

Let There Be Light! – Stimulated Emission



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Imagination is more important than knowledge. – Albert Einstein

Albert Einstein published three papers in 1905. In one, he proposed the theory of relativity. In another, he explained Brownian movement, a type of molecular activity that had baffled scientists up to that time. It was for his work with light, however, that Einstein was awarded the Nobel Prize.

Einstein taught us that light from all conventional sources and in nature is produced by **spontaneous emission**. In the example of an ordinary light bulb, atoms are continually gaining and losing charge as electricity is applied to the filament. A **single photon** is released whenever a charged electron returns to its baseline orbit. Its wavelength will be the difference between the charged and resting states.

Einstein was a visionary. Beyond describing how light was emitted from known sources, he imagined the theoretical physics of an entirely new form of light: lasers. Einstein predicted that if a population of atoms could be excited to and maintained in a highly charged state under the right conditions, **two photons** of precisely the same wavelength and direction would be produced. He called this **stimulated emission of radiation**. The light from a laser is coherent and monochromatic like the light from our cells.

Case Study – Multiple Joint Pain, Plantar Pain/Numbness – Neuropathy

LC is a 58-year-old salesman whose primary complaints were pain in the right elbow, left shoulder, and ankle, as well as pain in the right thumb and numbness in the pinky and ring fingers of his right hand and in the ball of his left foot. When he came to us he was taking eight medications for his diabetes, blood pressure and heart; his medical doctor has reduced this to six since beginning laser therapy.

LC wrote, “It has now been over six weeks since my last treatment. I have not been using any anti-inflammatory medications for over the past two months, and my shoulder pain and elbow pain remain at a level ‘2,’ and my thumb is pain free ... I now have

improved range of motion in both my shoulder and elbow. The thickened area of tissue on the bottom of my left foot has remained significantly smaller in size and presents no significant discomfort.”

LC also told us that his morning blood sugar levels, which had been running in the 130s and 140s, are now in the 100s to 110s, and that his blood pressure (which had been mildly elevated at his first visit despite medication) is now normal.

Case Study – Irritable Bowel Syndrome

KS is an 18-year-old college freshman who, over the last six months, was experiencing constipation for as much as four days at a time, and who came to our clinic after being diagnosed with irritable bowel syndrome at the campus health center. The abdominal pain, which she rated at 4 on a 0-10 scale, was completely alleviated after one treatment. KS reported that elimination rapidly normalized and that she has had no further abdominal pain up to the time of this writing.

Case Study – Gallbladder Pain

On the weekend prior to her first treatment, MC, a 47-year-old geologist, had visited the emergency room of the local hospital with severe pain over the right (and left) upper quadrants. She was diagnosed with gallstones, and surgery to remove her gallbladder was recommended. She came to us seeking a second opinion. MC reported pain over the left upper quadrant of 4 on a 0-10 scale. (Although gallbladder pain is usually on the right, it frequently refers to the left.) After the first treatment, she scored her pain at zero. She was treated on two more occasions and reported one year later that, other than an occasional twinge due to fatty foods (which she believes has helped to keep her on track) she is pain-free and delighted to have avoided surgery. MC has improved her diet and exercise, and, for several months after her last visit, she stayed with an herbal protocol to emulsify the stones.

Abstract – Lebedev V, Erhova V. The usage of infra-red laser in the treatment of cholelithiasis. Stavropolskaya Medical Academy, Sanatorium "Metallurg," Essentuky.

A series of repeated ultrasonography of gallbladder in a group of tested patients suffering from cholelithiasis, who had undergone different types of physiotherapy, revealed a change in bile's echogenic characteristics, (and) the correlation of this index with bile's lithogenesis. The change in bile's density under the influence of intermittent infrared laser (IRL) was studied on these patients.

The first group (45 patients) took 10 daily procedures of irradiation on the skin projection of the gallbladder. The treatment was carried out with matrix radiator ML01K of the apparatus "Mustang-021" ("Technics," Russia), 0,89 urn wavelength, frequency 1500-3000 Hz, pulse power 50 W. The second group (47 patients) took 150-200 ml of mineral water "Essentuky-4" (MW) 30 minutes before meals, three times a day. All tested patients were subjected to ultrasonography prior to the treatment's beginning and in 24

hours after the treatment. The obtained result demonstrated a high level in the decrease of bile density of the tested patients after the influence of IRL ($p < 0.05$).

The third group (32 patients) united patients (suffering from the same disease) who had taken MW and had undergone IRL according to the described methods. Laser influence was applied in 15 minutes after the second dose of MW. The quantity of compatible procedures was 10. When the treatment of the third group had been completed, ultrasonography revealed a more high level in the decrease of bile's density ($p < 0.05$). In all groups, patients' clinical symptoms quickly improved.

Eleven patients from the first (8 percent) and the third (4 percent) groups suffered from transitory pain in the area of cholecyst during the treatment (between 5-8 courses). The pain disappeared independently (the treatment hadn't been delayed) and we explained this additional effect as sand passing and the movement of biliary concrement. Under the conditions of balneotherapy, it is worth while for the patients suffering from cholelithiasis to be treated by IRL according to our methods (MW+IRL) for normalization of gallbladder function, decrease of bile's lithogenesis, and display of cholangenitis.

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