

Vitamin D, Cod Liver Oil, Sunshine & Phototherapy: Safe, Effective and Forgotten Tools for Treating and Curing Tuberculosis Infections

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INTRODUCTION

It is estimated that over 2 billion people are infected with tuberculosis. 10.4 million new cases and 1.8 million deaths occurred in 2015 making it one of the top ten causes of death worldwide. The UN & WHO are working to end the epidemic, as approximately 95% of new TB cases occur in developing countries. Cod liver oil, phototherapy, sunshine & vitamin D were proven safe and effective treatments in the past and need to be re-evaluated as current treatments are inadequate.

1849: Cod Liver Oil cures TB

Dr. CJB Williams published a report in the London Journal of Medicine which documented his experience using cod liver oil in over 400 TB cases of varying severity.

Of his results in 234 cases, he wrote: "In the large proportion of 206 out of 234, its use was followed by marked and unequivocal improvement..."

"The power of staying the demon of destruction, sometimes displayed by the Cod-liver oil, is so marvelous, that I will attempt no general description..."

He dosed patients with "six drachms of oil three times daily" and noted that cod liver oil was also used successfully in other diseases at that time.

Vitamin D was eventually discovered in 1922, isolated from both cod liver oil and the skin of laboratory animals.

.Williams CJB. On the Use and Administration of Cod-Liver Oil in Pulmonary Consumption. London J of Med, Jan 1849, No 1, p 1-14.

LE Tavera-Mendoza, J White. Cell Defenses and the Sunshine Vitamin. Scientific American, Nov 2007, p 62-72.

1903: Phototherapy cures TB

Dr. Neils Ryberg Finsen received the Nobel Prize in Physiology or Medicine in 1903 for curing long-standing cutaneous TB (lupus vulgaris) with refracted light rays from an electric arc lamp. He treated over 800 cases from 1895-1901, and cured over 50%. "Thus it was that Finsen's method was hailed as a benefit to humanity when his treatment of lupus gave results which can without exaggeration be described as brilliant." (Nobel Prize Speech).

Finsen wrote: "My conviction that the sun had a useful and important effect on the organism (especially the blood?) became stronger and stronger. What this useful effect really was, I could not find."

The Finsen method became the standard of care for treating TB for the next several decades, but eventually fell out of favor with the emergence of antibiotics in the 1940's.

Nobel Prize Award Ceremony Speech for Physiology or Medicine, 1903. Presented by Count KAH Mörner, Rector of the Royal Caroline Institute, Dec 10, 1903.

Niels Ryberg Finsen – Biographical: https://www.nobelprize.org/nobel_prizes/medicine/laureates/1903/finsen-bio.html

1930's: Sunshine cures TB

Dr. AR Masten and others investigated the effects of sunshine and climate on the course of TB infections in the 1930's, and published reports documenting the beneficial their effects in curing TB infections.

"In the treatment of tuberculosis a cool, dry, high altitude with the greatest number of sunny days adds much to the percentage of recovery."

It was recognized that "in certain kinds of tuberculosis such as tuberculosis of the skin, glands or bones, heliotherapy is the ideal treatment."

Image of lupus vulgaris:



AR Masten. Good Climate – an Asset in the Treatment of Tuberculosis. Chest, 1937, 3(7):20-24. Doi:10.1378/chest.3.7.20.

<http://www.dermis.net/dermisroot/en/10340/image.htm> lupus vulgaris images

1940's: Oral vitamin D and injectable vitamin D cure TB

Drs. Dowling, Raab, and several others reported in the 1940's on the successful use of both oral and injectable forms of vitamin D in curing chronic TB infections of both the skin (lupus vulgaris) and lungs.

Vitamin D in doses of 100,000 to 150,000 IU/day were used and improvement was often noted within a few weeks to a few months with complete cures in most cases. Physicians had come to speculate that the mechanism of action of the phototherapy treatments in curing TB was due to the production of vitamin D:

"It would now appear that we have constructed our wonderful light equipment, our Kromayer, our Finsen-Reyn lamps, merely for the sake of applying a dose of calciferol to the skin, when it could have been given more readily by the mouth." (FF Hellier, from GB Dowling, et al).

GB Dowling, et al. Lupus Vulgaris treated with Calciferol. Proceedings of the Royal Society of Medicine, Vol 39, March 1946, p 225-227.

W Raab. Vitamin D – Its Bactericidal Action. Chest, Sep-Oct 1946, 409-145.

1940's: Antibiotics cure TB

Albert Schatz discovered the antibiotic streptomycin in 1943 while working for Dr Selman Waksman at Rutgers University. Streptomycin was noted to have activity against TB and by 1944, it was being used successfully to treat patients suffering from TB.

Dr Waksman was awarded the Nobel Prize in Physiology or Medicine in 1952 for the discovery of streptomycin, the first antibiotic effective against TB. This marked the second time in 50 years that the Nobel Prize was awarded to a scientist for discovering a cure for TB, and yet TB remains widespread!

Although problems with resistance began to emerge, antibiotics soon replaced phototherapy and vitamin D for treating TB infections for several reasons, including ease of use and toxicity issues noted with vitamin D in treating other diseases, but not with TB.

Nobel Prize Award Ceremony Speech for Physiology or Medicine, 1952.

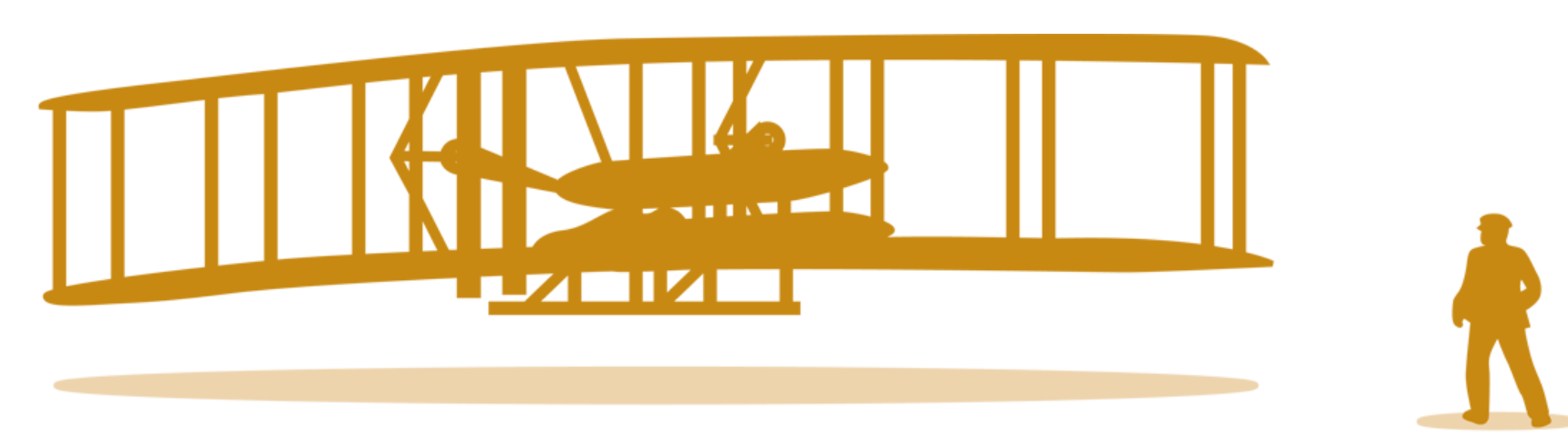
KHP Fuetze, et al. Clinical use of Streptomycin in the Treatment of Tuberculosis. Diseases of the Chest 1946; 12(6):515-519.

2006: How vitamin D enables the body to cure TB infections is explained

Dr PT Liu and colleagues showed that TB antigens bind to toll-like receptors on the cell surface of white blood cells. This signal turns on the genes that make copies of both the vitamin D receptor (VDR) and the enzyme 25hydroxyvitaminD 1-alpha hydroxylase, which converts circulating 25OHD3 into 1,25-diOHD3 (calcitriol), the active hormone form of vitamin D3. This enables calcitriol to be formed intracellularly on demand, and to have readily available VDR present to bind to.

Calcitriol was then found to turn on a gene that produces cathelicidin antimicrobial peptide (Camp), an 'antibiotic' that is bactericidal to TB. This explains why cod liver oil, phototherapy, sunshine and vitamin D were able to cure TB infections, by correcting the underlying vitamin D deficiency state.

PT Liu, et al. Toll-Like Receptor Triggering of a Vitamin D-Mediated Human Antimicrobial Response. Science 311, 1770-1773, (2006).



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