

# **Infra-red's Effect on Dentistry and the Immune System**

**Presented by Dr. John L. Tate**

## ***New Technology Available***

Hello, my name is Dr. John L. Tate, a practicing dental surgeon, in Spartanburg, South Carolina. I am excited about a technology that has been introduced to me to help my patients recover from what we call "high-risk" surgery involving patients who have immune-compromised problems, which we will share with you on video and this transcription.

For my colleagues and any practicing physician or health professional who is involved in this kind of surgery, in immune response, or in complete healing, I think you will find this very exciting and very interesting.

Let me share with you the opinion of my best friend, my wife, who has had a very interesting experience with this technology.

## ***Ina Tate – Experiences with Far Infra-red***

Ten years ago I had a titanium knee put in my left leg. From the time I had it done, my left leg was twice the size of my right leg, and if I stood for more than 20 or 30 minutes, my left knee was three times the size of my right knee.

When John brought the machine home, I started at the bottom of my feet and brought it to the tops of my legs, and within one week all of the swelling was gone from my left leg. I had no pain. I could stand in the kitchen and cook for an hour and it did not bother me. It was wonderful!

I also had a mole on my back which was black and growing, and within five days after putting the dome on my back, the mole fell off.

But the most exciting thing for myself is the story of my Dad. He is 87 years old and has been to every specialist in Columbia and several in Charleston. None of them could tell him what was wrong with him. He had swollen so much, and you could see when you pressed on his skin how much swelling there was. He had gone up two sizes in clothes.

After using the machine for two weeks – instead of shuffling – my Dad was walking with a cane with no help. Within three weeks he was able to cross his legs and put on his regular shoes and tied them. I think the machine is one of the greatest things that has ever been invented. Thank you.

## ***Dr. John Tate – Explaining the New Technology***

What is this new technology that helped Ina so much at home with her leg implant? Let's look at it and the science behind it so we will know what helps the immune system in surgery to heal patients who are having difficult problems.

## ***Slide Presentation***

We see here (and I am going to use the infra-red laser pointer that most of you are familiar with) to point that the light spectrum as we know it, is all the way from the radio waves across to the gamma rays, which are much shorter wave lengths of the electromagnetic spectrum.

What we want to concentrate on, however, is the far infra-red (or invisible) red spectrum that is in a very narrow range, and the visible light range that you see – for example, with the rainbow after a thunderstorm. The light spectrum needed for the complete healing response is now available. We need to concentrate on it.

This is an interesting transparency that was taken out of a medical magazine showing that healing light, and you will see the near infra-red (or the red light) being used in a hospital for the healing of a patient through chemotherapy for the treatment for lymphoma. This was done at the Children's Hospital on Milwaukee, Wisconsin, and the neurologist there was Harry T. Wheaton, who successfully treated wounds, surgery burns and brain cancer with this technology.

I would like to point out that this technology requires eyeglasses because of the near infra-red risk of damage to the eyes. It also requires that a nurse be present to hold the light for the patient while it is administered at 90 to 100 seconds every day while the patient is in the hospital.

## ***Use of Far Infra-red***

The far infra-red is invisible and you will see that the dome I was talking about is placed over this patient in my office half an hour before surgery and then half an hour after surgery to promote an immune response. The patient then takes the dome home for three days and applies the technology at home for two hours a day for the next three days.

As most surgeons know, this type of surgery requires a very critical three-day healing period. We will be explaining details that my dental surgeon associates know about, but most patients are probably not aware of. It is in this critical three-day period that I find this dome or this infra-red technology to be very useful.

### ***Nobel Prize in 1998***

Let's back to 1998 when the science of this technology was explained by three scientists whose names I cannot pronounce, who won the Nobel Prize in Medicine. They discovered that nitric oxide, which is released into the blood from the hemoglobin, turns on the immune system and allows healing to take place. According to Dr. Valentino Fuester, President of the American Heart Association, this nitric oxide discovery is (and I quote)... "one of the most important discoveries in the history of cardiovascular medicine because it promotes expansion of the capillaries and allows the blood to get into the area to increase circulation and reduce the risk of strokes and heart attacks."

It also is involved, as you can see, in cancer where white cells (the macrophages) produce the nitric oxide to defend themselves against tumors. The immunotherapy that doctors are using to fight cancer cells is going to be shown on a special part of the video later, when the macrophage attacks cancer cells.

### ***Five-Patient Study***

What is nitric oxide and what does it have to do with the far infra-red technology or dome you have just witnessed? This is the study (the augmentation of home healing) using monochromatic infra-red healing. This, the first study of its kind in this country, was conducted at the Podiatrist School of Medicine (which is involved with the feet and wound healing in the feet area).

Dr. Lon R. Horowich published a paper in 1999 explaining that the far infra-red technology we have been talking about produces nitric oxide that resulted in the healing of the five patients in study who could not get healing conventionally. They had various diabetic problems and were not able to heal, but they received this nitric oxide technology produced by the far infra-red, and healing took place for all of them.

I am going to go through these five patients. I think most surgeons will find it very interesting, and although the presentation is in black and white and you cannot see the color, you can tell that the open wound has been on the foot for a number of months without results.

The only difference in treatment was the application of far infra-red technology for about 30 minutes a day. Sometimes it was once a day, five days a week, and for some patients (because of traveling) it was only three times a week.

The next transparency shows the two diabetic patients and the two non-diabetic patients who were not responding to the conventional therapies, who received the therapy. This explains the open wounds that could not get circulation to the area.

Now you see that after one month of the therapy, they had complete healing. Here, again, when the far infra-red technology is applied to the wound, it results in the production of nitric oxide which expands the capillaries to the area, bringing in the macrophages and the neutrophils of the immune cells. Then healing takes place.

### ***Scleroderma Response to Far Infra-red***

The last case is a very interesting one. It involved a condition known as Scleroderma, an autoimmune disease where collagen builds up. This is the protein the body produces in response to some poisons, such as heavy metals – mercury being one of them. No healing takes place because the circulation can't get to the area due to the buildup of the collagen. In this case, the fingers of the patient would not heal.

When you apply the infra-red technology, you see the healing results from the production of nitric oxide from the hemoglobin by the reaction of the photons of the infra-red on the enzymes, which produce the nitric oxide gas. The immune cells get into the area and the circulation is increased. Pain is reduced and the area now has the immune cells necessary to get complete healing.

Most of you realize that a double blind placebo study is probably the gold standard in this country. You have to have placebos; you have to have double-blind studies (and you scientists or doctors who are familiar with that know what I am talking about), but they only have five patients here – and all of them healed. Usually when you do a study like this, you don't get 100%, even in a small study.

Five patients with complete healing is almost unheard of, so the other five patients (the placebo) weren't getting the far infra-red and they weren't healing either. They switched those patients over to the far infra-red technology and I don't know the results of that, but I am almost certain from the report that they were healing just like the other five. This is a very important study. It's going to be duplicated and is now being done in a much larger study at that college. You will hear more about this in the future.

## ***Healing Stages***

For the dental surgeons who are doing surgery everyday, let me quickly go over the three stages of healing, which I think you will find very interesting as it relates to this technology. Most dentists are familiar with the three stages of healing. It is a problem all they all have to face when they are doing surgery.

If we take out a tooth here, this area has to be filled in. It is going to be a healing area and we are going to have some inflammation. We need the increased blood flow and we also need the immune cells (called the macrophages) to come in and remove all this damaged tissue. When you have taken out a bad tooth or an infected tooth, you have the staphylococcus and the streptococcus with which you are familiar. One of the problems we face in the industry is dry sockets or toxic osteolitis, as we call it or decavitation when you have a wall of healing – but inside you never get complete healing. Those are the three things we are talking about.

## ***Bone Begins to Form in First Three Days***

When I apply the infra-red technology before and after surgery I then have the patients take the dome home and use it for three days and they get what we call complete healing. The macrophages produce collagen necessary to stimulate the fibroblasts and the tissue of the fibroblasts then will stimulate the osteoblast which is bone. That is where the bone forms – and it starts in the first three days – but it takes about six months for complete healing. In an older patient, it may take as long as a year. We are finding that we have incomplete healings in here (pockets in the jaw bone) because the patient never had a chance for complete healing due to the immune response being repressed and a lot of other reasons that will be shared in this presentation.

## ***Immunology on the Forefront***

We want to talk about the one cell you are familiar with in the immune system, and this is the macrophage. There are other cells that have the immune response but the two main ones we use in dentistry and in surgery around the bone area are the macrophages and the neutrophils. These all come from the stem cell; they stay in the bone marrow. The science that is coming into being right now is the stem cell production. Immun-ology is going to probably be a specialty before long where trained immunologists can communicate with the surgeons and give them a whole new weapon against diseases in the 21<sup>st</sup> century.

## ***The Amazing Macrophage***

The macrophage is called the “pac man” of the immune system. Everything starts with the macrophage – “macro” meaning big and “phage” meaning eater, so we have a big eater here as you can see. Look at the tentacle on this macrophage – it is grabbing the staphylococci and a bacillus rod and that macrophage is extending a psuedo paw to get the bacteria that is now invading our blood!

The macrophage can take all forms and shapes. Here is asbestos that the macrophage is absorbing and you can see all the different shapes it takes as it encounters different organisms and the little “critters,” as we call them down here in South Carolina that enter our bodies. Whether it be from the nose, the mouth, the intestinal tract, the skin – wherever it may be – this macrophage, the Big Mac is wading in on the invader.

As you have learned, we teach immunology to all our health professionals. They learn that the Big Mac is presenting a piece of the invader to the lymphocytes, the T Cell that is trained in the thymus gland. It is a very sophisticated cell and these cells are being trained to now have memory to attack the virus or the bacteria that enters our bodies, but the training originally started with the macrophage.

## ***T-Cells and B-Cells***

Think of it as a faxed message if you will. These are little faxed messages presented by the macrophage to the T-cell and the other immune cell you are going to learn about. We are going to try to encourage the immune response in a very organized, systematic natural way. Over here, we have the antibodies being produced by the special lymphocyte called the B-cell and it is communicating also with the macrophage. So you see, the whole system starts with Big Mac.

I mentioned a special protocol of high-risk dental surgery using the far infra-red photon energy, and I would like to introduce you to it. We want to have this information to enable a better health decision.

## ***Patient Categories***

I have patients referred to me by physicians and usually they are patients who fall within several categories:

- Patients with controlled diabetes (type I and type II).
- Cancer patients receiving radiation and chemotherapy.
- Patients being treated for auto-immune diseases with immune depressing drugs like

prednisone, who have antibiotic-resistant bacteria because of long histories of antibiotic dependence. They have poor absorption of nutrition through the gut walls; “leaky gut” is what we call it. This created multiple sensitivities brought about by all the heavy metals – mercury, aluminum, arsenic, lead, and cadmium – which present a problem to the immune system.

- Patients with transplanted organs who are on immune-depressant drugs and need special attention to get a complete healing. Normally, it relates back to the macrophage.

### ***Healing Technologies***

Just briefly, we will go over the steps. The first steps that we normally use are the antibiotic and immune modulators. In this country, of course, we are chained to the antibiotics. We think we can't get healing without antibiotics, but we are finding out these antibiotics are not as effective as they used to be. They are becoming resistant; the antibiotic-resistant staphylococcus and streptococcus are now here, and antibiotics are just not as effective.

So now we go into the immune modulators. There is a special number here to learn more about the immune modulators because I have found that they produce a macrophage stimulation that promotes complete healing, so we use a combination of the two when possible.

The next technology that I have already explained is the far infra-red photon energy. In this country the FDA for treatment with a medical doctor, as we have already shown you at the Children's Hospital at Milwaukee, Wisconsin.

It is my understanding that the FDA has put the far infra-red in a class 2 category as a medical device, but it has not been approved for the treatment of any medical disease. The only thing we can do is use it as a physical therapy device to increase circulation and relieve pain. Those are two things that we can do with the dome – increase circulation and relieve pain and help the system heal the person. It's the immune system that does the healing.

In the Nobel Prize in Medicine, both for the near infra-red (or the red-white that you can see here) and the far infra-red, both have their basis in the production of nitric oxide gas produced by the hemoglobin and the immune cells.

I have evaluated both the near infra-red and the far infra-red, and I elected to do the far infra-red or the dome that you saw simply for these four reasons:

1. Safety. There is a high risk for eye injury with the near infra-red and I believe that there is none from the far infra-red, mainly because (as I have pointed out) the far infra-red produces a wave length that is identical to the body's own wave length by body heat, and that is at the 8 to 10 – micron level, so it has to be much safer. The near infra-red is a higher level of vibration and is in a different range; it is very useful, but it is not as safe as the far infra-red. Therefore, if my grandchildren are around this dome I don't have to worry about them being exposed to this type of light. I wouldn't advise you to use the near infra-red at home. The far infra-red can be used at home, which is a big plus for me.
2. Penetration. The far infra-red penetrates 1 ½”, while the near infra-red only penetrates about ¾”, so there is an advantage to the dental surgeon who deals with bone as well as soft tissue to use the penetration of the 1 ½”.
3. Area Covered. The unique patented ceramic construction of the far infra-red dome that you just saw covers a much larger area of the body and we can have a much larger coverage in a shorter period of time. Since there is 160-degree angle, the penetration and the intensity of the dome produces a much stronger effect, so in my opinion, one hour's use of the far infra-red dome for five days would produce a much larger body production of nitric oxide gas. It will also increase circulation, reduce pain and swelling and promote faster healing. That has been my observation with about 50 patients now, and they tell me, “Doc, I don't need to pay for any more antibiotics. I am healing; I feel good. I don't have the swelling.” (So all these dental clinicians who are doing surgery can get some important feedback from your patients.)
4. Cost. The far infra-red dome will only cost about one-third what the near infra-red and medical devices cost, so that is a factor also.

For more information about this get back in touch with the person who brought you the videotape or this transcription.

### ***Diet and Enzymes***

The next factor is diet and enzymes. The immune compromised patient does best on an alkalizing diet of raw greens vegetable juices.

The immune system likes raw food and it's the raw food that has the enzymes, so we want to

discourage any meat or dairy products during this healing process because it takes a lot of enzymes and you need the enzymes to heal. A low-grade fever is to be encouraged, which means enhanced immune response. Grandmother was right – a little fever is good; that's how you heal.

### ***Drink Lots of Pure Water***

You also need to drink large amounts of pure water. Most people do not drink enough water. We find people dehydrated and that is going to discourage healing, so drink plenty of pure water – at least 8 glasses a day. The rule of thumb is that a 150-pound adult should drink at least eight glasses of pure water a day. That doesn't mean that you can substitute coffee and juices for it – that means pure water.

The acid pH of infection leads to mineral potassium and that is usually found in green vegetables. My wife drinks a lot of lemon juice water. When we go to the restaurant we ask for pure water (and you can get it) and a raw lemon. Then we squeeze a little lemon juice into the water because it encourages alkalinity. It moves the body pH, and that promotes healing.

### ***Pancreatic Enzymes, a Great Ally***

Pancreatic Enzymes are your immune system's greatest ally, and they work in an alkaline pH. The immune cells love these enzymes because they work best when they have enzymes to help them.

Your diet should be your first concern. The far infra-red dome is also very helpful in the detoxification process by the resonance of water and the general elevation of body temperature. The animal pancreatic enzymes (and they are the best source) come from the pig. The pig has the strongest enzyme in the animal kingdom, so if you are not producing enough enzymes, then get the substitute. That is way we order the pancreatic enzymes. They have been found by published medical research to be the most effective.

Look at my references at the end of the paper you are going to get and you will see that the enzymes were being used to treat cancer back in 1911 and they are still being used.

### ***Developing Pure Bone***

Bone can only be formed in the presence of osteoblasts that require the balanced calcium, phosphorus and enzyme combination. You don't get pure bone in the jawbone unless you have an enzyme

production and an alkaline pH in the bone where you want healing to take place. That is why it is important to be on this diet if you want complete healing to the jawbone after surgery. You can call the toll-free number on the information you receive with this tape or transcription on the dosage of pancreatic enzymes and the technique we have available.

### ***What the Information Means...***

That concludes the information relative to the technology. We will now give you a summary as a review of what the information means. Let's summarize what we have said about this new technology of using a holistic protocol during surgery. We particularly want to reemphasize the infra-red benefits.

My wife, Ina, has mentioned to you that she has a titanium knee implant and the infra-red technology helped it. It did not hurt it. Will that work on all the other implants? Will it help all hip implants done with titanium? My guess is that it will – it will keep them from getting infected; it will help them with the healing response required – but that is just my opinion.

I know Ina went to a tanning salon not to long ago and the light therapy from the tanning salon produced a lot of cleaning in her titanium implant, so there are some technologies out there we have to be aware of. At least, from my review of the literature and research, the infra-red will benefit the titanium implant.

### ***Cautions to Consider***

The other question I get quite often is, "What about patients who have implanted organs from another patient? They are now on the immune depressing drugs so that they will not reject this implanted new organ." My response to that is: We don't know, so we would not want to use the infra-red technology on a patient who has an implanted kidney or new organ because we just don't know. However, from a review of the literature – if the infra-red technology just activates the macrophage to start the immune response – there is a possibility it would not have a negative effect. But until you have further information about that, I would say no.

The other person who should not probably receive the infra-red technology is a pregnant lady. We don't have sufficient data yet to know if that is going to produce a problem for pregnant ladies.

## ***Summary of Facts***

From the general review of the benefits (in my estimation), we can make the claim that the far infra-red technology increases circulation by the production of nitric oxide and this will lead to an increased healing response by the immune cells, the macrophage and the neutrophils (particularly in dentistry). I don't know why it wouldn't work in every part of life.

It's an immune response facilitated by the photons of the infra-red technology that turns on the enzyme. It is well established medically that this is the mechanism involved in the infra-red technology.

## ***Benefits for Older Population***

I am excited about it because I have seen a huge benefit in all areas of patients as they get older (like myself). They are looking for ways to stay healthier and out of the hospital – and believe me, I am not going to depart from the infra-red in my home or the aerobic exercising. Some important conclusions are as follows:

- Infra-red photons produce enzymes that activate macrophages, which help eliminate damaged and diseased tissue.
- Nitric oxide is released and expands capillaries. It also increases circulation and carries toxins to the lymph system out of the body.
- Macrophages work on a cellular level.

## ***Laboratory Experiment with Rats***

(The following narration is taken from a laboratory experiment with rats. One frame has been shot every eight seconds, so that incidents occurring during one hour have been condensed to a 20-minute sequence.)

The macrophage activating factor (MAF) activates anti-tumor macrophages. Meanwhile, T-cells also transfer the antigen information to B-cells. In a few days, B-cells begin to produce antibodies. Together with the compliment, the antibodies try to combine the tumor antigen.

By this time, T-cells and other killer cells also join in battle. The defense mechanism's fight against tumor could be called a "multiple battle array."

In the body of the mouse, immunopotentiators augment natural killer cells and activate macrophages burnt with anti-tumor potentialities.

We observe next the anti-tumor activities of macrophages. The macrophage is the cell that engulfs and digests microorganisms. On the screen are macrophages of a mouse activated by the immunopotentiator. The macrophages extend ruffles and they energetically attack tumor cells. The white spherical cells (leukemia cells) are firmly seized by the macrophages.

After about 16 hours, dead tumor cells begin to come into the frame, probably killed by macrophages out side the frame.

After 18 hours, the macrophage at the lower part of the frame suddenly engulfs the captive tumor cell.

Twenty Hours have passed. The tumor cell seized by the macrophage at the upper side of the frame dies. The macrophage at the lower side has already digested the tumor cell and it engulfs the corpse of the tumor cell killed by the other macrophage.

This behavior has been observed continuously throughout the shooting of this scene. It seems that macrophages activated by immunopotentiators quite easily kill leukemia cells. It is anticipated that the activated macrophages might even kill the B-16 BL cell (which survived the attacks of NK cells).

The large cell at the center is the melanoma cell surrounded by macrophages.

At last, about 65 hours after the first encounter, the melanoma B-16 BL cell dies.