronic asthma with bronchial relaxant and antihistamine drugs and hoped to repeat his success with irritable bowel and leg muscle groups on what he now suspected to be irritable bronchial muscle spasms brought on by calcium deficiency. Within several days of giving her the same injections the chronic asthmatic patient was vastly improved.

A similar pattern of irritable intestinal and skeletal muscle spasms was found in a 9-year-old boy subject to chronic asthma since he was two years of age. Irritable muscles of the body, revealed by their percussion, and bronchial muscle spasms suggested one pattern. With the boy, Dr. Reich tried supplements of bone meal tablets combined with halibut liver oil capsules 3 times a day. The boy experienced a dramatic 80% improvement in his symptoms.

A lifestyle pattern of dietary deficiency and sunlight deficiency began to be recognized in patients who experienced health problems. Their diets were high in meats and starches containing excesses of the acidic minerals sulfur and phosphorus and were low in vegetables, fruits, and milk products containing alkaline minerals of calcium, magnesium, and potassium. Diets were also low in milk and butter that contained natural vitamin D₃ or had been fortified with synthetic vitamin D₂ or natural vitamin D₃. [Some other sources of vitamin D are animal liver, egg yolk, and fish.]

Modern civilized patterns of working, living, and playing in indoor environments and the wearing of modern clothing that covered everything but hands and face were also recognized as creating vitamin D deficiency by preventing sunlight exposure to large areas of skin. Too much indoor living and dietary deficiencies were part of the pattern of ill health. Modern indoor living had far removed humankind from its heritage of distant ancestors who wore only a loin cloth exposing large areas of the skin to sunlight. Even our immediate ancestors exposed one-and-a-half to two square feet of skin over long periods of working and living outdoors. Modern society, on the other hand, all too often limits the exposure of skin to daylight and sunshine to no more than a half square foot for five minutes as people walk from their cars to work or home.

Dr. Reich knew that some vegetation cells used the ultra violet rays of the sun to photosynthesize a limited amount of vitamin D₂ (ergocalciferol) and that the living cells in the skin and coverings of humans, animals, birds, and fish synthesized vitamin D₃ (cholecalciferol). Vitamin D₃ is metabolized in the liver and then in the kidneys to create vitamin D analogs that assist in intestinal and kidney absorption of calcium, and maintain a balance of calcium stores in bone and an important balance of highly functional free ionic calcium of cells. It is this cellular balancing role of vitamin D that Dr. Reich claims is so critical to health.

In Dr. Reich's words, vitamin D makes calcium "biologically active," through ionization, to be soluble and usable for the body's needs. Dr. Reich theorized that, because of such activity of vitamin D during the early evolution of man, calcium which had been

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On that basis, Dr. Reich proposed that chronic ionic calcium deficiency would create energy starvation in the body's cells to create symptoms such as anxiety, fatigue, depression, diarrhea, leg cramps, constipation, and allergies. Direct physical signs showed up in ridged, layered, softened or cracked finger nails, muscle tenderness and irritability when firmly squeezed or the body tapped (percussed).

Biochemical Inheritance

A calcium and vitamin D well-nourished parent living in the southern latitudes, who complemented their vitamin D by spending significant time outdoors, would experience no physical signs and symptoms of ionic calcium deficiency. A second generation child deprived of outdoor living and sunlight, moving to northern latitudes, and deprived of dietary sources of either calcium or vitamin D, might begin to show symptoms. By a third or fourth generation, complaints, physical signs and disease, arising because of deficiency, energy starvation, and organ adaptation to that starvation, might well be in evidence.

Acidic Mal-Adaptation to Ionic Calcium Deficiency

In the last two decades, regional studies began to suggest that cancer incidence increased in northern latitudes and decreased in southern latitudes. As one approaches the sunbelt, incidence of cancer declines. On that basis, Dr. David Trump, Deputy Director of Clinical Investigation at the Pittsburgh Cancer Institute, and Dr. C. Garland, U of A, Lajolla, CA, began to believe, as Dr. Reich believed long before, that vitamin D -- this time in the form of the vitamin D analog calcitriol -- might play a beneficial role in preventing or halting the growth of cancer of the prostate.

Such a study is now ongoing. *Cancer Research* (April 1, 1994) and reports are that vitamin D analogs in combination with tamoxifen successfully treated breast cancer in rats. *Pathologie Biologie* (Feb. 1994) demonstrated that vitamin D analogs were important in enhancing immune functions against both cancer and infectious agents. E.W. McDonagh, D.O., points out that the advantage of vitamin D analogs over other forms of vitamin D is that it may prevent the body's absorbing too much calcium.

Dr. Reich, although uncertain about the exact role of vitamin D in any form for cancer prevention, did believe that healthy calcium levels in the blood might make a difference. Anaerobic-acidic conditions where cancer cells flourish may be encouraged by chronic ionic calcium deficiency. Reich saw a cancer cell as a mal-adapted mutant cell changing itself to survive in low calcium climates. Aerobic conditions are blocked by ionic calcium deficiency.

The association of relatively low oxygen conditions (anoxia) encouraging cancer was first noticed by the Nobel Prize winner Otto Warburg (1924).

Reich believed that calcium anoxia -- deficiency in oxygen due to deficiency in calcium -- was created by blockage of the oxidative system, so that such deficiency in the presence of adequate calcium was only relative. On that basis, the deficiency of calcium (acalca) was the more important factor in the creation of altered cell metabolism. Reich saw a cancer as a cell that, through "reverse mutation" to a primitive form, was able to gain energy from glucose by a fermentation process which had no need either for oxygen or calcium.

Calcium may act as a cellular metabolism protector, an alkaline buffering agent, a cellular membrane protector, helping cells receive proper nutrition, and promoting normal cell division. The alkaline nature of ionic calcium may prevent overly acidic conditions that starve cells of oxygen leading to low energy, injury, or

reverse mutation. The mutant cell, therefore, was primarily deficient in calcium (acalcic) and consequently was only functionally deficient in oxygen (anoxic).

Dr. Reich sees the disease process as the consequence of cells or organs attempting to adapt the body to deficiency. Persisting deficiency will ultimately break down the adaptation function of tissues to create a mal-adaptive organ disease such as asthma, or to excite a cellular maladaptation such as cancer.

When calcium becomes insoluble or deficient in supply in the blood, the body may compensate by automatically stimulating adaptive functions of organs which lead to cellular over-activity.

The clearest expression of this mal-adaption process was given in "Asthma as a Mal-adaptive Disease" [in an unpublished manuscript entitled "Ionic Calcium Deficiency."] There, Reich proposed that the autonomic nervous system, which operates outside of the body's conscious control, responds to a state of calcium deficiency by changing the breathing pattern. The nervous system tells the smooth muscle and secretory tissues of the bronchial tubes to develop an asymptomatic asthmatic breathing pattern so that increasing bronchial constrictions and secretions increase the acidity of all bodily tissues, as the exchange of gases in the lungs was limited, creating a retention of carbon dioxide. "This acidity, in turn, would facilitate the ionization of residual molecular calcium compounds within these cells, thus relieving the deficiency."

Reich found that this cellular acidity is reflected in the pH of the saliva. Apparently, this acidification means that energy starvation takes place when chronic calcium and/or vitamin D deficiency lowers cellular ionic calcium levels to a point where intracellular transfer of energy is in jeopardy. The body then tries to get more calcium back into circulation by creating overly acidic conditions.

When the site of mal-adaption is the bowel, Reich proposed that chronic diarrhea-constipation diseases may develop as an asthma of the intestinal tract, creating excessive production and more rapid evacuation of alkaline secretions.

Reich proposes that "essential hypertension," which he refers to as "asthma of the arterial system," "represents the use of the alarm reaction for adaptation." The transfer of kinetic energy imposed on a blood constituent by artery (arteriolar) spasms and increased cardiac contraction -- into instant chemical change of ionizing calcium to aid "fight or flight" activity -- was utilized by autonomic stimulation to compensate for the widespread cellular deficiency of that ion.

Rather than stress itself leading to bone disease, as Hans Selye believed, Reich proposed that the physical mechanism was mediated by the autonomic nervous system responding to the stress of ionic calcium deficiency by stealing calcium reserves. Depending on the site of the bone calcium bank which was drawn upon, or depending on the organ which was stimulated into adaptive function, a different "maladaptive" disease would arise. Calcium and vitamin D deficiency alone could cause such a disease, but disease in a deficient person could very easily be triggered by any other secondary stress which made an extra demand for calcium.

In rheumatoid arthritis, Reich felt the autonomic nervous system tried to create adaptation to ionic calcium deficiency by stimulating enzymes that dissolve subsynovial bone tissues, rupturing, destroying and dissolving joints in order to transfer needed calcium to the blood serum, creating an asthma of the joints and connective tissue.

Dr. Reich has also long maintained that microorganism infection could only precipitate Rheumatoid Arthritis when the subsynovial mineral reserve had been seriously compromised by lack of calcium and vitamin D deficiency, and by adaptation to that deficiency.

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In osteoporosis, the adaptive mechanism is hormonal dissolution of the bone shaft.

In osteoarthritis, Reich agreed that thyroid and parathyroid activity were intimately involved in the generalized drain made on the bone's mineral reserves. As the bones weakened, Reich saw the growth of bone spurs as an attempt to form a bridge between two joints to protect weakened bone. This may be an example of a second adaptive mechanism creating spongy (cancellous) bony spurs trying to rectify a primary deficiency mal-adaptive disease. [Those who administer Proliferative Therapy (Sclerotherapy or Prol Therapy) often view stretched or weakened tendons and ligaments as the precursor to the building up of bone spurs. Perhaps both views are true. See our "Treatment of First Choice for Osteoarthritis and for Other Arthritic-like Pain: Sclerotherapy, Proliferative Therapy, Reconstructive Therapy."]

Other Factors

Other factors, such as genetic change, other deficiencies and excesses and a combination of these factors may play an important secondary role in the excitation of these diseases. Therefore, these many other different factors may dictate which tissue or organ is to be affected by the underlying deficiency diseases.

Moreover, the treatment of one of these secondary factors may induce moderate resolution of the disease in many cases while the primary cause of ionic calcium deficiency is untreated.

Despite such resolution one must not ignore the indications of the existence of an underlying ionic calcium deficiency, creating a disease-prone state.

The Litmus Test, Dosages, and Results

Reich found that his healthy patients had neutral to alkaline saliva readings on litmus paper of 7.5 to 7 pH that he believed faithfully represented blood and tissue pH.

Unhealthy patients, on the other hand, had acidic saliva readings showing evidence of acidic blood pH at or below 6.5.

The best time for taking the litmus test was found to be 11am just before eating. At least 1-2 hours should pass since eating, drinking, or chewing anything.

Within a few weeks or months of diet and supplement changes, the acidic saliva pH may return to a more normal neutral to alkaline reading of 7 to 7.5 accompanied by a disappearance of symptoms.

In chronic asthma of children under five years of age, Reich found that his vitamin D and calcium therapy provided 93% with a moderate to excellent resolution of their diseases within one to three weeks.

In adults, within a few weeks or months of dietary therapy with alkaline producing foods, calcium-magnesium and A and D vitamin supplements, Reich noted that, with gradual resolution of asthma, other deficiency complaints also resolved. Also, acidic saliva pH tests began to approach the more normal neutral to alkaline state. As normalization of ionic calcium levels in the body's cells signals the autonomic nervous system that adaption to deficiency is no longer required, bronchial muscles and cellular secretions relax, ending the lungs excessive retention of carbon dioxide and normalizing acid-base balance.

Reich's therapy included calcium and magnesium in dolomite and other compounds, A and D vitamins in halibut liver oil (containing natural A and D₃ vitamins) or Aquasol A and D (providing natural A and synthetic D₂). [Drs. Prosch and Mercola recommend other forms of minerals, such as chelates, aspartates, & orotates. See <http://www.mercola.com> for his specific recommendations.]

The results of prescribing dietary and calcium-vitamin D supplement changes for thousands of patients over 32 years of Dr. Reich's practice are given in Table 9. (From "Patients Treated with Vitamins and Minerals," Robert Barefoot and Carl J. Reich, *The*

Calcium Factor (Bokar Consultants, 1992), p. 75:

Table 9: Patients Treated with Vitamins and Minerals

Type of Disease	Number of Patients	Good to Excellent Type Resolution
Adult Chronic Asthma	5,000	67%
Very Young Chronic Asthma	1,000	93%
Older Child Chronic Asthma	4,000	85%
Rheumatoid Arthritis	100	60%
Osteo Arthritis	2,000	60%

In Table 8, Schedule of Initial Daily Doses of Vitamins and Minerals . . . maintained for several weeks or months, then reduced to one half or one third, the protocol is given as:

Patient (Age)	Vitamin A (I.U.)	Vitamin D (I.U.)	Calcium (Mg)
3-6	5-8,000	1-2,400	250-500
15	30,000	4,800	750
Adult (160Lbs)	54,000	7,200	1,250

Although these dosages seem high to many doctors, the FDA, as of April 1989, reported only 11 Adverse Reaction Reports to "high" dosages.

The 1980s *Special Report on the Recommendations of the National Research Council's Committee on Diet and Health, Regarding Dietary Supplements* stated that the minimum toxic dose for vitamin A ranges from 25,000 IUs-50,000 IUs. For vitamin D, the minimum toxic dose was believed to be 50,000 IUs. Despite those exceptionally high initial toxic figures the The National Research Council's recommended adult intake presumed for safety is only 5000 IUs of A and 400 IUs of D.

Dr. Reich's dosages of vitamin D are one fourth to one sixth of that which is known to create toxic effects, but vitamin A dosages are above the National Research Council's extremely low presumption of a toxic level.

Dr. Reich proposes that the National Research Council's level of initial toxic vitamin A toxicity is too low and that, instead, the toxic level is in the 50,000 to 100,000 IU range.

The *Federal Register* reported that vitamin D toxicity only takes place at massive *daily* doses of 25,000 IUs, where calcification of soft tissues has been noticed (*Nutrition News* 1986).

The Merck Manual (1992) states: "Frequent determinations of serum calcium (weekly at first and then monthly) should be made in patients receiving large doses of vitamin D." Normal values are considered to be 8.5 to 10.5 mg/dL; elevated levels to be 12 to 16 mg/dL.

Early signs of vitamin A toxicity include dry skin, sparse coarse hair, cracked lips, and swelling of the optic disc of the retina (papilledema). Symptoms are headache and dizziness together with symptoms of "false brain tumor" (pseudo-tumor).

Symptoms of acute vitamin D toxicity include headache, nausea, anorexia, diarrhoea and growth retardation in children.

Signs of chronic toxicity that arise because of tissue calcification include urine indications of kidney damage.

Toxic symptoms of both vitamin A and D disappear within 1 to 4 weeks when vitamin doses are reduced or discontinued and fatalities have not been a result of high doses (*Merck Manual* 1992).

Dr. Reich reported finding only rare instances of elevated blood serum calcium levels as a result of his supplement therapy. Reducing vitamin D dosages quickly took care of the problem.

Whatever the theoretical explanation, supplementation with

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vitamins D₃ in halibut liver oil, or cod liver oil, sometimes combined with vitamin D₂ in Aquasol A and D,¹ had good results in the vast majority of patients. On looking back at his 32 years of successful practice, Dr. Reich felt that calcium and other mineral supplementation might be more important in southern latitudes but that vitamin D supplementation would be more important in northern latitudes.

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The Magic Bullet? *The Calcium Factor*, by Robert R. Barefoot and Carl J. Reich, M.D. Bokar Consultants, Inc., PO 21270, Wickenburg, AZ 85358, 1992, \$16.95 postpaid. reviewed by Stephan Cooter, Ph.D.

“If the doctors of today do not become the dietitians of tomorrow, the dietitians of today will become the doctors of tomorrow.” (Rockefeller Institute of Medical Research)

If the Canadian physician Dr. Reich is correct, calcium combined with natural vitamin D₃, may be a magic bullet for maintaining health, restoring the health of people subject to rheumatoid arthritis, osteoporosis, asthma, and a host of other disease conditions, including cancer. Traditional doctors, like Richard Murray, DC, have long maintained that the immune system creates a fever for one basic reason, to help the body borrow available calcium from the blood; or if it's not available in sufficient quantities in the blood, from the bones.

Dr. Reich discusses how this simple process explains many things about health. When calcium is available in adequate soluble or ionized form, our cells function properly, producing normal energy, maintaining and repairing the body as needed. But when inadequate calcium is taken in from the diet because of low dairy intake, low intake of fruits and vegetables, and indoor living not giving our skin surface full exposure to the sun, our bodies do not absorb calcium, but begin to borrow on the bone's reserves. As this process continues, Reich says osteoporosis begins, (calcium depleted bone which others classify as osteomalacia), then bone spurs and arthritic immobility are the body's last defense to protect the body's sagging architectural reserves of calcium, the bones. As the skeleton is weakened, the calcium supply is protected. As it is drained, cellular production of energy wanes, and nothing works right, cells begin to dissolve, and the stage is set for many chronic illnesses.

“When the (cellular) pH drops below 6.5, becoming acidic, glucose breaks down into lactic acid, thus creating even more acidity and starving the cell of the basic building materials it requires for DNA replication.” Reich points out that calcium, an alkaline mineral, acts as a buffer system to protect normal growth and repair. In 32 years of examining the diets of unhealthy patients, he had found them poor in dairy products, green leafy vegetables, and deficient in exposure to full sunlight. The reverse was true of healthy patients: they spent significant time outdoors exposed to the sun, or indoors with full spectrum light, had seafood in their diets, another source of natural vitamin D₃ besides the sun, and had significant sources of calcium in their diets.

In Reich's research into the effects of sunlight, a rare commodity in Canada, he found fascinating evidence to confirm what the diets of his patients told him. The pituitary is stimulated by natural sunlight unfiltered by tinted lenses. The pituitary in turn regulates the parathyroid. With exposure to sunlight, the parathyroid releases calcitonin, which in turn tells the body to absorb and store calcium, building strong bones, healthy teeth, and providing the materials for neurotransmitters, nerve and muscle health, and giving it the basic

Sunlight, too, converts cholesterol in and on the skin into vitamin D₃. D₃ instructs the intestines to take in calcium from the diet and helps keep it soluble in the blood stream. Assisting this process are fruits, vegetables, and milk, which also help keep calcium soluble. Although calcium is cationic, or positively charged in itself, it combines with the anionic charges of milk and apples, for instance, to remain soluble and usable, producing a balanced pH, assisting nutrients into cells and preserving their integrity.

Interfering with this process is excessive consumption of red meat: too much of red meat's phosphorus combines with calcium and precipitates it out in the form of apatite before it has a chance of being absorbed. Excessive blood phosphorus also signals the parathyroid to remove calcium from the bones, rather than to use and store it. With adequate calcium levels, and moderate meat consumption, bones, organs, and tissues remain healthy.

Reich points to other sunlight associations. In photobiology, full spectrum light alone has helped plants flourish, cows produce more milk, reversed psoriasis, neonatal jaundice, and herpes simplex infections. Reich quotes *The Calcium Connection*, by C. and F. Garland, 1989, Simon and Schuster, “Low cancer areas were far more frequent in the sun belt.” Rather than being a liability in cancer, sunlight may protect against cancer by helping the body absorb and use calcium. The Hopi of Arizona are also virtually cancer free, perhaps partly because of sunlight exposure, and partly because of related alkaline minerals in their water, rubidium and potassium. Rubidium and potassium are highly alkaline minerals that are caustically active, helping a cell's pH to rise to a very alkaline 8.5, a pH observed to kill cancer cells, either because of the abundance of oxygen or the change in pH that accompanies it. The Nobel Prize winning Otto Warburg (1924) had found that when cellular conditions become acidic, cellular metabolism changes to anaerobic conditions. But when alkaline minerals are present, cellular metabolism reverts to healthy aerobic metabolism, discouraging cancer. Other similar mineral combinations found in low cancer areas of Northern Pakistan, where the Hunza are cancer free, involve cesium and potassium.

Barefoot and Reich's explanation of cancerous growth is worth reading in itself. Free radicals are said to attach themselves to cells, smothering the cell, then injuring the cell, allowing the entry of free radicals into the DNA template of the cell. The result is that DNA, which controls normal growth and replication, is changed to the runaway growth of cancer. Calcium acts as a membrane protector, helping the cell receive proper nutrition, preventing the conditions that encourage carcinogenesis, and helping regulate normal cell division. The multivalent cations, gold and platinum's protective effects of binding with free radicals, satisfying their electrical charges, and capping their destructive effects are also mentioned.

The destructive effects of household appliances' and office machines' electromagnetic fields are also explored and compared with the electrical currents generated during space flight that encouraged calcium loss from bones. Although many electrical-magnetic fields may be dangerous, the electrical-magnetic fields of sunlight, moonlight, outdoor living generally, and magnetic beds, were said to normalize hormone production, body pH, and help keep one healthy and in harmony with the universe.

Possible signs of early calcium deficiency include muscle pain, cramps, twitches, and convulsions. Later signs are osteoporosis, arthritic diseases, and the whole gamut of ill health.

Reich found that his healthy patients had neutral to alkaline saliva readings on litmus paper of 7.5 to 7 pH with the reverse urine readings of acidic pH. Unhealthy patients on the other hand, had acidic saliva readings and alkaline urine readings. Within a few weeks

Medical data is for informational purposes only. You should always consult your family physician, or one of our referral physicians prior to treatment or months of diet and supplement changes, the saliva pH returned to normal of 7 accompanied by a disappearance of symptoms. In asthma, the return to health was frequently 3 days. Calcium apparently relaxes the bronchial cells allowing them to function normally; deficiency places them in a state of hyper-excitability. *whereas Alabamians may not be.*

The Arthritis Trust of America, <http://www.arthritistrust.org>.

The results of dietary and supplement changes including calcium gluconate and halibut liver oil on various conditions over 32 years of clinical practice are given in "Table 9: Patients Treated with Vitamins and Minerals"(p. 75):

<i>Type of Disease</i>	<i>Number of Patients</i>	<i>Good to Excellent Resolution</i>
<i>Acidic Saliva pH</i>		
Adult Chronic Asthma	5,000	67%
Child Chronic Asthma	6,000	93%
Rheumatoid Arthritis	100	60%
Osteo Arthritis	2,000	60%

In "Table 8, Schedule of Initial Daily Doses of Vitamins and Minerals ...maintained for several weeks or months, then reduced to one half or one third," the protocol is given as:

<i>Patient (Age)</i>	<i>Vitamin A (I. U.)</i>	<i>Vitamin D (I. U.)</i>	<i>Calcium (Mg)</i>
3-6	5-8,000	1-2,400	250-500
15	30,000	4,800	750
Adult (160Lbs)	54,000	7,200	1,250

Although concerns have been expressed about toxicity of both vitamins A and D, Reich mentions that even the most celebrated example of vitamin D toxicity in T. Beardsley, one member of an Arctic expedition who ate polar bear liver (8,000,000 i.u.s of D), was not fatal but resulted in hair loss and dermatitis, a temporary condition. Reich has pointed out that a good day at the beach can produce as much as 10,000 i.u.s of vitamin D. Dr. Reich's dosages are much lower than known toxic effects. As Dr. Reich's figures suggest, not every one may be helped by this nutritional approach, but no harm will be done either.

In fulfilling the Hippocratic oath of "Above all, do no harm," Dr. Reich's "reward" for 32 of successful practice in helping many patients was being labeled a maverick by his peers, and finally suspension of his license for using nutrition to restore the health of many people. Reich and Barefoot quote Arthur Koestler, *The Age of Velikovsky*, as an explanation: "Innovation is a twofold threat to the scientific hierarchy. First, it threatens their oracle authority. Secondly, it evokes the deeper fear that their whole laboriously constructed authoritarian edifice may collapse." It may indeed.

Deceased Carl Reich, M.D., a Canadian, was one of the founders of this foundation, The Arthritis Trust of America. His clinical practice covering 32 years was definitely correct, in that many of his Canadian patients responded well to his calcium/Vitamin D treatment.

However, physicians such as Gus J. Prosch, Jr., M.D. practicing in states having more annual sunshine such as Alabama in the United States, were unable to reproduce Reich's excellent results.

This fact should not be construed as Reich being in error, but rather that often more factors are involved in wellness than a particular treatment will explain for the whole human race. In this instance, Canadians are obviously starved for healing sunshine,