Live Blood Cell Analysis

By Edwin A. Noyes M.D. MPH

A request came my way asking me to prepare a short review of a certain therapeutic practice, "Live Blood Cell Analysis," offered to the public by various health practitioners: self-proclaimed holistic healers, naturopaths, chiropractors, and an occasional osteopath or medical doctor.

What is Live Blood Cell Analysis? It is a specific method of visual examination of an individual's blood using a dark field style microscope to make a diagnosis of disorders or disease which the examiner interprets from the blood exam and says exists. The report from the analysis then is used to direct in the choice of supplements for therapy to be prescribed to correct whatever the abnormality in health that is reported.

The test is done as herein described. A drop of fresh blood taken from a finger stick of an individual is placed on a glass slide with a cover slip of glass placed over the blood. The blood will spread out over the glass slide being a little thicker in the middle than at the edges of the cover slip. No anti-coagulation chemical is used. The slide is then examined by "dark field microscope."

A dark field microscope is different from the usual microscope we have all looked into, in that the light used to view the slide comes from the side of the microscope instead from underneath. When light for viewing in the microscope comes from beneath the scope (light field microscopy), the objects seen in the slide appear black and the background is light. In a dark field scope the back ground will be dark or black and that which is viewed on the slide will be light or near white in color.

Through the years of microscope use various methods of lighting have been used and as the knowledge of science progressed it was found that to best examine blood under the microscope the blood needed to be spread smoothly on a slide, dried, then stained. This method of preparing the blood slide is superior in revealing normal or abnormalities of blood. The light for viewing will come from under the microscope. This is the standard way of microscopic blood exam. The dark field method with light coming from the side of the microscope and with a back ground that is dark was found to be superior **only** in viewing the spirochete (germ) of syphilis. Most hospital laboratories will not have a dark field microscope in their lab.

The proponents of “live blood cell analysis” testing tell us that the blood cells they are examining are “live” and they are able to observe changes from the normal in the blood not seen via the standard microscopic blood analysis. Also they report viewing material not reported on the standard stained blood exam. These substances are said to be undigested food particles, fungus cells, crystals, bacteria, and other microbes, possibly findings that reveal lack of function of the pancreas, acidic blood conditions (pH), and tendency toward blood clotting. The appearance of red and white blood cells is claimed to give information on nutritional status, coagulation state of the red blood cells, and make it possible to diagnoses many different diseases. Then with this information the practitioner is able to prescribe specific supplements (often the supplements for sale by the practitioner) to correct and or prevent the onset of said disorder.

In reviewing any proclaimed healing modality it is important to start by researching the author of the method, the time in history it was introduced, and if possible to learn of the “mindset” of the author. What was the orientation of his thinking and what were the beliefs of medical practitioners of that time? What laws of physical and chemical science were then understood? What led to the conclusions of the originator, what type of research was done to establish the validity of the therapy? By who and how was it tested, has it shown to give equal results any and everywhere it was tested? One needs to know if quality investigative methods were used to substantiate its value.

It is also important to review any critiques of the therapeutic method made at the time of its origin and over time. Has it been shown to give results greater than by placebo effect by a statistical analysis evaluation? Have studies been made where in large numbers of randomly selected people, with a control group, were tested in a double blind manner and did articles appear in scientific peer review journals validating quality studies? What are the long term results and what complications have shown up with its use? Can it be explained by known scientific laws of physics and chemistry? Who uses it? What other types of healing methods is it often associated with?

Professor Guenther Enderlein Ph.D. is considered the originator and propagator of “Live Blood Cell Analysis” testing, which he used to establish a diagnosis and to guide in choice of therapy for illness. He was born (1872-1968) in Leipzig, Germany. His higher education was in the University of Leipzig where he studied natural science, physics and zoology graduating in 1898 summa cum laude as Zoologists. He was employed as an assistant in the Agricultural University in Berlin, Germany. He accepted a position as assistant at the Zoological Museum in Berlin, and later went to the Zoological museum in Szczecin, Germany (now Poland). His work was in the field of insects.[1,2]

In 1916 he entered into the study of blood, dried, stained, and "live wet" preparations, using light, phase contrast, and dark field microscopy. These were the standard methods of studying blood at that time. He studied blood from healthy and ill animals and humans observing changes in morphology (shape, size, appearance) of cells in health and with various illnesses.[3,4,5]

In 1925 he published a book ***The Life Cycle of Bacteria*** placing forth his concept of microbial life cycles. He put forth the theory that the origin of every microbe was from a tiny protein of plant origin which he called "**protit.** He theorized that this protein would polymerize (multiply itself) under certain stimuli into a larger aggregate of protein and on into a larger yet composition with formation of a ball like appearance at one end, he labeled it a "spermite." He believed that a "spermite" was in fact a virus and could progress into a bacterium and even further into a fungus.[6] This controversial concept, referred to as **pleomorphism**, was not entirely his as French chemist and biologist Antoine Bechamp (1816-1906), a contemporary and opponent of Louis Pasteur, had put forth this idea which was not scientifically discredited until near the mid 1900's.[7] However, Louis Pasteur and the scientific community at that time did not accept this hypothesis.

Enderlein developed his own terminology in the attempt to explain his idea which, in turn, has made it difficult to read his papers with full understanding. "He stated that small harmless and beneficial herbal particles were present in every animal or plant and which may transform into larger and pathogen (disease producing) bacteria or fungi under certain stimuli and body staus."[8] He also separated the "symbionts" or larger clumps of protein he visualized under dark field microscopy into "acid" or "alkaline" categories. These small clumps of proteins he felt were not abnormal or a danger to health but under certain stimuli such as an abnormal acid blood pH status they could progress into harmful agents producing a variety of disorders. He made this conclusion because when he introduced an alkaline solution under the cover slip on the slide for live blood cell analysis the protein material he observed disappeared. He again concluded that if the blood were in an acid state, progression of these substances would allow development of bacteria and on into a fungus thus allowing disease states to form in the body

Upon observing the material he was studying under the microscope, when "spermites" interacted with other larger clumps that he labeled "mychits" they dissolved and he believed the disappearance was from de- polymerization, a degradation of the structures. At this time in the science of bacteriology reports were published of viruses attacking bacteria and destroying them. Enderlein concluded that the spermite was a virus and the mychits a bacterium. The appearance of these objects (mychits) seen in dark field microscopy was similar to bacteria and fungus observed in phase contrast microscopy which led to the following conclusion.

He believed a plant protein/protit which he felt every cell contained, would grow into larger formations and eventually into a bacteria and even on into a fungus (**pleomorphism**). Enderlein

believed that the protit was the primordial form of life and origin of every living being.[8] He believed It took some abnormal stimuli such as an improper diet to effect a change from the normal alkaline blood pH 0f 7.4 to an acid pH level below 7.0 of the blood to allow this to occur. As growth of protit to spermite progressed and on to bacteria and/or fungus, various disease states would become present. This he believed was the basis of ***all*** disease in animal and man.

The above conclusions of Enderlein led to his additional hypothesis that by changing the pH of the blood toward alkaline and other influences to the body status would, in turn, reverse the development of intra-blood microbes and relieve disease.

Many morphological changes in blood cells do occur with certain physical disorders and these will be listed later. Enderlein observed, by dark field microscopy, dissolution of the non-cellular material when he applied an alkaline solution to a 'live blood cell analysis" slide. From this he deducted that the protit grew into pathogenic status when the blood became acidic, and therapy with alkaline would terminate the production of pathogen (disease producing) bacteria or fungus. This concept became the basis of his therapy to illness. A concept not recognized by science of his time or of the present.

He also believed that the beginning particle, protit/herbal protein, continued to exist in the body or cells after dissolution of the large aggregates which he believed were bacteria and fungi and could rise again producing disease. He was able to reduce fungi, by placing in an alkaline solution, to ball like particles that appeared similar to the ball like (spermites) material he was observing under the microscope, so he concluded they were the same. In his day in the world of science this was not unusual. Enderlein **developed a therapeutic approach** based upon this hypothesis and also drawing from the concepts of **Samuel Hahnemann M.D.** (1755-1843), the father of **homeopathy**.[9]

Hahnemann was guided by his belief in "**vitalism,**" to the Chinese—**chi'**, the Indian—**prana**, and today might call it **universal energy. Homeopathy** attempts to restore in illness disrupted functions/life processes, this is believed to be accomplished by prescribing a highly diluted substance that when taken in large quantity by a healthy individual provokes symptoms similar to the symptoms peculiar to a specific illness. Hahnemann felt this could be done by diluting such a substance (a remedy) to infinite dilutions and by shaking (**succession**) this solution violently with each dilution. Hahnemann believed the original substance taken to make the remedy, contained a "**life force**" a "**spirit**" that could be transferred into the diluted solution. As the solution was diluted further and further the "**life force**" would be transferred by the shaking and would increase in potency, the remedy might not contain any molecules of the original substance at the end of dilutions. Thus a "homeopathic remedy" would be created.

Isopathy is the term applied to a therapeutic substance prepared in a similar manner but using the believed pathogen (tuberculosis, gonorrhea, syphilis, toxin, etc.) which he believed had developed in the blood (bacteria, fungus) from the herbal protein/protit, which he postulated was the cause of all illness. The isopathic medication was prepared by diluting similarly as in the preparation of a homeopathy remedy.

The work of Ederlein and his hypothesis must be viewed in the stream of advancement in the field of biological sciences. His was one of several hypothesis which were present during his time. It was not until the field of genetics and DNA knowledge was developed in the 1940's and 1950's that the solid proof of Enderlein's ideas were shown to be incorrect. Knowledge in the biochemistry and functioning of genes has continuously progressed. We can now have confidence that a simple herbal protein will not of its own progress into a more complicated protein structures and be able to develop cells. It takes specific DNA in genes to put this all together.

Viruses have only one strand of DNA covered with a protein and cannot duplicate, they must attach to the DNA of some other structure to do so. Viruses will have 5-250 genes according to type of virus. A bacterium will have in excess of 4000 genes, and fungus/ yeast 6000. A virus changing into a bacteria and, in turn, the bacteria progressing on to yeast or fungus in not feasible due to genetics.

By use of dark field microscopy Enderlein left himself open to error because this type of exam depends so much on self-interpretation of what was seen under the microscope. In his day there was no electronics to record the exam so his reporting could not be examined by others. In using the dry blood, stained, and light microscopy method of exam the slide could be seen by many examiners and error more easily exposed.

I have suspicion that Enderlein's world view may have been similar to the pantheistic world view of Samuel Hahnemann M.D. Enderlein chose **homeopathic** and **isopathic** therapeutic agents as therapy. His therapeutic preparations were also highly diluted. The company he started, Sanum, and operated produced diluted homeopathic and isopathic supplements.

During the time that Dr. Enderlein was involved in blood cell research, so were thousands of others around the world. They all were using the same type of methods to examine blood. They had the same type of instruments to work with. Why did medical science gradually move to the use of dried and stained blood smears in analysis and drop use of the dark field method except in cases of looking for the spirochete of syphilis?

I was a trained licensed laboratory technician and for a number of years worked in the laboratory of various hospitals including my medical school hospital. We did not have a dark field microscope in any of them. If we had need of such we would send the specimen to the

state's Public Health laboratory. This would be the case across America. Were these doctors, specializing in pathology and in charge of laboratories ignorant of the best methods of examining blood? Had they not been specialists in the science of blood analysis during these years when light field, phase contrast, and dark field microscopy was being used universally? Why reduce the method of blood exam to a standard technique of dried stained blood? Millions upon millions of exams were correlated with specific illnesses and the evidence pointed to the dried stained slide as by far the most accurate method.

Careful study of Dr. Enderlein's work reveals: "He also looked at many different parameters with stained preparations; a fact often overlooked by Enderlein proponents who teach dark field…"[10]

So the question now comes: why do some holistic healers, naturopaths, chiropractors, and rarely an M.D. use the discarded inferior method? They claim that they can see in "live blood" things not seen in the standard technique. Is that really true? Let us look a bit further at the chemical analysis of the objects referred to as protit, spermite, symbiont, mychit, etc.

New technologies allow chemists to analyze proteins in a way undreamed of in the day of Enderlein's research. DNA knowledge and methods of examining such have also revolutionized understanding of previous questions. "Proteom research" was conducted by Christopher Gerner, Ph.D. in Biochemistry at the University of Vienna, Austria, which is the most advanced method of studying proteins. The material Enderlein saw and studied proved to be clumps of albumin and globulin protein which come from the breakdown of red blood cells. In conditions where red blood cells break down faster than the liver and spleen can process them, protein components form and can grow in size. This was what Enderlein was seeing. His work was exceptional but his theory was incorrect attempting to explain and correlate these observations to disease and its etiology.[11]

The summary of modern scientific protein analysis follows:

"Enderlein observed morphologies (cell shapes and changes) in the blood of patients that do exist and may correlate to pathological processes. However, today we know that the theories he postulated no longer hold true in light of modern scientific knowledge. Although many questions remain open on the cause of illnesses and the molecular mechanism that enable and regulate life, science knows the precise prerequisites for organism to exist and multiply. In addition, it is possible to categorize living organism into species. It is known that pleomorphic alteration (variety of shapes) within species may occur. But these pleomorphic alterations do not represent the development of new species; rather, they are encoded by genes with any individium of a (individual) species, and takes place in a highly regulated manner."[12]

Blood cells and correlation with known disease states:

1. Red blood cells as observed on stained dry blood by light microscope:
   a. Red blood cells:
      1. Too few = anemia from many causes, recent severe hemorrhage
      2. Too many = dehydration, polycythemia vera
      3. Too small and variety of shapes, target cells = iron deficiency
      4. Too large and less in number = Folic acid deficiency, B-12 deficiency, alcoholism
   b. 5. Color density = faded appearance—iron deficiency anemia
      6. Shape spherical = acute alcoholism,
      7. Spikes on cell = diuretic over use—dehydration
      8. Nucleated red blood cell = rapid production of red blood cells
      9. Clumping in rows = high globulin protein in blood stream, multiple myeloma
      10. Malaria in red blood cells
   c. White blood cells:
      1. neutrophil: a. high number = infection, severe injury, leukemia, multinuclear may be present with B-12 deficiency
         b. low number = acute infection may have used up cells faster than can be made from marrow, Agranulomatosis from toxins, aplastic anemia
      2. Leukocyte: a. Too many = leukemia, viral infection
      3. Monocyte: b. high number = infectious mononucleosis, leukemia
      4. Basophile: a. high number = basophile leukemia
      5. Eosinophil: a. high number = allergy, parasites, leukemia

   c. Megakaryocytes (blood platelets):
      1. Low number: toxins - such as chemotherapy for cancer, a freshly formed clot

The above listed disorders which can be associated with microscopic appearance of blood by dry stained blood are the most common.

Live Blood Cell Analysis and Disease States:

Now will be listed several disorders that practitioners of live blood cell analysis report can be detected.

Acidity/alkalinity blood status, adrenal deficiency, anemia, atherosclerosis, yeast, clotting dysfunction, dehydration, digestive problems of protein and carbohydrate, free radical damage, gout, immune deficiency, liver insufficiency, toxins, vitamin and mineral deficiencies, allergies, hormone changes, Many others.

1. **Rouleaux formation**: stacking red blood cells one upon another; at times stated to be as a result of "acid blood;" dehydration, high fat or protein diets, weak pancreas and poor digestion.
   ***Comment:** a) The pH of blood is at a constant level of 7.4 due to the body's chemical buffering systems. If the pH should drop even slightly this causes profound change in the biochemistry status and the underlying cause must be promptly corrected otherwise there will be rapid deterioration and movement toward death. People with an "acid pH serum level" are not walking around having their blood analyzed. To determine serum pH level the blood must be drawn from an **artery** with a syringe partially filled with oil so as to avoid any air contact. b) Rouleaux seen on live blood cell analysis will almost always be because of its formation near the edge of the cover slip on the glass slide. This area will undergo drying more quickly than in the middle of the cover slip allowing clumping of cells. c) True rouleaux is a finding with a high blood globulin protein due to excess production from plasma cells from a malignant disorder called Multiple Myeloma, actually quite rare. d) There is no relationship of pancreas and digestion with rouleaux formation.

2. **Parasites in live blood cell analysis**: Report may be just "parasites" without a specific identification of the parasite.
   ***Comment**: a) Parasites can be seen on dried stained blood slides. Malaria is the most common, but it takes a trained skilled technician to make the identification. I practiced medicine in the tropics and this was a daily occurrence in my clinic. Even with my years as a laboratory tech I depended upon the laboratory tech with special training and experience to make the diagnosis for me from the stained blood slide. This parasite will not be seen by live blood cell analysis. b) When specific parasites are identified in the blood stream that person is acutely ill. Treatment is specific to the parasite and not by supplements. c) Bacteria and or yeast are not seen in the blood stream other than in very severe bacterial acute septicemia or in a severely compromised immunodeficiency.

3. **Fermentation of red blood cell:** Yeast said to be growing out of red blood cells due to high blood sugar content in blood.

   ***Comment:** a) fermentation is the result of the enzymes in yeast chemically breaking down sugar into alcohol and carbon dioxide gas. Red blood cells do not grow yeast inside of themselves. No proof is offered by practitioners of live blood cell analysis to back this claim.

4. **Crystals:** Uric acid and cholesterol when excess acidity of the blood stream.

***Comment:** Uric acid and cholesterol crystals are not seen in the blood steam and as stated before the pH of blood is kept constant at approximately 7.4, except in specific extreme illnesses.

5. **Nutricional deficiencias, Allergy, Hormone imbalance:**
   ***Comment:** Iron deficiency anemia, B-12 deficiency, folic acid deficiency will all make changes in red blood cells which can be seen on stained slides. However, there must be additional laboratory tests to confirm the diagnosis.

6. **Oxygen level of blood in body:**
   ***Comment:** Oxygen level in the live blood stream is measured by an instrument referred to as an "oximeter." It is used during anesthesia, in the intensive care units, in the emergency rooms, routinely. To use a live blood cell analysis to determine oxygen level patterns in the live blood stream is non-sensible due to the fact that one has already exposed the red blood cell to atmosphere oxygen when placing the blood on the slide. When blood is drawn from a vein, where the oxygen level is low and the blood is on the way back to the lungs to pick up oxygen, it is dull red in color. If shaken the blood at the top of the tube will be bright red showing the uptake of oxygen. Live cell analysis does not give a picture of the blood oxygen level pattern in the living body.

Treatment commonly recommended by live blood cell analysis:

Alkaline food, alkalinized water, nutritional supplements, and possible by use of a magic zero point wand waved about the body are customary methods of therapy chosen by practitioners using Live Blood Cell Analysis . Dr. Enderlein developed a therapy using supplements. He also established a company, (Sanum—now Sanum-Kehlbeck), to produce supplements for therapies diagnosed by live blood cell analysis.

Enderlein chose as therapy **homeopathy** and **isopathy** type preparations, which his company likewise produced.

Homeopathic and isopathic remedies are extreme dilutions of substances. A homeopathic remedy is developed from a substance when large amounts of this specific substance taken internally, the symptoms then observed, will be similar to the symptoms of said disease that it is prescribed for. Its therapeutic action is explained by the concept that a "spirit dynamus" of the substance can be transferred and magnified by the dilution and shaking process (succession) in the preparation. Isopthathic, is a highly diluted and successed supplement

prepared from the type of bacteria or fungus that was diagnosed as being the cause of a disease by live blood cell analysis.

The concept in the therapeutic preparations prepared and used by Dr. Enderlein is that instead of killing or preventing multiplication of germs or fungus it would cause the pathogen to revert to a form that no longer caused illness. This hypothesis was built upon a false concept of the origin of disease and has no foundation in fact. Also, the type of therapeutic remedy selected by Enderlein, was a concept borrowed from Samuel Hahnemann M.D., which was founded and explained by the worldview of pantheism. To choose such for therapy would indicate an acceptance of and belief in the "life force," "vitalism," "prana," "chi'," or "universal energy" taught today by neo-paganism.

In Conclusion:

A laboratory test using fresh live blood placed on a slide of glass and viewed beneath a microscope using dark field style lighting is utilized by certain individual practitioners of the healing arts, claiming that profound information from the appearance of the various blood cells and other constituents seen is observed and which is not revealed in standard dried and stained blood cell analysis. This procedure is utilized primarily by self- proclaimed healers, naturopaths, chiropractors, and a rare medical doctor. It is estimated that there are between 10,000-15,000 such therapists in the USA.

The use of this blood test is tied to Dr. Enderlein's rogue concept of the cause of **all** disease. That is, an herbal protein exists in all cells of animal and man which can multiply and develop into larger composites of protein. If the body balance of pH is toward acidity, or imbalance of nutrients, or toxins present, or wrong emotional state exists then this protein can proceed to a disease causing formation of a virus, on to a bacteria, and still further to yeast or fungus organism within the blood stream.

This hypothesis further directs that if the imbalanced status of the body is returned to normal then the fungus will revert to bacteria and in turn will revert to a virus and on back eventually to the original herbal protein. Therapy involves administration of supplements of various types.

Proponents of this hypothesis do not present scientific evidence to substantiate any of these claims. There is no correlation with known scientific chemical and physical laws. It is totally rejected by the scientific community. No studies are shown showing benefits of their supplement therapy.

Additional Appraisal:

A copy of a very small section of a 900+ page General Conference manual for church institutions written in 2009 contains a recommendation for medical institutions to refrain from using questionable healing practices. See below.

General Conference of Seventh-day Adventists Health Institutions Working Policy-2009

FH 20 Statement of Operating Principles for Health Care Institutions

"…Adventist health care and ministries are to promote only those

practices based upon the Bible or the Spirit of Prophecy, or evidence based

methods of disease prevention, treatment, and health maintenance.

"Evidence-based" means there is an accepted body of peer reviewed,

statistically significant evidence that raises probability of effectiveness to a

scientifically convincing level."…

Live Blood Cell Analysis testing and prescribed therapy meets none of these recommendations.

My personal belief is that for a Seventh-day Adventist to be in any way involved with this particular proclaimed healing method would be a discredit to God and to His church.

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4. Enderlein G., (1957), *Akmon Band* II, p. 231
5. Enderlein G., (1955), *Akmon band* I, p. 40-57
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7. Wikipedia, *Gunther Enderlein,* http://en.wikipedia.org/wiki/G%C3%BCnther_Enderlein
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9. Ullman, Ronald, , *A Modern Scientific Perspective on Prob. Dr. Enderlein's concept of Microbial Life cycles.* p. 2
10. *Ibid*. p. 3
11. *Ibid*. p. 7
12. *Ibid*.